AECOM

COMBINED PHASE I AND II REMEDIAL INVESTIGATION WORK PLAN

Ardee Translite

Shelby, Cleveland County North Carolina

NCDENR Site ID # NONCD0002881

Prepared for:

Genlyte Thomas Group LLC
3 Burlington Woods Drive
Burlington, MA 01803

Prepared by:

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September 2013

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SEP 26 2013
SUPERFUND SECTION

September 24, 2013

Matt Aufman
REC Program
Inactive Hazardous Sites Branch
Superfund Section
North Carolina DENR
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Registered Environmental Consultant (REC) Program
October 2013 Quarterly Status Report and Transmittal Letter for RIWP
Ardee Translite
639 Washburn Switch Road
Shelby, NC
NCDENR Site ID #NONCD0002881
AECOM Project No. 60302815

Dear Mr. Aufman:

AECOM is pleased to submit this quarterly letter status report, due in October 2013, to summarize work performed this past quarter at the above-referenced site. In summary, the work completed includes development of the Remedial Investigation Work Plan (RIWP) and submittal of the same, which is occurring electronically at the time of this hard copy transmittal. This quarterly status report confirms that work is progressing in a manner to achieve the mandatory work phase completion deadlines set out in 15A NCAC 13C .0302(h). Field activities to implement the work plan are anticipated to begin soon.

Attached to this document is the RP Document Certification Statement for this status report. If you have any questions regarding this quarterly letter status report, please feel free to contact me by phone at 864-234-3560 or by email at dave.oliphant@aecom.com.

Very truly yours,

AECOM, Inc.

David R. Oliphant, CHMM
Registered Site Manager
dave.oliphant@aecom.com

cc: Mr. Jesse Overgord, Genlyte Thomas Group
Mr. Bill Bremen, AECOM

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 1 OF 2
IHSB SITE NAME Ardee Translite, 639 Washburn Switch Road, Shelby, NC
DATE & NAME OF DOCUMENT Sept. 2013 - RI Work Plan and Quarterly Progress Rpt.
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Genlyte Thomas Group
Name of Remediating Party

Signature of Remediating Party

20 SEPT. 2013
Date

NOTARIZATION

Pennsylvania (Enter State)
Clinton **COUNTY**

I, Tracy Smith, a Notary Public of said County and State, do hereby certify that Jesse J. Overgard did personally appear and sign before me this day, produced proper identification in the form of PA License, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this 20 day of September, 2013

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: Jan 8, 2016.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Tracy Smith, Notary Public
Bald Eagle Twp., Clinton County
My Commission Expires Jan. 8, 2016
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

PHILIPS

Genlyte Thomas Group LLC

POWER OF ATTORNEY

The undersigned, Genlyte Thomas Group LLC, a Delaware limited liability company, having an address at 3000 Minuteman Road, Building One, MS 109, Andover, Massachusetts 01810 ("the Company"), hereby appoints: **Jesse Overgord**

as attorney-in-fact with authority to do the following in the name of and on behalf of the Company:

1) To execute any and all reports, filings, documents, waste manifests, certifications and other documents required to be made by the Company to any third party, including but not limited to, governmental agencies, waste disposal companies, remediation services companies and others, in regard to environmental activities pursuant to the governing laws, rules, regulations, consent orders, and any related permits, for environmental projects conducted by or on behalf of the Company.

2) To take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required on behalf of the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever necessary or proper to be done in the exercise of any of the rights and powers herein granted, as fully as the undersigned might or could do if personally present, hereby ratifying and confirming all that such attorney-in-fact, shall lawfully do or cause to be done by virtue of this Power of Attorney and the rights and powers herein granted.

Local, State and Federal agencies and other third parties are authorized to rely on a photocopy or facsimile of this Power of Attorney to the same extent as the original.

This Power of Attorney shall remain in full force and effect until revoked in writing.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed on September 12, 2013.

LORI SIMEONE
NOTARY PUBLIC
CONNECTICUT
MY COMMISSION EXPIRES
3/31/2018

Genlyte Thomas Group LLC

By:
Name: Joseph E. Innamorati
Title: Vice President

Sworn to and Subscribed Before Me
On this 12th day of September, 2013.

Lori Simeone
Notary Public

3000 Minuteman Road, Building One
Andover, MA 01810

978-659-4636
joseph.innamorati@philips.com

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 2 OF 2
IHSB SITE NAME Ardee Translite, 639 Washburn Switch Road, Shelby, NC
DATE & NAME OF DOCUMENT Sept. 2013 - RI Work Plan and Progress Report
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

David R. Oliphant
Name of Registered Site Manager

Signature of Registered Site Manager

9-24-13
Date

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

David R. Oliphant
Name of Registered Site Manager

Signature of Registered Site Manager

9-24-13
Date

NOTARIZATION

South Carolina (Enter State)

Greenville **COUNTY**

I, Donna H. Eidson, a Notary Public of said County and State, do hereby certify that David R. Oliphant did personally appear and sign before me this day, produced proper identification in the form of NA, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 24th day of September 2013.

Donna H Eidson
Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: 8/31/19

Document Certification Form No. DC - II
(Revised 8/11)

COMBINED PHASE I AND II
REMEDIAL INVESTIGATION WORK PLAN

Prepared By Dave Oliphant, CHMM, RSM

Reviewed By Mark Hartford, P.G.

NORTH CAROLINA LICENSED SEAL 1921 GEOLOGIST MARK HARTFORD

Reviewed By Bill Bremen, P.E., RSM

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LIST OF ACRONYMS

AA	Administrative Agreement
AST	Aboveground Storage Tank
bgs	Below Ground Surface
BOD	Biochemical Oxygen Demand
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESQG	Conditionally Exempt Small Quantity Generator
DCA	Dichloroethane
DCE	Dichloroethene
DOT	Department of Transportation
DWM	Division of Waste Management
DWQ	Division of Water Quality
EDR	Environmental Data Resources
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right of Know Act
ESA	Environmental Site Assessment
Ft	Foot
GIS	Geographic Information System
HASP	Health and Safety Plan
IDW	Investigation Derived Waste
IHSB	Inactive Hazardous Sites Branch
LQG	Large Quantity Generator
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAD	North American Datum
NAVD	North American Vertical Datum
NCDENR	North Carolina Department of Environment and Natural Resources
N.C.G.S	North Carolina Groundwater Statutes
NCWRC	North Carolina Wildlife Resources Commission
NPDES	National Pollutant Discharge Elimination System
PCE	Perchloroethylene (tetrachloroethene)
PSRG	Preliminary Soil Remediation Goal
PVC	Polyvinyl Chloride
PWR	Partially Weathered Rock
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
REC	Registered Environmental Consultant
RI	Remedial Investigation
RSM	Registered Site Manager
SARA	Superfund Amendments and Reauthorization Act
SOP	Standard Operating Procedures
SQG	Small Quantity Generator

SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCA	Trichloroethane
TCE	Trichloroethene
TICs	Tentatively Identified Compounds
TRI	Toxic Release Inventory
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 INTRODUCTION

1.1 Background and Overview

This (combined) Phase I (and Phase II) Remedial Investigation Work Plan (RIWP) has been prepared by AECOM North Carolina, Inc. (AECOM), on behalf of the Genlyte Thomas Group (Genlyte Thomas), for the Ardee Translite facility, located at 639 Washburn Switch Road, Shelby, Cleveland County, North Carolina (the "Site"). The RIWP was prepared in accordance with the requirements of the North Carolina Inactive Hazardous Waste Site rules (15A NCAC 13C) and follows the procedures in the most recent guidance documents entitled *Registered Environmental Consultant (REC) Program Implementation Guidance – November* 2012 (NCDENR, 2012a). This guidance document was developed by the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Waste Management (DWM) Superfund Section, Inactive Hazardous Sites Branch (IHSB).

Genlyte Thomas initiated soil and groundwater investigations at the Site in 2011. There is no record of any previous soil or groundwater investigations at the Site prior to that date. On December 2, 2011, Genlyte Thomas submitted the *Notification of an Inactive Hazardous Substance Waste Disposal Site* questionnaire (Genlyte Thomas, 2011) to the NCDENR IHSB Regional office in Mooresville, NC. After discussions with personnel in that office, Genlyte Thomas submitted a completed *Site Cleanup Questionnaire* and attachments to the Mooresville regional office in January 2012 (Genlyte Thomas, 2012). On January 29, 2012, the Mooresville Regional office issued a *Notice of REC* Eligibility letter to Genlyte Thomas, and the Site subsequently was transferred into the NCDENR-DWM IHSB REC regulatory program. In June 2013, Genlyte Thomas submitted to the NCDENR IHSB the signed Administrative Agreement (AA). The AA between Genlyte Thomas and NCDENR (NCDENR, 2013a) was executed on June 28, 2013.

The following assessments were conducted prior to executing the AA: Phase II Environmental Site Assessment (ESA) (August 2011), Phase IIB ESA (January and February 2012), and Groundwater Monitoring Event (May 2013). The Phase IIB ESA was conducted using the most recent versions of the IHSB REC Program guidance document. Draft reports for the first two of these sampling events were developed, but no reports have been submitted to NCDENR to date. Soil and groundwater data summary tables from the first two events were included as part of the two questionnaires submitted to NCDENR IHSB in December 2011 and January 2012, respectively, to assist the regional office in rendering a decision regarding REC eligibility.

AECOM used the following reports in preparing this (Combined) Phase I (and II) Work Plan:

- Environmental Assessments (of eight JJI Lighting Group, Inc. facilities), Privileged and Confidential (Environ, 1996)

- Environmental Assessment Update, Privileged and Confidential (Environ, 2004)
- Untitled Letter Report (of multiple facilities), Privileged and Confidential (Strata Environmental, 2005)
- Phase II Environmental Site Assessment, Privileged and Confidential (AECOM, 2011)
- Notification of An Inactive Hazardous Substance or Waste Disposal Site Questionnaire (Genlyte Thomas, 2011)
- Site Cleanup Questionnaire (Genlyte Thomas, 2012)
- Phase IIB Environmental Site Assessment And Partial Phase I RI (Draft)
- Groundwater Monitoring and Soil Sampling Event And Partial Phase I RI Data, 2013 (No Report Developed)

In addition to reviewing existing reports, AECOM also performed the following tasks to obtain and/or update information for the Site in order to develop this RIWP:

- Conducted interviews on July 3, 2013 with available employees at the Site who might have knowledge of historical chemical or waste management activities;
- Conducted an updated site inspection on July 3, 2013, inside and outside of the existing facility, to evaluate possible past chemical and waste management activities;
- Performed an environmental database search through Environmental Data Resources, Inc. (EDR). The records search included review of historical aerial photographs, historical topographic maps, federal and state databases, and other information such as Sanborn® fire insurance maps, historic topographic maps, and chain of title. (Note: EDR certified that Sanborn® maps do not exist for the Site);
- Reviewed Cleveland County property deed records and geographic information system (GIS) on the County's website;
- Researched historic groundwater well information by contacting the Cleveland County Health Department;

- Contacted the agencies required by 15A NCAC 13C .0306(g)(7) to determine surrounding land use and potential sensitive receptors;

- Contacted the City of Shelby Customer Services Office for Utility Accounts to evaluate any parcels within 0.5 miles of the Site that might not be connected to city potable water;

- Contacted the NCDENR Mooresville, NC office to search what documents are available at that office; and

- Researched the property compliance history through the Environmental Protection Agency online data and other online sources.

1.2 Investigation Objectives

Listed below are the primary objectives of the Remedial Investigation (RI) addressed in this Work Plan:

- Complete the Phase I RI investigation of the areas of concern, environmental media, and constituents not previously addressed in previous investigations.

- Complete the Phase II RI investigation for delineation of the extent of chlorinated solvents constituents and daughter products in soil and groundwater, and delineation of other constituents if determined to be Site related.

This RIWP addresses previous investigations and additional information necessary to complete the RI Report for the Site as defined by the AA. Described herein are the procedures required for field operations, environmental sampling, equipment decontamination, waste management, Quality Assurance/Quality Control (QA/QC), and documentation.

1.3 Summary of Data Gaps from Prior Investigations

Because the Ardee Translite site has been undergoing soil and groundwater investigation and groundwater monitoring for the past two years, some of the NCDENR DWM IHSB requirements for a RI have been partially or fully completed. Some of the basic elements of a Phase I RI were conducted in January and February 2012, and this RIWP addresses potential data gaps in the Phase I RI as defined under 15A NCAC 13C and associated guidance. Additionally, some of the regulatory requirements for a Phase II RI have also been conducted to date, particularly issues related to the partial evaluation of the extent of chlorinated volatile organic compounds (VOCs) in groundwater.

Considering the historical investigations conducted to date, the purpose of this RIWP is to document data gaps from previous investigations and to develop a work plan that addresses those gaps and satisfies requirements of 15 NCAC 3C .0306 (e), (f), (g), and (h) and Appendix A of the *Registered Environmental Consultant Program Implementation Guidance*. Review of historical data for the Site identified the following Phase I and Phase II data gaps that need to be addressed in this RIWP:

- No sampling of soil beneath the floor of the former degreaser unit inside the building has been attempted to date. The former degreaser unit was situated just inside the building and adjacent to the outdoor solvent aboveground storage tank (AST). Soils outside the building were sampled on a grid basis in 2012. One or more soil borings will be attempted through the floor of the former degreaser area, if the concrete can be penetrated and if a geoprobe unit can be mobilized indoors into that part of the building. Soils will be analyzed for VOCs and any other identified constituents of potential concern.

- A soil gas and vapor intrusion screening and possible evaluation is required on-site and will be conducted or updated based on additional soil data collected during the next sampling event.

- A full lateral and vertical extent of the dissolved chlorinated VOC concentrations in groundwater has not been delineated at all parts of the VOC plume.

- A permanent background monitoring well has not been installed at an upgradient location of the site.

- Additional soil background data need to be collected.

- Subsurface soil samples need to be collected and analyzed in the area of the former septic tanks and sand filter.

- Additional soils samples need to be collected outdoors in the area of the former 1,1,1-trichloroethane (TCA) AST and in the area downgradient of the former indoor trichloroethene (TCE) storage area and the adjacent outdoor area where paint line hooks historically were burned to remove paint.

- Additional surface and possibly subsurface soil samples need to be collected along the edge of the parking lot pavement at the southwest property line. Also, a groundwater monitoring well needs to be installed at the property line to confirm that VOCs have not migrated off site.

- No surface water or sediment sampling has been conducted for the constituents of concern at the Site. There is an underground pipe extending from the former sand filter area near the septic tank to the creek at the western boundary of the site, and a creek sampling access stairway is present at the creek. National Pollutant Discharge Elimination System (NPDES) permit sampling historically was conducted at this location but was discontinued in the later 2000s when the sanitary sewer discharge was routed to the City of Shelby sewer system.

- An updated Site survey plat showing monitoring wells and other required site features and historic waste management area needs to be developed.

1.4 Document Organization

This work plan has been organized as specified in Section 15A NCAC 13C .0306(g) of the rules for facilities where part of the remedial RI has been completed but additional investigation is required. Table 1-1 summarizes the location where each component requirement from .0306(g) is addressed in this RIWP. The work plan has been organized as follows:

- Section 1 – Introduction, Investigation Objectives, and Summary of Data Gaps;
- Section 2 – Site Description and Background Information [.0306(g)(1-13)];
- Section 3 – Proposed Methods of Investigation [.0306(g)(14-19)]; and
- Section 4 – References.

2.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

This section addresses the requirements of 15A NCAC 13C.0306 (g)(1-13) of the rules. In this section, the Site location and boundaries, land use, historical property ownership and facility operations, permit history, known subsurface conditions and releases, and known receptors are discussed. Table 1-1 summarizes the location where each component requirement from .0306(g) is addressed in this Phase I RIWP.

2.1 Site Background, Location, and Surrounding Land Use [.0306(g)(1)]

The Site is located at 639 Washburn Switch Road, Shelby, Cleveland County, North Carolina (Figure 2-1). According to information supplied by EDR (EDR, 2013a), the approximate geographical location of the center of the Site property is 35° 18' 45.72" north latitude and 81° 36' 28.44" west longitude (North American Datum [NAD] of 1983) and is approximately 897 feet above mean sea level (North American Vertical Datum [NAVD] of 1988).

The Site property is currently owned by Genlyte Thomas and occupied by Ardee Translite. It is currently used for assembly of lighting fixtures, sheet metal fabrication, warehousing, and administrative functions. The Site property is developed with one 126,000 square feet building, of which approximately 23,200 square feet is office space.

The main entrance is located near the southeast corner of the building facing Washburn Switch Road. Landscaped and grassed areas are present between the building and Washburn Switch Road to the east. The area on the south side of the Site contains access driveways and a paved parking lot to the fence and property line. The rear (or west) side of the Site property contains a paved access driveway and then a grassy area leading to the wooded part of the site. The northern side of the Site property contains grassed areas, a paved access driveway, and the former septic tank, sand filtration pit, and drain area. Treated sanitary effluent from the septic tank and sand filter formerly was discharged through underground piping to the small creek bordering the western Site boundary, under an NPDES permit. This discharge occurred prior to the Site being hooked into the City of Shelby sewer system, which uses the same effluent pipe to convey the discharge to the sewer main located along the creek at the western end of the Site. A layout of the Site property is provided in Figure 2-2.

The Site property is bordered to the east by Washburn Switch Road and CSX Railroad, followed by several residences; to the south by an unoccupied private residence and empty former pastureland; to the west by undeveloped land and farmland; and to the north by Piedmont Components, a wooden truss manufacturing facility. Detailed information regarding adjacent property owners is included in Table 2-1. The Site property and surrounding properties are illustrated on Figure 2-3.

The Site presently houses an industrial facility that assembles lighting fixtures on an approximately 37-acre tract. Approximately 5.4 acres of the tract are developed. The current facility was constructed in 1960. Other industrial operations situated hydraulically upgradient

and within ½ mile of the Site include Piedmont Components, Seal Wire, former Smurfit Stone and Rock Tenn facility (now shut down), and Clearwater Paper. These facilities and some residential or former residential parcels are shown or referenced in Figure 2-3 and/or Table 2-1.

2.2 Hazardous Waste Management Practices [.0306(g)(2)]

Review of available historical records indicates that in the mid-1990s, the facility was a small quantity generator (SQG) of hazardous waste and had a Resource Conservation and Recovery Act (RCRA) generator identification number (NCD986171007). The SQG status was obtained as a result of the generation of paint waste and cleaning solvents. Solvents used were 1,1,1-TCA and later TCE. A 1996 environmental assessment report by Environ (environmental consultant) indicated that at that time, the hazardous waste generation rate was 15 to 20 drums per year. At the time of a 1996 site inspection, drums of paint, TCE, naphtha, lacquer thinner, and lubrication oil were being stored inside the warehouse area in the southwest side of the building. The environmental assessment report indicated that no secondary containment was being provided at that time for the drums in this storage area; however, current facility personnel who worked there in the 1990s stated that drums were staged on spill pallets. The report indicated that facility personnel stated that no leaks or spills associated with that former drum storage area had been reported, and current facility personnel interviewed on July 3, 2013 also stated that they had no recollection of any historic spills from this indoor former raw materials and waste drum storage area.

Historical records indicated that an AST for storing 1,1,1-TCA was installed in 1986 just outside the south side of the building on the edge of the paved parking lot. This solvent reportedly was used from 1986 to 1993 as a degreaser. In 1993, TCE replaced 1,1,1-TCA as the degreaser solvent. An in-line vapor degreaser was situated just inside the building inside a concrete sump area. As part of the facility's lighting manufacturing process at that time, steel or aluminum was received in rolls, uncoiled, and then stamped, pressed, and formed into required shapes for decorative lighting. These fabricated metal parts were hung on steel hooks on a conveyor line and were transported through the on-line vapor degreaser and then through a paint dip tank. Then, the parts were spray painted if necessary and passed through two electric drying ovens. The degreaser reportedly had a 55-gallon solvent capacity with a 55-gallon reserve tank. This process, using TCE as the degreaser, was operating at the time of the June 1996 environmental assessment site visit. In December 2004, ENVIRON personnel revisited the site to perform a Phase I ESA update. That report indicated that vapor degreasing operations were discontinued by 2001 and painting operations ceased by 2003 although a small paint booth was still present in December 2004 for small touch up painting. Current Ardee Translite facility personnel stated in July 2003 that no degreasing operations have been conducted since the early 2000s, and no painting operations other than touch up with an aerosol paint can have been performed on site since the mid-2000s.

Review of the radius search report (Appendix A) from EDR (EDR, 2013a) for the facility, and the RCRA hazardous waste management files maintained by the NCDENR, Division of Solid Waste Management, shows that hazardous waste has been managed at the site since at least 1990. Information from EDR indicated that Specialty Lighting, the operator in the 1990s and some of the 2000s, was a large quantity generator (LQG) of hazardous waste in 1990 and a SQG of hazardous waste in 1999 and 2004. Hess America, another division of JJI Lighting, also is listed by EDR as a former RCRA conditionally exempt small quantity generator (CESQG). The following liquid hazardous wastes are indicated by EDR (EDR, 2013a) as being historically generated and managed at the facility: D001, ignitable hazardous waste (possible paint thinner waste); F003, specific spent non-halogenated solvents; and F005 (other specific spent non0halogenated solvents. These wastes are shown to have been generated until at least 2004. The EDR report did not document any spills or releases of hazardous waste. The January 1993 hazardous waste inspection conducted by NCDENR noted a minor generator non-compliance, and the EDR records indicate this was corrected in February 1993.

The following is a summary, provided in July 2012 via email to AECOM by oversight NCDENR hazardous waste personnel, of the pertinent information contained in the facility's RCRA file in the NCDENR regional office in Mooresville or elsewhere: "Regarding the NC Hazardous Waste Section's Compliance Branch, the subject address has two hazardous waste Environmental Protection Agency (EPA) ID numbers, which must have been assigned by accident because we only assign one EPA ID to a property. NCD986171007 is listed as Specialty Lighting, Inc. and the database shows that they were inspected on 8/3/89 with no violations found and inspected again on 1/14/93 with one violation cited, which was closed out on 2/16/93. It appears that the company first notified as a large quantity hazardous waste generator then changed to a small quantity generator and finally a conditionally exempt small quantity generator, which is what currently shows up for that ID number. No other inspections were listed past 1993. EPA ID #NCR000010975 was also assigned on 6/4/99 to the same address and is listed as Hess America. No inspections show up for that company name." (NCDENR, 2013b).

Historical hazardous waste management activities, based on the July 3, 2013 review at the Site of Uniform Hazardous Waste Manifests from 1989 until about 2008, include the generation of paint wastes, waste naphtha and mineral spirits, other wastes containing flammable solids or flammable liquids (e.g., methyl alcohol, methyl ethyl ketone, and ink), and waste solvents (1,1,1-TCA and TCE). EPA Waste Codes manifested consisted of D001, D035, D039, F001, F003, and F005.

2.3 United States Geologic Survey Topographic Maps [.0306(g)(3)]

The attached Figure 2-1 is a current United States Geological Survey (USGS) topographic map sufficient to display topography within a one-mile radius of the site.

2.4 Site Survey Plat [.0306(g)(4)]

Appendix B contains a copy of the most recent and available site survey plat (revised October 26, 2002) showing site location, benchmarks, scale, north arrow, property boundaries, utilities, buildings, and structures. This is the most recently-available professional Site survey plat certified to be in accordance with North Carolina General Statues (N.C.G.S.) 47-30. Other required information such as monitoring well locations, potential areas of concern, and areas impacted by hazardous substance releases, as required under the REC rules 15A NCAC 13C .0306(g)(4), have not been added to the certified plat; therefore, the current plat in Appendix B is deficient. Genlyte Thomas is currently working on updating the survey plat. It is being completed as a data gap in the RI process. The updated boundary survey plat will be included in the final RI Report to meet the requirements of 15A NCAC 13C .0306(g)(4).

2.5 Local Geologic and Hydrogeologic Conditions [.0306(g)(5)]

No reports describing the local geologic and hydrogeologic conditions have been developed to date for the Site, other than a Phase II ESA report in 2011 (AECOM, 2011, see Appendix C) and Phase IIB ESA report in 2012, which was finalized in 2013 (AECOM, 2013). Soil borings were installed in 2012 and some site-specific data are available from that event and the May 2013 groundwater sampling event (Appendix D). A brief summary of the geology and hydrogeology is provided below. Information from the Phase II ESA and Phase IIB ESA of 2011 and 2012 are used to summarize known local information.

2.5.1 Regional Geology

Cleveland County is located in the Piedmont Physiographic Province and contains a wide variety of rock types within its boundaries including granite, metamorphic gneisses, schists and quartzites, and limestones. The predominant rock types are the gneisses and schists, which show a strong foliation or schistosity. According to the Geologic Map of North Carolina (Brown, 1985), these rocks trend northeastward and southwestward. Locally, a broad belt of gneiss and schist trends northeastward through the county and is present in the site vicinity. Outcrops of these rocks are rare; the bedrock is covered by a thick layer of red soil. The City of Shelby is underlain by a mica schist and micaceous quartzite that are described as containing Garnet, staurolite, kyanite, or sillimanite components occurring locally; and lenses and layers of quartz schist, micaceous quartzite, calc-silicate rock, biotite gneiss, amphibolite, and phyllite. Although the Site is located slightly northwest of the town of Shelby, the bedrock is of the same composition as described above.

The dominant soil component underlying the Site, as described in the Soil Survey of Cleveland County, North Carolina (USDA, 2006), is Urban land, which consists of areas that are covered by streets, parking lots, driveways, or buildings. The western section of the property is underlain by Appling, a loamy sand, moderately well drained, with moderate infiltration rates.

The remaining sections of the property are underlain by the Cecil series, with characteristics similar to the Appling soils.

2.5.2 Site Geology

Data collected during the August 2011 and January 2012 field activities indicated that the lithology at the site was consistent throughout the site. The top of the weathered bedrock was encountered at 37 and 40 feet below the ground surface (bgs) in borings at wells MW-07D and MW-02D, respectively, with auger refusal occurring at 40 and 25 feet bgs. The top of competent bedrock was encountered at 50-53 feet bgs. The bedrock geology at the saprolite/bedrock interface consisted of white to reddish gray to dark grayish brown coarse to gravel sized quartz and feldspar fragments with mica. Above the bedrock, residual saprolite consists of light red to weak red and yellowish brown to dark yellowish brown silt and silt with sand, along with pale yellow to dark grayish brown poorly-graded gravel with sand that presumably formed from the in-place weathering of the underlying mica schist (as indicated on the 1985 Geologic Map of North Carolina). The last four to six feet of overburden to the ground surface consists of red to yellowish red to reddish yellow to yellowish brown to strong brown silt and silt with sand that is presumed to be reworked fill.

2.5.3 Local Hydrogeology

Two aquifer units characterize the hydrogeology of the area. The top regolith unit (often referred to as saprolite) serves as an unconfined storage aquifer that transmits water downward to the lower semi-confined partially weathered rock (PWR) and then in to the fractured crystalline bedrock aquifer unit. Shallow groundwater typically occurs and is stored in the matrix of the saprolite and migrates into the PWR then into bedrock. The PWR, often referred to as the “transition zone,” typically is known to transmit groundwater at a higher rate than either saprolite or bedrock and is commonly associated with the bedrock aquifer unit. Groundwater movement in PWR flows within the matrix and through fractures. Groundwater movement in the bedrock is restricted to intersecting sets of water bearing fractures and joints.

2.5.4 Site Hydrogeology

The unconsolidated saprolite and the PWR bedrock aquifers were the only two aquifer units encountered during the Phase IIB ESA. The surgical saprolite aquifer extends to 50 to 53 feet bgs, depending on the depth of competent bedrock. Depth to water measurements resulted in groundwater ranging from 17 to 27 feet bgs in the shallow saprolite aquifer at the site. In the shallow saprolite aquifer, groundwater flows toward the southwest under a hydraulic gradient of approximately 0.007 feet per foot (ft/ft).

Vertical gradients are upward (0.004 and 0.02 ft/ft) between the PWR bedrock and the saprolite aquifer units at location MW-2/MW-2D, which was noted in the two groundwater sampling events of May 2013 and February 2012, respectively. At location MW-7/MW-7D, a downward

gradient of -0.003 ft/ft was observed in February 2012; however, an upward gradient (0.005 ft/ft) was noted in May 2013.

2.5.5 Hydrology

AECOM reviewed the USGS 7.5 Minute Shelby, North Carolina Quandrangle Topographic Map (Figure 2-1), as well as corresponding with state and federal agency personnel to determine surface drainage on the Site property. Based on this review, surface drainage from the Site property flows to the west/southwest toward the unnamed tributary to Beaverdam Creek, which borders the western boundary of the Site. Beaverdam Creek is contained in the Broad River Basin. Along the Site's western boundary, this unnamed tributary is approximately 0.5 to 1 foot deep by 2 to 3 feet wide. This stream is depicted on the USGS map.

The North Carolina Division of Water Quality (DWQ) and the North Carolina Wildlife Resources Commission (NCWRC) provided surface drainage assessments in conjunction with sensitive environment data for the Site property (Table 2-2). The DWQ and NCWRC suggested that Site property surface drainage was toward an unnamed tributary to Beaverdam Creek, which is located approximately 5,000 feet south of the Site.

A map contained in the EDR radius search report (Appendix A) indicates the presence of National Wetlands Inventory wetlands along this unnamed tributary, both north and farther south of the boundary where the Site is adjacent to the stream.

2.6 Sources of Potable Water [.0306(g)(6)]

The locations of possible private water wells or possible wells within a 0.5-mile radius of the Site are shown on Figure 2-3. The potential well locations were determined from a drive-by inspection conducted by AECOM personnel on July 3, 2013. No springs or surface water intakes are known to exist within a 0.5 -mile radius of the site, except for the headwaters of a small branch emanating on the Site or on the adjacent Piedmont Components facility to the north (Figure 2-3). Additional environmental data for the area are listed in the EDR database report included in Appendix A.

2.6.1 Public Water Supplies

The EDR report (Appendix A) indicates that no federal USGS wells, federal public water system wells, or state water system wells were found in the database search conducted by EDR. The Site property and surrounding areas are provided with potable water from the City of Shelby (Shelby Utilities) water treatment plant (PWS ID# NC0123010). The City of Shelby owns the plant, which treats water from the First Broad River. According to the city web site, the plant capacity is 12 million gallons a day, and it treats an average of 3.9 million gallons per day (City of Shelby, 2013a).

AECOM did not directly contact property owners or issue water supply well questionnaires to property owners in the search radius. However, AECOM did visit the City of Shelby Customer Services Offices for Utility Accounts (City of Shelby, 2013b) on July 13, 2013 to determine if municipal water is supplied to residents living within 0.5 miles of the Site property. Information in the database indicated that the City of Shelby furnishes water to industrial and residential users within 0.5 miles of the Site along Washburn Switch Road, and Cleveland County provides water to users along Artee Road south and southwest of the Site. A list of occupied properties located within 0.5 miles of the Site property that have municipal water accounts and/or water hookups are indicated in the table below. A map displaying the area within a 0.5-mile radius of the Site property shows only one occupied property without an active municipal water account or water hookups. The City of Shelby did not have a water account listed for 649 Washburn Switch Road, which is the adjacent Piedmont Components industrial site. However, the online Cleveland County Property GIS database (2013) shows a fire hydrant on that parcel, so it appears that public water is provided to that facility. The owner is not Piedmont Components, so perhaps the City of Shelby employee who looked up this information did not see the listing.

Occupied Parcels w/City of Shelby or Cleveland County Water Accounts and/or Hookups

Parcel ID	Property Address	Owner Name (If Known)	Distance and Direction From Site (Miles)
28698	624 Washburn Switch Rd.	Currently Unoccupied House	0.25 SE
28690	634 Washburn Switch Rd.	Eskridge Grove Baptist Church	0.2 SE
28699	636 Washburn Switch Rd.	House Assoc. w/ Eskridge Grove Bapt. Church	0.15 SE
32699	639 Washburn Switch Rd.	Ardee Translite (Site)	0
32642	656 Washburn Switch Rd.	Seal Wire Company	0.2 N
32650	658 Washburn Switch Rd.	Seal Wire Company	0.25 SW
32622	661-671 Washburn Switch Rd.	Clearwater Paper Co.	0.45 NE
32623	662 Washburn Switch Rd.	Container Corporation of America	0.4 N
32622	667 Washburn Switch Rd.	House Assoc. w/Clearwater Paper	0.4 N
60391	3500 Artee Road	House on Cleveland County Water	0.3 SW

2.6.2 Private Water Supplies

On July 3, 2013 AECOM conducted a driving survey within a half-mile radius of the Site property to assess sensitive receptors and the presence of private wells. Properties were

assumed to have a potential water supply well if a well house or ornamental well cover was observed, such as faux rock, concrete block or 'wishing well' style structure.

Prior to that site visit, a telephone call was conducted with Tim Vinesett, Environmental Health Specialist with the Cleveland County Health Department on July 2, 2013. Mr. Vinesett ran a database search for water wells recently permitted or abandoned within 0.5-mile of the Site. The parcels listed below have wells that have a status change indication. Mr. Vinesett notes that the county has only been permitting wells and recording abandonments since about 2004.

Two properties were noted to have potential wells: Eskridge Grove Baptist Church at 634 Washburn Switch Road and a vacant house at 624 Washburn Switch Road. The table below summarizes potential private wells observed during the driving survey and Figure 2-3 shows the location of each of these properties. Of these two properties, one has an active water account with the City of Shelby and the other has a water hookup. A number of parcels have wells recently abandoned, due to the North Carolina DOT purchasing land for the future U.S. Highway 74 Bypass and interchange. Residential and other structures were recently demolished and trees uprooted and chipped. Water wells on those parcels were abandoned.

Properties with Potential Water Supply Wells Status Change or Possible Visible Well

Parcel ID	Property Address	Distance and Direction from Site (Miles)	Active City of Shelby Water Account	Field Observations of July 3, 2013	Other Comments
51541	3311 Artee Road	0.5 S	NA	House demolished for new highway	Well abandoned for new highway
62251	3425 Artee Road	0.45 SW	NA	House demolished for new highway	Well abandoned for new highway
32697	3426 Artee Road	0.35 SW	NA	House demolished for new highway	Well abandoned for new highway
28694	515 Washburn Switch Road	0.5 S	NA	House demolished for new highway	Well abandoned for new highway
28691	633 Washburn Switch Road	0.2 S	NA	House demolished for new highway	Well abandoned for new highway
28698	624 Washburn Switch Rd.	0.25 SE	City water is supplied	House appeared to be vacant	Concrete structure might be a well
28690	634 Washburn Switch Road	0.2 SE	Yes	Concrete building behind church might have a well	Church is on city water

2.7 ENVIRONMENTAL SENSITIVE AREAS [.0306(g)(7)]

The Site property and adjacent properties were evaluated for the existence of the environmentally sensitive areas. The evaluation results are presented in Table 2-2. The required agencies have been contacted, and a response is still pending in some cases. Additional sensitive environment information is included in the EDR reports contained in Appendix E. No environmentally sensitive areas were identified within or contiguous to the Site property boundary or within at least 0.5 miles of the Site.

Based on information provided by various agencies and review of readily ascertainable public information, two potential sensitive receptors were identified near the Site. (1) A response from a representative of the North Carolina Natural Heritage Program indicated that the federally-threatened dwarf flowered heartleaf, a rare plant, has been found at several locations within one mile of the site but less than 0.5 miles distance. (2) A response from the U.S. Army Corps of Engineers (USACE) indicated that there could be jurisdictional wetlands within 0.5 miles of the Site, particularly along the reach of the unnamed stream that borders part of the western boundary of the site. Copies of the responses from these agencies are contained in Appendix E.

Based on review of historic information, current databases, and the Site and vicinity, no other environmentally sensitive areas are known to be present. Since at this time there are no known off-site impacts from Site activities, it is unlikely that soil or groundwater impacts from the Site would impact any sensitive environments. Likewise, RI activities are not expected to adversely impact any environmentally sensitive areas.

2.8 Property Deed [.0306(g)(8)]

A copy of the most recent Warranty Deed for the property, dated March 10, 1993, shows the transfer of the property from Specialty Lighting to JJI Lighting Group, Inc., recorded March 12, 1993 in Deed Book 1125, Page 2356, Cleveland County, North Carolina (Appendix F). The facility is currently owned by JJI Lighting Group, Inc., n/k/a Genlyte Thomas Group, LLC successor by merger.

2.9 Property Ownership [.0306(g)(9)]

Property ownership information was obtained from the chain-of-title report obtained from EDR (EDR, 2013c) (Appendix F). Property occupancy was researched using the historic city directory search provided by EDR (Appendix G). Review of historic property revealed the current and past property owners listed in Table 2-3. As also indicated in Table 2-3, Genlyte Thomas Group sold a small portion of the Site along Washburn Switch Road to the North Carolina DOT in April 2013, for use in construction of part of the intersection between the U.S. Highway 74 bypass and Washburn Switch Road. A copy of the deed for highway right of way is shown in Appendix D. Also, a copy of the wastewater discharge underground line easement

between JJI Lighting Group and Jefferson Smurfit in 1996 is shown in Appendix D. Ardee Translite personnel stated on July 3, 2013 that Jefferson Smurfit (later Smurfit Stone) is no longer in business.

2.10 Operational History [.0306(g)(10)]

Operational history of the Site is summarized below. Additional information is provided in Section 2.2 above.

2.10.1 General Operational History

According to information contained in Environ, 1996, a 60,000 to 65,000 square feet building was constructed in 1960. It was inferred that prior to 1960, the Site was undeveloped and was either wooded or farmland. Shelby Seamless Hosiery Mill occupied the building from 1960 to 1977 and reportedly produced rayon hosiery from yarn. No dyeing of the yarn reportedly was performed at this location. The site was purchased in 1978 by Mr. Roy Price, owner of Specialty Lighting. The office area was renovated in 1980, and in 1983, a 60,000 to 65,000 square foot warehouse was added as an expansion to the existing building.

2.10.2 Information from Aerial Photographs

AECOM reviewed aerial photographs on the Cleveland County GIS webpage (2013) and those provided by EDR (EDR, 2013d). The table below provides a description of the photographs. Copies of available aerial photographs are provided in Appendix H.

Historical Aerial Photograph Summary

Date	Description
1948	1”-500’ - The Site property consists of vacant, open fields and maybe a farm house. The area surrounding the Site property consists mostly of vacant, open fields, houses, or farm structures to the north, south, and west and some wooded areas to the southwest. The church and a few houses are visible to the east across Washburn Switch Road.
1961	1”-1000’ - The Site property appears to be developed with a building on it. The surrounding parcels appear similar to the 1948 photograph.
1976	1”-1000’ - The Site property is developed with buildings visible. The current wood truss manufacturing building to the north is also present, along with two other industrial buildings upgradient to the north and across Washburn Switch Road. Area to the west appears to be wooded and area to the south is vacant farmland. Houses and church are present to the east across Washburn Switch Road.

Date	Description
1979	1”-750’ – This is a poor resolution photo, but the Property and surrounding parcels appear similar to the 1976 photograph.
1983	1”-500’ - The manufacturing/warehouse building and the full 126,000 square foot area is present on Site, with the 65,000 sq. foot with addition to the west visible. The majority of the surrounding area looks similar to the present with wooded areas to the west, southwest, and northwest, developed industrial tracts to the north, vacant farmland to the south, and the church and residences to the east and southeast.
1993	1”-500’ - The Property and surrounding parcels appear similar to the 1983 photo, although it appears that timber may have been logged from part of the wooded portion of the site since 1983 (this was confirmed with Site personnel). Also, more of the wood truss manufacturing facility site to the north has been developed since 1983, with a parking lot now visible and a number of trailers parked on that paved parking lot.
1998	1”-750’ – This is a poorer resolution photograph. The Property and surrounding parcels appear similar to the 1993 photo. An access road from the facility building to the creek to the west is now visible. This probably represents the discharge line from the septic tank and sand filter to the creek, under an NPDES discharge permit.
2005	1”-500’ - The Property and surrounding parcels appear similar to the 1998 photo.
2006	1”-500’ - The Property and surrounding parcels appear similar to the 1998 photo.
2008	1”-500’ - The Property and surrounding parcels appear similar to the 1998 photo.
2009	1”-500’ - The Property and surrounding parcels appear similar to the 1998 photo.
2010	1”-500’ - The Property and surrounding parcels appear similar to the 1998 photo.
2012	1”-500’ - The Property and surrounding parcels appear similar to the 1998 photo, except a new manufacturing facility (Clearwater Paper) is present to the north on the same side of Washburn Switch Road.

2.10.3 Information from Historical Topographic Maps

AECOM reviewed topographic maps provided by EDR (EDR, 2013e). The table below provides a description of the maps. Copies of available topographic maps are provided in Appendix I.

Historical Topographic Map Summary

Date	Description
1950	Scale 1:62500 - Property appears to be undeveloped with rural farmhouses and a school near or adjacent to current parcel.
1983	Scale 1:24000 – Property appears with the initial 60,000 sq. ft. building shown. The current wood truss manufacturing building to the north is also visible plus several industrial buildings upgradient to the north across Washburn Switch Road.
2002	Scale 1:24000 – Property appears similar to 1983 topographic map.

2.10.4 Information from Sanborn Fire Insurance Maps

According to EDR, Sanborn fire insurance maps are not available for the Site property (EDR, 2013e). A copy of the EDR Certification is provided as Appendix J.

2.11 Hazardous Substance List and Storage [.0306(g)(11)]

A complete history of hazardous substances which have been used or stored at the Site property, and approximate amounts and dates of use or storage, is not available. On July 3, 2013, AECOM identified and interviewed one employee of the former Specialty Lighting operations (and current Ardee Translite) to obtain additional information regarding hazardous substances that were historically used or stored at the Site property. This employee stated that he recalls the use of the solvents 1,1,1-TCA and TCE, both of which were disposed off-site at permitted disposal facilities. Other chemicals used on site included paint thinner, petroleum naphtha, hydraulic fluids in plastic/PVC molders, LP gas for fork lifts, and lubricating oils.

Also on July 3, AECOM reviewed historical environmental files at the facility, including the air permit files. Based on the interview information and the file review at the Site, listed below is a historical hazardous substance list based on the accumulated information.

Historical Hazardous Substance List

Date	Hazardous Substance	Storage Location	Source
1989-1992	Solvent degreaser (1-1-1,TCA) and TCE)	500-gallon AST outdoors adj. to paint line and degreaser	Form R Reports
1993-1999	Solvent degreaser (TCE)	55-gal drums inside warehouse at SW end of bldg.	Form R Reports
2000	Lacquer thinner (contained toluene & xylene)	55-gal drums inside warehouse at SW end of bldg.	Specialty Lighting
2000	Phanol® (contained xylene)	55-gal drums inside warehouse at SW end of bldg.	Specialty Lighting
2000	3040 Hardener (contained xylene)	55-gal drums inside warehouse at SW end of bldg.	Specialty Lighting, 2001a
2000	Methyl ethyl ketone, isobutanol, acetone, ethyl acetate, n-propyl bromide	Unknown; major constituents provided to NCDENR as part of the HAP emission calculations	Specialty Lighting, 2001b
1980s to 2000s	Hydraulic fluid	Inside PVC molders	Ardee Translite, 2013
1980s to 2000s	Paint thinner, petroleum naphtha, lubricating oils	Maintenance shop and warehouse	Ardee Translite, 2013

AECOM reviewed the EPA Envirofacts database (EPA, 2013a), which indicates that the Specialty Lighting facility was a Toxic Release Inventory (TRI) facility from at least 1987 to 1998, with reported chemical releases to air and with offsite disposal of 1,1,1-TCA and TCE. This database indicates that 1,1,1-TCA was used on site from 1987 to 1992, and TCE was used on site from 1993 to 1998. No other chemicals were reported on the TRI list for any of those years. The online database did not include any years before 1987 or after 1998. No other hazardous substance information was present in the Envirofacts database for the 639 Washburn Switch Road address. AECOM also reviewed historical hazardous substance management documentation, including Superfund Amendments and Reauthorization Act (SARA) Tier II Emergency and Hazardous Chemical Inventories and Form R submittals under the Emergency Planning and Community Right-to-Know Act (EPCRA). The Form R submittals from 1989 to 1999 indicated that the following hazardous substances have been historically managed at the site in significant quantities:

Historic Form R Submittal Hazardous Substance List

Hazardous Substance	Dates Used	Storage or Use Location
Methyl Chloroform (aka 1,1,1-TCA)	1989 - 1992	Degreaser; stored in 500-gal AST just outside the degreaser and paint line
Trichloroethene	1993 - 1999	Indoor degreaser; stored in 55-gallon drums in warehouse

2.12 Environmental Permit History [.0306(g)(12)]

According to the Phase I ESA Update of December 2004, the facility had two environmental permits at that time: an air permit and a wastewater discharge permit. An inquiry of the NCDENR files at the Mooresville regional office confirmed the past existence of these two permits. Also, the facility formerly operated as a RCRA SQG. These past permits are discussed below.

An inquiry was made to the NCDENR Regional Office in Mooresville for Site regulatory records. A response indicated that no records existed for underground storage tanks (USTs/, ASTs, or spills at the Site. Records are available for hazardous waste in the Raleigh office. A short summary of the available file results is contained in Section 2.2 of this work plan. Air records and some wastewater records are available in Mooresville although permits for both of those areas are no longer active. No visit was made to view NCDENR files, since other sources have provided necessary background information for this work plan.

2.12.1 Air Permit

The Phase I ESA Update of 2004 indicated that the facility had two permitted sources of air emissions: a paint booth for Specialty Lighting and a paint booth for Hess America, the two entities owned by JJI at that time. The two sources were covered by one facility-wide permit (number 06504R06). Copies of earlier versions of this air permit issued to Specialty Lighting were found on site on July 3, 2013, and copies are included in Appendix K. Hess America reportedly vacated the building in December 2003. Current facility personnel stated that the permit expired in 2007 and was not renewed because on-site painting operations had ceased by that time.

2.12.2 Wastewater Discharge Permit

The Environmental Assessment of 2006 and the Phase I ESA Update of 2004 indicated that the facility also had a wastewater discharge permit (number NC0042293). The 1996 report stated that wastewater discharges consisted of sanitary wastewater and noncontact cooling waste, both covered under NPDES Permit No. NC0042293). Sanitary wastewater was discharged to a

10,000-gallon septic tank, followed by a nine square foot sand filter and a 1,000-gallon tablet chlorinator with a contact chamber. Wastewater stayed in the chlorinator for a minimum of 30 minutes, and then the treated wastewater was discharged to an unnamed tributary to Beaverdam Creek at Outfall 1 of the permit. The tributary borders the western boundary of the Site. Monthly monitoring for biochemical oxygen demand (BOD) and likely some other general wastewater parameters was required. Noncontact cooling water associated with the facility's spot welders and molding machines was monitored semiannually and discharged directly to the unnamed tributary through Outfall 2 of the permit.

On July 3, 2013, the Ardee Translite employee who has worked at this facility for 35 years stated that the chlorine tablets were added at a location near the sand filter, but the chlorinator chamber was situated near the discharge point to the creek. The septic tank, sand filter, and chlorine contact chamber have all been backfilled, now that the sanitary wastewater is discharging its sanitary wastewater to the City of Shelby sewer system. A copy of the letter from the NCDENR DWQ, dated March 12, 2010 and stating that the NPDES permit has been rescinded, is included in Appendix K.

2.12.3 RCRA Hazardous Waste Generator

The environmental assessments and Phase I ESA excerpts indicated that the Specialty Lighting facility previously operated as a SQG of hazardous waste and was issued EPA ID No. NCD986171007 for management of hazardous wastes. The EPA Envirofacts database also lists this ID number as active in 2008, and the facility was a CESQG at that time. The Envirofacts database also listed an ID number (NCR000010975) for Hess America, another subsidiary of JJI Lighting, as an active CESQG in 2006. However, Hess America reportedly departed from the facility before the end of 2003. The EDR radius search report (Appendix A) indicated that Specialty Lighting was a LQG in 1990 and a SQG in 1999 and 2004. The EDR report also indicates that Hess America, a division of JJI, was a CESQG in 1999. Information from the file search at the NCDENR Mooresville regional office indicated similar information to the EDR report.

2.12.4 Stormwater Permit

During the July 3, 2013 site visit, Ardee Translite personnel provided copies of stormwater permit correspondence from the NCDENR DWQ. Letters dated December 4 and December 6, 2012 indicated that the stormwater general permit for this site was reissued. Stormwater sampling is required semi-annually for the site. A copy of the December 2012 correspondence and certificate of coverage No. NCG030570 is contained in Appendix K.

2.13 Regulatory and Related History [.0306(g)(13)]

The following sections summarize results of previous environmental assessments, audits, and investigations, based on available information. None of these assessments were conducted

directly under NCDENR oversight because Genlyte Thomas had not yet entered into the REC program when those activities were conducted. The locations of historical soil samples are shown in Figures 2-4A thru 2-4C and results are summarized in Table 2-4. Historical groundwater sample locations are depicted in Figures 2-5A through 2-7B and results are summarized in Table 2-5. Added data flags are shown in Table 2-6.

2.13.1 Environmental Compliance Audit, 1988

The Environmental Assessment Report by Environ, dated 1996, makes reference to the following document: *Environmental Compliance Audit of Specialty Lighting, Shelby, North Carolina,* prepared by Apogee Research, Inc. and dated March 15, 1988. Neither facility nor corporate personnel have a copy of or know about this document. This document mentions the burning of paint and solvent from the hooks used to hold parts as they were sent through the degreaser and paint line. During the July 2003 site visit, Ardee Translite personnel confirmed that the burning of paint and solvent from the hooks occurred on the southwest side of the Site, near the location of the former indoor TCE drum storage area (see Figure 2-2).

2.13.2 Environmental Risk Review, 1998

The Environmental Assessment Report by Environ, dated 1996, makes reference to the following document: *Environmental Risk Review,* prepared by Environmental Strategies Corporation and dated December 29, 1988. Neither facility nor corporate personnel have a copy of or have any knowledge about this document. This document also mentions the burning of paint and solvent from the hooks used to hold parts as they were sent through the degreaser and paint line.

2.13.3 Environmental Assessment, 1996

An Environmental Assessment was conducted by ENVIRON in 1996 at multiple JJI Lighting sites in the U.S., including the Shelby facility. A privileged and confidential draft report was developed by Environ, and excerpts of this report were made available from the Genlyte Thomas corporate office. The report summarizes facility operations, stating that stamping and forming of rolled steel, degreasing and painting of decorative light fixture parts, and wiring and assembly of the parts into lighting fixtures were conducted on site. Some plastic parts and electric plugs were produced on site in molding machines. Polyvinyl chloride (PVC) pellets were heated and molded into shape. Light bulbs were not manufactured on site but were purchased from outside suppliers. Hazardous substances used on site consisted of paint, paint thinner, solvents (formerly 1,1,1-TCA and then TCE), and waste oil from forklift operations. The report describes the degreaser and painting operations and the septic tank and sand filter operation.

The report stated that the former AST for 1,1,1-TCA was out of service in 1996 and that TCE was purchased in drums and stored in part of the warehouse without secondary containment. The report states that there are no known existing or historic USTs on site. The report also

summarizes the status of the various environmental programs including hazardous waste (facility was listed as a RCRA SQG at that time), solid waste (general trash, cardboard [recycled], and scrap metal [recycled]), air emissions (formerly had an air permit and had reapplied for another one), wastewater, asbestos, EPCRA, and PCBs (only the utility-owned transformers). The report stated that an asbestos survey previously had been conducted at the facility, and there were 220 linear feet of asbestos-containing material at the site, which was in good condition. There were also some old floor tiles that might contain non-friable asbestos. On July 3, 2013, facility personnel produced documentation showing that asbestos-containing material was removed from the building in 2007, and the personnel stated that no asbestos remains in the building.

The report made a reference to a historic spill of 5 to 20 gallons of 1,1,1-TCA and paint mixture which occurred on the concrete floor in the degreaser area on August 9, 1988. Some of the substance was discharged through a floor drain to a concrete driveway outside, where it later evaporated. According to the ESC Report of 1988, the Shelby Fire Department responded and saw that the spill appeared to be contained without a release to the environment. No soil samples were collected.

2.13.4 Environmental Assessment, 2002

The Environ document developed in 2004 makes reference to the *October 2002 Environmental Assessment of JJI Lighting Group, Shelby, North Carolina.* Neither facility nor corporate personnel have a copy of or know about this document. The 2004 document does not mention any specifics regarding the 2002 document.

2.13.5 Phase I Environmental Site Assessment Update, 2004

Excerpts of the summary letter report entitled *Final Phase I Environmental Site Assessment Update for the JJI Lighting Group Facility Located in Shelby, North Carolina* was available for review. This document summarized previous assessment findings from 1996 to 2002. The report also summarized the status of various environmental programs, including air emissions, hazardous waste management, wastewater, stormwater, and asbestos. The report indicated that the following activities being conducted in 1996 had ceased: vapor degreasing operations (discontinued in 2001), painting operations (discontinued in 2003 but a small paint booth was still on site for touch ups), and Hess America Division of JJI operations (that entity left the Site in 2003).

2.13.6 Untitled Environmental Summary, December 2005

Excerpts of an environmental summary document dated December 22, 2005 by Strata Environmental were provided for review by corporate personnel. This document summarized environmental activities at a number of JJI facilities in the U.S. including the Shelby Site. A reference is made to a Phase I ESA, with a site visit date of December 9, 2005. This summary

makes reference to the historic release of 5 to 20 gallons of a 1,1,1-TCA and paint mixture onto concrete and subsequent movement of some of the material through a floor drain onto a concrete driveway outside the building, where it reportedly evaporated. This is the same release previously mentioned in this work plan (Section 2.13.3).

2.13.7 Phase II Environmental Site Assessment, 2011

In August 2011, AECOM conducted a Phase II ESA at the Site to evaluate the three areas of potential concern identified in the historic environmental assessment reports. Collection and analysis of soil and groundwater samples were attempted at the following locations:

- Area of the former 1,1,1-TCA AST, which is just outside the former indoor solvent degreaser area where the historic release of 5 to 20 gallons of a solvent and paint mixture occurred in 1988;
- Area of the former septic and sand filter; and
- Area at the western edge of pavement where the alleged burning of paint from the conveyor hooks occurred during or prior to 1988.

Also, one background area was evaluated:

- Upgradient/background location at northeastern corner of Site

Four temporary groundwater monitoring wells were installed using a geoprobe; one additional well was attempted but geoprobe refusal occurred before groundwater was encountered. Soil and groundwater were sampled for VOCs (the only suspected constituent of potential concern), and the wells were abandoned. The only VOC detected in the soil samples collected was 4-methyl-2-pentanone, which was flagged as a laboratory artifact. Trace to low concentrations of VOCs were found in two of the groundwater samples. Groundwater analytical results from 2011 are summarized in Table 2-5.

The following substances were detected during the Phase II ESA of 2011 at concentrations exceeding the North Carolina 2L groundwater standards:

<u>Well TW-2 (installed at the location of the former 1,1,1-TCA AST)</u>

- 1,1-dichloroethane (DCA) (4.4J ug/L), compared with the 2L standard of 6 ug/L
- 1,1-dichloroethene (DCE) (250 ug/L), compared with the existing (at that time 2L standard of 7 ug/L)

- Tetrachloroethene (PCE) (19 ug/L), compared with the standard of 0.7 ug/L

- TCE (5.5 ug/L), compared with the standard of 3 ug/L

Well TW-3 (installed adjacent and downgradient of the former septic tank

- PCE (6 ug/L), compared with the standard of 0.7 ug/L

Well TW-1 (upgradient location) had no 2L exceedences

Well TW-5 (downgradient of the septic tanks at the edge of the woods) had no 2L exceedences

Analytical results for VOCs in groundwater in 2011 are depicted in Figures 2-6A, 2-7A, and 2-8A. A copy of the Phase II ESA Report is attached in Appendix C.

2.13.8 Phase IIB ESA and Partial Phase I RI

In January and February 2013, a Phase IIB ESA was conducted. Additional soil and groundwater sampling was conducted to determine the nature and some of the extent of hazardous substance release at and downgradient of most of the areas of potential concern. This investigation was conducted in accordance with much of the guidance listed in *Registered Environmental Consultant Program Implementation Guidance* (current version at that time), with the anticipation that this Site would later enter into the REC program.

Table 2-7 lists the various parameters samples, sampling techniques used, locations sampled, quality control, and rationale for sampling during this Phase IIB ESA/Partial Phase I RI. This information is cross-referenced with the Phase I RI requirements in the November 2012 version of the document referenced above, to indicate that some of the RI requirements in the REC program have been conducted for the Site.

Soil analytical results from January 2012 are listed in Table 2-4, and groundwater analytical results from February 2012 are listed in Table 2-5. The data are screened against the appropriate screening criteria for those media. Analytical results for soil are depicted in Figures 2-4A and 2-4B. Analytical results for VOCs in groundwater are depicted in Figures 2-6A, 2-7A, and 2-8A. A copy of the data validation results and laboratory analytical reports for the 2012 sampling events are included in Appendix L.

2.13.9 Groundwater Monitoring and Soil Sampling Event 2013 and Partial Phase I RI, 2013

AECOM collected depth to groundwater data and sampled all monitoring wells on site on May 9, 2013 for VOCs. Soil sampling for selected metals previously exceeding preliminary soil

remediation goals (PSRGs) (NCDENR, 2013c) also occurred that day, and groundwater sampling for selected metals occurred. The purposes of this event were to (1) collect another round of water levels and re-evaluate the groundwater flow direction, (2) re-evaluate the magnitude of VOCs in groundwater and compare with the February 2012 data, and (3) evaluate the distribution of metals across the site in potentially soil background areas and see if any of these metals are present in groundwater at concentrations exceeding the 2L standards. Results are included in the data summary tables for soil (Table 2-4) and groundwater (Table 2-5). Analytical results for soil are depicted in Figure 2-4C. Analytical results for VOCs in groundwater are depicted in Figures 2-6B, 2-7B, and 2-8B. Some of the Phase I requirements were conducted as part of the May 2013 sampling and monitoring event. A copy of the 2013 laboratory analytical report is included in Appendix L.

2.14 Summary of Partial Phase I RI Results and Delineation to Date

The following interim evaluations were made after reviewing the soil and groundwater data collected to date and the summary actions as assembled in Table 2-7.

2.14.1 Constituents of Concern for the Site

The constituents of concern present at the site include the following:

- VOCs: Chlorinated solvent VOCs, consisting of 1,1,1-TCA, TCE, and PCE and their degradation products (particularly 1,1-DCE).

- Metals: It is believed that all metals except perhaps chromium are naturally-occurring, since no metal plating or other metal manufacturing operations other than cutting and painting of rolled steel sheets is known to have been conducted at this facility. In the May 2013 sampling event, no arsenic or chromium concentrations exceeded the groundwater PSRGs, indicating that there is no evidence that the concentrations of these metals in Site soils have adversely impacted groundwater. There is one exceedence of the 2L standards for total and hexavalent chromium in groundwater: well MW-02 in February 2012 but not in May 2013. Additional groundwater sampling for metals will occur.

Semi-volatile organic compound (SVOC) sampling and analysis to date does not reveal any exceedences of soil or groundwater PSRGs; as a result, SVOCs are not considered to be constituents of potential concern. There is no known use or management of pesticides, PCBs, dioxins, cyanide, formaldehyde, nitrates, nitrites, ammonia, phosphorus or other Comprehensive Environmental Response, Compensation, and Liability Act(CERCLA) hazardous substance at the Site, based on the chemical usage history, other than maintenance and janitorial chemicals in small quantities or sanitary wastes in the septic tank. None of those substances are considered to be constituents of potential concern.

2.14.2 Horizontal and Vertical Extent of Hazardous Substance Releases

Vertical Extent of VOCs in Soil and Groundwater at Former 1,1,1-TCA Spill Area and Former AST: Soil data from boring SB-2/MW-2 to the water table did not reveal any soils impacted by VOCs. Data from well MW-2D indicated no VOCs exceeding PSRGs in two sampling events to date. Therefore, the vertical extent of VOCs in groundwater in this area appears to be defined. Continued monitoring of well MW-2D will be conducted to confirm vertical extent of VOCs in groundwater.

Horizontal Extent of VOCs in Soil and Groundwater from the Known 1,1,1-TCA Spill Area and Former AST: Soil data from spatial borings SB-1 through SB-6 did not reveal any soils impacted by VOCs in surface soils. The pavement in the parking area downgradient of the former AST is cracked. Downgradient and on-site well MW-3 has had no exceedences of the PSRGs during either the 2012 or 2013 sampling events. One additional groundwater monitoring well and a number of additional soil borings will be installed downgradient of this area to confirm that the horizontal extent of VOCs is defined.

Vertical Extent of PCE in Groundwater in the Former Septic Tank Area: Data from February 2012 did not indicate exceedence of PSRG in bedrock well MW-7D, but May 2013 data indicated an exceedence of the PSRG. Further monitoring of this well and this area will be conducted during the RI.

Horizontal Extent of PCE in Groundwater in the Former Septic Tank Area: Downgradient wells MW-6 (2012 and 2013) and TW-5 (2011) did not indicate any exceedences of the PSRG to date. One additional monitoring well to further evaluate the groundwater flow direction will be installed during the RI.

Potential Release of Hazardous Substances from Former Indoor Paint Storage Area: Installation and sampling of soil at points SB-SA-1 and -2 and groundwater at well MW-1 did not reveal any exceedences of the PSRGs for either media. There is no known historic spills in this area. The area is not an area of concern at the site.

Potential Release of Hazardous Substances from Former Indoor TCE Drum Storage Area and Former Alleged Outdoor Paint Burning Area: Analysis of soil samples at boring locations SB-SA-3 and SB-SA-6 in and downgradient of this area did not reveal any chlorinated VOCs. Trace levels of toluene and some polynuclear aromatic hydrocarbons were present but at concentrations less than the PSRGs. Analysis of groundwater data from well MW-4, located downgradient and adjacent to both of these areas, contained TCE at 25 and 15 ug/L during the 2012 and 2013 sampling events, respectively. The TCE concentrations exceeded the PSRG of 3 ug/L. The 1,1-DCE concentrations during the same period were 18 and 13 ug/L. The 1,1-DCE concentrations did not exceed the recently revised PSRG of 350 ug/L but exceed the EPA MCL of 7 ug/L. The horizontal and vertical extent of VOCs in this area will be further evaluated.

Horizontal Extent of Hazardous Substances from Former Outdoor Paint Burning Area: Installation and sampling of soil and groundwater at well MW-3 downgradient of the well MW-4 area did not reveal any exceedences of the PSRGs for VOCs or SVOCs. Both of these two wells are downgradient of the former paint burn area. The PSRGs for arsenic, iron, and vanadium in soil were exceeded in the 2012 samples. A resampling for arsenic at two nearby surface soil locations, points BG-3A and BG-3B, did not reveal any exceedences of the site-specific background maximum for arsenic. No VOCs exceeded the 2L standards in groundwater at well MW-3 for either the 2012 or the 2013 sampling event, and no chlorinated VOCs were detected during either event. The metals total chromium, iron, and manganese exceeded the 2L standard in at least one event at well MW-3. Hexavalent chromium was not detected at well MW-3. Because the outdoor paint burn area and the former indoor TCE storage area are almost contiguous units, the two will be evaluated together in future RI activities. The pavement in the parking area downgradient of this area is cracked, and more surface soil samples will be collected during the RI.

2.14.3 Remaining Areas of Potential Concern

Based on the analytical data to date, the following areas of potential concern at the Site still remain:

- Former 1,1,1-TCA AST/Former TCA Spill Area/Former Indoor Solvent Degreaser (contiguous locations)
- Former Septic Tank
- Former Indoor TCE Drum Storage Area/Former Outdoor Paint Burn Area (contiguous locations)

Constituents of potential concern for the site identified using these data are further discussed in Section 3.1, “Areas of Concern Identification and Sampling Rationale” for this Phase I and II RI.

2.14.4 Data Gaps in the Partial RI Data Set to Date

As indicated in Table 2-7, the following potential data gaps in the RI remain at the areas of potential concern after the August 2011 to May 2013 sampling and monitoring events:

- Former indoor solvent degreaser: No soil borings have been advanced to date inside the building and through the floor of the former degreaser area, to look for a source of VOCs previously detected in groundwater in outside well MW-2.

- Former 1,1,1-TCA AST: More soil samples in the areas of cracked asphalt pavement may need to be collected and analyzed for VOCs, in an attempt to evaluate a continuing source of VOCs in soil.

- Former septic tank and sand filter:

    - No subsurface soil samples have been collected to date around these two units (only surface soil data have been collected). The samples need to be analyzed for VOCs.

    - Vertical extent of PCE in groundwater has not yet been defined to the 2L standard in area of former septic tank.

    - The horizontal extent of VOCs and confirmation of groundwater flow direction downgradient of wells MW-7 and MW-7D may need to be better defined, with the installation of one additional well, located between existing wells MW-6 and MW-3.

    - Historic releases from this area to the unnamed creek at the western boundary needs to be evaluated. No surface water or sediment sampling has been conducted to date.

- Former TCE indoor storage area and former outdoor paint burning area (almost contiguous units):

    - More surface soil samples in the areas of cracked asphalt pavement may need to be collected and analyzed for VOCs, in attempt to evaluate a continuing source of VOCs in soil.

    - Surface soil samples at the edge of the pavement near the paved drainage channel need to be collected and analyzed for VOCs.

    One or two more groundwater monitoring wells at the property line and near the paved drainage channel need to be installed, to better define the groundwater flow direction and horizontal extent of VOCs in this area

- Background groundwater monitoring well: A permanent background well, screened in the shallow aquifer, needs to be installed between the Piedmont Components property and wells MW-5 and MW-7, where PCE has been detected. Groundwater from that well would also be monitored for metals and SVOCs, in addition to VOCs.

- Additional soil background data: To date, only three soil background points have been established on site. Those locations, shown in Figures 2-4A through 2-4C, are indicated as BG-1, BG-2, and BG-3. A minimum of five background points is recommended in the REC guidance. Statistics would be used to update background concentrations for metals.

3.0 PROPOSED METHODS OF INVESTIGATION

This section of the Phase I RIWP addresses additional information necessary to complete the RI Report for the Site as defined by the AA. The executed AA defines the Site as The “Site” is “any area on the property located at 639 Washburn Switch Road, Shelby in Cleveland County, North Carolina and currently owned by Genlyte Thomas Group LLC where a hazardous substance has been disposed, deposited, placed or discharged and any other area or property to which the contamination from that disposal, deposition, placement or discharge has come to be located."

Section 3.1 provides the rationale for completing the RI to address the data gaps identified in Section 2.14.4 for the areas of concern at the Site.

3.1 Sampling Rationale and Locations [.0306(g)(14) and (15)]

Data generated from previous investigation phases indicated the presence of various VOCs and metals in Site soil and groundwater at the areas of concern listed in this section. The rationale for identifying these areas of concern is discussed in Section 2.13. The sampling rationale to address data gaps for each of these areas of concern are summarized in this section. Proposed additional soil and groundwater assessment locations in this area are shown in Figure 3-1. Table 3-1 shows the depths at which samples will be collected and parameters which will be analyzed.

3.1.1 Former 1,1,1-TCA AST/Former TCA Spill Area/Former Indoor Solvent Degreaser

These are three contiguous areas part of which is outdoors and part indoors. Data gaps to complete include additional soil sampling to evaluate an ongoing VOC source in soils, and further evaluation of the horizontal extent of VOCs in groundwater.

- <u>Advance soil boring(s) SB-DG-1 and Contingent Boring SB-DG-2 through the former indoor degreaser pit (if drill rig access can be achieved):</u> Depending on access constraints and overhead constraints, surface and shallow subsurface borings will be attempted inside the building. The former degreaser pit is concreted and is about 2 feet below the ambient floor grade. It may or may not be possible to install one to two borings through the concrete. If possible, the borings initially will go no deeper than 10 feet bgs, to evaluate the presence of VOCs. If field screening instruments do not detect VOCs, then the boring(s) will be installed at deeper depths. Since the former pit is subgrade, a permanent well will not be installed so that a conduit to the water table does not remain. Once sampled, the boring(s) will be grouted up.

- <u>Advance and sample additional soil borings in the outdoor area near and downgradient of the former outdoor 1,1,1-TCA AST:</u> Approximately three to six more soil borings, numbers SB-SA-10 through SB-SA-15 (as needed), are planned for this area, to evaluate if a soil source of VOCs and chromium remains in the area. Soils will be

screened in the field for organic vapor. If detected, samples for laboratory analysis will be collected. A minimum of three surface soil samples, collected from 0.5 to 1.0 feet bgs, will be collected for laboratory analysis. If a significant soils source of VOCs is detected with the screening instrument in the field, that boring will be advanced deeper until no VOCs are indicated or to the water table.

- Install and sample new downgradient monitoring well MW-8: Monitoring well MW-8 will be installed south-southeast of this area at the property line. A surface soil sample will be collected at this location, and soils will be screened every five feet to the water table. The purpose of this boring and well is to evaluate surface and subsurface soil quality, to further evaluate groundwater flow direction, and to confirm that no VOC contamination is going off site. Groundwater will be sampled for VOCs and metals.

3.1.2 Former Septic Tank Area

Data gaps to fill include additional soil sampling to evaluate an ongoing VOC source in soils and further evaluation of the horizontal extent of VOCs in groundwater.

- Collect and analyze subsurface soil samples at a minimum of two borings adjacent to the former septic tank and former sand filter: Borings will be indicated as SB-16 and SB-17. Surface and subsurface soil samples will be collected and analyzed for VOCs and metals at 5-foot intervals to the water table. At least one SVOC sample will be collected and analyzed for each location. Tentatively-identified compounds (TICs) will be analyzed in the VOC and SVOC samples analyzed for total constituent analysis.

- Install and sample a new, deeper bedrock well MW-7D-BR: The purpose of this well is to evaluate the vertical extent of PCE in groundwater. Target depth will be 75-85 feet bgs (depending on the depth of a water-bearing fracture), since well MW-7D is screened from 45 to 55 feet bgs. Groundwater will be sampled for VOCs and any remaining constituents of concern for this area.

- Install new monitoring well MW-9 at the edge of the asphalt pavement on the west side of the Site: This well will be installed between existing wells MW-3 and MW-6, to better evaluate the groundwater flow direction and the horizontal extent of PCE in groundwater.

- Install background groundwater monitoring well MW-10: A permanent background well, screened in the shallow aquifer, will be installed between the Piedmont Components property and wells MW-5 and MW-7, where PCE has been detected. Existing potentiometric data indicate that this well will be hydraulically upgradient of the rest of the Site. The well will also evaluate whether a PCE source may be present off-site and upgradient of the Site. Groundwater will be sampled for metals, VOCs, and SVOCs, including TICs.

- Collect surface water and sediment samples upstream and downstream of the former Outfall No. 1 at the unnamed creek tributary: There is an abandoned staircase at the creek, where surface water and sediment samples could be collected. It has been several years since the wastewater discharge to the creek was stopped, as a result of the facility hooking into the City of Shelby sewer system. Surface water and sediment samples, denoted as SW-1 (off-site and upstream of the former point of discharge), SW-2A and SW-2B (at and 30 feet downgradient of the former point of entry), and SW-3 (immediately off site), which appears to be less than 100 feet downstream. Samples will be analyzed for VOCs, SVOCs, and metals, except for SW-3, which is just for VOCs; the rationale for this is that VOCs are the only constituent of concern in the groundwater at the former septic tank area. It appears that the upstream, off-site location is within 100 feet of the former point of entry. It should be noted that another facility, Jefferson Smurfit (also previously known as Smurfit Stone), also discharged wastewater in the past into this creek, at a point very close to the Specialty Lighting discharge point. In the event that VOC impacts to the creek are found, it is possible that the impacts could have come from this other facility, and not Ardee Translite.

3.1.3 Former TCE Indoor Storage Area and Former Outdoor Paint Burning Area

- Advance and sample additional soil borings in the outdoor area near and downgradient of these two almost contiguous units: Approximately three to four more soil borings, numbers SB-SA-18 through SB-SA-21 (as needed), are planned for this area, to evaluate if a soil source of VOCs remains in the area. Soils will be screened in the field for organic vapor. If detected, samples for laboratory analysis will be collected. A minimum of three surface soil samples, collected from 0.5 to 1.0 feet bgs, will be collected for laboratory analysis. If a significant soils source of VOCs is detected with the screening instrument in the field, that boring will be advanced deeper until no VOCs are indicated or to the water table.

- Collect and analyzed surface soil samples at edge of the pavement: Soil samples near the paved drainage channel and farther to the west will be collected and analyzed for VOCs, and metals as needed. These locations are designated as SB-22 through SB-25, indicating that a maximum of four soil samples will be collected. They will be collected at a depth of 0.5 to 1.0 feet bgs. Based on soil screening for organic vapor, it is possible that deeper samples could be collected at a given location.

- Install and sample new downgradient monitoring well MW-11: Monitoring well MW-11 will be installed downgradient of this area at the property line, near the location where the paved runoff ditch is located. A surface soil sample will be collected at this location, and soils will be screened every five feet to the water table. The purpose of this boring and well is to evaluate surface and subsurface soil quality and to confirm no VOC contamination is going off site. Groundwater will be sampled for VOCs and maybe some metals.

3.1.4 Dissolved Chlorinated VOCs in Groundwater

This is an area of concern that is addressed in each of the three subsections (3.1.1 through 3.1.3) above.

3.1.5 Metals in Soil and Groundwater

Site-Specific Background for Metals

- Additional soil background data: To date, only three soil background points have been established on site. Those locations, shown in Figures 2-4A through 2-4C, are indicated as BG-1, BG-2, and BG-3. A minimum of five background soils locations is recommended in the NCDENR IHSB guidance. Soil samples were collected from the 0.5- to 1.0-foot bgs interval and analyzed in January 2012. Five more background samples are planned, at points BG-4, BG-5, BG-6, BG-8, and BG-9 shown in Figure 3-1. Surface soil samples (0 to 0.5 feet bgs) were collected at these and other locations in May 2013 to compare with the background data points. A target analyte list (TAL) metals suite (same parameters as analyzed in January 2012) will be run for these samples.

Other Metals in Soil and Groundwater

- Additional metals analysis: Listed in Sections 3.1.1 through 3.1.3 above are the planned analyses for metals at the areas of concern. All of the metals that have exceeded the maximum background concentrations evaluated to date will be analyzed. See Table 3-1 for a list of these metals. Also, some additional metals samples will be analyzed in groundwater. Based on the past analytical data and on the background information researched regarding site operations, it is believed that all metals found to date, except maybe for chromium at the SB-2 area, are naturally-occurring.

3.2 Sample Collection Procedures and Methods [.0306(g)(14) and (15)]

The following sections provide a description of intended procedures, locations, depths and justification for proposed collection points and media to be sampled. The Standard Operating Procedures (SOPs) found in the EPA Region IV Science and Ecosystem Support Division *Field Branches Quality System and Technical Procedures* (EPA, 2012) documents will generally be followed for sampling of soils, groundwater, surface water and sediments, unless otherwise specified herein.

The proposed sampling program analytes and locations are described in Figures 3-1 and 3-2. The final sampling program, including sampling locations and parameters analyzed, may be adjusted based on field conditions. Deviations from the sampling program described in this Phase I RIWP will be summarized and justified in the final RI Report.

3.2.1 Soil Sampling Methods

This subsection discusses field screening techniques, sample collection methods and depths, and background metals approach and methods.

Field Screening Techniques

Since VOCs are the primary constituent of concern at this site, soil samples will be screened in the field for VOCs using a photo ionization detector (PID). Samples will be placed in zip-lock plastic bags and the headspace allowed to equilibrate before an organic headspace reading is collected. One of the criteria for choosing samples for laboratory analysis is use of the field screening data.

Sample Collection Methods

For subsurface soil sampling, continuous soil core sampling will be conducted using a geoprobe, or discrete interval soil samples will be collected using an auger rig. Surface soil samples may be collected using a hand auger or a geoprobe or auger rig.

Sample Collection Depths and Quantities

All soil boring locations will include near surface samples collected from depths of 0-0.5 feet and 0.5-1 feet bgs for screening and visual inspection. Metals and SVOC analyses will be conducted on selected samples collected as shallow as 0-0.5 feet bgs. Samples submitted for VOC analysis well be collected from a minimum depth of 0.5 feet bgs, (i.e., no surface samples). Many of the soil borings to be collected are located in areas that have an asphalt or concrete cover.

Soils also will be collected from depth of 1.5 to 2 feet and from 4.5 to 5 feet in each borehole for screening and visual inspection. Then, at least one-fourth of the borings will be advanced to the water table for field screening and potential laboratory analysis. Since the water table is estimated to range from 15 to 30 feet bgs, depending on the time of year and amount of precipitation, samples will be collected at 5-foot intervals.

The estimated quantities of additional soil samples, besides what has already been analyzed to date, will be collected for laboratory analysis during the Phase I and II RI investigation:

- Estimated 26 VOC samples, plus equipment blanks and duplicates, and VOC TICs, analyzed by Method 8260;

- Estimated 11 SVOC samples, plus equipment rinsate blank and duplicate, analyzed by Method 8270;

- Estimated 19 metals samples, plus equipment blank and duplicate, analyzed by Method 6010/7471.

Background Metals

Shallow and deeper soil samples will be collected for TAL metals analyses at four additional on-site background locations, to complement the three locations already sampled in 2012. Samples will be collected from at least 0.5 feet bgs; top soil will not be collected for background samples. Samples will be screened with a PID to confirm that no VOCs are present in the sample. Possible locations are shown in Figure 3-1. Soil samples were collected in May 2013 at surface (0-0.5 feet bgs) locations across the site, and points adjacent to those locations could be possible locations for background samples at deeper depths. Background samples will be collected using a decontaminated hand auger.

3.2.2 Vapor Intrusion Evaluation Approach and Methods

Vapor Intrusion Screening

The vapor intrusion evaluation will be performed according to the requirements in the NCDENR *Supplemental Guidelines for the Evaluation of Structural Vapor Intrusion Potential for Site Assessments and Remedial Actions Under the Inactive Hazardous Sites Branch* (NCDENR, 2011). This evaluation will be conducted after the next round of soil and groundwater sampling is completed, so that vapor intrusion screening (NCDENR, 2012b) can be conducted using the entire set of VOC soil and groundwater data. An initial screening appears in Table 2-8.

Subslab Sampling

Until the additional soil and groundwater sampling is conducted and the vapor intrusion screening performed, it is unknown whether or not subslab sampling is necessary and where such sampling, if required, would be performed. As a contingency, the following protocol is summarized in the event that subslab sampling is required at the Site.

NCDENR IHSB Supplemental Guidelines for the Evaluation of Structural Vapor Intrusion Potential for Site Assessments and Remedial Actions Under the Inactive Hazardous Sites Branch state that when a building is on top of soil contamination, a subslab vapor sample should be collected.

If such sampling is necessary, the subslab vapor probes would be installed at the interface of the concrete slab and underlying gravel/soil according to the following procedures:

- A 1.25-inch diameter core bit will be used to drill through the concrete floor slab.
- A section of one-quarter-inch outer diameter Teflon®-lined tubing will be inserted to approximately flush with the concrete/subslab gravel interface. The tubing will be fitted with a 0.25-inch diameter polyethylene vapor implant.
- Sand will be placed around the tubing to approximately 1-inch above the top of the vapor implant.
- Approximately one-half-inch of hydrated bentonite will be placed above the sand.
- The remainder of the borehole will be filled with cement grout to the surface.

Following installation, the subslab vapor probe will be allowed to equilibrate for a minimum of 48 hours prior to sampling. Prior to collecting samples from each subslab vapor point, a tracer leak test using helium gas will be conducted to check for leaks in the sampling train. The new and existing subslab vapor probes will then be purged a minimum amount (less than one liter) using a hand vacuum pump and measured using a 1-liter Tedlar bag. Following purging, subslab vapor samples will be collected from each probe using laboratory prepared, decontaminated 1-liter Summa canisters under a vacuum of 25 to 30 inches of mercury. Each Summa canister will be equipped with a 0.5-hour flow controller and connected to the vapor point tubing using stainless steel fittings (nut and ferrule setup) and Teflon-lined tubing.

Subslab vapor samples will be submitted under chain-of-custody record to a North Carolina certified laboratory for analysis of VOCs by Method TO-15 SIM. Only those VOCs present in soil and groundwater at the Site and their transformation products will be analyzed for in subslab vapor samples. Samples will also be analyzed for helium to confirm the results of the field tracer leak test measurements. One field duplicate sample and one trip blank will be analyzed for QA/QC.

<u>Indoor Air Sampling</u>

Following a review of the laboratory data, AECOM will determine if additional sampling or delineation is necessary. If laboratory data indicate additional sampling or probe installation is necessary, the installation and sampling procedures described above will be followed for additional soil gas probes that may be installed.

Based on the results of any subslab sampling, it is possible that current subslab sample contaminant concentrations may exceed the current NCDENR IHSB industrial/commercial soil gas screening levels. If this does occur, AECOM will request the IHSB to calculate the actual collective cancer risk and Hazard Index posed by the contaminants for comparison to the acceptable cancer risk/non-cancer hazard targets as detailed in the *Supplemental Guidelines for the Evaluation of Structural Vapor Intrusion Potential for Site Assessments and Remedial Actions Under the Inactive Hazardous Sites Branch*. If the subslab sampling results exceed the site-specific IHSB calculated allowable risk, indoor air sampling will be conducted. The Phase II RIWP will document the sampling locations and methodology for indoor air sampling, if required.

3.2.3 Groundwater Sampling Methods

Monitoring Well Installation Methods

Shallow groundwater monitoring wells will be installed using hollow stem auger drilling methods with possible supplemental air rotary drill out if the well enters the PWR zone. Each saprolite or PWR well will be constructed as a Type II well with 2-inch diameter PVC casings and 10-foot long PVC screens. Shallow wells will be used to monitor the deep saprolite and top of PWR zones. The maximum depth of the shallow wells will be approximately 40 feet bgs.

Deep monitoring wells in the bedrock will be constructed as Type III wells with inner and outer casings. A combination of hollow stem auger and air rotary drilling methods will be used to install a 6-inch diameter outer casing grouted at least five feet into competent bedrock. The borehole will then be advanced into competent rock below the outer casing using air rotary drilling methods. Drilling will continue until one or more water-bearing fracture zones are encountered. {The inner well casings will consist of PVC materials and a 5-foot or 10-foot PVC screen will be used. Total depths of the deeper wells are estimated to range from 55 feet to 80 feet bgs, depending on depths to top of bedrock and fracture depths.

After well construction is completed, most likely with a surface completion and well vault, each new well will be developed by pumping and/or surge block methods to remove sediment and develop the well sand pack around the screens. Purge water will be contained in metal DOT-rated drums pending analysis and off-site disposal. The top each well and adjacent ground surface will be surveyed for elevation and location by a professional land surveyor.

Field Screening Techniques

Color-Tec® field screening methods can be used as needed as a groundwater screening tool for the presence of chlorinated VOCs. Soil samples screened for organic vapor using a PID is another screening technique that can be used to locate groundwater monitoring wells, as required.

Groundwater Sampling Procedures

After the wells are completed, they will be gauged for water levels and sampled at least one week later. The groundwater samples will be collected using low-flow purging and sampling technique in accordance with the EPA standard operation procedures (SOPs). Prior to sampling, static groundwater elevation measurements will be recorded from each monitoring well. Field water quality parameters of pH, dissolved oxygen, specific conductance, temperature, and oxidation reduction potential (ORP) will be measured during purging and sampling.

The monitoring program for groundwater is summarized in Table 3-2.

Groundwater Sample Quantities

The estimated quantities of additional groundwater samples, besides what has already been analyzed to date, will be collected for laboratory analysis during the Phase I and II RI investigation:

- Estimated 13 VOC samples, plus equipment blanks, trip blank, and duplicate, and VOC TICs, analyzed by Method 8260;
- Estimated 5 SVOC samples, plus equipment rinsate blank and duplicate, analyzed by Method 8270;
- Estimated 15 metals samples, plus equipment blank and duplicate, analyzed by Method 6010/7471;
- Estimated 5 hexavalent chromium samples, plus equipment blanks and duplicate, analyzed by Method 6010/7471;
- Estimated 6 1,4-dioxane samples, plus equipment blank, trip blank and duplicate from VOC analysis above, analyzed by Method 8260 SIM.

Background Monitoring Well Installation

A background monitoring well, MW-10, will be installed in the shallow aquifer at a location between existing wells MW-5 and MW-7 and the property line with Piedmont Components. The purposes of this well are to evaluate groundwater quality as the groundwater flows onto the property and to better evaluate groundwater flow direction.

3.2.4 Surface Water and Sediment Sampling Methods

Sample Collection Methods

Surface water and Sediment samples will be collected in accordance with EPA SOPs. Because the unnamed stream is very shallow, a decontaminated dipper can be used to reach into the stream and collect the sample, without the sampler having to enter the stream. Sediment samples will be collected using one of the following devices: decontaminated hand auger, spoons, mini-Ponar dredge, or by driving a sampling tube. Since the creek is very small and shallow, it is likely that a hand auger or spoon can be used. Samples will be collected from quiescent locations where sediment has collected.

Surface Water and Sediment Sample Locations and Depths

For surface water and sediment sampling downstream-most locations will be sampled first, followed by moving upstream. Sediment likely will be collected from the 0-0.5 foot or 0 -1.0 foot depths, since the stream is small and sediment depths likely are relatively shallow. Approximate sampling locations are shown in Figure 3-3.

Background/Upstream Sampling

At least one upstream, off-site location will be sampled for surface water and sediment. It is estimated that within 100 to 150 feet, an off-site location will be encountered. The approximate location is shown in Figure 3-3.

3.3 Field and Laboratory Procedures [.0306(g)(16)]

In order to preserve sample integrity, samples will be collected in the appropriate containers, preserved when required and stored at the appropriate temperature. Samples will be carefully packed in coolers, chain of custody documents will be maintained, and samples will be properly shipped or transported to the laboratory using the procedures outlined in this section. These procedures are compliant with the technical requirements outlined in appropriate EPA Region IV *Field Branches Quality System and Technical Procedure* documents.

3.3.1 Field Notebooks

Field notebooks containing information pertinent to the field sampling program will be maintained. The field books will be bound, have pre-numbered pages, and have entries made in indelible ink. Corrections will be made by drawing a line through the incorrect entry and initialing and dating the correction. The field books will be used to record a chronology of events during the field sampling program, to list additional information not recorded on the

groundwater sample collection record, to detail problems encountered and solutions implemented, and to record contacts made during the field program.

Field books and other field records will be maintained by the Field Manager during field activities and stored in a secure location. Upon completion of field activities, records will be transferred to the central files as permanent records.

Field books will contain the following:

- Name and location of the Site, project and task number
- Sample depth, well depth
- Water level gauging measurements
- Field measurement technique(s) and detailed information concerning the equipment used
- Sampling sequence
- Date(s) and time(s) of each sample collection event and date and time of samples and person(s) physically collecting the samples
- Observations of field activities taking place, progress, and problems (including any unusual or unexpected events)

Each entry in the field notebook will be signed and dated by the author. No pages will be removed from the logbook for any reason. In addition, groundwater sample collection records and chain of custody forms will be prepared and kept as part of the official field record. Field records will be collected and maintained by the Field Manager until completion of the field program or until they are submitted to the project central file.

3.3.2 Soil and Sediment Sample Collection Record

The following information will be recorded in the project specific field book for each soil or sediment sample collected:

- Sample identification
- Sampler's name

- Date and time of sample collection
- Sample depth
- Field testing equipment used
- Sample collection methods
- Light non-aqueous phase liquid (if any)
- Appropriate comments.

3.3.3 Groundwater and Surface Water Sample Collection Record

One form will be completed for each groundwater and surface water sampling point and each sample collected. The form will include the following information:

- Project identification
- Well number
- Sampler's name and signature
- Weather conditions
- Date and time of collection
- Water level data from the top of the casing
- Well purging data
- Field testing equipment used
- Groundwater temperature, pH, ORP, dissolved oxygen, turbidity and specific conductivity
- Sample collection method
- Appropriate comments

3.3.4 Sample Containers and Preservation

Appropriate containers will be used during sample collection. Appropriate containers are defined as pre-cleaned containers supplied by the analytical laboratory. These containers are to be shipped from the laboratory with Teflon-lined caps that are securely fastened. Samples will be transferred directly from the sampling device to laboratory prepared containers.

Samples will be labeled and then placed in coolers with ice in accordance with EPA protocols. Samples will be delivered or shipped to the laboratory for analysis or transferred to the laboratory's courier within the holding time requirement from the date of collection. Should additional parameters be requested for analysis, appropriate containers, preservation and holding time requirements will be met.

3.3.5 Sample Custody Documentation

Samples will be identified using a sample label or other appropriate identification attached to the sample container. Each label will provide, at minimum, the following information:

- Project identification
- Sample location
- Sample identification
- Date of collection
- Time of collection
- Type of sample (grab or composite)
- Preservative
- Analysis requested
- Special conditions or requirements
- Sampler's initials

3.3.6 Chain-of-Custody Record

The designated person responsible for the sampling event will complete the chain of custody record fully (in indelible ink). The custody record will include the information recorded on the sample labels. Additional information on the chain of custody record will include:

- Sample matrix
- Container size and number of containers per sample
- Custody seal number
- Transfer signatures

The actual chain of custody form utilized may vary in format depending upon the selected laboratory but the information provided will be complete.

3.3.7 Transfer of Custody and Shipment

Samples will be properly packaged and labeled for shipment or transfer to the appropriate laboratory. A separate chain of custody record will be prepared for each package containing samples. Shipping of samples will be in conformance with United States Department of Transportation regulations contained in 40 CFR 170-179. If the samples are hand delivered to the laboratory or courier, special requirements or time constraints should be expressed to the sample custodian upon delivery. Special conditions or requirements will be noted on the chain of custody form.

Samples will be handled in accordance with strict chain of custody procedures. The possession of samples will be traceable from the time of collection until they are disposed. Sample information will be documented on a chain of custody form, including preservation, analytical requirements, special conditions, etc.

Samples will be accompanied by a chain of custody form. When transferring the possession of samples, the individual relinquishing and receiving the samples will sign, date and note the time of transfer on the record. If the samples are transferred to a shipper, the name of the shipper, date of delivery and the shipment tracking number will be noted on the record. Packages will be accompanied by the chain of custody form.

In accordance with requested quality QA/QC procedures, the sample custodian or receiver at the laboratory should verify that the information on the chain of custody record matches the contents of the package. The custodian or receiver should sign, date, and note the time of

receipt on the record. The record should be included as a part of the analytical data package provided by the laboratory.

3.3.8 Field Duplicates

Field duplicates will be collected at a frequency of one field duplicate per media per 20 samples. Field duplicates will be collected by alternately filling two sets of identical sample containers from the interim container used to collect the sample. Field duplicates will be analyzed for the same parameters as their associated samples.

3.3.9 Trip Blanks

Trip blanks will originate at the analytical laboratory and will be prepared by filling 40-milliliter glass vials with de-ionized, organic-free water. A trip blank will be included in sample shipment to the laboratory for each sample cooler containing samples designated for VOCs analysis, including 1,4-dioxane SIM method.

3.3.10 Equipment Blanks

An equipment blank will be collected daily or 1 per 20 samples from sampling equipment. These samples will be collected by pouring organic-free, de-ionized water through a piece of sampling equipment (i.e., water level meter, submersible pump, etc.) and collecting the water into the appropriate containers.

3.3.11 Matrix Spike/Matrix Spike Duplicates

One groundwater and one soil sample location will be selected for the matrix spike/matrix spike duplicate (MS/MSD) analysis that will be performed by the laboratory for each analytical batch. Including the regular sample, triplicate sample volumes will be collected from the selected MS/MSD sample location.

3.3.12 Data Validation Procedures

The data package from the North Carolina Certified laboratory conducting the analytical work will be reviewed for conformance to the requirements of SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods, the EPA *Contract Laboratory Program National Functional Guidelines for Organic/Inorganic Data Review* (EPA, 2004 and 2008), and the EPA *Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services* (EPA, 1999).

In the event that subslab soil gas sampling is required, QA/QC procedures described in the NCDENR *Supplemental Guidelines for the Evaluation of Structural Vapor Intrusion Potential for Site Assessments and Remedial Actions Under the Inactive Hazardous Sites Branch* and

current EPA guidance will be followed. A tracer gas test will be conducted for each soil gas probe assembly. The tracer gas serves as a quality assurance/quality control device to verify the integrity of the soil gas probe seal. Helium will be used as the tracer gas. A field instrument capable of detecting helium will be used to verify the presence and concentration of tracer gas. Helium will be introduced to an enclosure over the probe assembly. Following detection of the tracer gas in the enclosure, the field instrument will be connected to the soil gas probe to determine if the tracer gas is leaking into the probe point from the surface. If the tracer gas is not detected, the soil gas sample will be collected. If the tracer gas is detected, then the probe point will be re-constructed or re-sealed until no tracer gas is detected.

One field duplicate soil gas sample will be collected for QA/QC purposes. The Field duplicate will be analyzed for VOCs. The field duplicate sample location will be determined in the field. Additionally, the analytical laboratory will analyze a laboratory blank for VOCs, and will perform daily QC checks.

3.4 Analytical Parameters and Methods [.0306(g)(17)]

Soil and groundwater samples will be analyzed by the following methods as summarized on Tables 3-1 and 3-2 for:

- Total hazard substance list (i.e. TAL) metals including aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc using the appropriate SW-846 Methods;

- Hexavalent chromium using EPA Method 7196 (for soil) or SM 3500 (for groundwater);

- VOCs using EPA SW846 Method 8260;

- SVOCs using EPA SW846 Method 8270;

- All VOCs and SVOCs included on the EPA Contract Laboratory Program Target Compound List will be reported and a library search (using the National Institute of Standards and Technology mass spectral library) will be employed to produce a list of TICs. The library search will be used to identify TICs for the largest 10 peaks in each analytical fraction.

- 1,4-dioxane using EPA Method 8260 SIM will be analyzed in soil samples collected from the former 1,1,1-TCA AST and former indoor degreaser area.

Subslab vapor samples, if required, will be analyzed by the following method:

- VOCs by EPA Method TO-15 SIM

3.5 Decontamination Procedures [.0306(g)(18)]

Equipment used during the investigation will be appropriately decontaminated using an Alconox™ and water solution in general accordance with appropriate EPA Region IV *Field Branches Quality System and Technical Procedure* documents (EPA, 2012). Decontamination water and soil cuttings will be containerized in 55-gallon drums and secured onsite pending laboratory analysis. Personnel protective equipment (PPE) will be disposed of along with the investigation-derived waste (IDW) at a permitted facility for non-hazardous waste, unless VOCs or other constituents are detected at concentrations indicating the presence of hazardous waste. Any rinse water decontamination of PPE, such as rubber boots, will be contained and disposed off site with other IDW.

3.6 Community Health and Safety Plan [.0306(g)(19)]

A copy of the Site-specific Health and Safety Plan (HASP) is included as Appendix M. This HASP has been written to comply with the requirements of Section .0306 (d) of the Technical Standards for RECs for the State of North Carolina. It includes protocols for protecting the community.

3.7 Schedule of Activities

A tentative schedule for this work appears below. The schedule assumes that this RIWP is submitted to the NCDENR by the end of September 2013. The schedule is contingent on the findings of each remaining stage of the RI.

RI Work Task/Milestone	Estimated Start Date	Estimated Completion Date
Submit This RI Work Plan	June 2013	End of July 2013
Soil and Groundwater Sampling and Attempted Surface Water/Sediment Sampling	Mid to Late Oct, 2013	Mid-November 2013
Laboratory Analysis and Data Review and Validation	October 2013	Early December 2013
Additional RI Field Work (if required)	December 2013	January 2014
Prepare and Submit Final Draft and RI Report	November 2013	April 2014

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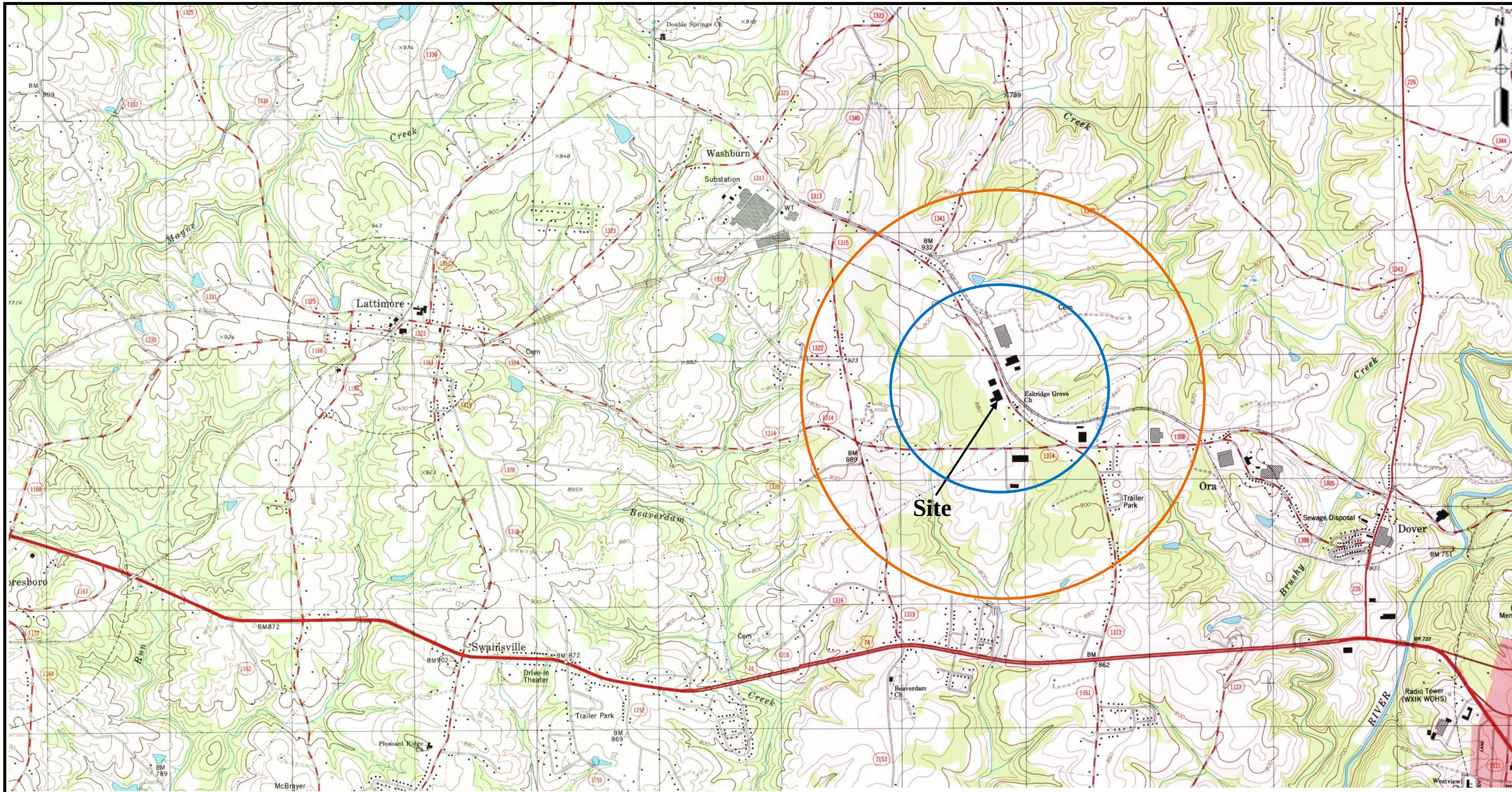
FIGURES



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KILOMETERS 1 0.5 0 1 2

METERS 1000 0 1000 2000

MILES 1 0.5 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

- ½ Mile Radius

- 1 Mile Radius

Source: USGS 7.5 Minute (Topographic) Series: Shelby, North Carolina Quadrangle
USGS 7.5 Minute (Topographic) Series: Boiling Springs, North Carolina Quadrangle

AECOM

FIGURE 2-1
SITE LOCATION MAP
ARDEE TRANSLITE
RI WORK PLAN
SHELBY, NORTH CAROLINA

JULY 2013

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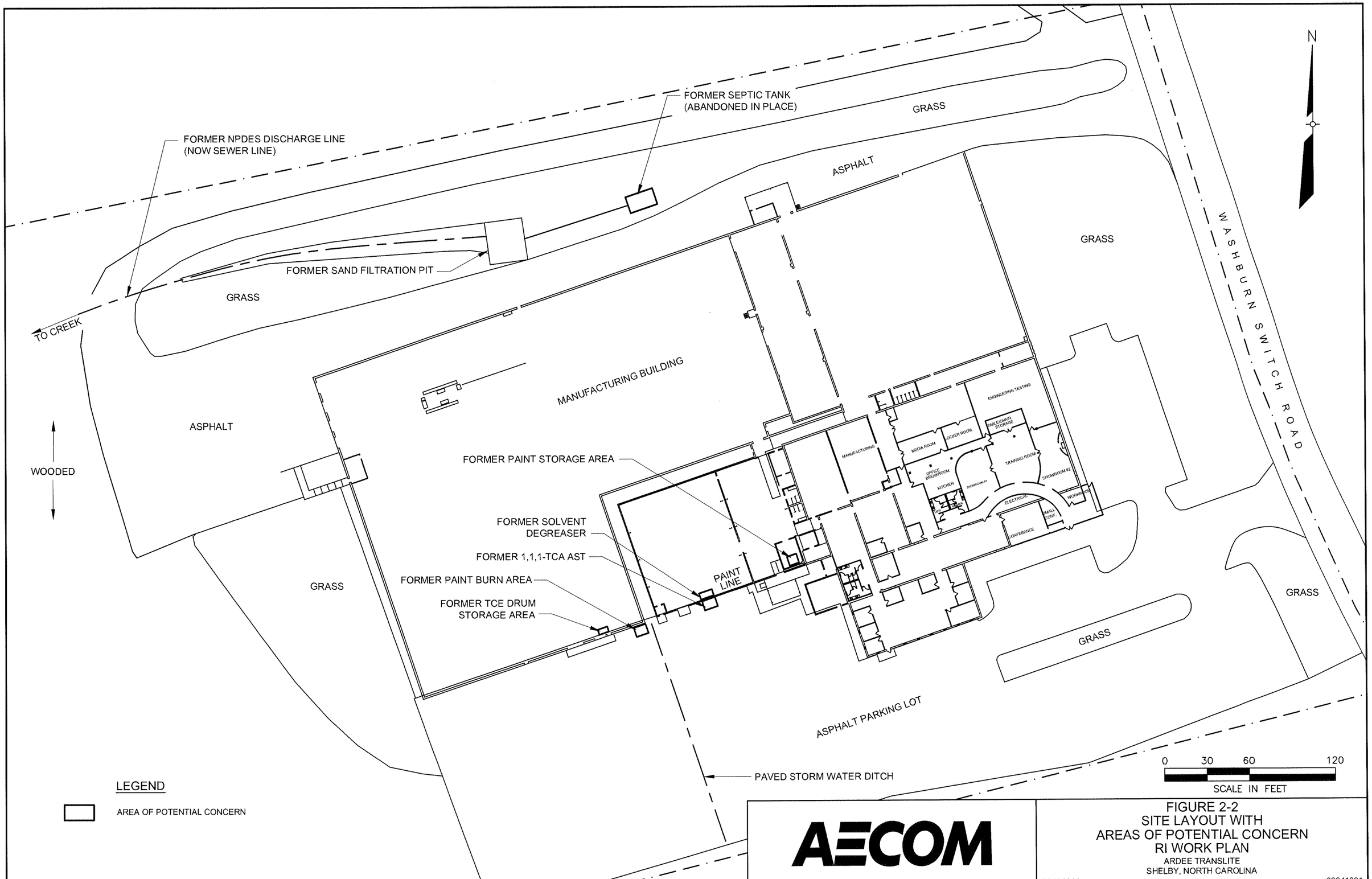

AECOM

FIGURE 2-2
SITE LAYOUT WITH
AREAS OF POTENTIAL CONCERN
RI WORK PLAN
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

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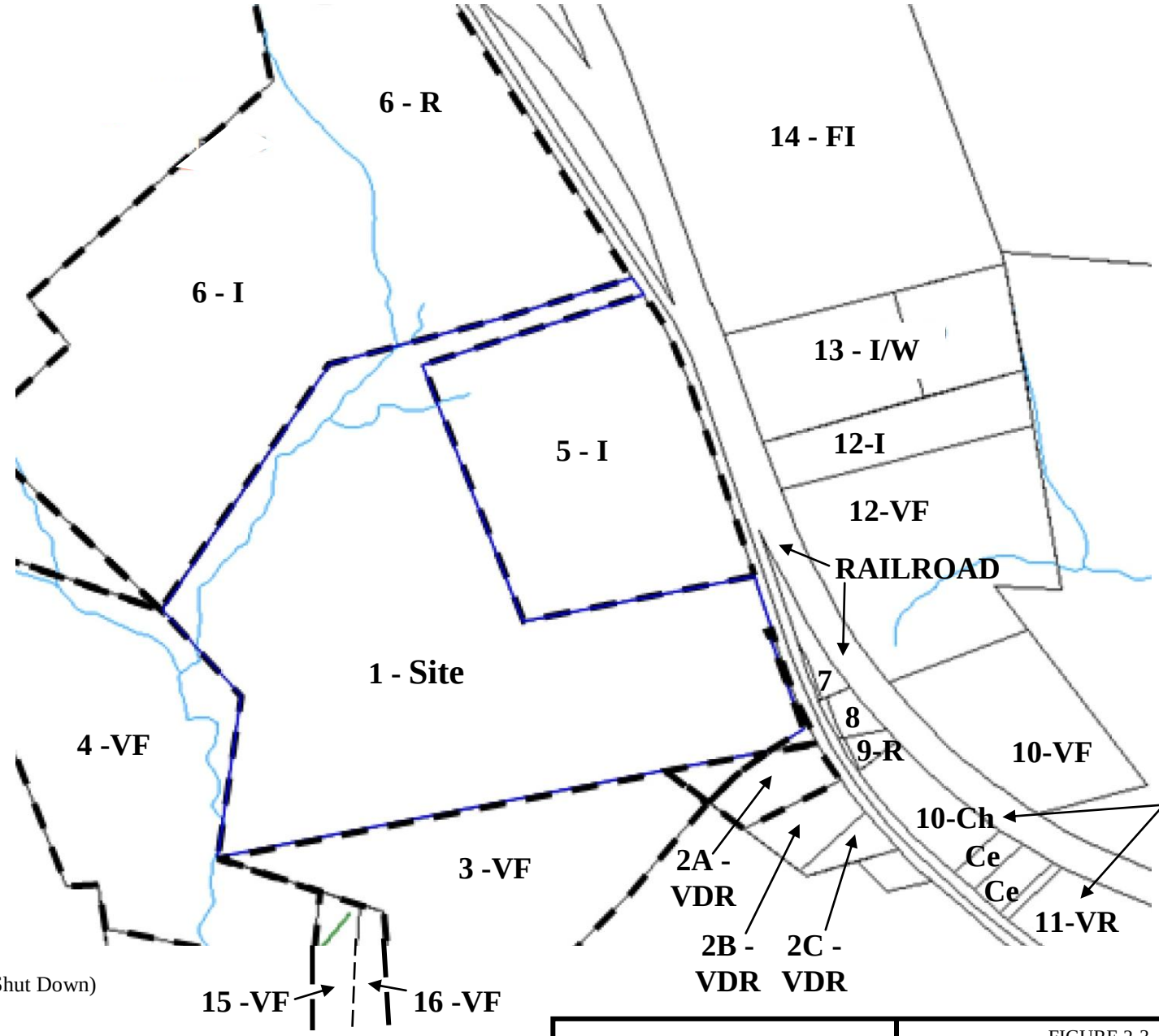

LEGEND

Ce - Cemetary
Ch - Church
FI - Former Industrial (Now Shut Down)
I - Industrial
R - Residential
VDR - Vacant Demolished Residence
VF - Vacant Farmland
VR - Vacant Residence
W - Warehouse

Note: See Table 2-1 for Cross-Reference to Property Occupants.

Modified from: http://arcims2.webgis.net/nc/cleveland/printable2.asp

AECOM

FIGURE 2-3
SITE, SURROUNDING PARCELS, LAND USE AND PRIVATE WATER WELL OBSERVATIONS
ARDEE TRANSLITE
RI WORK PLAN
SHELBY, NORTH CAROLINA

JULY 2013

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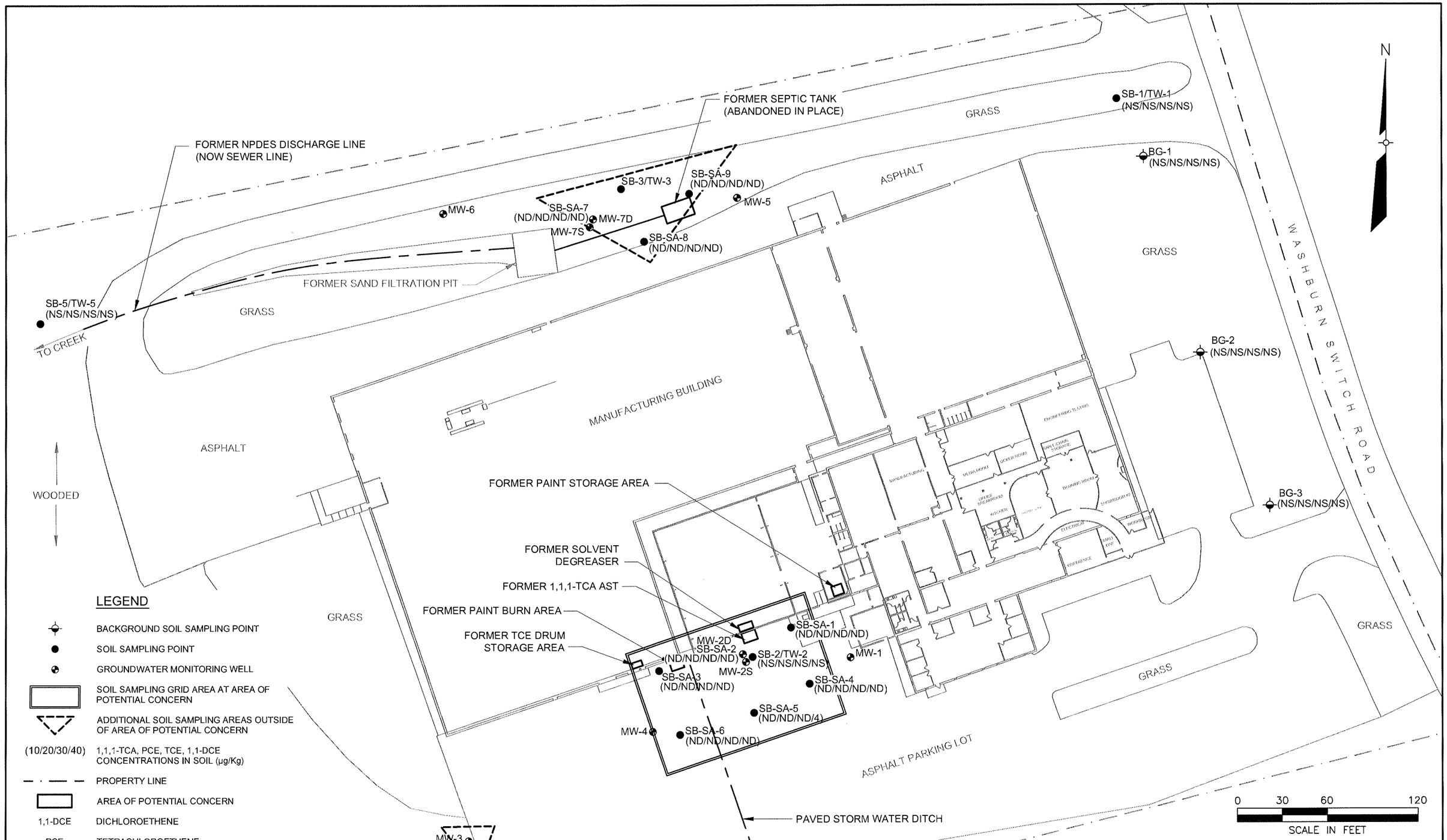

FIGURE 2-4A
SOIL SAMPLING LOCATIONS
AND SURFACE SOIL VOC RESULTS
AUGUST 2011 AND JANUARY 2012
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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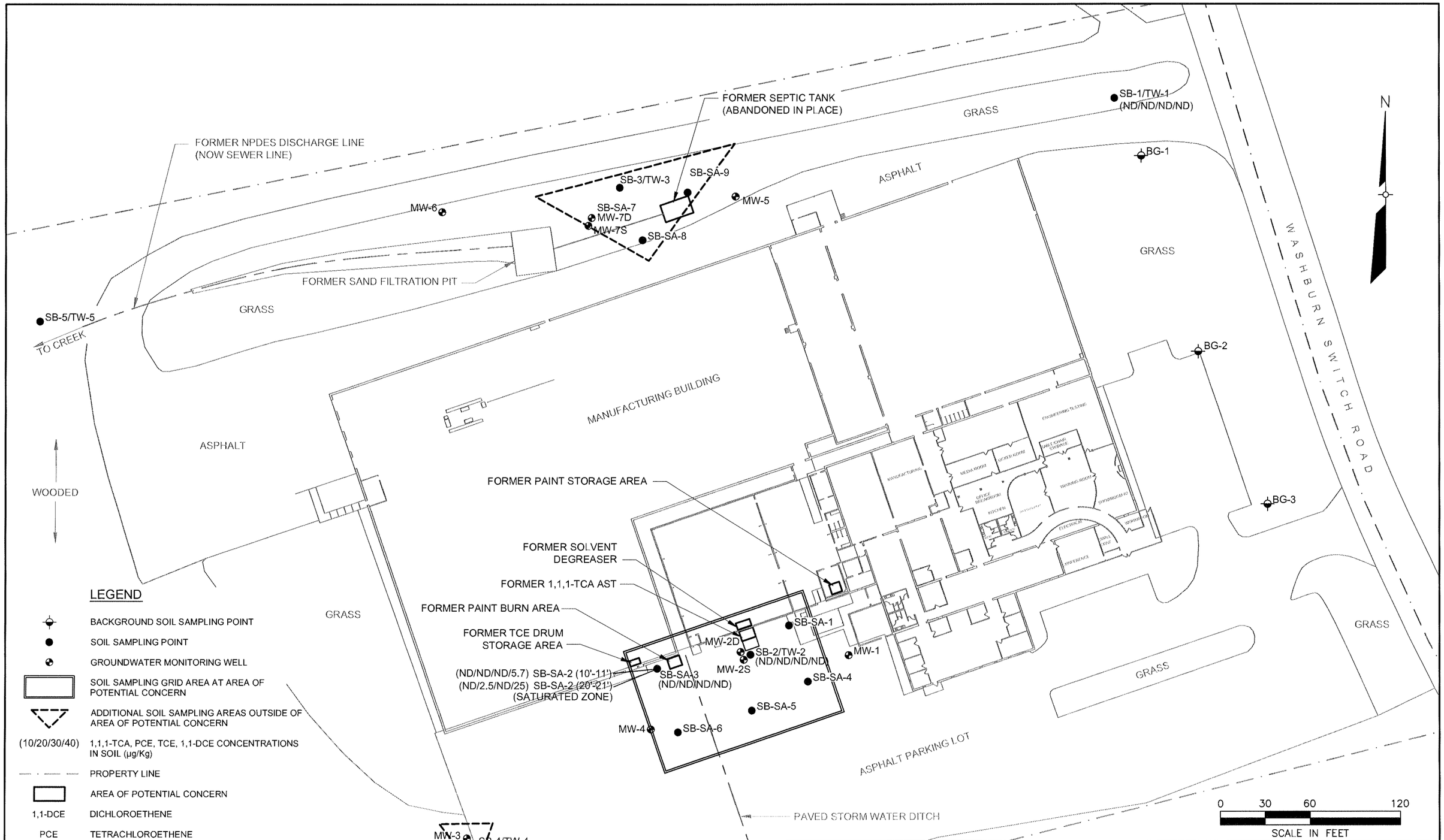

LEGEND

	BACKGROUND SOIL SAMPLING POINT
	SOIL SAMPLING POINT
	GROUNDWATER MONITORING WELL
	SOIL SAMPLING GRID AREA AT AREA OF POTENTIAL CONCERN
	ADDITIONAL SOIL SAMPLING AREAS OUTSIDE OF AREA OF POTENTIAL CONCERN
(10/20/30/40)	1,1,1-TCA, PCE, TCE, 1,1-DCE CONCENTRATIONS IN SOIL (µg/Kg)
	PROPERTY LINE
	AREA OF POTENTIAL CONCERN
1,1-DCE	DICHLOROETHENE
PCE	TETRACHLOROETHENE
1,1,1-TCA	TRICHLOROETHANE
TCE	TRICHLOROETHENE
ND	NOT DETECTED
NS	NOT SAMPLED

AECOM

FIGURE 2-4B
SOIL SAMPLING LOCATIONS
AND SUBSURFACE SOIL VOC RESULTS
AUGUST 2011 AND JANUARY 2012
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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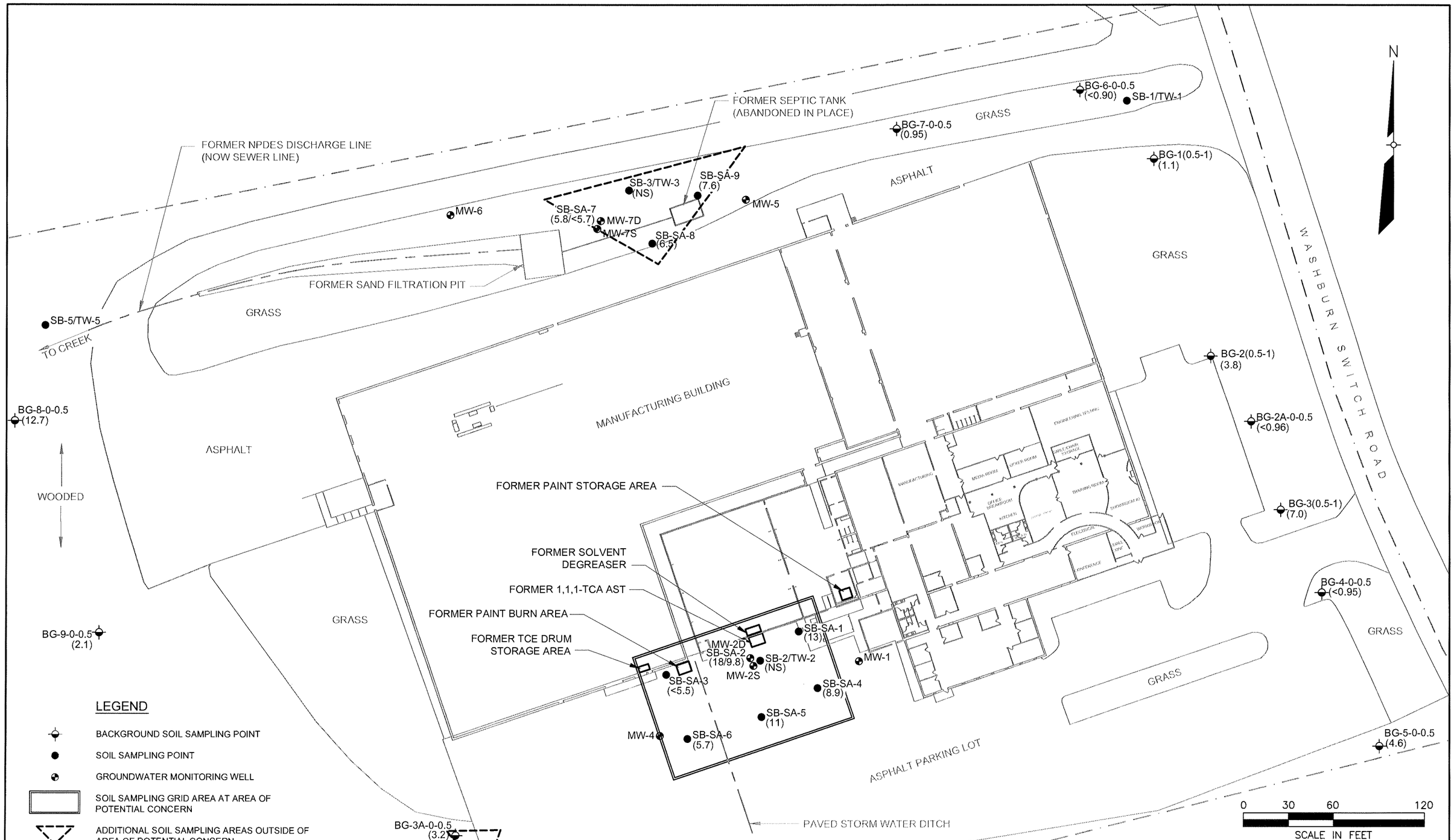


AECOM

FIGURE 2-4C
SOIL SAMPLING LOCATIONS
AND SURFACE SOIL ARSENIC RESULTS
JANUARY 2012 AND MAY 2013
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60280505

L:\Projects\60241001\9.0 Cadd\60241001_013 Arsenic in Soil.dwg, 7/11/2013 10:14:45 AM, stubblefieldr

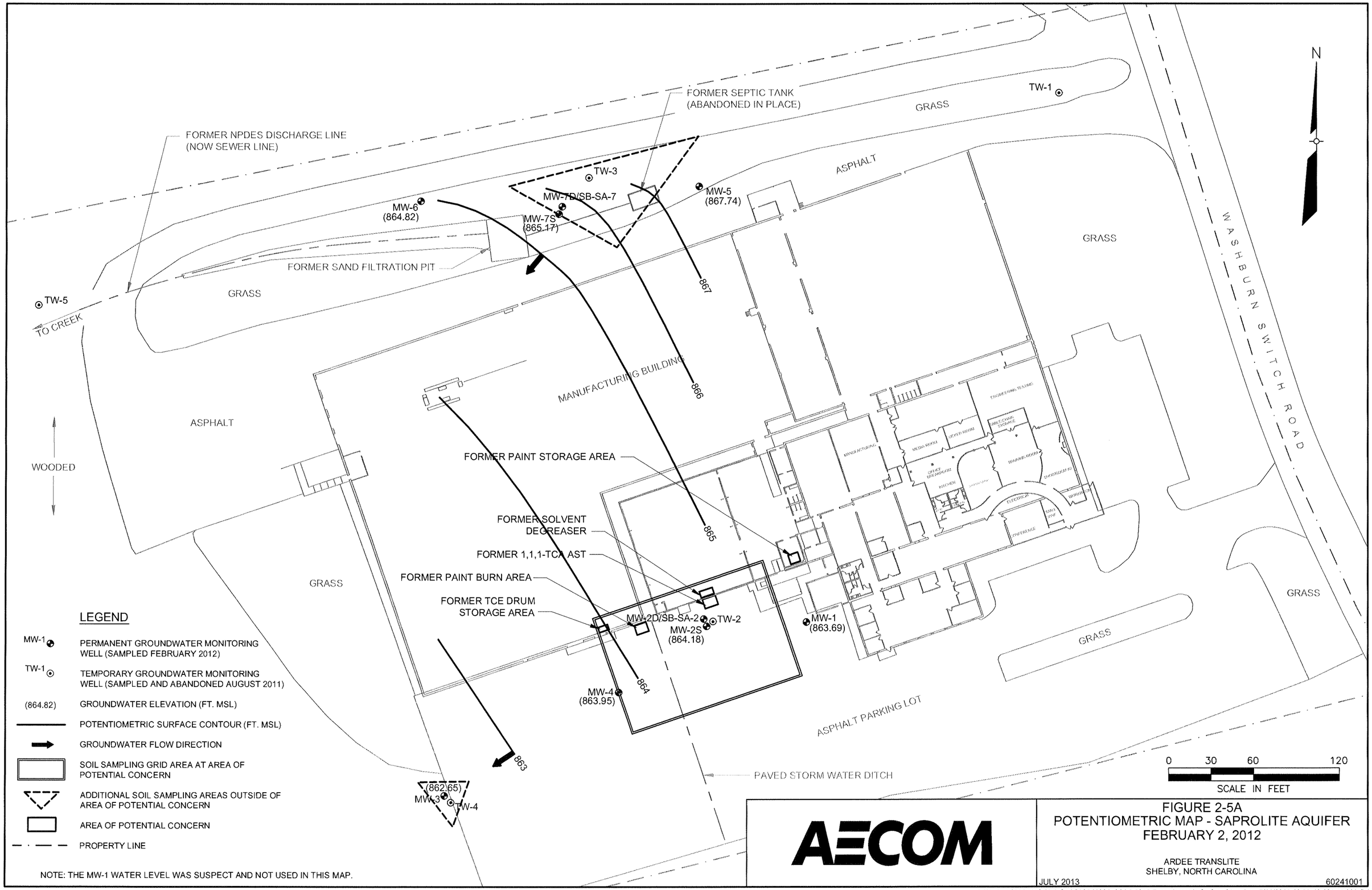


FIGURE 2-5A
POTENTIOMETRIC MAP - SAPROLITE AQUIFER
FEBRUARY 2, 2012

ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

L:\Projects\60241001\9.0 Cadd\60241001_014 2-2012 Potentiometric Surface Map.dwg, 7/11/2013 10:28:42 AM, stubblefieldr

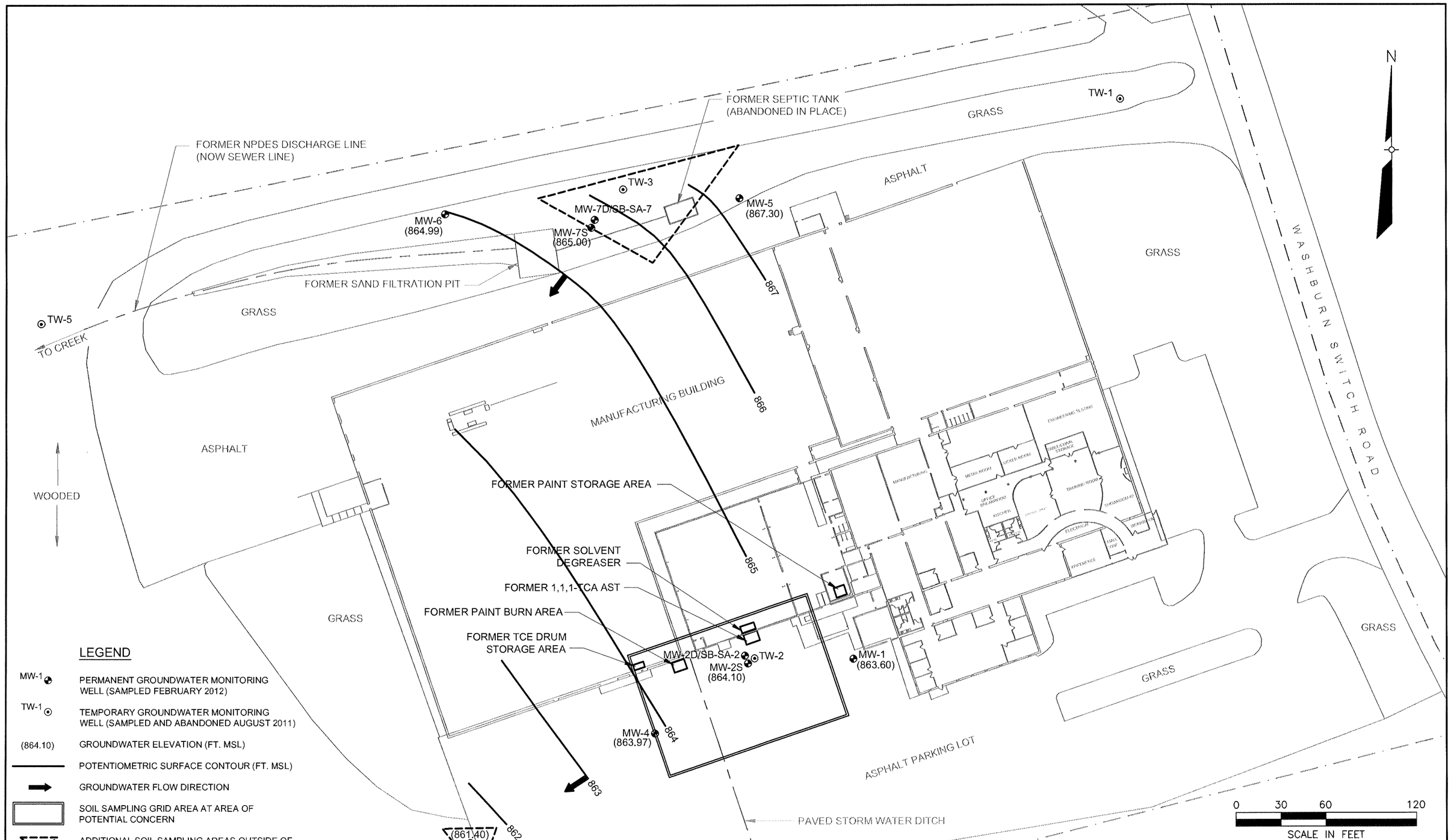
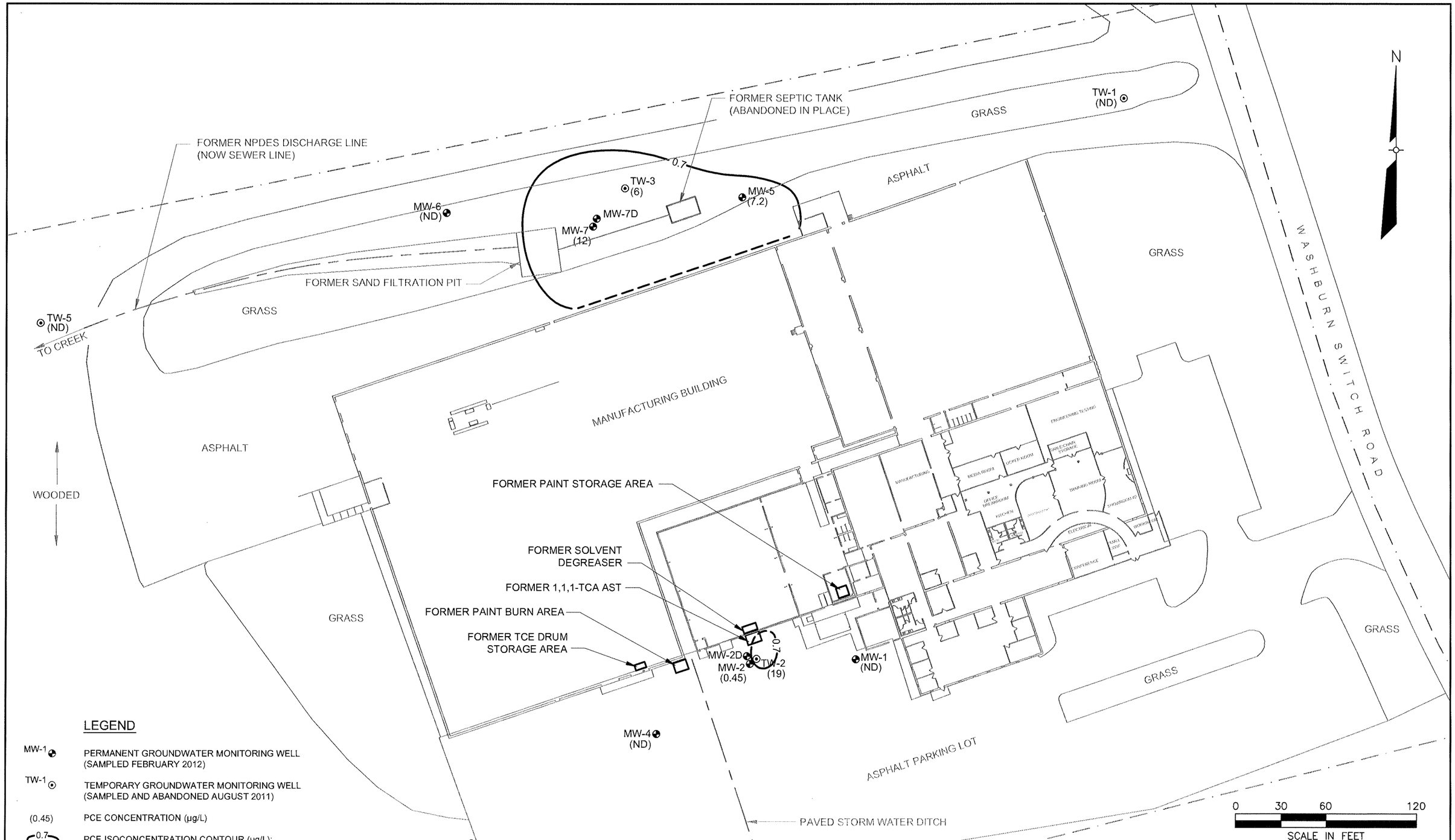


FIGURE 2-5B
POTENTIOMETRIC MAP - SAPROLITE AQUIFER
MAY 9, 2013

ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

L:\Projects\60241001\9.0 Cadd\60241001_015 5-2013 Potentiometric Surface Map.dwg, 7/11/2013 10:30:21 AM, stubblefieldr



AECOM

FIGURE 2-6A
TETRACHLOROETHENE (PCE)
SAPROLITE AQUIFER
AUGUST 2011 AND FEBRUARY 2012
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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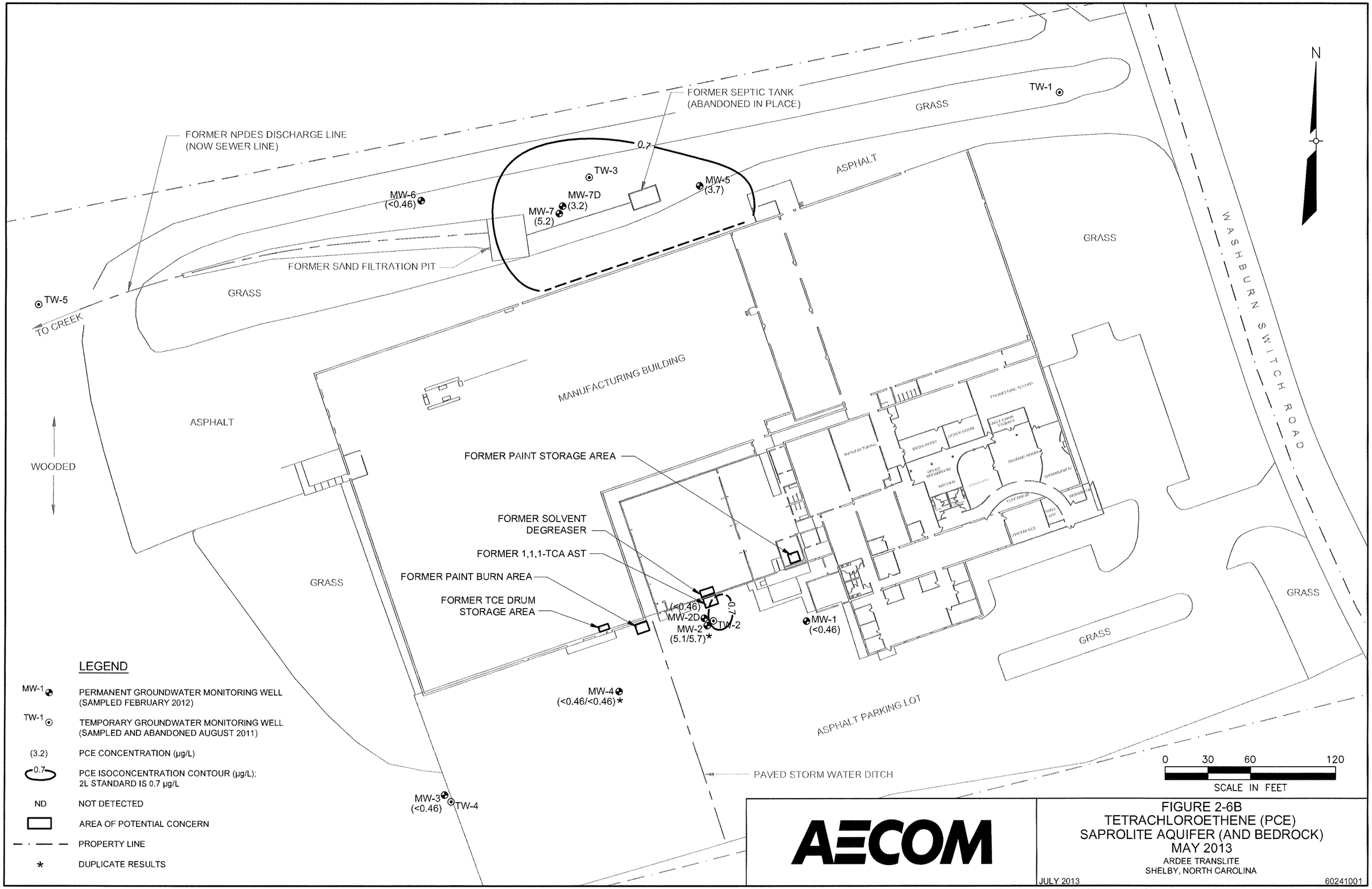

FIGURE 2-6B
TETRACHLOROETHENE (PCE)
SAPROLITE AQUIFER (AND BEDROCK)
MAY 2013
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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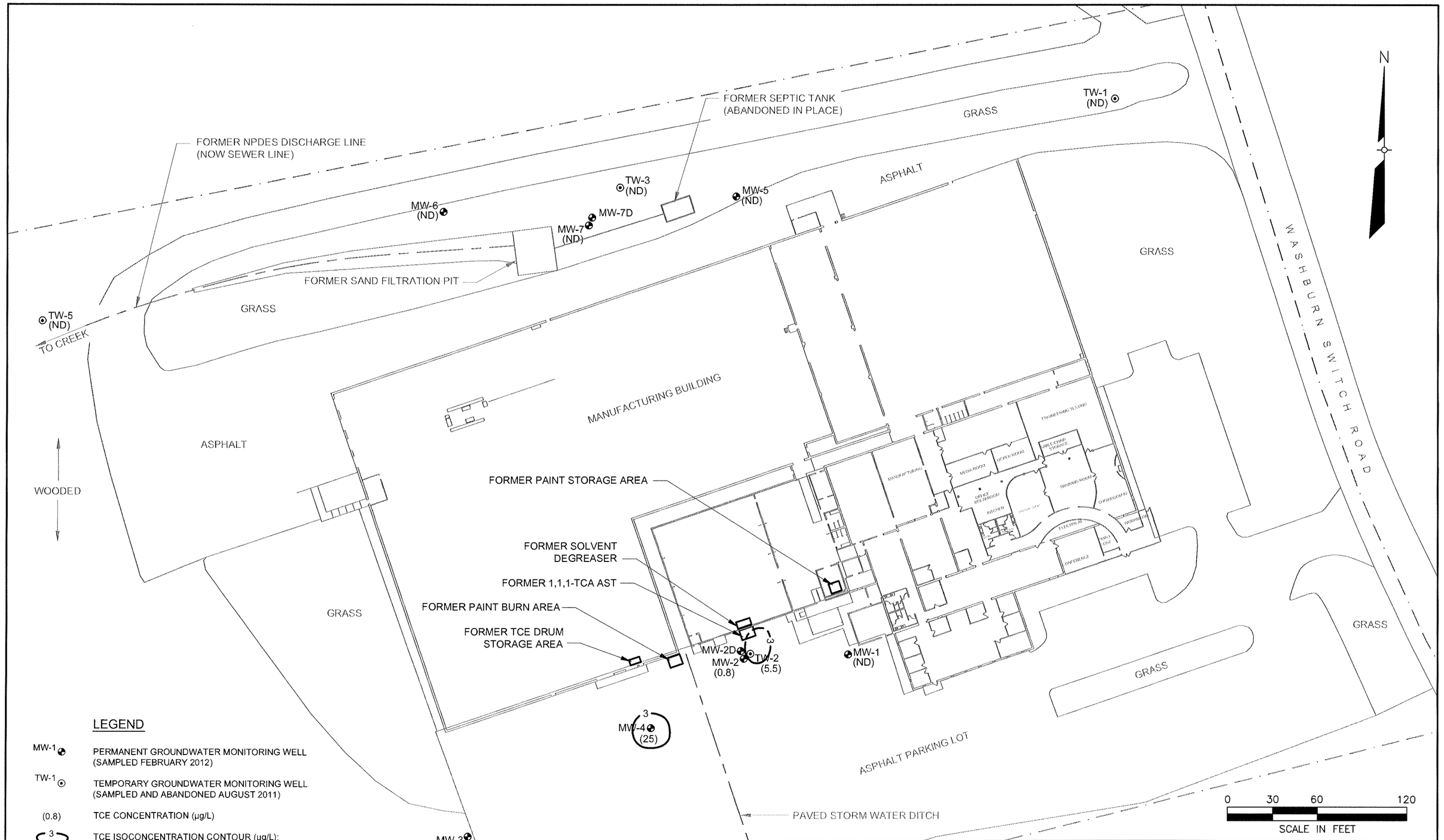

LEGEND

MW-1	PERMANENT GROUNDWATER MONITORING WELL (SAMPLED FEBRUARY 2012)
TW-1	TEMPORARY GROUNDWATER MONITORING WELL (SAMPLED AND ABANDONED AUGUST 2011)
(0.8)	TCE CONCENTRATION (µg/L)
3	TCE ISOCONCENTRATION CONTOUR (µg/L); 2L STANDARD IS 3 µg/L
ND	NOT DETECTED
	AREA OF POTENTIAL CONCERN
	PROPERTY LINE

AECOM

FIGURE 2-7A
TRICHLOROETHENE (TCE)
SAPROLITE AQUIFER
AUGUST 2011 AND FEBRUARY 2012
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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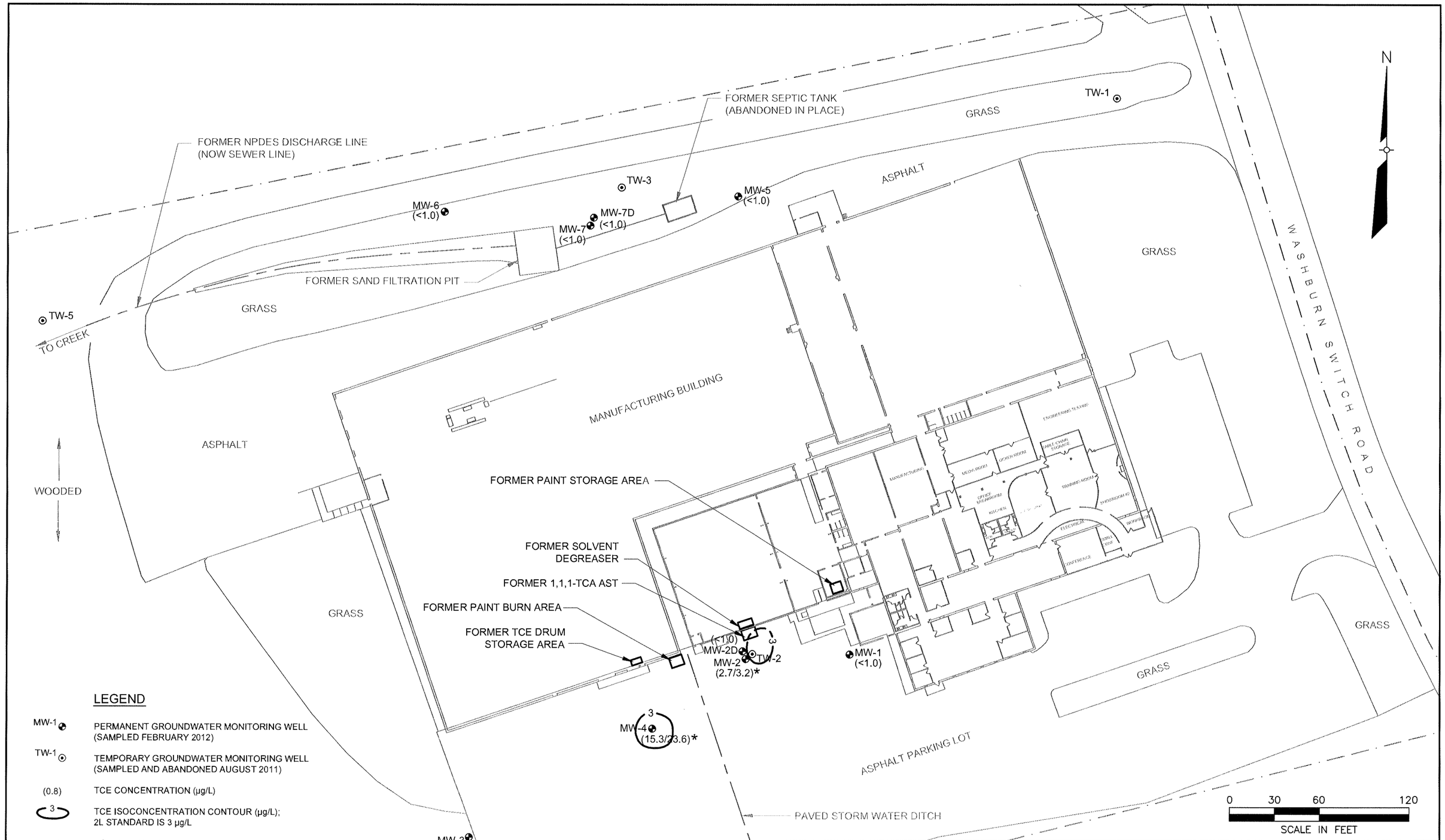

LEGEND

MW-1	PERMANENT GROUNDWATER MONITORING WELL (SAMPLED FEBRUARY 2012)
TW-1	TEMPORARY GROUNDWATER MONITORING WELL (SAMPLED AND ABANDONED AUGUST 2011)
(0.8)	TCE CONCENTRATION (µg/L)
3	TCE ISOCONCENTRATION CONTOUR (µg/L); 2L STANDARD IS 3 µg/L
ND	NOT DETECTED
	AREA OF POTENTIAL CONCERN
	PROPERTY LINE
*	DUPLICATE RESULTS

AECOM

FIGURE 2-7B
TRICHLOROETHENE (TCE)
SAPROLITE AQUIFER
MAY 2013
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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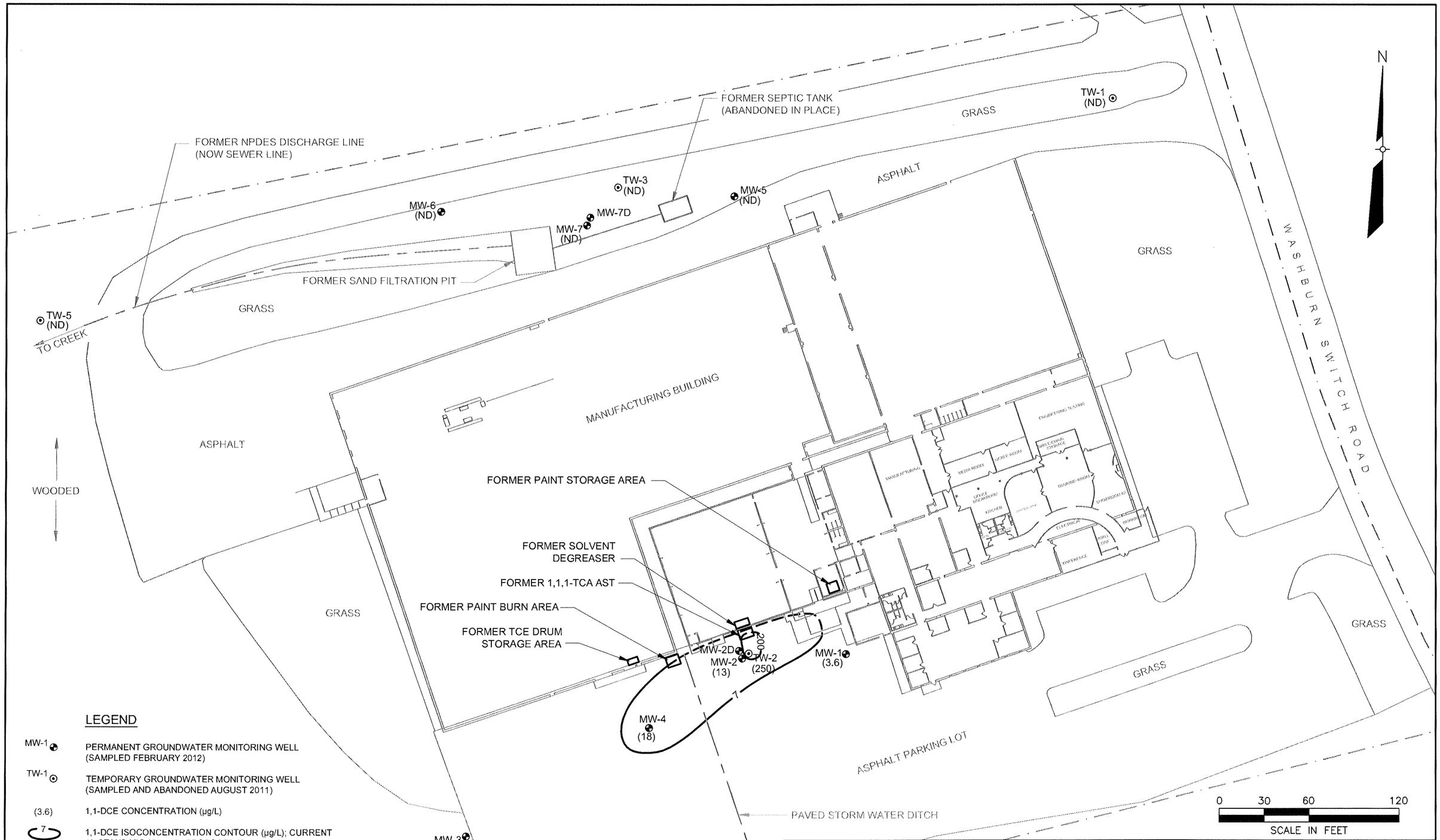

LEGEND

MW-1	PERMANENT GROUNDWATER MONITORING WELL (SAMPLED FEBRUARY 2012)
TW-1	TEMPORARY GROUNDWATER MONITORING WELL (SAMPLED AND ABANDONED AUGUST 2011)
(3.6)	1,1-DCE CONCENTRATION (µg/L)
7	1,1-DCE ISOCONCENTRATION CONTOUR (µg/L); CURRENT 2L STANDARD IS 7µg/L; PROPOSED IS 350 µg/L
ND	NOT DETECTED
	AREA OF POTENTIAL CONCERN
	PROPERTY LINE

AECOM

FIGURE 2-8A
1,1-DICHLOROETHENE (1,1-DCE)
SAPROLITE AQUIFER
AUGUST 2011 AND FEBRUARY 2012
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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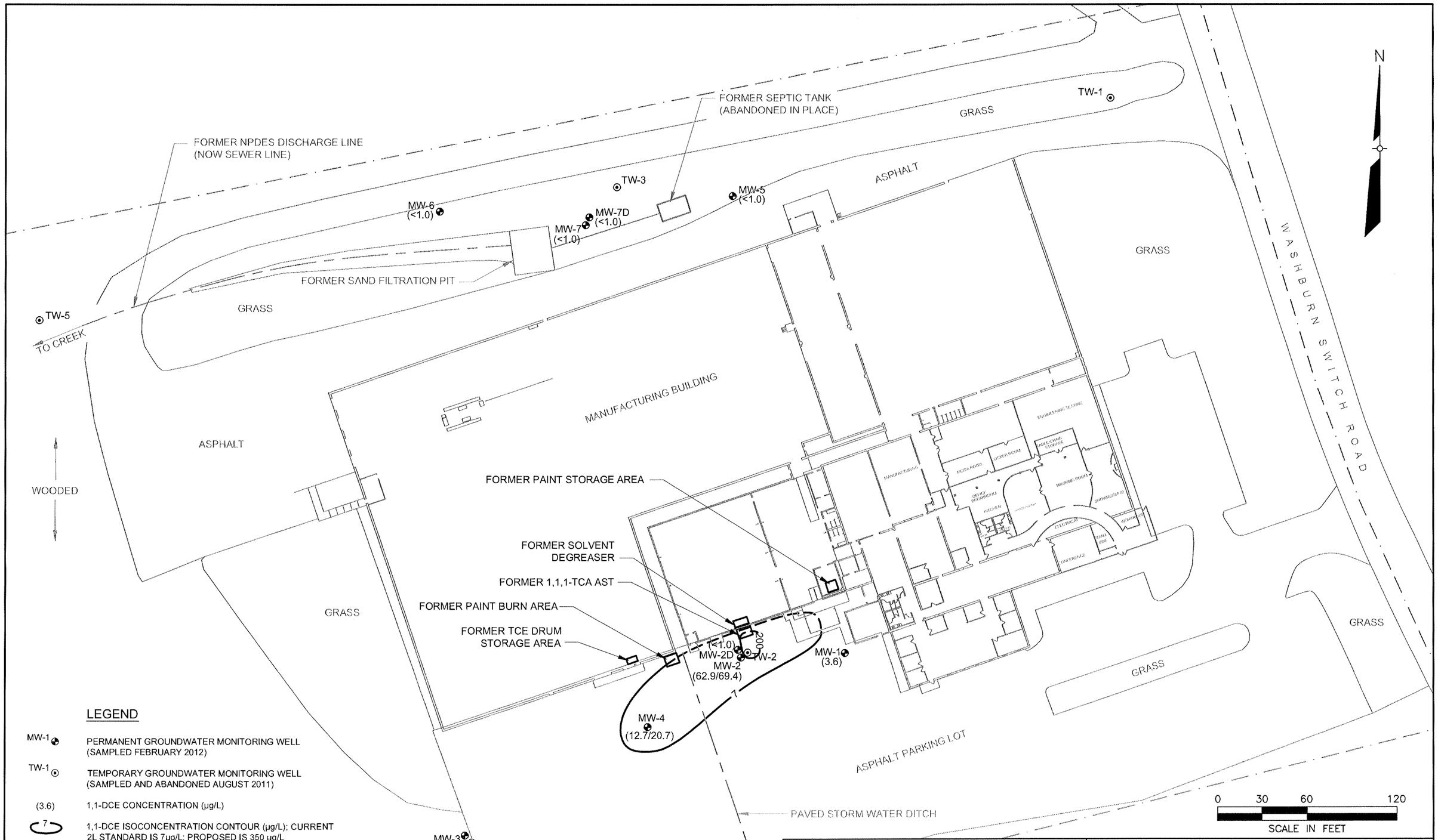

AECOM

FIGURE 2-8B
1,1-DICHLOROETHENE (1,1-DCE)
SAPROLITE AQUIFER
MAY 2013
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA

JULY 2013 60241001

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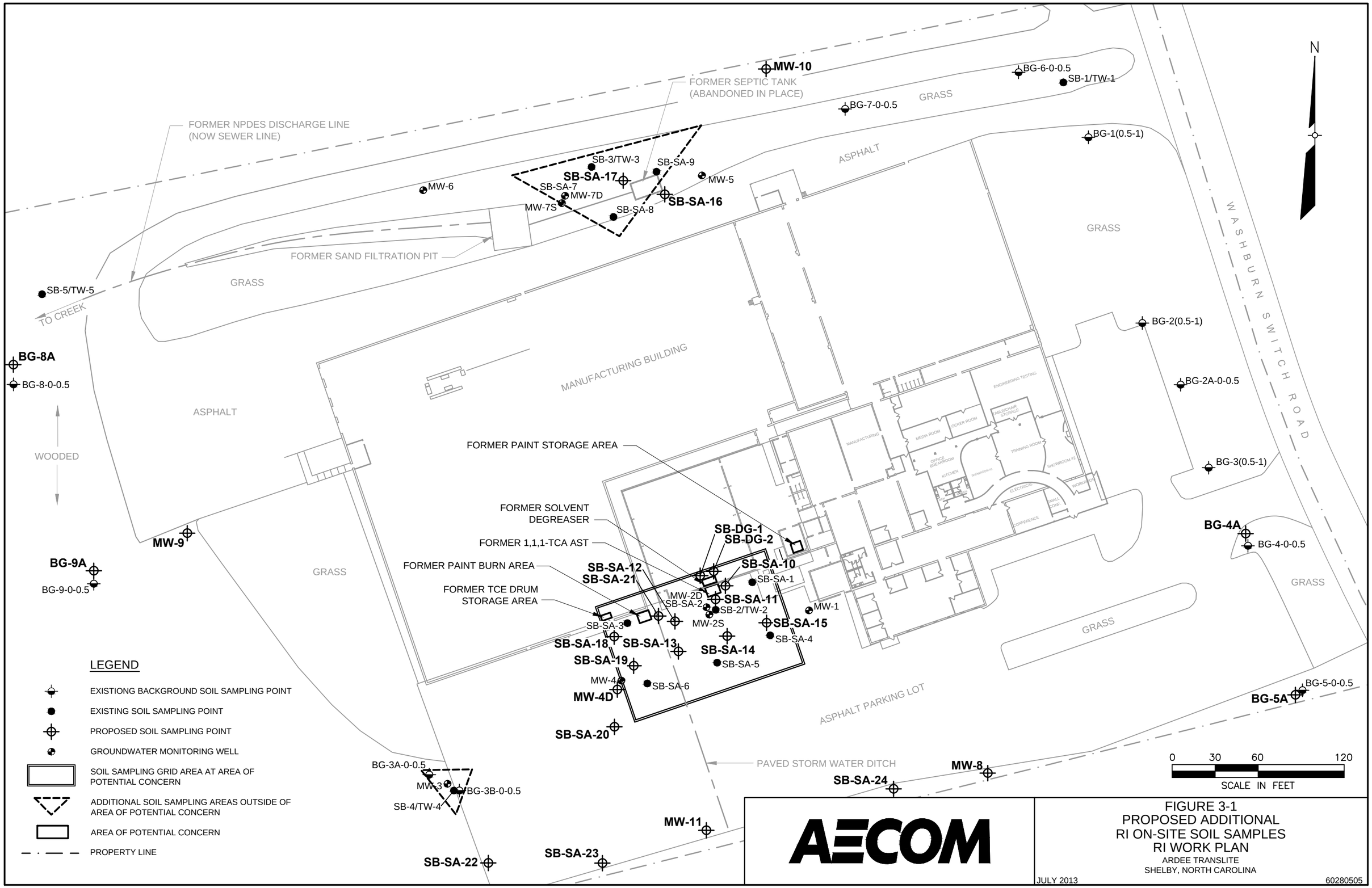
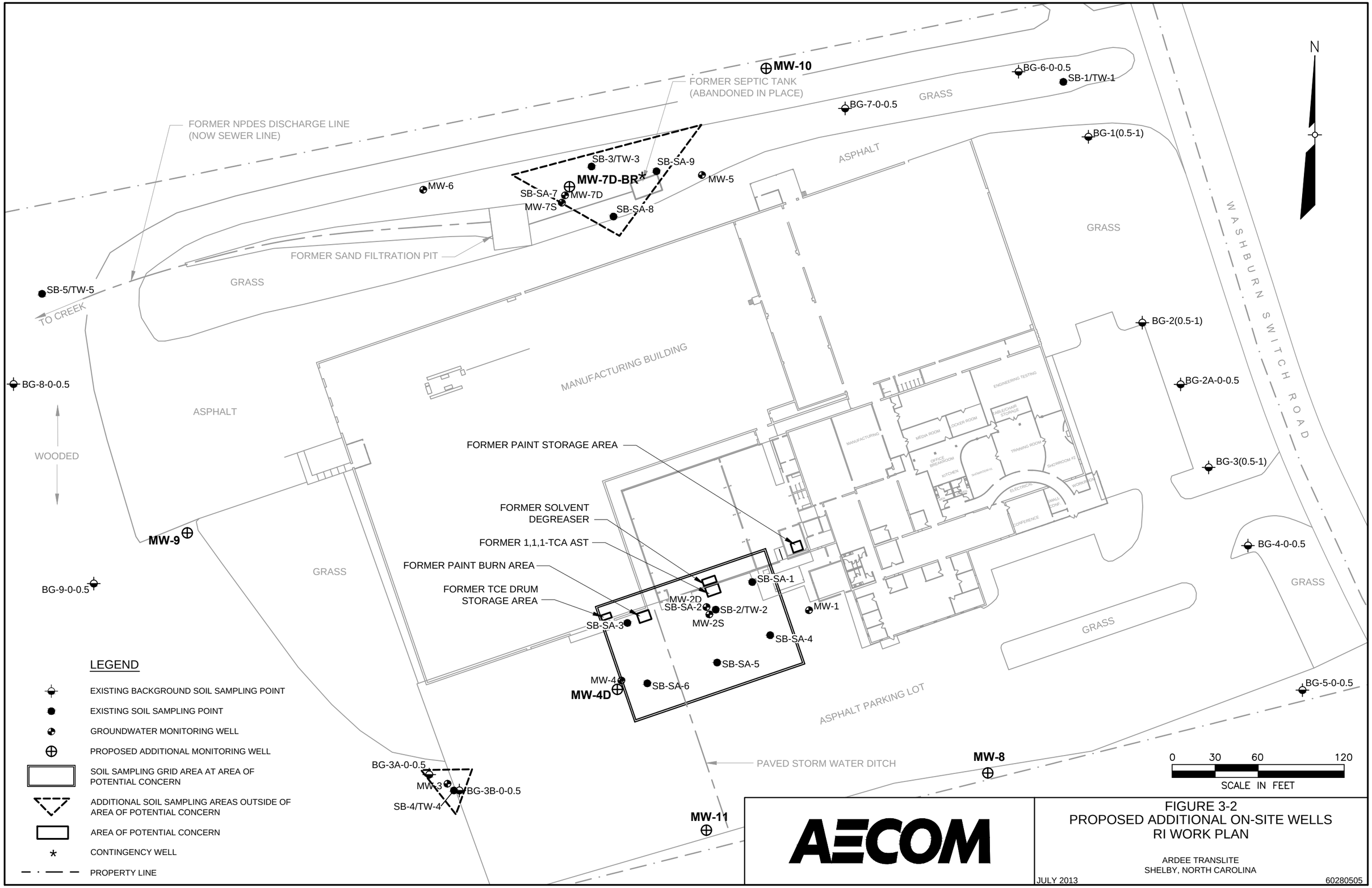
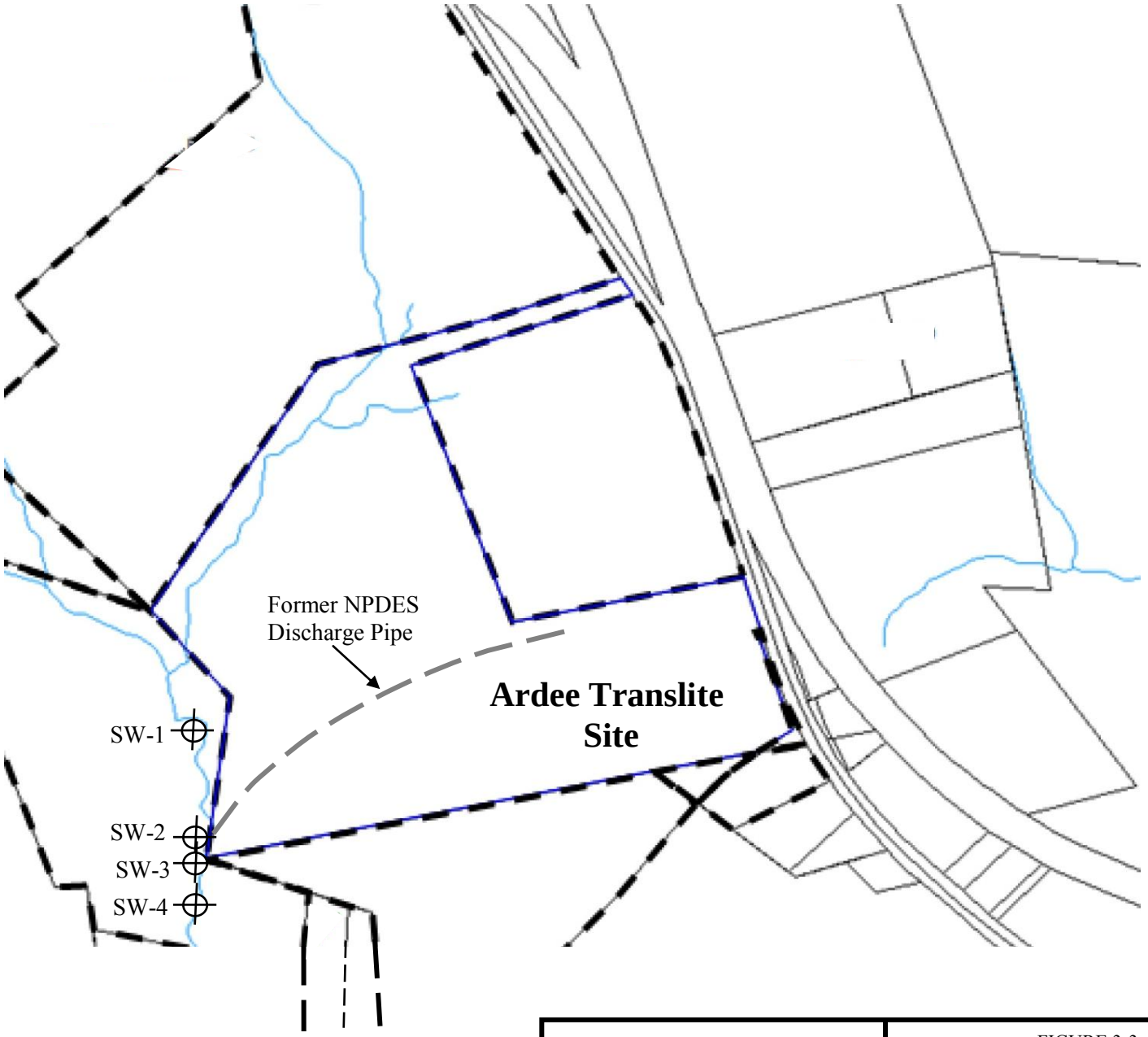

N
MW-10
FORMER SEPTIC TANK
(ABANDONED IN PLACE)
BG-6-0-0.5
SB-1/TW-1
GRASS
BG-7-0-0.5
FORMER NPDES DISCHARGE LINE
(NOW SEWER LINE)
BG-1(0.5-1)
ASPHALT
SB-3/TW-3
SB-SA-9
SB-SA-17
MW-5
MW-6
SB-SA-7
MW-7D
SB-SA-16
MW-7S
SB-SA-8
FORMER SAND FILTRATION PIT
GRASS
WASHBURN SWITCH ROAD
SB-5/TW-5
TO CREEK
BG-2(0.5-1)
BG-8A
BG-8-0-0.5
MANUFACTURING BUILDING
BG-2A-0-0.5
ASPHALT
WOODED
FORMER PAINT STORAGE AREA
BG-3(0.5-1)
FORMER SOLVENT
DEGREASER
SB-DG-1
SB-DG-2
BG-4A
BG-4-0-0.5
MW-9
FORMER 1,1,1-TCA AST
BG-9A
BG-9-0-0.5
GRASS
FORMER PAINT BURN AREA
SB-SA-12
SB-SA-21
SB-SA-10
SB-SA-1
FORMER TCE DRUM
STORAGE AREA
MW-2D
SB-SA-2
SB-SA-11
SB-2/TW-2
MW-1
SB-SA-3
MW-2S
SB-SA-15
SB-SA-4
SB-SA-18
SB-SA-13
SB-SA-14
SB-SA-19
SB-SA-5
MW-4
SB-SA-6
MW-4D
GRASS
GRASS
BG-5-0-0.5
BG-5A
ASPHALT PARKING LOT
SB-SA-20
PAVED STORM WATER DITCH
MW-8
SB-SA-24
BG-3A-0-0.5
MW-3
BG-3B-0-0.5
SB-4/TW-4
MW-11
SB-SA-22
SB-SA-23
0 30 60 120
SCALE IN FEET
LEGEND
EXISTIONG BACKGROUND SOIL SAMPLING POINT
EXISTING SOIL SAMPLING POINT
PROPOSED SOIL SAMPLING POINT
GROUNDWATER MONITORING WELL
SOIL SAMPLING GRID AREA AT AREA OF POTENTIAL CONCERN
ADDITIONAL SOIL SAMPLING AREAS OUTSIDE OF AREA OF POTENTIAL CONCERN
AREA OF POTENTIAL CONCERN
PROPERTY LINE
AECOM
FIGURE 3-1
PROPOSED ADDITIONAL
RI ON-SITE SOIL SAMPLES
RI WORK PLAN
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA
JULY 2013
60280505


N
MW-10
FORMER SEPTIC TANK
(ABANDONED IN PLACE)
BG-6-0-0.5
SB-1/TW-1
GRASS
BG-7-0-0.5
BG-1(0.5-1)
FORMER NPDES DISCHARGE LINE
(NOW SEWER LINE)
ASPHALT
SB-3/TW-3
SB-SA-9
MW-7D-BR*
MW-5
MW-6
SB-SA-7
MW-7D
MW-7S
SB-SA-8
FORMER SAND FILTRATION PIT
GRASS
WASHBURN SWITCH ROAD
SB-5/TW-5
TO CREEK
BG-2(0.5-1)
MANUFACTURING BUILDING
BG-8-0-0.5
BG-2A-0-0.5
ASPHALT
WOODED
FORMER PAINT STORAGE AREA
BG-3(0.5-1)
FORMER SOLVENT
DEGREASER
FORMER 1,1,1-TCA AST
MW-9
BG-4-0-0.5
FORMER PAINT BURN AREA
GRASS
BG-9-0-0.5
FORMER TCE DRUM
STORAGE AREA
SB-SA-1
MW-2D
SB-SA-2
SB-2/TW-2
MW-1
MW-2S
SB-SA-3
GRASS
SB-SA-4
SB-SA-5
MW-4
MW-4D
SB-SA-6
BG-5-0-0.5
ASPHALT PARKING LOT
PAVED STORM WATER DITCH
MW-8
BG-3A-0-0.5
MW-3
BG-3B-0-0.5
SB-4/TW-4
MW-11
0 30 60 120
SCALE IN FEET
LEGEND
EXISTING BACKGROUND SOIL SAMPLING POINT
EXISTING SOIL SAMPLING POINT
GROUNDWATER MONITORING WELL
PROPOSED ADDITIONAL MONITORING WELL
SOIL SAMPLING GRID AREA AT AREA OF POTENTIAL CONCERN
ADDITIONAL SOIL SAMPLING AREAS OUTSIDE OF AREA OF POTENTIAL CONCERN
AREA OF POTENTIAL CONCERN
CONTINGENCY WELL
PROPERTY LINE
AECOM
FIGURE 3-2
PROPOSED ADDITIONAL ON-SITE WELLS
RI WORK PLAN
ARDEE TRANSLITE
SHELBY, NORTH CAROLINA
JULY 2013
60280505



Proposed Surface Water/Sediment Sample

Modified from: http://arcims2.webgis.net/nc/cleveland/printable2.asp

AECOM

FIGURE 3-3
PROPOSED SURFACE WATER AND
SEDIMENT SAMPLES
ARDEE TRANSLITE
RI WORK PLAN
SHELBY, NORTH CAROLINA

JULY 2013

Projects\60241001\CADD

TABLES

TABLE 1-1
REC PROGRAM COMPONENTS REFERENCE TABLE
15A NCAC 13C.0300
COMBINED PHASE I AND PHASE II RI WORK PLAN
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC
NCDENR ID NO. NONCD0002881

Reference	Requirement	RIWP / Source Report Location
.0306(g)(1)	Site location and surrounding land use	RIWP Section 2.1, Table 2-1, and Figures 2-1 and 2-3
.0306(g)(2)	Summary of hazardous waste management practices	RIWP Section 2.2 and Appendix A
.0306(g)(3)	USGS topographic map	RIWP Section 2.3, Figure 2-1, and Appendix I
.0306(g)(4)	Site survey plat	RIWP Section 2.4 and Appendix B
.0306(g)(5)	Local geologic and hydrogeologic conditions	RIWP Section 2.5 and Appendices A and D
.0306(g)(6)	Location of wells, springs, surface water intakes	RIWP Section 2.6 and Figure 2-3
.0306(g)(7)	Environmentally sensitive areas	RIWP Section 2.7, Table 2-2, and Appendix E
.0306(g)(8)	Current owner's deed	RIWP Section 2.8 and Appendix D
.0306(g)(9)	Chronological listing of previous owners	RIWP Section 2.9 and Table 2-3
.0306(g)(10)	Operational history; prior land use	RIWP Section 2.10 and Appendix A
.0306(g)(11)	Hazardous substances stored on site	RIWP Section 2.11
.0306(g)(12)	State environmental permit history	RIWP Section 2.12
.0306(g)(13)	Regulatory history and summary of environmental investigations	RIWP Section 2.13 and Figures 2-4 through 2-8B, and Appendices C, D, and L
.0306(g)(14)	Proposed procedures for continued site characterization	RIWP Section 2.2 and 2.3
.0306(g)(15)	Sample collection points	RIWP Section 3.1, Tables 3-1 and 302, and Figures 3-1, 3-2, and 3-3
.0306(g)(16)	Quality assurance/quality control measures	RIWP Section 3.3
.0306(g)(17)	Proposed analytical parameters	RIWP Section 3.4 and Tables 3-1 and 3-2
.0306(g)(18)	Decontamination procedures	RIWP Section 3.5
.0306(g)(19)	Community health and safety plan	RIWP Section 3.6 and Appendix M

RIWP - Combined Phase I and Phase II Remedial Investigation Work Plan (this document)

TABLE 2-1
SURROUNDING PROPERTY OWNERS AND LAND USES
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

Figure 2-3 Map ID	Parcel ID Number	Parcel Address	Owner Name	Owner Address	Owner City	Owner State	Owner Zip	Direction from Site and Land Use
1	32699	639 Washburn Switch Road	JJI Lighting Group	639 Washburn Switch Road	Shelby	NC		Ardee Translite Site - Industrial
2A, 2B, 2C	28695	635 Washburn Switch Road	NC Dept of Transportation	1546 Mail Service CE	Raleigh	NC	27611	Tracts to Southeast - Vacant (Recent demolition of homes) - Future Road Construction
3	28692	515 Washburn Switch Road	George C. Doggett	515 Washburn Switch Road	Shelby	NC	28150	Tract to South - Vacant Farmland
4	32696	Artee Road (no street number)	John Weaver and Grace Weaver	2221 Albert Blanton	Shelby	NC	28152	Tract to West - Vacant Farmland
5	32700	649 Washburn Switch Road	Capitol Funds, Inc.	P.O. Box 146	Shelby	NC	28151	Tract to North - Industrial Wood Truss Mfg. Facility, Operated by Piedmont Components
6	32622 & 61568	667 and 671 Washburn Switch Road	Clearwater Paper Corp.	601 West Riverside Avenue	Spokane	WA	99201	Tract to North - Industrial and One Residence
7	40584	Washburn Switch Road (no street number)	Coleman A. Doggett and Nancy Doggett	217 Rosecommon Lane	Cary	NC	27511	Tract to East - Vacant Land
8	32698	Washburn Switch Road (no street number)	City of Shelby	300 S. Washington Street	Shelby	NC	28150	Tract to Southeast - Vacant with Structure
9	28699	636 Washburn Switch Road	House assoc. w/Eskridge Grove Baptist Church	636 Washburn Switch Road	Shelby	NC	28150	Tract to Southeast - Residential on City Water
10	28690	634 Washburn Switch Road	Eskridge Grove Baptist Church	634 Washburn Switch Road	Shelby	NC	28150	Tract to Southeast - Church on City Water, with Cemetery and Vacant Farmland
11	28698	624 Washburn Switch Road	Eskridge Grove Baptist Church	634 Washburn Switch Road	Shelby	NC	28150	Tract to Southeast -Vacant Farmland
12	32642 & 32650	656 and 658 Washburn Switch Road	Seal Wire Company	656 and 658 Washburn Switch Road	Shelby	NC	28150	Tracts to East and Northeast - Some Vacant and Some Active Industrial
13	32630 & 59222	658 Washburn Switch Road	John or Susan Haskell	112 Harvest Lane	Boiling Springs	SC	29316	Tracts to Northeast - Some Active Light Industrial or Warehouse
14	32623	662 Washburn Switch Road	Container Corp. of America	c/o Industrial Valuation	Austin	TX	78709	Tract to Northeast - Vacant Industrial
15	62100	Artee Road (no street number)	NC Dept of Transportation	1546 Mail Service CE	Raleigh	NC	27611	Tract to Southwest - Vacant - Future Road Construction
16	62166	Artee Road (no street number)	NC Dept of Transportation	1546 Mail Service CE	Raleigh	NC	27611	Tract to Southwest - Vacant - Future Road Construction

Source: Cleveland County, NC, 2013

TABLE 2-2
AGENCY CONTACTS AND RESPONSES FOR ENVIRONMENTALLY SENSITIVE AREAS
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

Agency	Contact/Phone Number	Contact Date	Contact Method	Date of Reply	Sensitive Environments	Notes
North Carolina Natural Heritage Program	http://portal.ncdenr.org.web.nhp/data-services	6/25/2013	Online Website and Email	6/25/2013	No records were indicated within a 2-mile radius of Site on Map Viewer.	Used the NHP map viwer to search for recores within 2 miles of Site.
NC Division of Conservation, Planning, and Community Affairs	natural.heritage@ncdenr.gov Harry LeGrand harry.legrand@ncdenr.gov	6/25/2013	Email	6/26/2013	NHP letter of 6/26/13 states that the federally-threatened dwarf flowered heartleaf, a rare plant, is located within one mile of Site but not within 0.5 miles of Site.	Email reply from Mr. LeGrand with letter attached.
National Park Service Public Affairs Office	Anita_Barnett@nps.gov	6/25/2013	Email	6/26/2013	The email reply stated that the nearest national parks are 17 miles away.	Email reply on 6/26/13.
US Forest Service	Ruth Berner (828) 257-4862 rberner@fs.fed.us	6/25/2013	Telephone and Then Email	6/25/2013	Email response stated that the U.S. Forest Service has no concerrns regarding any sensitive environments at or adjacent to the location described in Shelby, NC	Email response from Ms. Berner.
NC Division of Water Quality	Jeff Manning & Melanie Williams (919)807-6415 & (919)807-6447 jeff.manning@ncdenr.gov melaine.williams@ncdenr.gov	6/25/2013	Telephone and Then Email	6/26/2013	Response stated that the Site was not considered to be environmentally sensitive.	Email response from Ms. Williams.
NC Division of Forest Resources	Chris Carlson (919) 857-4819	6/25/2013	Telephone	6/26/2013	Mr. Carlson telephoned and said that there are no state preserves or state forests anywhere near the Site.	Phone response from Mr. Carlson.
US Fish & Wildlife Service	Pete Benjamin (919) 856-4520 (x11) Allen Ratzlaff (828) 258-3939 (x229)	6/25/2013 7/8/2013 7/24/13	Telephone Telephone Email	7/8/2103 7/24/12	Provided the phone number for the Asheville, NC District office. Asheville office set email letter, stating there are no threatened and endangered species in the immediate area.	Phone response from Lee of Mr. Benjamin's Office. Also on 7/24/13, phone calll from Mr. Ratlaff.
NC Department of Cultural Resources	Environmental.Review@ncdenr.gov	6/25/2013	Email	No response		
NC Division of Coastal Management	Not Applicable and Not Contacted					
NC Wildlife Resourcees Commission	David Cox & Shari Bryant (919) 528-9886 & (336) 449-7625 shari.bryant@ncwildlife.org	6/25/2013	Telephone and Then Email	6/28/2013	No natural or state wildlife refuges, state lands designated for wildlife or game management, migratory pathways, anadromous fish species spawning sites, or spawning areas for fish or shellfish known to exist near Site. It is possible that wetlands could exist in creek tributary or other locations.	Ms. Bryant responded in a letter.
US Army Corps of Engineers	Dorothy Harrington and David Brown (828) 271-7980 (x232) david.brown@usace.army.mil	6/25/2013	Telephone and Then Email	7/1/2013	Response indicated that because of the creek, there could be jurisdictional wetlands at that area.	Email response by Mr. Brown.

TABLE 2-3
PROPERTY OWNERSHIP, LEASE, AND EASEMENT HISTORY FROM COUNTY DEED RECORDS
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

Record Date (Deed Type)	Deed Book/Page	Grantor	Grantee	Comments
5/6/2013 (Deed for Highway Right of Way)	1656/120	Genlyte Thomas Group, LLC successor by merger to JJI Lighting Group, Inc.	North Carolina Department of Transportation	Permanent utlity easement and temporary construction easement
10/16/1996 (Sewer Line Easement)	1187/1675	JJI Lighting Group, Inc.	Jefferson Smurfit Corporation	Sewer line easement
3/12/1993 (Warranty Deed)	1125/2356	Specialty Lighting Inc.	JJI Lighting Group, Inc.	36.972 acres, surveyed by T. Scott Bankhead, Jan. 1993
11/24/1982 (Warranty Deed)	17-Y/279	Coleman A. Doggett	Specialty Lighting Inc.	
5/31/1971 (Warranty Deed)	61-A/412	Coleman A. Doggett	Specialty Lighting Inc.	
6/29/1957 (Warranty Deed)	7-Z/72	Bryan A. Causby and Leonard Causby	Coleman A. Doggett	
9/2/1953 (Warranty Deed)	6-T/514	W.I Humphries and Gladys P. Humphries	Bryan A. Causby and Leonard Causby	
9/8/1945 (Warranty Deed)	5-M/399	Scheiman McSwain and Doris McSwain	W.I Humphries and Gladys P. Humphries	

Note: EDR Chain of Title search report stated this was researched back to 1940 and found no other deeds.
Source: EDR, 2013c

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentrati	BG-1-1 01/16/12 NA18016-018 0.5-1	BG-2-1 01/16/12 NA18016-019 0.5-1	BG-3-1 01/16/12 NA18016-020 0.5-1	BG-2A-0-0.5 05/09/13 92157594005 0-0.5	BG-3A-0-0.5 05/09/13 92157594008 0-0.5
VOCs by Method 8260B (ug/kg)									
1,1,1-Trichloroethane	640000	Csat	1200	—	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	2800	C	1.2	—	NA	NA	NA	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	910000	Csat	9000000	—	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1400	N	3.2	—	NA	NA	NA	NA	NA
1,1-Dichloroethane	17000	C	30	—	NA	NA	NA	NA	NA
1,1-Dichloroethene	220000	N	45	—	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	54000	N	2200	—	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	69	C,M	0.25	—	NA	NA	NA	NA	NA
1,2-Dibromoethane (EDB)	170	C	0.097	—	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	380000	Csat	240	—	NA	NA	NA	NA	NA
1,2-Dichloroethane	2200	C	2	—	NA	NA	NA	NA	NA
1,2-Dichloropropane	4700	C	3.2	—	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NS		2400	—	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	12000	C	70	—	NA	NA	NA	NA	NA
1,4-Dioxane	17000	C	12	—	NA	NA	NA	NA	NA
2-Butanone (MEK)	28000000	N	16000	—	NA	NA	NA	NA	NA
2-Hexanone	280000	N	170	—	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	3400000	Csat	430	—	NA	NA	NA	NA	NA
Acetone	1E+08	Max	24000	—	NA	NA	NA	NA	NA
Benzene	5400	C	7.3	—	NA	NA	NA	NA	NA
Bromodichloromethane	1400	C	2.9	—	NA	NA	NA	NA	NA
Bromoform	220000	C	19	—	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	6400	N	48	—	NA	NA	NA	NA	NA
Carbon disulfide	740000	Csat	3800	—	NA	NA	NA	NA	NA
Carbon tetrachloride	3000	C	2.1	—	NA	NA	NA	NA	NA
Chlorobenzene	280000	N	430	—	NA	NA	NA	NA	NA
Chloroethane	2100000	Csat	16000	—	NA	NA	NA	NA	NA
Chloroform	1500	C	340	—	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	100000	N	15	—	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	400000	N	360	—	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	8300	C	2.3	—	NA	NA	NA	NA	NA
Cyclohexane	120000	Csat	NS	—	NA	NA	NA	NA	NA
Cyclopentane	NS		NS	—	NA	NA	NA	NA	NA
Cyclotrisiloxane, hexamethyl-	NS		NS	—	NA	NA	NA	NA	NA
Dibromochloromethane	3300	C	1.9	—	NA	NA	NA	NA	NA
Dichlorodifluoromethane	80000	N	29000	—	NA	NA	NA	NA	NA
Ethylbenzene	27000	C	8100	—	NA	NA	NA	NA	NA
Isopropylbenzene	270000	Csat	1300	—	NA	NA	NA	NA	NA
Methane, dibromofluoro-	NS		NS	—	NA	NA	NA	NA	NA
Methyl acetate	29000000	Csat	NS	—	NA	NA	NA	NA	NA
Methyl tertiary butyl ether (MTBE)	220000	C	85	—	NA	NA	NA	NA	NA
Methylcyclohexane	NS		NS	—	NA	NA	NA	NA	NA
Methylene chloride	620000	N,M	23	—	NA	NA	NA	NA	NA
Pentane, 3-methyl-	NS		NS	—	NA	NA	NA	NA	NA
Styrene	870000	Csat	920	—	NA	NA	NA	NA	NA
Tetrachloroethene	82000	N	5	—	NA	NA	NA	NA	NA
Toluene	820000	Csat	5500	—	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	140000	N	510	—	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	8300	C	2.3	—	NA	NA	NA	NA	NA
Trichloroethene	4000	N,M	18	—	NA	NA	NA	NA	NA
Trichlorofluoromethane	680000	N	24000	—	NA	NA	NA	NA	NA
Vinyl chloride	1700	C,M	0.19	—	NA	NA	NA	NA	NA
Xylenes (total)	260000	Csat	5800	—	NA	NA	NA	NA	NA

Table 2-4
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Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentratio	BG-1-1 01/16/12 NA18016-018 0.5-1	BG-2-1 01/16/12 NA18016-019 0.5-1	BG-3-1 01/16/12 NA18016-020 0.5-1	BG-2A-0-0.5 05/09/13 92157594005 0-0.5	BG-3A-0-0.5 05/09/13 92157594008 0-0.5
SVOCs by Method 8270D (ug/kg)									
1,1'-Biphenyl	42000	N	43000	—	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	12000000	N	2500	—	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120000	N	160	—	NA	NA	NA	NA	NA
2,4-Dichlorophenol	360000	N	14	—	NA	NA	NA	NA	NA
2,4-Dimethylphenol	2400000	N	1400	—	NA	NA	NA	NA	NA
2,4-Dinitrophenol	240000	N	NS	—	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	5500	C	1.6	—	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	120000	N	NS	—	NA	NA	NA	NA	NA
2-Chloronaphthalene	180000	Csat	NS	—	NA	NA	NA	NA	NA
2-Chlorophenol	1000000	N	4.1	—	NA	NA	NA	NA	NA
2-Methylnaphthalene	370000	Csat	1600	—	NA	NA	NA	NA	NA
2-Methylphenol	12000000	N	4100	—	NA	NA	NA	NA	NA
2-Nitroaniline	1200000	N	NS	—	NA	NA	NA	NA	NA
2-Nitrophenol	NS		NS	—	NA	NA	NA	NA	NA
3 & 4-Methylphenol	NS		NS	—	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	3800	C	NS	—	NA	NA	NA	NA	NA
3-Nitroaniline	NS		NS	—	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NS		NS	—	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NS		NS	—	NA	NA	NA	NA	NA
4-Chloro-3-methyl phenol	12000000	N	NS	—	NA	NA	NA	NA	NA
4-Chloroaniline	8600	C	NS	—	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NS		NS	—	NA	NA	NA	NA	NA
4-Nitroaniline	86000	C	NS	—	NA	NA	NA	NA	NA
4-Nitrophenol	NS		NS	—	NA	NA	NA	NA	NA
Acenaphthene	6600000	N	8400	—	NA	NA	NA	NA	NA
Acenaphthylene	NS		21000	—	NA	NA	NA	NA	NA
Acetophenone	2500000	Csat	3500	—	NA	NA	NA	NA	NA
Anthracene	34000000	N	660000	—	NA	NA	NA	NA	NA
Atrazine	7500	C	25	—	NA	NA	NA	NA	NA
Benzaldehyde	1200000	Csat	3000	—	NA	NA	NA	NA	NA
Benzo(a)anthracene	2100	C,M	180	—	NA	NA	NA	NA	NA
Benzo(a)pyrene	210	C,M	59	—	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	2100	C,M	600	—	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NS		7800000	—	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	21000	C,M	5900	—	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	360000	N	NS	—	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	1000	C	0.14	—	NA	NA	NA	NA	NA
bis(2-Chloroisopropyl)ether	22000	C	NS	—	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	120000	C	7200	—	NA	NA	NA	NA	NA
Butyl benzyl phthalate	910000	C	150000	—	NA	NA	NA	NA	NA
Caprolactam	62000000	N	18000	—	NA	NA	NA	NA	NA
Carbazole	NS		370	—	NA	NA	NA	NA	NA
Chrysene	210000	C	18000	—	NA	NA	NA	NA	NA
Di-n-butyl phthalate	12000000	N	19000	—	NA	NA	NA	NA	NA
Di-n-octylphthalate	NS		38000	—	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	210	C	190	—	NA	NA	NA	NA	NA
Dibenzofuran	170000	Csat	5200	—	NA	NA	NA	NA	NA
Diethylphthalate	98000000	N	37000	—	NA	NA	NA	NA	NA
Dimethyl phthalate	NS		NS	—	NA	NA	NA	NA	NA
Fluoranthene	4400000	N	330000	—	NA	NA	NA	NA	NA
Fluorene	4400000	N	56000	—	NA	NA	NA	NA	NA
Hexachlorobenzene	1100	C	2.6	—	NA	NA	NA	NA	NA
Hexachlorobutadiene	22000	C	8.7	—	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	740000	N	NS	—	NA	NA	NA	NA	NA
Hexachloroethane	43000	N	NS	—	NA	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	2100	C,M	2000	—	NA	NA	NA	NA	NA
Isophorone	1800000	C	210	—	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	250	C	NS	—	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (Diphenylamine	350000	C	NS	—	NA	NA	NA	NA	NA
Naphthalene	18000	C	210	—	NA	NA	NA	NA	NA
Nitrobenzene	24000	C	NS	—	NA	NA	NA	NA	NA
Pentachlorophenol	2700	C	31	—	NA	NA	NA	NA	NA
Phenanthrene	NS		68000	—	NA	NA	NA	NA	NA
Phenol	36000000	N	230	—	NA	NA	NA	NA	NA
Pyrene	3400000	N	220000	—	NA	NA	NA	NA	NA
Unknown Aldol Condensate	NS		NS	—	NA	NA	NA	NA	NA

Table 2-4
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Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentratio	BG-1-1 01/16/12 NA18016-018 0.5-1		BG-2-1 01/16/12 NA18016-019 0.5-1		BG-3-1 01/16/12 NA18016-020 0.5-1		BG-2A-0-0.5 05/09/13 92157594005 0-0.5	BG-3A-0-0.5 05/09/13 92157594008 0-0.5
Metals by Method 6010C (mg/kg)												
Aluminum	100000	Max	NS	43000	**25000**		**43000**		**24000**		NA	NA
Antimony	82	N	0.9	1.3	< 2.8		< 1.2		**1.3**	***J//***	NA	NA
Arsenic	1.6	C	5.8	7	**1.1**	***J//***	**3.8**		**7**		< 0.31	**3.2**
Barium	38000	N	580	25	**14**		**19**		**25**		NA	NA
Beryllium	400	N	63	0.45	< 1.1		< 0.49		**0.45**	***J//***	NA	NA
Cadmium	160	N	3	0.66	**0.19**	***J//***	**0.35**		**0.66**		NA	NA
Calcium	NS		NS	570	**550**	***J//***	**370**	***J//***	**570**	***J//***	NA	NA
Chromium	100000	Max	360000	56	**15**		**16**		**56**		NA	NA
Cobalt	60	N	0.9	2.9	**1.1**	***J//***	**0.83**	***J//***	**2.9**	***J//***	NA	NA
Copper	8200	N	700	23	**21**		**18**		**23**		NA	NA
Iron	100000	Max	150	53000	**31000**		**23000**		**53000**		NA	NA
Lead	800		270	40	**9.2**		**40**		**20**		NA	NA
Magnesium	NS		NS	1000	**220**	***J//***	**1000**		**420**	***J//***	NA	NA
Manganese	4600	N	65	84	**27**		**40**		**84**		NA	NA
Nickel	4000	N	130	6.2	**4.4**	***J//***	**5**		**6.2**	***J//***	NA	NA
Potassium	NS		NS	1600	**440**	***J//***	**1600**		**770**	***J//***	NA	NA
Selenium	1000	N	2.1	1.9	< 2.8		**1.9**		< 2.7		NA	NA
Silver	1000	N	3.4	0.6	< 1.4		**0.6**	***J//***	< 1.4		NA	NA
Sodium	NS		NS	62	< 1400		**62**	***J//***	< 1400		NA	NA
Thallium	2	N	0.28	ND	< 14		< 6.1		< 14		NA	NA
Vanadium	1000	N	6	74	**66**		**33**		**74**		NA	NA
Zinc	62000	N	1200	42	**15**		**24**		**42**		NA	NA
Hexavalent Chromium by Method 7196A (mg/kg)												
Hexavalent Chromium	5.6	C,M	3.8	NA	NA		NA		NA		NA	NA
Mercury by Method 7471B (mg/kg)												
Mercury	3.1	Csat	1	0.039	**0.039**	***J//***	< 0.08		**0.031**	***J//***	NA	NA

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Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	BG-3B-0-0.5 05/09/13 92157594009 0-0.5	BG-3B-0-0.5-A 05/09/13 92157594010 0-0.5	BG-4-0-0.5 05/09/13 92157594006 0-0.5	BG-5-0-0.5 05/09/13 92157594007 0-0.5	BG-6-0-0.5 05/09/13 92157594004 0-0.5
VOCs by Method 8260B (ug/kg)									
1,1,1-Trichloroethane	640000	Csat	1200	—	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	2800	C	1.2	—	NA	NA	NA	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	910000	Csat	9000000	—	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1400	N	3.2	—	NA	NA	NA	NA	NA
1,1-Dichloroethane	17000	C	30	—	NA	NA	NA	NA	NA
1,1-Dichloroethene	220000	N	45	—	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	54000	N	2200	—	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	69	C,M	0.25	—	NA	NA	NA	NA	NA
1,2-Dibromoethane (EDB)	170	C	0.097	—	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	380000	Csat	240	—	NA	NA	NA	NA	NA
1,2-Dichloroethane	2200	C	2	—	NA	NA	NA	NA	NA
1,2-Dichloropropane	4700	C	3.2	—	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NS		2400	—	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	12000	C	70	—	NA	NA	NA	NA	NA
1,4-Dioxane	17000	C	12	—	NA	NA	NA	NA	NA
2-Butanone (MEK)	28000000	N	16000	—	NA	NA	NA	NA	NA
2-Hexanone	280000	N	170	—	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	3400000	Csat	430	—	NA	NA	NA	NA	NA
Acetone	100000000	Max	24000	—	NA	NA	NA	NA	NA
Benzene	5400	C	7.3	—	NA	NA	NA	NA	NA
Bromodichloromethane	1400	C	2.9	—	NA	NA	NA	NA	NA
Bromoform	220000	C	19	—	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	6400	N	48	—	NA	NA	NA	NA	NA
Carbon disulfide	740000	Csat	3800	—	NA	NA	NA	NA	NA
Carbon tetrachloride	3000	C	2.1	—	NA	NA	NA	NA	NA
Chlorobenzene	280000	N	430	—	NA	NA	NA	NA	NA
Chloroethane	2100000	Csat	16000	—	NA	NA	NA	NA	NA
Chloroform	1500	C	340	—	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	100000	N	15	—	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	400000	N	360	—	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	8300	C	2.3	—	NA	NA	NA	NA	NA
Cyclohexane	120000	Csat	NS	—	NA	NA	NA	NA	NA
Cyclopentane	NS		NS	—	NA	NA	NA	NA	NA
Cyclotrisiloxane, hexamethyl-	NS		NS	—	NA	NA	NA	NA	NA
Dibromochloromethane	3300	C	1.9	—	NA	NA	NA	NA	NA
Dichlorodifluoromethane	80000	N	29000	—	NA	NA	NA	NA	NA
Ethylbenzene	27000	C	8100	—	NA	NA	NA	NA	NA
Isopropylbenzene	270000	Csat	1300	—	NA	NA	NA	NA	NA
Methane, dibromofluoro-	NS		NS	—	NA	NA	NA	NA	NA
Methyl acetate	29000000	Csat	NS	—	NA	NA	NA	NA	NA
Methyl tertiary butyl ether (MTBE)	220000	C	85	—	NA	NA	NA	NA	NA
Methylcyclohexane	NS		NS	—	NA	NA	NA	NA	NA
Methylene chloride	620000	N,M	23	—	NA	NA	NA	NA	NA
Pentane, 3-methyl-	NS		NS	—	NA	NA	NA	NA	NA
Styrene	870000	Csat	920	—	NA	NA	NA	NA	NA
Tetrachloroethene	82000	N	5	—	NA	NA	NA	NA	NA
Toluene	820000	Csat	5500	—	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	140000	N	510	—	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	8300	C	2.3	—	NA	NA	NA	NA	NA
Trichloroethene	4000	N,M	18	—	NA	NA	NA	NA	NA
Trichlorofluoromethane	680000	N	24000	—	NA	NA	NA	NA	NA
Vinyl chloride	1700	C,M	0.19	—	NA	NA	NA	NA	NA
Xylenes (total)	260000	Csat	5800	—	NA	NA	NA	NA	NA

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Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	BG-3B-0-0.5 05/09/13 92157594009 0-0.5	BG-3B-0-0.5-A 05/09/13 92157594010 0-0.5	BG-4-0-0.5 05/09/13 92157594006 0-0.5	BG-5-0-0.5 05/09/13 92157594007 0-0.5	BG-6-0-0.5 05/09/13 92157594004 0-0.5
SVOCs by Method 8270D (ug/kg)									
1,1'-Biphenyl	42000	N	43000	—	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	12000000	N	2500	—	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120000	N	160	—	NA	NA	NA	NA	NA
2,4-Dichlorophenol	360000	N	14	—	NA	NA	NA	NA	NA
2,4-Dimethylphenol	2400000	N	1400	—	NA	NA	NA	NA	NA
2,4-Dinitrophenol	240000	N	NS	—	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	5500	C	1.6	—	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	120000	N	NS	—	NA	NA	NA	NA	NA
2-Chloronaphthalene	180000	Csat	NS	—	NA	NA	NA	NA	NA
2-Chlorophenol	1000000	N	4.1	—	NA	NA	NA	NA	NA
2-Methylnaphthalene	370000	Csat	1600	—	NA	NA	NA	NA	NA
2-Methylphenol	12000000	N	4100	—	NA	NA	NA	NA	NA
2-Nitroaniline	1200000	N	NS	—	NA	NA	NA	NA	NA
2-Nitrophenol	NS		NS	—	NA	NA	NA	NA	NA
3 & 4-Methylphenol	NS		NS	—	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	3800	C	NS	—	NA	NA	NA	NA	NA
3-Nitroaniline	NS		NS	—	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NS		NS	—	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NS		NS	—	NA	NA	NA	NA	NA
4-Chloro-3-methyl phenol	12000000	N	NS	—	NA	NA	NA	NA	NA
4-Chloroaniline	8600	C	NS	—	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NS		NS	—	NA	NA	NA	NA	NA
4-Nitroaniline	86000	C	NS	—	NA	NA	NA	NA	NA
4-Nitrophenol	NS		NS	—	NA	NA	NA	NA	NA
Acenaphthene	6600000	N	8400	—	NA	NA	NA	NA	NA
Acenaphthylene	NS		21000	—	NA	NA	NA	NA	NA
Acetophenone	2500000	Csat	3500	—	NA	NA	NA	NA	NA
Anthracene	34000000	N	660000	—	NA	NA	NA	NA	NA
Atrazine	7500	C	25	—	NA	NA	NA	NA	NA
Benzaldehyde	1200000	Csat	3000	—	NA	NA	NA	NA	NA
Benzo(a)anthracene	2100	C,M	180	—	NA	NA	NA	NA	NA
Benzo(a)pyrene	210	C,M	59	—	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	2100	C,M	600	—	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NS		7800000	—	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	21000	C,M	5900	—	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	360000	N	NS	—	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	1000	C	0.14	—	NA	NA	NA	NA	NA
bis(2-Chloroisopropyl)ether	22000	C	NS	—	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	120000	C	7200	—	NA	NA	NA	NA	NA
Butyl benzyl phthalate	910000	C	150000	—	NA	NA	NA	NA	NA
Caprolactam	62000000	N	18000	—	NA	NA	NA	NA	NA
Carbazole	NS		370	—	NA	NA	NA	NA	NA
Chrysene	210000	C	18000	—	NA	NA	NA	NA	NA
Di-n-butyl phthalate	12000000	N	19000	—	NA	NA	NA	NA	NA
Di-n-octylphthalate	NS		38000	—	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	210	C	190	—	NA	NA	NA	NA	NA
Dibenzofuran	170000	Csat	5200	—	NA	NA	NA	NA	NA
Diethylphthalate	98000000	N	37000	—	NA	NA	NA	NA	NA
Dimethyl phthalate	NS		NS	—	NA	NA	NA	NA	NA
Fluoranthene	4400000	N	330000	—	NA	NA	NA	NA	NA
Fluorene	4400000	N	56000	—	NA	NA	NA	NA	NA
Hexachlorobenzene	1100	C	2.6	—	NA	NA	NA	NA	NA
Hexachlorobutadiene	22000	C	8.7	—	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	740000	N	NS	—	NA	NA	NA	NA	NA
Hexachloroethane	43000	N	NS	—	NA	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	2100	C,M	2000	—	NA	NA	NA	NA	NA
Isophorone	1800000	C	210	—	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	250	C	NS	—	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (Diphenylamine	350000	C	NS	—	NA	NA	NA	NA	NA
Naphthalene	18000	C	210	—	NA	NA	NA	NA	NA
Nitrobenzene	24000	C	NS	—	NA	NA	NA	NA	NA
Pentachlorophenol	2700	C	31	—	NA	NA	NA	NA	NA
Phenanthrene	NS		68000	—	NA	NA	NA	NA	NA
Phenol	36000000	N	230	—	NA	NA	NA	NA	NA
Pyrene	3400000	N	220000	—	NA	NA	NA	NA	NA
Unknown Aldol Condensate	NS		NS	—	NA	NA	NA	NA	NA

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	BG-3B-0-0.5 05/09/13 92157594009 0-0.5	BG-3B-0-0.5-A 05/09/13 92157594010 0-0.5	BG-4-0-0.5 05/09/13 92157594006 0-0.5	BG-5-0-0.5 05/09/13 92157594007 0-0.5	BG-6-0-0.5 05/09/13 92157594004 0-0.5
Metals by Method 6010C (mg/kg)									
Aluminum	100000	Max	NS	43000	NA	NA	NA	NA	NA
Antimony	82	N	0.9	1.3	NA	NA	NA	NA	NA
Arsenic	1.6	C	5.8	7	**3.1**	**4.6**	< 0.31	**4.6**	< 0.29
Barium	38000	N	580	25	NA	NA	NA	NA	NA
Beryllium	400	N	63	0.45	NA	NA	NA	NA	NA
Cadmium	160	N	3	0.66	NA	NA	NA	NA	NA
Calcium	NS		NS	570	NA	NA	NA	NA	NA
Chromium	100000	Max	360000	56	NA	NA	NA	NA	NA
Cobalt	60	N	0.9	2.9	NA	NA	NA	NA	NA
Copper	8200	N	700	23	NA	NA	NA	NA	NA
Iron	100000	Max	150	53000	NA	NA	NA	NA	NA
Lead	800		270	40	NA	NA	NA	NA	NA
Magnesium	NS		NS	1000	NA	NA	NA	NA	NA
Manganese	4600	N	65	84	NA	NA	NA	NA	NA
Nickel	4000	N	130	6.2	NA	NA	NA	NA	NA
Potassium	NS		NS	1600	NA	NA	NA	NA	NA
Selenium	1000	N	2.1	1.9	NA	NA	NA	NA	NA
Silver	1000	N	3.4	0.6	NA	NA	NA	NA	NA
Sodium	NS		NS	62	NA	NA	NA	NA	NA
Thallium	2	N	0.28	ND	NA	NA	NA	NA	NA
Vanadium	1000	N	6	74	NA	NA	NA	NA	NA
Zinc	62000	N	1200	42	NA	NA	NA	NA	NA
Hexavalent Chromium by Method 7196A (mg/kg)									
Hexavalent Chromium	5.6	C,M	3.8	NA	NA	NA	NA	NA	NA
Mercury by Method 7471B (mg/kg)									
Mercury	3.1	Csat	1	0.039	NA	NA	NA	NA	NA

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	BG-7-0-0.5 05/09/13 92157594003 0-0.5	BG-8-0-0.5 05/09/13 92157594002 0-0.5	BG-9-0-0.5 05/09/13 92157594001 0-0.5	MW-3-0-1 01/16/12 NA18016-017 0-1	SB-SA-1-0-1 01/16/12 NA18016-008 0-1
VOCs by Method 8260B (ug/kg)									
1,1,1-Trichloroethane	640000	Csat	1200	—	NA	NA	NA	< 7.2	< 5.1
1,1,2,2-Tetrachloroethane	2800	C	1.2	—	NA	NA	NA	< 7.2	< 5.1
1,1,2-Trichloro-1,2,2-Trifluoroethane	910000	Csat	9000000	—	NA	NA	NA	< 7.2	< 5.1
1,1,2-Trichloroethane	1400	N	3.2	—	NA	NA	NA	< 7.2	< 5.1
1,1-Dichloroethane	17000	C	30	—	NA	NA	NA	< 7.2	< 5.1
1,1-Dichloroethene	220000	N	45	—	NA	NA	NA	< 7.2	< 5.1
1,2,4-Trichlorobenzene	54000	N	2200	—	NA	NA	NA	< 7.2	< 5.1
1,2-Dibromo-3-chloropropane (DBCP)	69	C,M	0.25	—	NA	NA	NA	< 7.2	< 5.1
1,2-Dibromoethane (EDB)	170	C	0.097	—	NA	NA	NA	< 7.2	< 5.1
1,2-Dichlorobenzene	380000	Csat	240	—	NA	NA	NA	< 7.2	< 5.1
1,2-Dichloroethane	2200	C	2	—	NA	NA	NA	< 7.2	< 5.1
1,2-Dichloropropane	4700	C	3.2	—	NA	NA	NA	< 7.2	< 5.1
1,3-Dichlorobenzene	NS		2400	—	NA	NA	NA	< 7.2	< 5.1
1,4-Dichlorobenzene	12000	C	70	—	NA	NA	NA	< 7.2	< 5.1
1,4-Dioxane	17000	C	12	—	NA	NA	NA	< 360	< 250
2-Butanone (MEK)	28000000	N	16000	—	NA	NA	NA	< 14	< 10
2-Hexanone	280000	N	170	—	NA	NA	NA	< 14	< 10
4-Methyl-2-pentanone	3400000	Csat	430	—	NA	NA	NA	< 14	< 10
Acetone	100000000	Max	24000	—	NA	NA	NA	**12 J//**	< 20
Benzene	5400	C	7.3	—	NA	NA	NA	< 7.2	< 5.1
Bromodichloromethane	1400	C	2.9	—	NA	NA	NA	< 7.2	< 5.1
Bromoform	220000	C	19	—	NA	NA	NA	< 7.2	< 5.1
Bromomethane (Methyl bromide)	6400	N	48	—	NA	NA	NA	< 7.2	< 5.1
Carbon disulfide	740000	Csat	3800	—	NA	NA	NA	< 7.2	< 5.1
Carbon tetrachloride	3000	C	2.1	—	NA	NA	NA	< 7.2	< 5.1
Chlorobenzene	280000	N	430	—	NA	NA	NA	< 7.2	< 5.1
Chloroethane	2100000	Csat	16000	—	NA	NA	NA	< 7.2	< 5.1
Chloroform	1500	C	340	—	NA	NA	NA	< 7.2	< 5.1
Chloromethane (Methyl chloride)	100000	N	15	—	NA	NA	NA	< 7.2	< 5.1
cis-1,2-Dichloroethene	400000	N	360	—	NA	NA	NA	< 7.2	< 5.1
cis-1,3-Dichloropropene	8300	C	2.3	—	NA	NA	NA	< 7.2	< 5.1
Cyclohexane	120000	Csat	NS	—	NA	NA	NA	< 7.2	< 5.1
Cyclopentane	NS		NS	—	NA	NA	NA	**25**	NA
Cyclotrisiloxane, hexamethyl-	NS		NS	—	NA	NA	NA	**0.65**	NA
Dibromochloromethane	3300	C	1.9	—	NA	NA	NA	< 7.2	< 5.1
Dichlorodifluoromethane	80000	N	29000	—	NA	NA	NA	< 7.2	< 5.1
Ethylbenzene	27000	C	8100	—	NA	NA	NA	< 7.2	< 5.1
Isopropylbenzene	270000	Csat	1300	—	NA	NA	NA	< 7.2	< 5.1
Methane, dibromofluoro-	NS		NS	—	NA	NA	NA	NA	NA
Methyl acetate	29000000	Csat	NS	—	NA	NA	NA	< 7.2	< 5.1
Methyl tertiary butyl ether (MTBE)	220000	C	85	—	NA	NA	NA	< 7.2	< 5.1
Methylcyclohexane	NS		NS	—	NA	NA	NA	< 7.2	< 5.1
Methylene chloride	620000	N,M	23	—	NA	NA	NA	**9.6**	< 5.1
Pentane, 3-methyl-	NS		NS	—	NA	NA	NA	**2.4**	NA
Styrene	870000	Csat	920	—	NA	NA	NA	< 7.2	< 5.1
Tetrachloroethene	82000	N	5	—	NA	NA	NA	< 7.2	< 5.1
Toluene	820000	Csat	5500	—	NA	NA	NA	< 7.2	< 5.1
trans-1,2-Dichloroethene	140000	N	510	—	NA	NA	NA	< 7.2	< 5.1
trans-1,3-Dichloropropene	8300	C	2.3	—	NA	NA	NA	< 7.2	< 5.1
Trichloroethene	4000	N,M	18	—	NA	NA	NA	< 7.2	< 5.1
Trichlorofluoromethane	680000	N	24000	—	NA	NA	NA	< 7.2	< 5.1
Vinyl chloride	1700	C,M	0.19	—	NA	NA	NA	< 7.2	< 5.1
Xylenes (total)	260000	Csat	5800	—	NA	NA	NA	< 7.2	< 5.1

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
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Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	BG-7-0-0.5 05/09/13 92157594003 0-0.5	BG-8-0-0.5 05/09/13 92157594002 0-0.5	BG-9-0-0.5 05/09/13 92157594001 0-0.5	MW-3-0-1 01/16/12 NA18016-017 0-1		SB-SA-1-0-1 01/16/12 NA18016-008 0-1	
SVOCs by Method 8270D (ug/kg)											
1,1'-Biphenyl	42000	N	43000	—	NA	NA	NA	< 440		< 2100	
2,4,5-Trichlorophenol	12000000	N	2500	—	NA	NA	NA	< 440		< 2100	
2,4,6-Trichlorophenol	120000	N	160	—	NA	NA	NA	< 440		< 2100	
2,4-Dichlorophenol	360000	N	14	—	NA	NA	NA	< 440		< 2100	
2,4-Dimethylphenol	2400000	N	1400	—	NA	NA	NA	< 440		< 2100	
2,4-Dinitrophenol	240000	N	NS	—	NA	NA	NA	< 1100		< 5300	
2,4-Dinitrotoluene	5500	C	1.6	—	NA	NA	NA	< 440		< 2100	
2,6-Dinitrotoluene	120000	N	NS	—	NA	NA	NA	< 440		< 2100	
2-Chloronaphthalene	180000	Csat	NS	—	NA	NA	NA	< 440		< 2100	
2-Chlorophenol	1000000	N	4.1	—	NA	NA	NA	< 440		< 2100	
2-Methylnaphthalene	370000	Csat	1600	—	NA	NA	NA	< 440		< 2100	
2-Methylphenol	12000000	N	4100	—	NA	NA	NA	< 440		< 2100	
2-Nitroaniline	1200000	N	NS	—	NA	NA	NA	< 440		< 2100	
2-Nitrophenol	NS		NS	—	NA	NA	NA	< 440		< 2100	
3 & 4-Methylphenol	NS		NS	—	NA	NA	NA	< 890		< 4300	
3,3'-Dichlorobenzidine	3800	C	NS	—	NA	NA	NA	< 1100		< 5300	
3-Nitroaniline	NS		NS	—	NA	NA	NA	< 440		< 2100	
4,6-Dinitro-2-methylphenol	NS		NS	—	NA	NA	NA	< 1100		< 5300	
4-Bromophenyl phenyl ether	NS		NS	—	NA	NA	NA	< 440		< 2100	
4-Chloro-3-methyl phenol	12000000	N	NS	—	NA	NA	NA	< 440		< 2100	
4-Chloroaniline	8600	C	NS	—	NA	NA	NA	< 440	/R/c	< 2100	/R/c
4-Chlorophenyl phenyl ether	NS		NS	—	NA	NA	NA	< 440		< 2100	
4-Nitroaniline	86000	C	NS	—	NA	NA	NA	< 440		< 2100	
4-Nitrophenol	NS		NS	—	NA	NA	NA	< 1100		< 5300	
Acenaphthene	6600000	N	8400	—	NA	NA	NA	< 440		< 2100	
Acenaphthylene	NS		21000	—	NA	NA	NA	< 440		< 2100	
Acetophenone	2500000	Csat	3500	—	NA	NA	NA	< 440		< 2100	
Anthracene	34000000	N	660000	—	NA	NA	NA	< 440		< 2100	
Atrazine	7500	C	25	—	NA	NA	NA	< 440		< 2100	
Benzaldehyde	1200000	Csat	3000	—	NA	NA	NA	< 1100		< 5300	
Benzo(a)anthracene	2100	C,M	180	—	NA	NA	NA	< 440		< 2100	
Benzo(a)pyrene	210	C,M	59	—	NA	NA	NA	< 440		< 2100	
Benzo(b)fluoranthene	2100	C,M	600	—	NA	NA	NA	< 440		< 2100	
Benzo(g,h,i)perylene	NS		7800000	—	NA	NA	NA	< 440		< 2100	
Benzo(k)fluoranthene	21000	C,M	5900	—	NA	NA	NA	< 440		< 2100	
bis(2-Chloroethoxy)methane	360000	N	NS	—	NA	NA	NA	< 440		< 2100	
bis(2-Chloroethyl)ether	1000	C	0.14	—	NA	NA	NA	< 440		< 2100	
bis(2-Chloroisopropyl)ether	22000	C	NS	—	NA	NA	NA	< 440		< 2100	
bis(2-Ethylhexyl)phthalate	120000	C	7200	—	NA	NA	NA	< 440		< 2100	
Butyl benzyl phthalate	910000	C	150000	—	NA	NA	NA	< 440		< 2100	
Caprolactam	62000000	N	18000	—	NA	NA	NA	< 1100		< 5300	
Carbazole	NS		370	—	NA	NA	NA	< 440		< 2100	
Chrysene	210000	C	18000	—	NA	NA	NA	< 440		< 2100	
Di-n-butyl phthalate	12000000	N	19000	—	NA	NA	NA	< 440		< 2100	
Di-n-octylphthalate	NS		38000	—	NA	NA	NA	< 440		< 2100	
Dibenzo(a,h)anthracene	210	C	190	—	NA	NA	NA	< 440		< 2100	
Dibenzofuran	170000	Csat	5200	—	NA	NA	NA	< 440		< 2100	
Diethylphthalate	98000000	N	37000	—	NA	NA	NA	< 440		< 2100	
Dimethyl phthalate	NS		NS	—	NA	NA	NA	< 440		< 2100	
Fluoranthene	4400000	N	330000	—	NA	NA	NA	< 440		< 2100	
Fluorene	4400000	N	56000	—	NA	NA	NA	< 440		< 2100	
Hexachlorobenzene	1100	C	2.6	—	NA	NA	NA	< 440		< 2100	
Hexachlorobutadiene	22000	C	8.7	—	NA	NA	NA	< 440		< 2100	
Hexachlorocyclopentadiene	740000	N	NS	—	NA	NA	NA	< 1100		< 5300	
Hexachloroethane	43000	N	NS	—	NA	NA	NA	< 440		< 2100	
Indeno(1,2,3-c,d)pyrene	2100	C,M	2000	—	NA	NA	NA	< 440		< 2100	
Isophorone	1800000	C	210	—	NA	NA	NA	< 440		< 2100	
N-Nitrosodi-n-propylamine	250	C	NS	—	NA	NA	NA	< 440		< 2100	
N-Nitrosodiphenylamine (Diphenylamine)	350000	C	NS	—	NA	NA	NA	< 440		< 2100	
Naphthalene	18000	C	210	—	NA	NA	NA	< 440		< 2100	
Nitrobenzene	24000	C	NS	—	NA	NA	NA	< 440		< 2100	
Pentachlorophenol	2700	C	31	—	NA	NA	NA	< 1100		< 5300	
Phenanthrene	NS		68000	—	NA	NA	NA	< 440		< 2100	
Phenol	36000000	N	230	—	NA	NA	NA	< 440		< 2100	
Pyrene	3400000	N	220000	—	NA	NA	NA	< 440		< 2100	
Unknown Aldol Condensate	NS		NS	—	NA	NA	NA	NA		**16000**	

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
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Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	BG-7-0-0.5 05/09/13 92157594003 0-0.5	BG-8-0-0.5 05/09/13 92157594002 0-0.5	BG-9-0-0.5 05/09/13 92157594001 0-0.5	MW-3-0-1 01/16/12 NA18016-017 0-1	SB-SA-1-0-1 01/16/12 NA18016-008 0-1
Metals by Method 6010C (mg/kg)									
Aluminum	100000	Max	NS	43000	NA	NA	NA	**65000**	**61000 /M/M**
Antimony	82	N	0.9	1.3	NA	NA	NA	< 6.3	< 6.6 /M/m
Arsenic	1.6	C	5.8	7	**0.95**	**12.7**	**2.1 M1**	**29**	**13**
Barium	38000	N	580	25	NA	NA	NA	**15**	**12**
Beryllium	400	N	63	0.45	NA	NA	NA	**0.65 J//**	**0.99 J//**
Cadmium	160	N	3	0.66	NA	NA	NA	**2**	**1.2 J//**
Calcium	NS		NS	570	NA	NA	NA	**530 J//**	**570 J//**
Chromium	100000	Max	360000	56	NA	NA	NA	**78**	**76**
Cobalt	60	N	0.9	2.9	NA	NA	NA	**1.4 J//**	**4.2 J//**
Copper	8200	N	700	23	NA	NA	NA	**33**	**22**
Iron	100000	Max	150	53000	NA	NA	NA	**81000**	**100000 /M/m**
Lead	800		270	40	NA	NA	NA	**24**	**29**
Magnesium	NS		NS	1000	NA	NA	NA	**260 J//**	**350 J//**
Manganese	4600	N	65	84	NA	NA	NA	**82**	**71**
Nickel	4000	N	130	6.2	NA	NA	NA	**6.7 J//**	**8.7 J//**
Potassium	NS		NS	1600	NA	NA	NA	**650 J//**	**700 J//**
Selenium	1000	N	2.1	1.9	NA	NA	NA	< 6.3	< 6.6
Silver	1000	N	3.4	0.6	NA	NA	NA	< 3.2	< 3.3
Sodium	NS		NS	62	NA	NA	NA	< 3200	< 3300
Thallium	2	N	0.28	ND	NA	NA	NA	< 32	< 33
Vanadium	1000	N	6	74	NA	NA	NA	**150**	**140**
Zinc	62000	N	1200	42	NA	NA	NA	**35**	**47**
Hexavalent Chromium by Method 7196A (mg/kg)									
Hexavalent Chromium	5.6	C,M	3.8	NA	NA	NA	NA	**1.5**	**2.7**
Mercury by Method 7471B (mg/kg)									
Mercury	3.1	Csat	1	0.039	NA	NA	NA	**0.022 J//**	**0.018 J//**

Table 2-4
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Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-2-0-1 01/09/12 NA18016-001 0-1	SB-SA-2-0-1-a 01/09/12 NA18016-002 0-1	SB-SA-2-5-6 01/09/12 NA18016-003 5-6	SB-SA-2--10-11 01/09/12 NA18016-004 10-11	SB-SA-2-15-16 01/09/12 NA18016-005 15-16
VOCs by Method 8260B (ug/kg)									
1,1,1-Trichloroethane	640000	Csat	1200	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,1,2,2-Tetrachloroethane	2800	C	1.2	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,1,2-Trichloro-1,2,2-Trifluoroethane	910000	Csat	9000000	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,1,2-Trichloroethane	1400	N	3.2	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,1-Dichloroethane	17000	C	30	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,1-Dichloroethene	220000	N	45	—	< 6	< 7.9	< 9.5	**5.7**	< 7.3
1,2,4-Trichlorobenzene	54000	N	2200	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,2-Dibromo-3-chloropropane (DBCP)	69	C,M	0.25	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,2-Dibromoethane (EDB)	170	C	0.097	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,2-Dichlorobenzene	380000	Csat	240	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,2-Dichloroethane	2200	C	2	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,2-Dichloropropane	4700	C	3.2	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,3-Dichlorobenzene	NS		2400	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,4-Dichlorobenzene	12000	C	70	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
1,4-Dioxane	17000	C	12	—	< 300	< 400	< 480	< 270	< 360
2-Butanone (MEK)	28000000	N	16000	—	< 12	< 16	< 19	< 11	< 15
2-Hexanone	280000	N	170	—	< 12	< 16	< 19	< 11	< 15
4-Methyl-2-pentanone	3400000	Csat	430	—	< 12	< 16	< 19	< 11	< 15
Acetone	100000000	Max	24000	—	< 24	< 32	< 38	< 22	< 29
Benzene	5400	C	7.3	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Bromodichloromethane	1400	C	2.9	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Bromoform	220000	C	19	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Bromomethane (Methyl bromide)	6400	N	48	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Carbon disulfide	740000	Csat	3800	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Carbon tetrachloride	3000	C	2.1	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Chlorobenzene	280000	N	430	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Chloroethane	2100000	Csat	16000	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Chloroform	1500	C	340	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Chloromethane (Methyl chloride)	100000	N	15	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
cis-1,2-Dichloroethene	400000	N	360	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
cis-1,3-Dichloropropene	8300	C	2.3	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Cyclohexane	120000	Csat	NS	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Cyclopentane	NS		NS	—	NA	NA	NA	NA	NA
Cyclotrisiloxane, hexamethyl-	NS		NS	—	NA	NA	NA	NA	NA
Dibromochloromethane	3300	C	1.9	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Dichlorodifluoromethane	80000	N	29000	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Ethylbenzene	27000	C	8100	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Isopropylbenzene	270000	Csat	1300	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Methane, dibromofluoro-	NS		NS	—	NA	NA	NA	NA	NA
Methyl acetate	29000000	Csat	NS	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Methyl tertiary butyl ether (MTBE)	220000	C	85	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Methylcyclohexane	NS		NS	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Methylene chloride	620000	N,M	23	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Pentane, 3-methyl-	NS		NS	—	NA	NA	NA	NA	NA
Styrene	870000	Csat	920	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Tetrachloroethene	82000	N	5	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Toluene	820000	Csat	5500	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
trans-1,2-Dichloroethene	140000	N	510	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
trans-1,3-Dichloropropene	8300	C	2.3	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Trichloroethene	4000	N,M	18	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Trichlorofluoromethane	680000	N	24000	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Vinyl chloride	1700	C,M	0.19	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3
Xylenes (total)	260000	Csat	5800	—	< 6	< 7.9	< 9.5	< 5.4	< 7.3

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-2-0-1 01/09/12 NA18016-001 0-1	SB-SA-2-0-1-a 01/09/12 NA18016-002 0-1	SB-SA-2-5-6 01/09/12 NA18016-003 5-6	SB-SA-2--10-11 01/09/12 NA18016-004 10-11	SB-SA-2-15-16 01/09/12 NA18016-005 15-16
SVOCs by Method 8270D (ug/kg)									
1,1'-Biphenyl	42000	N	43000	—	< 450	< 610	NA	NA	NA
2,4,5-Trichlorophenol	12000000	N	2500	—	< 450	< 610	NA	NA	NA
2,4,6-Trichlorophenol	120000	N	160	—	< 450	< 610	NA	NA	NA
2,4-Dichlorophenol	360000	N	14	—	< 450	< 610	NA	NA	NA
2,4-Dimethylphenol	2400000	N	1400	—	< 450	< 610	NA	NA	NA
2,4-Dinitrophenol	240000	N	NS	—	< 1100	< 1500	NA	NA	NA
2,4-Dinitrotoluene	5500	C	1.6	—	< 450	< 610	NA	NA	NA
2,6-Dinitrotoluene	120000	N	NS	—	< 450	< 610	NA	NA	NA
2-Chloronaphthalene	180000	Csat	NS	—	< 450	< 610	NA	NA	NA
2-Chlorophenol	1000000	N	4.1	—	< 450	< 610	NA	NA	NA
2-Methylnaphthalene	370000	Csat	1600	—	< 450	< 610	NA	NA	NA
2-Methylphenol	12000000	N	4100	—	< 450	< 610	NA	NA	NA
2-Nitroaniline	1200000	N	NS	—	< 450	< 610	NA	NA	NA
2-Nitrophenol	NS		NS	—	< 450	< 610	NA	NA	NA
3 & 4-Methylphenol	NS		NS	—	< 920	< 1200	NA	NA	NA
3,3'-Dichlorobenzidine	3800	C	NS	—	< 1100	< 1500	NA	NA	NA
3-Nitroaniline	NS		NS	—	< 450	< 610	NA	NA	NA
4,6-Dinitro-2-methylphenol	NS		NS	—	< 1100	< 1500	NA	NA	NA
4-Bromophenyl phenyl ether	NS		NS	—	< 450	< 610	NA	NA	NA
4-Chloro-3-methyl phenol	12000000	N	NS	—	< 450	< 610	NA	NA	NA
4-Chloroaniline	8600	C	NS	—	< 450 /R/c	< 610 /R/c	NA	NA	NA
4-Chlorophenyl phenyl ether	NS		NS	—	< 450	< 610	NA	NA	NA
4-Nitroaniline	86000	C	NS	—	< 450	< 610	NA	NA	NA
4-Nitrophenol	NS		NS	—	< 1100	< 1500	NA	NA	NA
Acenaphthene	6600000	N	8400	—	< 450	< 610	NA	NA	NA
Acenaphthylene	NS		21000	—	< 450	< 610	NA	NA	NA
Acetophenone	2500000	Csat	3500	—	< 450	< 610	NA	NA	NA
Anthracene	34000000	N	660000	—	< 450	< 610	NA	NA	NA
Atrazine	7500	C	25	—	< 450	< 610	NA	NA	NA
Benzaldehyde	1200000	Csat	3000	—	< 1100	< 1500	NA	NA	NA
Benzo(a)anthracene	2100	C,M	180	—	< 450	< 610	NA	NA	NA
Benzo(a)pyrene	210	C,M	59	—	< 450	< 610	NA	NA	NA
Benzo(b)fluoranthene	2100	C,M	600	—	< 450	< 610	NA	NA	NA
Benzo(g,h,i)perylene	NS		7800000	—	< 450	< 610	NA	NA	NA
Benzo(k)fluoranthene	21000	C,M	5900	—	< 450	< 610	NA	NA	NA
bis(2-Chloroethoxy)methane	360000	N	NS	—	< 450	< 610	NA	NA	NA
bis(2-Chloroethyl)ether	1000	C	0.14	—	< 450	< 610	NA	NA	NA
bis(2-Chloroisopropyl)ether	22000	C	NS	—	< 450	< 610	NA	NA	NA
bis(2-Ethylhexyl)phthalate	120000	C	7200	—	< 450	< 610	NA	NA	NA
Butyl benzyl phthalate	910000	C	150000	—	< 450	< 610	NA	NA	NA
Caprolactam	62000000	N	18000	—	< 1100	< 1500	NA	NA	NA
Carbazole	NS		370	—	< 450	< 610	NA	NA	NA
Chrysene	210000	C	18000	—	< 450	< 610	NA	NA	NA
Di-n-butyl phthalate	12000000	N	19000	—	< 450	< 610	NA	NA	NA
Di-n-octylphthalate	NS		38000	—	< 450	< 610	NA	NA	NA
Dibenzo(a,h)anthracene	210	C	190	—	< 450	< 610	NA	NA	NA
Dibenzofuran	170000	Csat	5200	—	< 450	< 610	NA	NA	NA
Diethylphthalate	98000000	N	37000	—	< 450	< 610	NA	NA	NA
Dimethyl phthalate	NS		NS	—	< 450	< 610	NA	NA	NA
Fluoranthene	4400000	N	330000	—	< 450	< 610	NA	NA	NA
Fluorene	4400000	N	56000	—	< 450	< 610	NA	NA	NA
Hexachlorobenzene	1100	C	2.6	—	< 450	< 610	NA	NA	NA
Hexachlorobutadiene	22000	C	8.7	—	< 450	< 610	NA	NA	NA
Hexachlorocyclopentadiene	740000	N	NS	—	< 1100	< 1500	NA	NA	NA
Hexachloroethane	43000	N	NS	—	< 450	< 610	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	2100	C,M	2000	—	< 450	< 610	NA	NA	NA
Isophorone	1800000	C	210	—	< 450	< 610	NA	NA	NA
N-Nitrosodi-n-propylamine	250	C	NS	—	< 450	< 610	NA	NA	NA
N-Nitrosodiphenylamine (Diphenylamine)	350000	C	NS	—	< 450	< 610	NA	NA	NA
Naphthalene	18000	C	210	—	< 450	< 610	NA	NA	NA
Nitrobenzene	24000	C	NS	—	< 450	< 610	NA	NA	NA
Pentachlorophenol	2700	C	31	—	< 1100	< 1500	NA	NA	NA
Phenanthrene	NS		68000	—	< 450	< 610	NA	NA	NA
Phenol	36000000	N	230	—	< 450	< 610	NA	NA	NA
Pyrene	3400000	N	220000	—	< 450	< 610	NA	NA	NA
Unknown Aldol Condensate	NS		NS	—	NA	NA	NA	NA	NA

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-2-0-1 01/09/12 NA18016-001 0-1	SB-SA-2-0-1-a 01/09/12 NA18016-002 0-1	SB-SA-2-5-6 01/09/12 NA18016-003 5-6	SB-SA-2--10-11 01/09/12 NA18016-004 10-11	SB-SA-2-15-16 01/09/12 NA18016-005 15-16
Metals by Method 6010C (mg/kg)									
Aluminum	100000	Max	NS	43000	**74000 /J/A**	**110000**	NA	NA	NA
Antimony	82	N	0.9	1.3	< 3.4	< 9.2	NA	NA	NA
Arsenic	1.6	C	5.8	7	**18 /J/A**	**9.8**	NA	NA	NA
Barium	38000	N	580	25	**38**	**35**	NA	NA	NA
Beryllium	400	N	63	0.45	**0.43 J//**	**0.57 J//**	NA	NA	NA
Cadmium	160	N	3	0.66	**0.27 J//**	**0.25 J//**	NA	NA	NA
Calcium	NS		NS	570	**9500**	**1100 J//**	NA	NA	NA
Chromium	100000	Max	360000	56	**100**	**120**	NA	NA	NA
Cobalt	60	N	0.9	2.9	**4.6 J//**	**4.3 J//**	NA	NA	NA
Copper	8200	N	700	23	**28 /J/A**	**36**	NA	NA	NA
Iron	100000	Max	150	53000	**96000**	**140000**	NA	NA	NA
Lead	800		270	40	**27**	**35**	NA	NA	NA
Magnesium	NS		NS	1000	**6800**	**790 J//**	NA	NA	NA
Manganese	4600	N	65	84	**130**	**97**	NA	NA	NA
Nickel	4000	N	130	6.2	**19**	**14 J//**	NA	NA	NA
Potassium	NS		NS	1600	**1400 J//**	**990 J//**	NA	NA	NA
Selenium	1000	N	2.1	1.9	< 3.4	**3.7 J//**	NA	NA	NA
Silver	1000	N	3.4	0.6	< 1.7	< 4.6	NA	NA	NA
Sodium	NS		NS	62	**140 J//**	< 4600	NA	NA	NA
Thallium	2	N	0.28	ND	< 17	< 46	NA	NA	NA
Vanadium	1000	N	6	74	**180 /J/A**	**280**	NA	NA	NA
Zinc	62000	N	1200	42	**42**	**49**	NA	NA	NA
Hexavalent Chromium by Method 7196A (mg/kg)									
Hexavalent Chromium	5.6	C,M	3.8	NA	< 1.4	NA	NA	NA	NA
Mercury by Method 7471B (mg/kg)									
Mercury	3.1	Csat	1	0.039	**0.1 J//**	**0.17**	NA	NA	NA

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-2-20-21 01/09/12 NA18016-006 20-21	SB-SA-3-0-1 01/16/12 NA18016-007 0-1	SB-SA-4-0-1 01/16/12 NA18016-009 0-1	SB-SA-5-0-1 01/16/12 NA18016-010 0-1
VOCs by Method 8260B (ug/kg)								
1,1,1-Trichloroethane	640000	Csat	1200	—	< 6.6	< 4.7	< 5.9	< 5.6
1,1,2,2-Tetrachloroethane	2800	C	1.2	—	< 6.6	< 4.7	< 5.9	< 5.6
1,1,2-Trichloro-1,2,2-Trifluoroethane	910000	Csat	9000000	—	< 6.6	< 4.7	< 5.9	< 5.6
1,1,2-Trichloroethane	1400	N	3.2	—	< 6.6	< 4.7	< 5.9	< 5.6
1,1-Dichloroethane	17000	C	30	—	< 6.6	< 4.7	< 5.9	< 5.6
1,1-Dichloroethene	220000	N	45	—	**25**	< 4.7	< 5.9	**4 J//**
1,2,4-Trichlorobenzene	54000	N	2200	—	< 6.6	< 4.7 /M/mD	< 5.9	< 5.6
1,2-Dibromo-3-chloropropane (DBCP)	69	C,M	0.25	—	< 6.6	< 4.7	< 5.9	< 5.6
1,2-Dibromoethane (EDB)	170	C	0.097	—	< 6.6	< 4.7	< 5.9	< 5.6
1,2-Dichlorobenzene	380000	Csat	240	—	< 6.6	< 4.7	< 5.9	< 5.6
1,2-Dichloroethane	2200	C	2	—	< 6.6	< 4.7	< 5.9	< 5.6
1,2-Dichloropropane	4700	C	3.2	—	< 6.6	< 4.7	< 5.9	< 5.6
1,3-Dichlorobenzene	NS		2400	—	< 6.6	< 4.7	< 5.9	< 5.6
1,4-Dichlorobenzene	12000	C	70	—	< 6.6	< 4.7	< 5.9	< 5.6
1,4-Dioxane	17000	C	12	—	**150 J//**	< 230	< 290	< 280
2-Butanone (MEK)	28000000	N	16000	—	< 13	< 9.4	< 12	< 11
2-Hexanone	280000	N	170	—	< 13	< 9.4	< 12	< 11
4-Methyl-2-pentanone	3400000	Csat	430	—	< 13	< 9.4	< 12	< 11
Acetone	100000000	Max	24000	—	< 26	< 19	< 24	< 22
Benzene	5400	C	7.3	—	< 6.6	< 4.7	< 5.9	< 5.6
Bromodichloromethane	1400	C	2.9	—	< 6.6	< 4.7	< 5.9	< 5.6
Bromoform	220000	C	19	—	< 6.6	< 4.7	< 5.9	< 5.6
Bromomethane (Methyl bromide)	6400	N	48	—	< 6.6	< 4.7	< 5.9	< 5.6
Carbon disulfide	740000	Csat	3800	—	< 6.6	< 4.7	< 5.9	< 5.6
Carbon tetrachloride	3000	C	2.1	—	< 6.6	< 4.7	< 5.9	< 5.6
Chlorobenzene	280000	N	430	—	< 6.6	< 4.7	< 5.9	< 5.6
Chloroethane	2100000	Csat	16000	—	< 6.6	< 4.7	< 5.9	< 5.6
Chloroform	1500	C	340	—	< 6.6	< 4.7	< 5.9	< 5.6
Chloromethane (Methyl chloride)	100000	N	15	—	< 6.6	< 4.7	< 5.9	< 5.6
cis-1,2-Dichloroethene	400000	N	360	—	< 6.6	< 4.7	< 5.9	< 5.6
cis-1,3-Dichloropropene	8300	C	2.3	—	< 6.6	< 4.7	< 5.9	< 5.6
Cyclohexane	120000	Csat	NS	—	< 6.6	< 4.7	< 5.9	< 5.6
Cyclopentane	NS		NS	—	NA	NA	NA	NA
Cyclotrisiloxane, hexamethyl-	NS		NS	—	NA	NA	NA	NA
Dibromochloromethane	3300	C	1.9	—	< 6.6	< 4.7	< 5.9	< 5.6
Dichlorodifluoromethane	80000	N	29000	—	< 6.6	< 4.7	< 5.9	< 5.6
Ethylbenzene	27000	C	8100	—	< 6.6	< 4.7	< 5.9	< 5.6
Isopropylbenzene	270000	Csat	1300	—	< 6.6	< 4.7	< 5.9	< 5.6
Methane, dibromofluoro-	NS		NS	—	NA	21	NA	NA
Methyl acetate	29000000	Csat	NS	—	< 6.6	< 4.7	< 5.9	< 5.6
Methyl tertiary butyl ether (MTBE)	220000	C	85	—	< 6.6	< 4.7	< 5.9	< 5.6
Methylcyclohexane	NS		NS	—	< 6.6	< 4.7	< 5.9	< 5.6
Methylene chloride	620000	N,M	23	—	< 6.6	< 4.7	< 5.9	< 5.6
Pentane, 3-methyl-	NS		NS	—	NA	NA	NA	NA
Styrene	870000	Csat	920	—	< 6.6	< 4.7	< 5.9	< 5.6
Tetrachloroethene	82000	N	5	—	**2.5 J//**	< 4.7	< 5.9	< 5.6
Toluene	820000	Csat	5500	—	< 6.6	**24 /M/m**	< 5.9	< 5.6
trans-1,2-Dichloroethene	140000	N	510	—	< 6.6	< 4.7	< 5.9	< 5.6
trans-1,3-Dichloropropene	8300	C	2.3	—	< 6.6	< 4.7	< 5.9	< 5.6
Trichloroethene	4000	N,M	18	—	< 6.6	< 4.7	< 5.9	< 5.6
Trichlorofluoromethane	680000	N	24000	—	< 6.6	< 4.7	< 5.9	< 5.6
Vinyl chloride	1700	C,M	0.19	—	< 6.6	< 4.7	< 5.9	< 5.6
Xylenes (total)	260000	Csat	5800	—	< 6.6	< 4.7	< 5.9	< 5.6

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-2-20-21 01/09/12 NA18016-006 20-21	SB-SA-3-0-1 01/16/12 NA18016-007 0-1	SB-SA-4-0-1 01/16/12 NA18016-009 0-1	SB-SA-5-0-1 01/16/12 NA18016-010 0-1
SVOCs by Method 8270D (ug/kg)								
1,1'-Biphenyl	42000	N	43000	—	NA	< 1900	< 2100	< 2200
2,4,5-Trichlorophenol	12000000	N	2500	—	NA	< 1900	< 2100	< 2200
2,4,6-Trichlorophenol	120000	N	160	—	NA	< 1900	< 2100	< 2200
2,4-Dichlorophenol	360000	N	14	—	NA	< 1900	< 2100	< 2200
2,4-Dimethylphenol	2400000	N	1400	—	NA	< 1900	< 2100	< 2200
2,4-Dinitrophenol	240000	N	NS	—	NA	< 4800	< 5300	< 5500
2,4-Dinitrotoluene	5500	C	1.6	—	NA	< 1900	< 2100	< 2200
2,6-Dinitrotoluene	120000	N	NS	—	NA	< 1900	< 2100	< 2200
2-Chloronaphthalene	180000	Csat	NS	—	NA	< 1900	< 2100	< 2200
2-Chlorophenol	1000000	N	4.1	—	NA	< 1900	< 2100	< 2200
2-Methylnaphthalene	370000	Csat	1600	—	NA	< 1900	< 2100	< 2200
2-Methylphenol	12000000	N	4100	—	NA	< 1900 /M/D	< 2100	< 2200
2-Nitroaniline	1200000	N	NS	—	NA	< 1900	< 2100	< 2200
2-Nitrophenol	NS		NS	—	NA	< 1900	< 2100	< 2200
3 & 4-Methylphenol	NS		NS	—	NA	< 3900	< 4300	< 4500
3,3'-Dichlorobenzidine	3800	C	NS	—	NA	< 4800	< 5300	< 5500
3-Nitroaniline	NS		NS	—	NA	< 1900	< 2100	< 2200
4,6-Dinitro-2-methylphenol	NS		NS	—	NA	< 4800	< 5300	< 5500
4-Bromophenyl phenyl ether	NS		NS	—	NA	< 1900	< 2100	< 2200
4-Chloro-3-methyl phenol	12000000	N	NS	—	NA	< 1900	< 2100	< 2200
4-Chloroaniline	8600	C	NS	—	NA	< 1900 /MR/Dc	< 2100 /R/c	< 2200 /R/c
4-Chlorophenyl phenyl ether	NS		NS	—	NA	< 1900	< 2100	< 2200
4-Nitroaniline	86000	C	NS	—	NA	< 1900	< 2100	< 2200
4-Nitrophenol	NS		NS	—	NA	< 4800	< 5300	< 5500
Acenaphthene	6600000	N	8400	—	NA	< 1900	< 2100	< 2200
Acenaphthylene	NS		21000	—	NA	< 1900	< 2100	< 2200
Acetophenone	2500000	Csat	3500	—	NA	< 1900	< 2100	< 2200
Anthracene	34000000	N	660000	—	NA	< 1900	< 2100	< 2200
Atrazine	7500	C	25	—	NA	< 1900	< 2100	< 2200
Benzaldehyde	1200000	Csat	3000	—	NA	< 4800 /M/D	< 5300	< 5500
Benzo(a)anthracene	2100	C,M	180	—	NA	**110 J//**	< 2100	< 2200
Benzo(a)pyrene	210	C,M	59	—	NA	< 1900	< 2100	< 2200
Benzo(b)fluoranthene	2100	C,M	600	—	NA	< 1900	< 2100	< 2200
Benzo(g,h,i)perylene	NS		7800000	—	NA	< 1900	< 2100	< 2200
Benzo(k)fluoranthene	21000	C,M	5900	—	NA	< 1900	< 2100	< 2200
bis(2-Chloroethoxy)methane	360000	N	NS	—	NA	< 1900 /M/D	< 2100	< 2200
bis(2-Chloroethyl)ether	1000	C	0.14	—	NA	< 1900 /M/D	< 2100	< 2200
bis(2-Chloroisopropyl)ether	22000	C	NS	—	NA	< 1900 /M/D	< 2100	< 2200
bis(2-Ethylhexyl)phthalate	120000	C	7200	—	NA	< 1900	< 2100	< 2200
Butyl benzyl phthalate	910000	C	150000	—	NA	< 1900	< 2100	< 2200
Caprolactam	62000000	N	18000	—	NA	< 4800	< 5300	< 5500
Carbazole	NS		370	—	NA	< 1900	< 2100	< 2200
Chrysene	210000	C	18000	—	NA	< 1900	< 2100	< 2200
Di-n-butyl phthalate	12000000	N	19000	—	NA	< 1900	< 2100	< 2200
Di-n-octylphthalate	NS		38000	—	NA	< 1900	< 2100	< 2200
Dibenzo(a,h)anthracene	210	C	190	—	NA	< 1900	< 2100	< 2200
Dibenzofuran	170000	Csat	5200	—	NA	< 1900	< 2100	< 2200
Diethylphthalate	98000000	N	37000	—	NA	< 1900	< 2100	< 2200
Dimethyl phthalate	NS		NS	—	NA	< 1900	< 2100	< 2200
Fluoranthene	4400000	N	330000	—	NA	**88 J//**	< 2100	< 2200
Fluorene	4400000	N	56000	—	NA	< 1900	< 2100	< 2200
Hexachlorobenzene	1100	C	2.6	—	NA	< 1900	< 2100	< 2200
Hexachlorobutadiene	22000	C	8.7	—	NA	< 1900	< 2100	< 2200
Hexachlorocyclopentadiene	740000	N	NS	—	NA	< 4800	< 5300	< 5500
Hexachloroethane	43000	N	NS	—	NA	< 1900 /M/D	< 2100	< 2200
Indeno(1,2,3-c,d)pyrene	2100	C,M	2000	—	NA	< 1900	< 2100	< 2200
Isophorone	1800000	C	210	—	NA	< 1900 /M/D	< 2100	< 2200
N-Nitrosodi-n-propylamine	250	C	NS	—	NA	< 1900 /M/D	< 2100	< 2200
N-Nitrosodiphenylamine (Diphenylamine)	350000	C	NS	—	NA	< 1900	< 2100	< 2200
Naphthalene	18000	C	210	—	NA	< 1900	< 2100	< 2200
Nitrobenzene	24000	C	NS	—	NA	< 1900 /M/D	< 2100	< 2200
Pentachlorophenol	2700	C	31	—	NA	< 4800	< 5300	< 5500
Phenanthrene	NS		68000	—	NA	**160 J//**	< 2100	< 2200
Phenol	36000000	N	230	—	NA	< 1900	< 2100	< 2200
Pyrene	3400000	N	220000	—	NA	< 1900	< 2100	< 2200
Unknown Aldol Condensate	NS		NS	—	NA	**14000**	**21000**	**17000**

Table 2-4
Summary of Soil Analytical Data — 2012 and 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-2-20-21 01/09/12 NA18016-006 20-21	SB-SA-3-0-1 01/16/12 NA18016-007 0-1	SB-SA-4-0-1 01/16/12 NA18016-009 0-1	SB-SA-5-0-1 01/16/12 NA18016-010 0-1
Metals by Method 6010C (mg/kg)								
Aluminum	100000	Max	NS	43000	NA	**42000 /M/M**	**53000**	**77000**
Antimony	82	N	0.9	1.3	NA	< 5.5 /M/m	< 6.1	**3.1 J//**
Arsenic	1.6	C	5.8	7	NA	< 5.5	**8.9**	**11**
Barium	38000	N	580	25	NA	**48**	**31**	**29**
Beryllium	400	N	63	0.45	NA	< 2.2	**0.48 J//**	**0.44 J//**
Cadmium	160	N	3	0.66	NA	**0.37 J//**	**0.48 J//**	**1.3**
Calcium	NS		NS	570	NA	**780 J//**	**980 J//**	**1400 J//**
Chromium	100000	Max	360000	56	NA	**120**	**47**	**68**
Cobalt	60	N	0.9	2.9	NA	**7.2 J//**	**3.7 J//**	**5.1 J//**
Copper	8200	N	700	23	NA	**20**	**30**	**26**
Iron	100000	Max	150	53000	NA	**68000 /M/m**	**66000**	**85000**
Lead	800		270	40	NA	**22**	**24**	**21**
Magnesium	NS		NS	1000	NA	**2100 J/M/M**	**580 J//**	**860 J//**
Manganese	4600	N	65	84	NA	**260 /M/MD**	**110**	**80**
Nickel	4000	N	130	6.2	NA	**17 J//**	**7.2 J//**	**13 J//**
Potassium	NS		NS	1600	NA	**2600 J/M/M**	**660 J//**	**850 J//**
Selenium	1000	N	2.1	1.9	NA	< 5.5	< 6.1	< 6.5
Silver	1000	N	3.4	0.6	NA	< 2.7	< 3.1	< 3.2
Sodium	NS		NS	62	NA	< 2700	< 3100	**290 J//**
Thallium	2	N	0.28	ND	NA	< 27	< 31	< 32
Vanadium	1000	N	6	74	NA	**110**	**120**	**150**
Zinc	62000	N	1200	42	NA	**57**	**32**	**37**
Hexavalent Chromium by Method 7196A (mg/kg)								
Hexavalent Chromium	5.6	C,M	3.8	NA	NA	< 1.2	NA	NA
Mercury by Method 7471B (mg/kg)								
Mercury	3.1	Csat	1	0.039	NA	< 0.084	**0.047 J//**	**0.15**

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Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-6-0-1 01/16/12 NA18016-012 0-1	SB-SA-7-0-1 01/16/12 NA18016-013 0-1	SB-SA-7-0-1-a 01/16/12 NA18016-014 0-1	SB-SA-8-0-1 01/16/12 NA18016-015 0-1	SB-SA-9-0-1 01/16/12 NA18016-016 0-1
VOCs by Method 8260B (ug/kg)									
1,1,1-Trichloroethane	640000	Csat	1200	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,1,2,2-Tetrachloroethane	2800	C	1.2	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,1,2-Trichloro-1,2,2-Trifluoroethane	910000	Csat	9000000	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,1,2-Trichloroethane	1400	N	3.2	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,1-Dichloroethane	17000	C	30	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,1-Dichloroethene	220000	N	45	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,2,4-Trichlorobenzene	54000	N	2200	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,2-Dibromo-3-chloropropane (DBCP)	69	C,M	0.25	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,2-Dibromoethane (EDB)	170	C	0.097	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,2-Dichlorobenzene	380000	Csat	240	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,2-Dichloroethane	2200	C	2	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,2-Dichloropropane	4700	C	3.2	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,3-Dichlorobenzene	NS		2400	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,4-Dichlorobenzene	12000	C	70	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
1,4-Dioxane	17000	C	12	—	< 250	< 230	< 250	< 220	< 260
2-Butanone (MEK)	28000000	N	16000	—	< 10	< 9.3	< 9.9	< 9	< 10
2-Hexanone	280000	N	170	—	< 10	< 9.3	< 9.9	< 9	< 10
4-Methyl-2-pentanone	3400000	Csat	430	—	< 10	< 9.3	< 9.9	< 9	< 10
Acetone	100000000	Max	24000	—	< 20	< 19	< 20	< 18	< 21
Benzene	5400	C	7.3	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Bromodichloromethane	1400	C	2.9	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Bromoform	220000	C	19	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Bromomethane (Methyl bromide)	6400	N	48	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Carbon disulfide	740000	Csat	3800	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Carbon tetrachloride	3000	C	2.1	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Chlorobenzene	280000	N	430	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Chloroethane	2100000	Csat	16000	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Chloroform	1500	C	340	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Chloromethane (Methyl chloride)	100000	N	15	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
cis-1,2-Dichloroethene	400000	N	360	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
cis-1,3-Dichloropropene	8300	C	2.3	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Cyclohexane	120000	Csat	NS	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Cyclopentane	NS		NS	—	NA	NA	NA	NA	NA
Cyclotrisiloxane, hexamethyl-	NS		NS	—	NA	NA	NA	NA	NA
Dibromochloromethane	3300	C	1.9	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Dichlorodifluoromethane	80000	N	29000	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Ethylbenzene	27000	C	8100	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Isopropylbenzene	270000	Csat	1300	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Methane, dibromofluoro-	NS		NS	—	NA	NA	NA	NA	NA
Methyl acetate	29000000	Csat	NS	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Methyl tertiary butyl ether (MTBE)	220000	C	85	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Methylcyclohexane	NS		NS	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Methylene chloride	620000	N,M	23	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Pentane, 3-methyl-	NS		NS	—	NA	NA	NA	NA	NA
Styrene	870000	Csat	920	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Tetrachloroethene	82000	N	5	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Toluene	820000	Csat	5500	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
trans-1,2-Dichloroethene	140000	N	510	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
trans-1,3-Dichloropropene	8300	C	2.3	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Trichloroethene	4000	N,M	18	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Trichlorofluoromethane	680000	N	24000	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Vinyl chloride	1700	C,M	0.19	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1
Xylenes (total)	260000	Csat	5800	—	< 5	< 4.7	< 4.9	< 4.5	< 5.1

Table 2-4
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Sample Location Date Collected Laboratory Sample ID Sample Depth (Feet bgs)	Preliminary Industrial Soil Remediation Goal (PSRG)		Protection of Groundwater (PSRG)	Maximum Soil Background Concentration	SB-SA-6-0-1 01/16/12 NA18016-012 0-1		SB-SA-7-0-1 01/16/12 NA18016-013 0-1		SB-SA-7-0-1-a 01/16/12 NA18016-014 0-1		SB-SA-8-0-1 01/16/12 NA18016-015 0-1		SB-SA-9-0-1 01/16/12 NA18016-016 0-1	
SVOCs by Method 8270D (ug/kg)														
1,1'-Biphenyl	42000	N	43000	—	< 2100		< 440		< 360		< 380		< 440	
2,4,5-Trichlorophenol	12000000	N	2500	—	< 2100		< 440		< 360		< 380		< 440	
2,4,6-Trichlorophenol	120000	N	160	—	< 2100		< 440		< 360		< 380		< 440	
2,4-Dichlorophenol	360000	N	14	—	< 2100		< 440		< 360		< 380		< 440	
2,4-Dimethylphenol	2400000	N	1400	—	< 2100		< 440		< 360		< 380		< 440	
2,4-Dinitrophenol	240000	N	NS	—	< 5200		< 1100		< 910		< 950		< 1100	
2,4-Dinitrotoluene	5500	C	1.6	—	< 2100		< 440		< 360		< 380		< 440	
2,6-Dinitrotoluene	120000	N	NS	—	< 2100		< 440		< 360		< 380		< 440	
2-Chloronaphthalene	180000	Csat	NS	—	< 2100		< 440		< 360		< 380		< 440	
2-Chlorophenol	1000000	N	4.1	—	< 2100		< 440		< 360		< 380		< 440	
2-Methylnaphthalene	370000	Csat	1600	—	< 2100		< 440		< 360		< 380		< 440	
2-Methylphenol	12000000	N	4100	—	< 2100		< 440		< 360		< 380		< 440	
2-Nitroaniline	1200000	N	NS	—	< 2100		< 440		< 360		< 380		< 440	
2-Nitrophenol	NS		NS	—	< 2100		< 440		< 360		< 380		< 440	
3 & 4-Methylphenol	NS		NS	—	< 4200		< 880		< 740		< 770		< 900	
3,3'-Dichlorobenzidine	3800	C	NS	—	< 5200		< 1100		< 910		< 950		< 1100	
3-Nitroaniline	NS		NS	—	< 2100		< 440		< 360		< 380		< 440	
4,6-Dinitro-2-methylphenol	NS		NS	—	< 5200		< 1100		< 910		< 950		< 1100	
4-Bromophenyl phenyl ether	NS		NS	—	< 2100		< 440		< 360		< 380		< 440	
4-Chloro-3-methyl phenol	12000000	N	NS	—	< 2100		< 440		< 360		< 380		< 440	
4-Chloroaniline	8600	C	NS	—	< 2100	/R/c	< 440	/R/c	< 360	/R/c	< 380	/R/c	< 440	/R/c
4-Chlorophenyl phenyl ether	NS		NS	—	< 2100		< 440		< 360		< 380		< 440	
4-Nitroaniline	86000	C	NS	—	< 2100		< 440		< 360		< 380		< 440	
4-Nitrophenol	NS		NS	—	< 5200		< 1100		< 910		< 950		< 1100	
Acenaphthene	6600000	N	8400	—	< 2100		< 440		< 360		< 380		< 440	
Acenaphthylene	NS		21000	—	< 2100		< 440		< 360		< 380		< 440	
Acetophenone	2500000	Csat	3500	—	< 2100		< 440		< 360		< 380		< 440	
Anthracene	34000000	N	660000	—	< 2100		< 440		< 360		< 380		< 440	
Atrazine	7500	C	25	—	< 2100		< 440		< 360		< 380		< 440	
Benzaldehyde	1200000	Csat	3000	—	< 5200		< 1100		< 910		< 950		< 1100	
Benzo(a)anthracene	2100	C,M	180	—	**130**	**J//**	< 440		< 360		< 380		< 440	
Benzo(a)pyrene	210	C,M	59	—	< 2100		< 440		< 360		< 380		< 440	
Benzo(b)fluoranthene	2100	C,M	600	—	< 2100		< 440		< 360		< 380		< 440	
Benzo(g,h,i)perylene	NS		7800000	—	< 2100		< 440		< 360		< 380		< 440	
Benzo(k)fluoranthene	21000	C,M	5900	—	< 2100		< 440		< 360		< 380		< 440	
bis(2-Chloroethoxy)methane	360000	N	NS	—	< 2100		< 440		< 360		< 380		< 440	
bis(2-Chloroethyl)ether	1000	C	0.14	—	< 2100		< 440		< 360		< 380		< 440	
bis(2-Chloroisopropyl)ether	22000	C	NS	—	< 2100		< 440		< 360		< 380		< 440	
bis(2-Ethylhexyl)phthalate	120000	C	7200	—	< 2100		< 440		< 360		< 380		< 440	
Butyl benzyl phthalate	910000	C	150000	—	< 2100		< 440		< 360		< 380		< 440	
Caprolactam	62000000	N	18000	—	< 5200		< 1100		< 910		< 950		< 1100	
Carbazole	NS		370	—	< 2100		< 440		< 360		< 380		< 440	
Chrysene	210000	C	18000	—	< 2100		< 440		< 360		< 380		< 440	
Di-n-butyl phthalate	12000000	N	19000	—	< 2100		< 440		< 360		< 380		< 440	
Di-n-octylphthalate	NS		38000	—	< 2100		< 440		< 360		< 380		< 440	
Dibenzo(a,h)anthracene	210	C	190	—	< 2100		< 440		< 360		< 380		< 440	
Dibenzofuran	170000	Csat	5200	—	< 2100		< 440		< 360		< 380		< 440	
Diethylphthalate	98000000	N	37000	—	< 2100		< 440		< 360		< 380		< 440	
Dimethyl phthalate	NS		NS	—	< 2100		< 440		< 360		< 380		< 440	
Fluoranthene	4400000	N	330000	—	**120**	**J//**	< 440		< 360		< 380		< 440	
Fluorene	4400000	N	56000	—	< 2100		< 440		< 360		< 380		< 440	
Hexachlorobenzene	1100	C	2.6	—	< 2100		< 440		< 360		< 380		< 440	
Hexachlorobutadiene	22000	C	8.7	—	< 2100		< 440		< 360		< 380		< 440	
Hexachlorocyclopentadiene	740000	N	NS	—	< 5200		< 1100		< 910		< 950		< 1100	
Hexachloroethane	43000	N	NS	—	< 2100		< 440		< 360		< 380		< 440	
Indeno(1,2,3-c,d)pyrene	2100	C,M	2000	—	< 2100		< 440		< 360		< 380		< 440	
Isophorone	1800000	C	210	—	< 2100		< 440		< 360		< 380		< 440	
N-Nitrosodi-n-propylamine	250	C	NS	—	< 2100		< 440		< 360		< 380		< 440	
N-Nitrosodiphenylamine (Diphenylamine)	350000	C	NS	—	< 2100		< 440		< 360		< 380		< 440	
Naphthalene	18000	C	210	—	< 2100		< 440		< 360		< 380		< 440	
Nitrobenzene	24000	C	NS	—	< 2100		< 440		< 360		< 380		< 440	
Pentachlorophenol	2700	C	31	—	< 5200		< 1100		< 910		< 950		< 1100	
Phenanthrene	NS		68000	—	**84**	**J//**	< 440		< 360		< 380		< 440	
Phenol	36000000	N	230	—	< 2100		< 440		< 360		< 380		< 440	
Pyrene	3400000	N	220000	—	**96**	**J//**	< 440		< 360		< 380		< 440	
Unknown Aldol Condensate	NS		NS	—	**19000**		NA		**10000**		NA		NA	

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Metals by Method 6010C (mg/kg)									
Aluminum	100000	Max	NS	43000	**44000**	**51000**	**44000**	**41000**	**61000**
Antimony	82	N	0.9	1.3	**3.2 J//**	< 6.5	**330**	**3.1 J//**	**3.5 J//**
Arsenic	1.6	C	5.8	7	**5.7 J//**	**5.8 J//**	< 5.5	**6.5**	**7.6**
Barium	38000	N	580	25	**36**	**43 /J/A**	**26**	**86**	**55**
Beryllium	400	N	63	0.45	**0.66 J//**	**0.59 J//**	**0.49 J//**	< 2.2	< 2.6
Cadmium	160	N	3	0.66	**0.76 J//**	**0.97 J//**	**140**	**0.73 J//**	**0.46 J//**
Calcium	NS		NS	570	**750 J//**	**470 J//**	**300 J//**	**21000**	**930 J//**
Chromium	100000	Max	360000	56	**49**	**87**	**68**	**60**	**76**
Cobalt	60	N	0.9	2.9	**4.4 J//**	**44**	**44**	**10 J//**	**11 J//**
Copper	8200	N	700	23	**39**	**86**	**62**	**34**	**140**
Iron	100000	Max	150	53000	**66000**	**100000**	**89000**	**53000**	**140000**
Lead	800		270	40	**20**	**31**	< 5.5	**29**	**50**
Magnesium	NS		NS	1000	**830 J//**	**1400 J//**	**730 J//**	**11000**	**5400**
Manganese	4600	N	65	84	**100**	**1600 /J/A**	**530**	**350**	**360**
Nickel	4000	N	130	6.2	**14 J//**	**27**	**25**	**22**	**32**
Potassium	NS		NS	1600	**1200 J//**	**1500 J//**	**610 J//**	**4400**	**8700**
Selenium	1000	N	2.1	1.9	< 5.9	< 6.5	**390**	< 5.4	< 6.6
Silver	1000	N	3.4	0.6	< 2.9	< 3.2	< 2.8	< 2.7	< 3.3
Sodium	NS		NS	62	< 2900	< 3200	< 2800	< 2700	**300 J//**
Thallium	2	N	0.28	ND	< 29	< 32	**640**	< 27	< 33
Vanadium	1000	N	6	74	**140**	**170**	**130**	**91**	**200**
Zinc	62000	N	1200	42	**31**	**74 /J/A**	**44**	**100**	**250**
Hexavalent Chromium by Method 7196A (mg/kg)									
Hexavalent Chromium	5.6	C,M	3.8	NA	NA	< 1.3	NA	NA	NA
Mercury by Method 7471B (mg/kg)									
Mercury	3.1	Csat	1	0.039	**0.01 J//**	**0.023 J//**	**0.019 J//**	**0.026 J//**	**0.016 J//**

Notes:
Bold font and shading indicate the analyte was detected.
Bold outline (VOCs and SVOCs) indicates the concentration exceeds either the Industrial Health-Based or the Protection of Groundwater PSRG.
Bold outline (metals) indicates the concentration exceeds either the Industrial Health-Based or the Protection of Groundwater PSRG AND the Site-Specific Background Concentration.
PSRG - Preliminary Soil Remediation Goal (PSRG Table; NCDENR, February 2013) located at: http://portal.ncdenr.org/web/wm/sf/sfavailabledocs
C - The PSRG is based on the carcinogenic endpoint and corresponds to an excess lifetime cancer risk of 1 in 1,000,000.
Csat - Soil Saturation Concentration.
M - Contaminant is a mutagen.
Max - Ceiling Concentration (100,000 mg/kg).
N - The PSRG is based on the non-carcinogenic endpoint and corresponds to a hazard quotient of 0.2.
NS - No Standard
— - Not Applicable for non-metals
mg/kg - milligrams per kilogram (parts per million)
NA - Not Analyzed
ND - Not Detected
ug/kg - micrograms per kilogram (parts per billion)
See Table 2-6 for explanation of data qualifiers
Note: For 0-1 ft bgs data collected in January 2012, VOCs were collected at 0.5-1.0 ft bgs. All other parameters were collected at 0-0.5 ft bgs.

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-1	MW-1	MW-2	MW-2-a
Date Collected	2L .0202	02/02/12	05/09/13	02/02/12	02/02/12
Laboratory Sample ID	Groundwater	NB03008-012	92157594019	NB03008-010	NB03008-011
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7
VOCs by Method 8260B (ug/L)					
1,1,1,2-Tetrachloroethane	1*	NA	< 0.33	NA	NA
1,1,1-Trichloroethane	200	< 5	< 0.48	< 5	< 5
1,1,2,2-Tetrachloroethane	0.2	< 5	< 0.4	< 5	< 5
1,1,2-Trichloro-1,2,2-Trifluoroethane	200000	< 5	NA	< 5	< 5
1,1,2-Trichloroethane	NS	< 5	< 0.29	< 5	< 5
1,1-Dichloroethane	6	< 5	< 0.32	**0.57 J//**	**0.51 J//**
1,1-Dichloroethene	7**	**3.6 J//**	**3.6**	**13**	**13**
1,1-Dichloropropene	NS	NA	< 0.49	NA	NA
1,2,3-Trichlorobenzene	NS	NA	< 0.33	NA	NA
1,2,3-Trichloropropane	0.005	NA	< 0.41	NA	NA
1,2,4-Trichlorobenzene	70	< 5	< 0.35	< 5	< 5
1,2-Dibromo-3-chloropropane (DBCP)	0.04	< 5	< 2.5	< 5	< 5
1,2-Dibromoethane (EDB)	0.02	< 5	< 0.27	< 5	< 5
1,2-Dichlorobenzene	20	< 5	< 0.3	< 5	< 5
1,2-Dichloroethane	0.4	< 5	< 0.12	< 5	< 5
1,2-Dichloropropane	0.6	< 5	< 0.27	< 5	< 5
1,3-Dichlorobenzene	200	< 5	< 0.24	< 5	< 5
1,3-Dichloropropane	NS	NA	< 0.28	NA	NA
1,4-Dichlorobenzene	6	< 5	< 0.33	< 5	< 5
1,4-Dioxane	3	< 250	NA	< 250	< 250
2,2-Dichloropropane	NS	NA	< 0.13	NA	NA
2-Butanone (MEK)	4000	< 10	< 0.96	< 10	< 10
2-Chlorotoluene	100	NA	< 0.35	NA	NA
2-Hexanone	NS	< 10	< 0.46	< 10	< 10
4-Chlorotoluene	24*	NA	< 0.31	NA	NA
4-Methyl-2-pentanone	NS	< 10	< 0.33	< 10	< 10
Acetone	6000	< 20	< 10	< 20	< 20
Benzene	1	< 5	< 0.25	< 5	< 5
Bromobenzene	NS	NA	< 0.3	NA	NA
Bromochloromethane	NS	NA	< 0.17	NA	NA
Bromodichloromethane	0.6	< 5	< 0.18	< 5	< 5
Bromoform	4	< 5	< 0.26	< 5	< 5
Bromomethane (Methyl bromide)	NS	< 5	< 0.29	< 5	< 5
Carbon disulfide	700	< 5	NA	< 5	< 5
Carbon tetrachloride	0.3	< 5	< 0.25	< 5	< 5
Chlorobenzene	50	< 5	< 0.23	< 5	< 5
Chloroethane	3000	< 5	< 0.54	< 5	< 5
Chloroform	70	**11**	**8.2**	**9.5**	**9.4**
Chloromethane (Methyl chloride)	3	< 5	< 0.11	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 0.19	< 5	< 5
cis-1,3-Dichloropropene	0.4	< 5	< 0.13	< 5	< 5
Cyclohexane	NS	< 5	NA	< 5	< 5
Dibromochloromethane	0.4	< 5	< 0.21	< 5	< 5
Dibromomethane	70*	NA	< 0.21	NA	NA
Dichlorodifluoromethane	1000	< 5	< 0.21	< 5	< 5
Diisopropyl ether	NS	NA	< 0.12	NA	NA
Ethylbenzene	600	< 5	< 0.3	< 5	< 5
Hexachloro-1,3-butadiene	NS	NA	< 0.71	NA	NA
Isopropylbenzene	70	< 5	NA	< 5	< 5
m&p-Xylene	500	NA	< 0.66	NA	NA
Methyl acetate	NS	< 5	NA	< 5	< 5
Methyl tertiary butyl ether (MTBE)	20	< 5	< 0.21	< 5	< 5
Methylcyclohexane	NS	< 5	NA	< 5	< 5
Methylene chloride	5	< 5	< 0.97	< 5	< 5
Naphthalene	6	NA	< 0.24	NA	NA
o-Xylene	500	NA	< 0.23	NA	NA
p-Isopropyltoluene	NS	NA	< 0.31	NA	NA
Styrene	70	< 5	< 0.26	< 5	< 5
Tetrachloroethene	0.7	< 5	< 0.46	**0.45 J//**	**0.48 J//**
Toluene	600	< 5	< 0.26	< 5	< 5
trans-1,2-Dichloroethene	100	< 5	< 0.49	< 5	< 5
trans-1,3-Dichloropropene	0.4	< 5	< 0.26	< 5	< 5
Trichloroethene	3	< 5	< 0.47	**0.8 J//**	**0.75 J//**
Trichlorofluoromethane	2000	< 5	< 0.2	< 5	< 5
Vinyl acetate	88*	NA	< 0.35	NA	NA
Vinyl chloride	0.03	< 2	< 0.62	< 2	< 2
Xylenes (total)	500	< 5	< 0.66	< 5	< 5

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-1	MW-1	MW-2	MW-2-a
Date Collected	2L .0202	02/02/12	05/09/13	02/02/12	02/02/12
Laboratory Sample ID	Groundwater	NB03008-012	92157594019	NB03008-010	NB03008-011
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7
SVOCs by Method 8270D (ug/L)					
1,1'-Biphenyl	400	NA	NA	< 5.2	NA
2,4,5-Trichlorophenol	NS	NA	NA	< 5.2	NA
2,4,6-Trichlorophenol	NS	NA	NA	< 5.2	NA
2,4-Dichlorophenol	NS	NA	NA	< 5.2	NA
2,4-Dimethylphenol	100	NA	NA	< 5.2	NA
2,4-Dinitrophenol	NS	NA	NA	< 26	NA
2,4-Dinitrotoluene	NS	NA	NA	< 10	NA
2,6-Dinitrotoluene	NS	NA	NA	< 10	NA
2-Chloronaphthalene	NS	NA	NA	< 5.2	NA
2-Chlorophenol	0.4	NA	NA	< 5.2	NA
2-Methylnaphthalene	30	NA	NA	< 5.2	NA
2-Methylphenol	NS	NA	NA	< 5.2	NA
2-Nitroaniline	NS	NA	NA	< 10	NA
2-Nitrophenol	NS	NA	NA	< 10	NA
3 & 4-Methylphenol	40 [2]	NA	NA	< 10	NA
3,3'-Dichlorobenzidine	NS	NA	NA	< 26	NA
3-Nitroaniline	NS	NA	NA	< 10	NA
4,6-Dinitro-2-methylphenol	NS	NA	NA	< 26	NA
4-Bromophenyl phenyl ether	NS	NA	NA	< 5.2	NA
4-Chloro-3-methyl phenol	NS	NA	NA	< 5.2	NA
4-Chloroaniline	NS	NA	NA	< 5.2 /R/c	NA
4-Chlorophenyl phenyl ether	NS	NA	NA	< 5.2	NA
4-Nitroaniline	NS	NA	NA	< 10	NA
4-Nitrophenol	NS	NA	NA	< 26	NA
Acenaphthene	80	NA	NA	< 5.2	NA
Acenaphthylene	200	NA	NA	< 5.2	NA
Acetophenone	NS	NA	NA	< 5.2	NA
Anthracene	2000	NA	NA	< 5.2	NA
Atrazine	3	NA	NA	< 5.2	NA
Benzaldehyde	NS	NA	NA	< 26	NA
Benzo(a)anthracene	0.05	NA	NA	< 5.2	NA
Benzo(a)pyrene	0.005	NA	NA	< 5.2	NA
Benzo(b)fluoranthene	0.05	NA	NA	< 5.2	NA
Benzo(g,h,i)perylene	200	NA	NA	< 5.2	NA
Benzo(k)fluoranthene	0.5	NA	NA	< 5.2	NA
bis(2-Chloroethoxy)methane	NS	NA	NA	< 5.2	NA
bis(2-Chloroethyl)ether	0.03	NA	NA	< 5.2	NA
bis(2-Chloroisopropyl)ether	NS	NA	NA	< 5.2	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	< 5.2	NA
Butyl benzyl phthalate	1000	NA	NA	< 10	NA
Caprolactam	4000	NA	NA	< 26	NA
Carbazole	NS	NA	NA	< 5.2	NA
Chrysene	5	NA	NA	< 5.2	NA
Di-n-butyl phthalate	700	NA	NA	< 5.2	NA
Di-n-octylphthalate	100	NA	NA	< 5.2	NA
Dibenzo(a,h)anthracene	0.005	NA	NA	< 5.2	NA
Dibenzofuran	NS	NA	NA	< 5.2	NA
Diethylphthalate	600	NA	NA	< 5.2	NA
Dimethyl phthalate	NS	NA	NA	< 5.2	NA
Fluoranthene	300	NA	NA	< 5.2	NA
Fluorene	300	NA	NA	< 5.2	NA
Hexachlorobenzene	0.02	NA	NA	< 5.2	NA
Hexachlorobutadiene	0.4	NA	NA	< 5.2	NA
Hexachlorocyclopentadiene	NS	NA	NA	< 26	NA
Hexachloroethane	NS	NA	NA	< 5.2	NA
Indeno(1,2,3-c,d)pyrene	0.05	NA	NA	< 5.2	NA
Isophorone	40	NA	NA	< 5.2	NA
N-Nitrosodi-n-propylamine	NS	NA	NA	< 5.2	NA
N-Nitrosodiphenylamine (Diphenylamine	NS	NA	NA	< 5.2	NA
Naphthalene	6	NA	NA	< 5.2	NA
Nitrobenzene	NS	NA	NA	< 5.2	NA
Pentachlorophenol	0.3	NA	NA	< 26	NA
Phenanthrene	200	NA	NA	< 5.2	NA
Phenol	30	NA	NA	< 5.2	NA
Pyrene	200	NA	NA	< 5.2	NA
Unknown	NS	NA	NA	**23**	NA
Unknown-	NS	NA	NA	**210**	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-1	MW-1	MW-2		MW-2-a	
Date Collected	2L .0202	02/02/12	05/09/13	02/02/12		02/02/12	
Laboratory Sample ID	Groundwater	NB03008-012	92157594019	NB03008-010		NB03008-011	
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7		24.7-34.7	
Metals by Method 6010C (mg/L)							
Aluminum	NS	NA	NA	**0.2**	**B/B/VK**	**0.17**	**BJ/B/VK**
Antimony	NS	NA	NA	**0.0055**	**BJ/B/K**	**0.0028**	**BJ/B/K**
Arsenic	0.01	NA	< 0.01	**0.0065**	**J/B/V**	**0.0042**	**J/B/V**
Barium	0.7	NA	NA	**0.08**		**0.078**	
Beryllium	NS	NA	NA	< 0.004		< 0.004	
Cadmium	0.002	NA	NA	< 0.002		< 0.002	
Calcium	NS	NA	NA	**1.5**	**J//**	**1.6**	**J//**
Chromium	0.01	NA	< 0.005	**0.043**		**0.047**	
Cobalt	NS	NA	NA	< 0.025		< 0.025	
Copper	1	NA	NA	< 0.005		< 0.005	
Iron	0.3	NA	NA	**0.14**		**0.15**	
Lead	0.015	NA	NA	**0.0041**	**J/B/V**	**0.0038**	**J/B/V**
Magnesium	NS	NA	NA	**1.5**	**J//**	**1.5**	**J//**
Manganese	0.05	NA	NA	**0.046**		**0.047**	
Nickel	0.1	NA	NA	< 0.04		< 0.04	
Potassium	NS	NA	NA	**11**		**9.7**	
Selenium	0.02	NA	NA	< 0.01		< 0.01	
Silver	0.02	NA	NA	< 0.005		< 0.005	
Sodium	NS	NA	NA	**9.6**		**9**	
Thallium	NS	NA	NA	**0.0059**	**J/B/V**	< 0.05	
Vanadium	NS	NA	NA	< 0.05		< 0.05	
Zinc	1	NA	NA	**0.01**	**J//**	**0.01**	**J//**
Hexavalent Chromium by Method SM 3500-Cr (mg/L)							
Hexavalent Chromium	0.01 [1]	NA	NA	**0.042**		NA	
Mercury by Method 7470A (mg/L)							
Mercury	0.001	NA	NA	< 0.0001		**0.000087**	**J//**
Dissolved Metals by Method 6010C (mg/L)							
Dissolved Aluminum	NS	NA	NA	**0.14**	**BJ/B/K**	NA	
Dissolved Antimony	NS	NA	NA	**0.0034**	**BJ/B/K**	NA	
Dissolved Arsenic	0.01	NA	NA	< 0.01		NA	
Dissolved Barium	0.7	NA	NA	**0.074**		NA	
Dissolved Beryllium	NS	NA	NA	< 0.004		NA	
Dissolved Cadmium	0.002	NA	NA	< 0.002		NA	
Dissolved Calcium	NS	NA	NA	**1.3**	**J//**	NA	
Dissolved Chromium	0.01	NA	NA	**0.044**		NA	
Dissolved Cobalt	NS	NA	NA	< 0.025		NA	
Dissolved Copper	1	NA	NA	< 0.005		NA	
Dissolved Iron	0.3	NA	NA	< 0.1		NA	
Dissolved Lead	0.015	NA	NA	**0.0041**	**J//**	NA	
Dissolved Magnesium	NS	NA	NA	**1.4**	**J//**	NA	
Dissolved Manganese	0.05	NA	NA	**0.041**		NA	
Dissolved Nickel	0.1	NA	NA	< 0.04		NA	
Dissolved Potassium	NS	NA	NA	**9.5**		NA	
Dissolved Selenium	0.02	NA	NA	< 0.01		NA	
Dissolved Silver	0.02	NA	NA	< 0.005		NA	
Dissolved Sodium	NS	NA	NA	**8.9**		NA	
Dissolved Thallium	NS	NA	NA	< 0.05		NA	
Dissolved Vanadium	NS	NA	NA	< 0.05		NA	
Dissolved Zinc	1	NA	NA	**0.011**	**J//**	NA	
Dissolved Mercury by Method 7470A (mg/L)							
Dissolved Mercury	0.001	NA	NA	< 0.0001		NA	

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-2	MW-2-a	MW-2D	MW-2D	MW-3	MW-3
Date Collected	2L .0202	05/09/13	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	92157594021	92157594022	NB03008-009	92157594020	NB03008-006	92157594016
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	49.7-59.7	49.7-59.7	19.7-29.7	19.7-29.7
VOCs by Method 8260B (ug/L)							
1,1,1,2-Tetrachloroethane	1*	< 0.33	< 0.33	NA	< 0.33	NA	< 0.33
1,1,1-Trichloroethane	200	< 0.48	< 0.48	< 5	< 0.48	< 5	< 0.48
1,1,2,2-Tetrachloroethane	0.2	< 0.4	< 0.4	< 5	< 0.4	< 5	< 0.4
1,1,2-Trichloro-1,2,2-Trifluoroethane	200000	NA	NA	< 5	NA	< 5	NA
1,1,2-Trichloroethane	NS	< 0.29	< 0.29	< 5	< 0.29	< 5	< 0.29
1,1-Dichloroethane	6	**1.3**	**1.5**	< 5	< 0.32	< 5	< 0.32
1,1-Dichloroethene	7**	**62.9**	**69.4**	**0.55 J//**	< 0.56	< 5	< 0.56
1,1-Dichloropropene	NS	< 0.49	< 0.49	NA	< 0.49	NA	< 0.49
1,2,3-Trichlorobenzene	NS	< 0.33	< 0.33	NA	< 0.33	NA	< 0.33
1,2,3-Trichloropropane	0.005	< 0.41	< 0.41	NA	< 0.41	NA	< 0.41
1,2,4-Trichlorobenzene	70	< 0.35	< 0.35	< 5	< 0.35	< 5	< 0.35
1,2-Dibromo-3-chloropropane (DBCP)	0.04	< 2.5	< 2.5	< 5	< 2.5	< 5	< 2.5
1,2-Dibromoethane (EDB)	0.02	< 0.27	< 0.27	< 5	< 0.27	< 5	< 0.27
1,2-Dichlorobenzene	20	< 0.3	< 0.3	< 5	< 0.3	< 5	< 0.3
1,2-Dichloroethane	0.4	**1.3**	**1.5**	< 5	< 0.12	< 5	< 0.12
1,2-Dichloropropane	0.6	< 0.27	< 0.27	< 5	< 0.27	< 5	< 0.27
1,3-Dichlorobenzene	200	< 0.24	< 0.24	< 5	< 0.24	< 5	< 0.24
1,3-Dichloropropane	NS	< 0.28	< 0.28	NA	< 0.28	NA	< 0.28
1,4-Dichlorobenzene	6	< 0.33	< 0.33	< 5	< 0.33	< 5	< 0.33
1,4-Dioxane	3	NA	NA	< 250	NA	< 250	NA
2,2-Dichloropropane	NS	< 0.13	< 0.13	NA	< 0.13	NA	< 0.13
2-Butanone (MEK)	4000	< 0.96	< 0.96	< 10	< 0.96	< 10	< 0.96
2-Chlorotoluene	100	< 0.35	< 0.35	NA	< 0.35	NA	< 0.35
2-Hexanone	NS	< 0.46	< 0.46	< 10	< 0.46	< 10	< 0.46
4-Chlorotoluene	24*	< 0.31	< 0.31	NA	< 0.31	NA	< 0.31
4-Methyl-2-pentanone	NS	< 0.33	< 0.33	< 10	< 0.33	< 10	< 0.33
Acetone	6000	< 10	< 10	< 20	< 10	**9 J//**	< 10
Benzene	1	< 0.25	< 0.25	< 5	< 0.25	**0.34 J//**	< 0.25
Bromobenzene	NS	< 0.3	< 0.3	NA	< 0.3	NA	< 0.3
Bromochloromethane	NS	< 0.17	< 0.17	NA	< 0.17	NA	< 0.17
Bromodichloromethane	0.6	< 0.18	< 0.18	< 5	< 0.18	< 5	< 0.18
Bromoform	4	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
Bromomethane (Methyl bromide)	NS	< 0.29	< 0.29	< 5	< 0.29	< 5	< 0.29
Carbon disulfide	700	NA	NA	< 5	NA	**0.45 J//**	NA
Carbon tetrachloride	0.3	< 0.25	< 0.25	< 5	< 0.25	< 5	< 0.25
Chlorobenzene	50	< 0.23	< 0.23	< 5	< 0.23	< 5	< 0.23
Chloroethane	3000	< 0.54	< 0.54	< 5	< 0.54	< 5	< 0.54
Chloroform	70	**9.5**	**9.5**	**10**	**9.1**	< 5	< 0.14
Chloromethane (Methyl chloride)	3	< 0.11	< 0.11	< 5	< 0.11	< 5	< 0.11
cis-1,2-Dichloroethene	70	< 0.19	< 0.19	< 5	< 0.19	< 5	< 0.19
cis-1,3-Dichloropropene	0.4	< 0.13	< 0.13	< 5	< 0.13	< 5	< 0.13
Cyclohexane	NS	NA	NA	< 5	NA	< 5	NA
Dibromochloromethane	0.4	< 0.21	< 0.21	< 5	< 0.21	< 5	< 0.21
Dibromomethane	70*	< 0.21	< 0.21	NA	< 0.21	NA	< 0.21
Dichlorodifluoromethane	1000	< 0.21	< 0.21	< 5	< 0.21	< 5	< 0.21
Diisopropyl ether	NS	< 0.12	< 0.12	NA	< 0.12	NA	< 0.12
Ethylbenzene	600	< 0.3	< 0.3	< 5	< 0.3	< 5	< 0.3
Hexachloro-1,3-butadiene	NS	< 0.71	< 0.71	NA	< 0.71	NA	< 0.71
Isopropylbenzene	70	NA	NA	< 5	NA	< 5	NA
m&p-Xylene	500	< 0.66	< 0.66	NA	< 0.66	NA	< 0.66
Methyl acetate	NS	NA	NA	< 5	NA	< 5	NA
Methyl tertiary butyl ether (MTBE)	20	< 0.21	< 0.21	< 5	< 0.21	< 5	< 0.21
Methylcyclohexane	NS	NA	NA	< 5	NA	< 5	NA
Methylene chloride	5	< 0.97	< 0.97	< 5	< 0.97	< 5	< 0.97
Naphthalene	6	< 0.24	< 0.24	NA	< 0.24	NA	< 0.24
o-Xylene	500	< 0.23	< 0.23	NA	< 0.23	NA	< 0.23
p-Isopropyltoluene	NS	< 0.31	< 0.31	NA	< 0.31	NA	< 0.31
Styrene	70	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
Tetrachloroethene	0.7	**5.1**	**5.7**	< 5	< 0.46	< 5	< 0.46
Toluene	600	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
trans-1,2-Dichloroethene	100	< 0.49	< 0.49	< 5	< 0.49	< 5	< 0.49
trans-1,3-Dichloropropene	0.4	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
Trichloroethene	3	**2.7**	**3.2**	< 5	< 0.47	< 5	< 0.47
Trichlorofluoromethane	2000	< 0.2	< 0.2	< 5	< 0.2	< 5	< 0.2
Vinyl acetate	88*	< 0.35	< 0.35	NA	< 0.35	NA	< 0.35
Vinyl chloride	0.03	< 0.62	< 0.62	< 2	< 0.62	< 2	< 0.62
Xylenes (total)	500	< 0.66	< 0.66	< 5	< 0.66	< 5	< 0.66

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-2	MW-2-a	MW-2D	MW-2D	MW-3	MW-3
Date Collected	2L .0202	05/09/13	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	92157594021	92157594022	NB03008-009	92157594020	NB03008-006	92157594016
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	49.7-59.7	49.7-59.7	19.7-29.7	19.7-29.7
SVOCs by Method 8270D (ug/L)							
1,1'-Biphenyl	400	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NS	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NS	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NS	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	100	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NS	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NS	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NS	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NS	NA	NA	NA	NA	NA	NA
2-Chlorophenol	0.4	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	30	NA	NA	NA	NA	NA	NA
2-Methylphenol	NS	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NS	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NS	NA	NA	NA	NA	NA	NA
3 & 4-Methylphenol	40 [2]	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NS	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NS	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NS	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NS	NA	NA	NA	NA	NA	NA
4-Chloro-3-methyl phenol	NS	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NS	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NS	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NS	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NS	NA	NA	NA	NA	NA	NA
Acenaphthene	80	NA	NA	NA	NA	< 5.2	NA
Acenaphthylene	200	NA	NA	NA	NA	< 5.2	NA
Acetophenone	NS	NA	NA	NA	NA	NA	NA
Anthracene	2000	NA	NA	NA	NA	< 5.2	NA
Atrazine	3	NA	NA	NA	NA	NA	NA
Benzaldehyde	NS	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.05	NA	NA	NA	NA	< 5.2	NA
Benzo(a)pyrene	0.005	NA	NA	NA	NA	< 5.2	NA
Benzo(b)fluoranthene	0.05	NA	NA	NA	NA	< 5.2	NA
Benzo(g,h,i)perylene	200	NA	NA	NA	NA	< 5.2	NA
Benzo(k)fluoranthene	0.5	NA	NA	NA	NA	< 5.2	NA
bis(2-Chloroethoxy)methane	NS	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.03	NA	NA	NA	NA	NA	NA
bis(2-Chloroisopropyl)ether	NS	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	1000	NA	NA	NA	NA	NA	NA
Caprolactam	4000	NA	NA	NA	NA	NA	NA
Carbazole	NS	NA	NA	NA	NA	NA	NA
Chrysene	5	NA	NA	NA	NA	< 5.2	NA
Di-n-butyl phthalate	700	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	100	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.005	NA	NA	NA	NA	< 5.2	NA
Dibenzofuran	NS	NA	NA	NA	NA	NA	NA
Diethylphthalate	600	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	NS	NA	NA	NA	NA	NA	NA
Fluoranthene	300	NA	NA	NA	NA	< 5.2	NA
Fluorene	300	NA	NA	NA	NA	< 5.2	NA
Hexachlorobenzene	0.02	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	0.4	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NS	NA	NA	NA	NA	NA	NA
Hexachloroethane	NS	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	0.05	NA	NA	NA	NA	< 5.2	NA
Isophorone	40	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	NS	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (Diphenylamine	NS	NA	NA	NA	NA	NA	NA
Naphthalene	6	NA	NA	NA	NA	< 5.2	NA
Nitrobenzene	NS	NA	NA	NA	NA	NA	NA
Pentachlorophenol	0.3	NA	NA	NA	NA	NA	NA
Phenanthrene	200	NA	NA	NA	NA	< 5.2	NA
Phenol	30	NA	NA	NA	NA	NA	NA
Pyrene	200	NA	NA	NA	NA	< 5.2	NA
Unknown	NS	NA	NA	NA	NA	NA	NA
Unknown-	NS	NA	NA	NA	NA	NA	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-2	MW-2-a	MW-2D	MW-2D	MW-3	MW-3
Date Collected	2L .0202	05/09/13	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	92157594021	92157594022	NB03008-009	92157594020	NB03008-006	92157594016
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	49.7-59.7	49.7-59.7	19.7-29.7	19.7-29.7
Metals by Method 6010C (mg/L)							
Aluminum	NS	NA	NA	NA	NA	**1.1 B/B/V**	NA
Antimony	NS	NA	NA	NA	NA	< 0.01	NA
Arsenic	0.01	< 0.01	< 0.01	NA	NA	< 0.01	< 0.02 D3
Barium	0.7	NA	NA	NA	NA	**0.022 J//**	NA
Beryllium	NS	NA	NA	NA	NA	< 0.004	NA
Cadmium	0.002	NA	NA	NA	NA	< 0.002	NA
Calcium	NS	NA	NA	NA	NA	**36**	NA
Chromium	0.01	< 0.005	< 0.005	NA	NA	**0.013**	**0.0141**
Cobalt	NS	NA	NA	NA	NA	**0.0099 J//**	NA
Copper	1	NA	NA	NA	NA	**0.018**	NA
Iron	0.3	NA	NA	NA	NA	**1.2**	NA
Lead	0.015	NA	NA	NA	NA	**0.008 J/B/V**	NA
Magnesium	NS	NA	NA	NA	NA	**2.7 J//**	NA
Manganese	0.05	NA	NA	NA	NA	**0.09**	NA
Nickel	0.1	NA	NA	NA	NA	**0.036 J//**	NA
Potassium	NS	NA	NA	NA	NA	**8**	NA
Selenium	0.02	NA	NA	NA	NA	< 0.01	NA
Silver	0.02	NA	NA	NA	NA	< 0.005	NA
Sodium	NS	NA	NA	NA	NA	**4.8 J//**	NA
Thallium	NS	NA	NA	NA	NA	< 0.05	NA
Vanadium	NS	NA	NA	NA	NA	**0.028 J//**	NA
Zinc	1	NA	NA	NA	NA	**0.096**	NA
Hexavalent Chromium by Method SM 3500-Cr (mg/L)							
Hexavalent Chromium	0.01 [1]	< 0.01	< 0.01	NA	NA	NA	< 0.01
Mercury by Method 7470A (mg/L)							
Mercury	0.001	NA	NA	NA	NA	< 0.0001	NA
Dissolved Metals by Method 6010C (mg/L)							
Dissolved Aluminum	NS	NA	NA	NA	NA	**0.17 BJ/B/K**	NA
Dissolved Antimony	NS	NA	NA	NA	NA	< 0.01	NA
Dissolved Arsenic	0.01	NA	NA	NA	NA	**0.0077 J//**	NA
Dissolved Barium	0.7	NA	NA	NA	NA	**0.018 J//**	NA
Dissolved Beryllium	NS	NA	NA	NA	NA	< 0.004	NA
Dissolved Cadmium	0.002	NA	NA	NA	NA	**0.00063 J//**	NA
Dissolved Calcium	NS	NA	NA	NA	NA	**32**	NA
Dissolved Chromium	0.01	NA	NA	NA	NA	**0.0047 J//**	NA
Dissolved Cobalt	NS	NA	NA	NA	NA	**0.016 J//**	NA
Dissolved Copper	1	NA	NA	NA	NA	**0.0068**	NA
Dissolved Iron	0.3	NA	NA	NA	NA	**0.091 J//**	NA
Dissolved Lead	0.015	NA	NA	NA	NA	**0.0063 J//**	NA
Dissolved Magnesium	NS	NA	NA	NA	NA	**3.5 J//**	NA
Dissolved Manganese	0.05	NA	NA	NA	NA	**0.1**	NA
Dissolved Nickel	0.1	NA	NA	NA	NA	**0.02 J//**	NA
Dissolved Potassium	NS	NA	NA	NA	NA	**9.6**	NA
Dissolved Selenium	0.02	NA	NA	NA	NA	< 0.01	NA
Dissolved Silver	0.02	NA	NA	NA	NA	< 0.005	NA
Dissolved Sodium	NS	NA	NA	NA	NA	**5.1**	NA
Dissolved Thallium	NS	NA	NA	NA	NA	< 0.05	NA
Dissolved Vanadium	NS	NA	NA	NA	NA	**0.024 J//**	NA
Dissolved Zinc	1	NA	NA	NA	NA	**0.01 J//**	NA
Dissolved Mercury by Method 7470A (mg/L)							
Dissolved Mercury	0.001	NA	NA	NA	NA	**0.000087 J//**	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-4	MW-4	MW-4-a	MW-5	MW-5
Date Collected	2L .0202	02/02/12	05/09/13	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-007	92157594017	92157594018	NB03008-005	92157594013
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7
VOCs by Method 8260B (ug/L)						
1,1,1,2-Tetrachloroethane	1*	NA	< 0.33	< 0.33	NA	< 0.33
1,1,1-Trichloroethane	200	< 5	< 0.48	< 0.48	< 5	< 0.48
1,1,2,2-Tetrachloroethane	0.2	< 5	< 0.4	< 0.4	< 5	< 0.4
1,1,2-Trichloro-1,2,2-Trifluoroethane	200000	< 5	NA	NA	< 5	NA
1,1,2-Trichloroethane	NS	< 5	< 0.29	< 0.29	< 5	< 0.29
1,1-Dichloroethane	6	< 5	< 0.32	< 0.32	< 5	< 0.32
1,1-Dichloroethene	7**	**18**	**12.7**	**20.7**	< 5	< 0.56
1,1-Dichloropropene	NS	NA	< 0.49	< 0.49	NA	< 0.49
1,2,3-Trichlorobenzene	NS	NA	< 0.33	< 0.33	NA	< 0.33
1,2,3-Trichloropropane	0.005	NA	< 0.41	< 0.41	NA	< 0.41
1,2,4-Trichlorobenzene	70	< 5	< 0.35	< 0.35	< 5	< 0.35
1,2-Dibromo-3-chloropropane (DBCP)	0.04	< 5	< 2.5	< 2.5	< 5	< 2.5
1,2-Dibromoethane (EDB)	0.02	< 5	< 0.27	< 0.27	< 5	< 0.27
1,2-Dichlorobenzene	20	< 5	< 0.3	< 0.3	< 5	< 0.3
1,2-Dichloroethane	0.4	< 5	< 0.12	< 0.12	< 5	< 0.12
1,2-Dichloropropane	0.6	< 5	< 0.27	< 0.27	< 5	< 0.27
1,3-Dichlorobenzene	200	< 5	< 0.24	< 0.24	< 5	< 0.24
1,3-Dichloropropane	NS	NA	< 0.28	< 0.28	NA	< 0.28
1,4-Dichlorobenzene	6	< 5	< 0.33	< 0.33	< 5	< 0.33
1,4-Dioxane	3	< 250	NA	NA	< 250	NA
2,2-Dichloropropane	NS	NA	< 0.13	< 0.13	NA	< 0.13
2-Butanone (MEK)	4000	< 10	< 0.96	< 0.96	< 10	< 0.96
2-Chlorotoluene	100	NA	< 0.35	< 0.35	NA	< 0.35
2-Hexanone	NS	< 10	< 0.46	< 0.46	< 10	< 0.46
4-Chlorotoluene	24*	NA	< 0.31	< 0.31	NA	< 0.31
4-Methyl-2-pentanone	NS	< 10	< 0.33	< 0.33	< 10	< 0.33
Acetone	6000	< 20	< 10	< 10	< 20	< 10
Benzene	1	< 5	< 0.25	< 0.25	< 5	< 0.25
Bromobenzene	NS	NA	< 0.3	< 0.3	NA	< 0.3
Bromochloromethane	NS	NA	< 0.17	< 0.17	NA	< 0.17
Bromodichloromethane	0.6	< 5	< 0.18	< 0.18	< 5	< 0.18
Bromoform	4	< 5	< 0.26	< 0.26	< 5	< 0.26
Bromomethane (Methyl bromide)	NS	< 5	< 0.29	< 0.29	< 5	< 0.29
Carbon disulfide	700	< 5	NA	NA	< 5	NA
Carbon tetrachloride	0.3	< 5	< 0.25	< 0.25	< 5	< 0.25
Chlorobenzene	50	< 5	< 0.23	< 0.23	< 5	< 0.23
Chloroethane	3000	< 5	< 0.54	< 0.54	< 5	< 0.54
Chloroform	70	< 5	< 0.14	**1.5**	< 5	< 0.14
Chloromethane (Methyl chloride)	3	< 5	< 0.11	< 0.11	< 5	< 0.11
cis-1,2-Dichloroethene	70	< 5	< 0.19	< 0.19	< 5	< 0.19
cis-1,3-Dichloropropene	0.4	< 5	< 0.13	< 0.13	< 5	< 0.13
Cyclohexane	NS	< 5	NA	NA	< 5	NA
Dibromochloromethane	0.4	< 5	< 0.21	< 0.21	< 5	< 0.21
Dibromomethane	70*	NA	< 0.21	< 0.21	NA	< 0.21
Dichlorodifluoromethane	1000	< 5	< 0.21	< 0.21	< 5	< 0.21
Diisopropyl ether	NS	NA	< 0.12	< 0.12	NA	< 0.12
Ethylbenzene	600	< 5	< 0.3	< 0.3	< 5	< 0.3
Hexachloro-1,3-butadiene	NS	NA	< 0.71	< 0.71	NA	< 0.71
Isopropylbenzene	70	< 5	NA	NA	< 5	NA
m&p-Xylene	500	NA	< 0.66	< 0.66	NA	< 0.66
Methyl acetate	NS	< 5	NA	NA	< 5	NA
Methyl tertiary butyl ether (MTBE)	20	< 5	< 0.21	< 0.21	< 5	< 0.21
Methylcyclohexane	NS	< 5	NA	NA	< 5	NA
Methylene chloride	5	< 5	< 0.97	< 0.97	< 5	< 0.97
Naphthalene	6	NA	< 0.24	< 0.24	NA	< 0.24
o-Xylene	500	NA	< 0.23	< 0.23	NA	< 0.23
p-Isopropyltoluene	NS	NA	< 0.31	< 0.31	NA	< 0.31
Styrene	70	< 5	< 0.26	< 0.26	< 5	< 0.26
Tetrachloroethene	0.7	< 5	< 0.46	< 0.46	**7.2**	**3.7**
Toluene	600	< 5	< 0.26	< 0.26	< 5	< 0.26
trans-1,2-Dichloroethene	100	< 5	< 0.49	< 0.49	< 5	< 0.49
trans-1,3-Dichloropropene	0.4	< 5	< 0.26	< 0.26	< 5	< 0.26
Trichloroethene	3	**25**	**15.3**	**23.6**	< 5	< 0.47
Trichlorofluoromethane	2000	< 5	< 0.2	< 0.2	< 5	< 0.2
Vinyl acetate	88*	NA	< 0.35	< 0.35	NA	< 0.35
Vinyl chloride	0.03	< 2	< 0.62	< 0.62	< 2	< 0.62
Xylenes (total)	500	< 5	< 0.66	< 0.66	< 5	< 0.66

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-4	MW-4	MW-4-a	MW-5	MW-5
Date Collected	2L .0202	02/02/12	05/09/13	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-007	92157594017	92157594018	NB03008-005	92157594013
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7
SVOCs by Method 8270D (ug/L)						
1,1'-Biphenyl	400	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NS	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NS	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NS	NA	NA	NA	NA	NA
2,4-Dimethylphenol	100	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NS	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NS	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NS	NA	NA	NA	NA	NA
2-Chloronaphthalene	NS	NA	NA	NA	NA	NA
2-Chlorophenol	0.4	NA	NA	NA	NA	NA
2-Methylnaphthalene	30	NA	NA	NA	NA	NA
2-Methylphenol	NS	NA	NA	NA	NA	NA
2-Nitroaniline	NS	NA	NA	NA	NA	NA
2-Nitrophenol	NS	NA	NA	NA	NA	NA
3 & 4-Methylphenol	40 2	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NS	NA	NA	NA	NA	NA
3-Nitroaniline	NS	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NS	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NS	NA	NA	NA	NA	NA
4-Chloro-3-methyl phenol	NS	NA	NA	NA	NA	NA
4-Chloroaniline	NS	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NS	NA	NA	NA	NA	NA
4-Nitroaniline	NS	NA	NA	NA	NA	NA
4-Nitrophenol	NS	NA	NA	NA	NA	NA
Acenaphthene	80	< 5.2	NA	NA	NA	NA
Acenaphthylene	200	< 5.2	NA	NA	NA	NA
Acetophenone	NS	NA	NA	NA	NA	NA
Anthracene	2000	< 5.2	NA	NA	NA	NA
Atrazine	3	NA	NA	NA	NA	NA
Benzaldehyde	NS	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.05	< 5.2	NA	NA	NA	NA
Benzo(a)pyrene	0.005	< 5.2	NA	NA	NA	NA
Benzo(b)fluoranthene	0.05	< 5.2	NA	NA	NA	NA
Benzo(g,h,i)perylene	200	< 5.2	NA	NA	NA	NA
Benzo(k)fluoranthene	0.5	< 5.2	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	NS	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.03	NA	NA	NA	NA	NA
bis(2-Chloroisopropyl)ether	NS	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	NA	NA	NA
Butyl benzyl phthalate	1000	NA	NA	NA	NA	NA
Caprolactam	4000	NA	NA	NA	NA	NA
Carbazole	NS	NA	NA	NA	NA	NA
Chrysene	5	< 5.2	NA	NA	NA	NA
Di-n-butyl phthalate	700	NA	NA	NA	NA	NA
Di-n-octylphthalate	100	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.005	< 5.2	NA	NA	NA	NA
Dibenzofuran	NS	NA	NA	NA	NA	NA
Diethylphthalate	600	NA	NA	NA	NA	NA
Dimethyl phthalate	NS	NA	NA	NA	NA	NA
Fluoranthene	300	< 5.2	NA	NA	NA	NA
Fluorene	300	< 5.2	NA	NA	NA	NA
Hexachlorobenzene	0.02	NA	NA	NA	NA	NA
Hexachlorobutadiene	0.4	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NS	NA	NA	NA	NA	NA
Hexachloroethane	NS	NA	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	0.05	< 5.2	NA	NA	NA	NA
Isophorone	40	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	NS	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (Diphenylamine	NS	NA	NA	NA	NA	NA
Naphthalene	6	< 5.2	NA	NA	NA	NA
Nitrobenzene	NS	NA	NA	NA	NA	NA
Pentachlorophenol	0.3	NA	NA	NA	NA	NA
Phenanthrene	200	< 5.2	NA	NA	NA	NA
Phenol	30	NA	NA	NA	NA	NA
Pyrene	200	< 5.2	NA	NA	NA	NA
Unknown	NS	NA	NA	NA	NA	NA
Unknown-	NS	NA	NA	NA	NA	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-4		MW-4	MW-4-a	MW-5	MW-5
Date Collected	2L .0202	02/02/12		05/09/13	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-007		92157594017	92157594018	NB03008-005	92157594013
Screened Interval (Feet bgs)	Standard	24.7-34.7		24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7
Metals by Method 6010C (mg/L)							
Aluminum	NS	**0.16**	**BJ/B/VK**	NA	NA	NA	NA
Antimony	NS	< 0.01		NA	NA	NA	NA
Arsenic	0.01	**0.0054**	**J/B/V**	< 0.01	NA	NA	< 0.01
Barium	0.7	**0.073**		NA	NA	NA	NA
Beryllium	NS	< 0.004		NA	NA	NA	NA
Cadmium	0.002	< 0.002		NA	NA	NA	NA
Calcium	NS	**16**		NA	NA	NA	NA
Chromium	0.01	< 0.005		< 0.005	NA	NA	< 0.005
Cobalt	NS	< 0.025		NA	NA	NA	NA
Copper	1	< 0.005		NA	NA	NA	NA
Iron	0.3	< 0.1		NA	NA	NA	NA
Lead	0.015	**0.0031**	**J/B/V**	NA	NA	NA	NA
Magnesium	NS	**1.6**	**J//**	NA	NA	NA	NA
Manganese	0.05	**0.34**		NA	NA	NA	NA
Nickel	0.1	< 0.04		NA	NA	NA	NA
Potassium	NS	**3.7**	**J//**	NA	NA	NA	NA
Selenium	0.02	< 0.01		NA	NA	NA	NA
Silver	0.02	< 0.005		NA	NA	NA	NA
Sodium	NS	**5.6**		NA	NA	NA	NA
Thallium	NS	**0.0049**	**J/B/V**	NA	NA	NA	NA
Vanadium	NS	< 0.05		NA	NA	NA	NA
Zinc	1	**0.0081**	**J//**	NA	NA	NA	NA
Hexavalent Chromium by Method SM 3500-Cr (mg/L)							
Hexavalent Chromium	0.01 1	NA		NA	NA	NA	NA
Mercury by Method 7470A (mg/L)							
Mercury	0.001	< 0.0001		NA	NA	NA	NA
Dissolved Metals by Method 6010C (mg/L)							
Dissolved Aluminum	NS	**0.16**	**BJ/B/K**	NA	NA	NA	NA
Dissolved Antimony	NS	< 0.01		NA	NA	NA	NA
Dissolved Arsenic	0.01	**0.007**	**J//**	NA	NA	NA	NA
Dissolved Barium	0.7	**0.074**		NA	NA	NA	NA
Dissolved Beryllium	NS	< 0.004		NA	NA	NA	NA
Dissolved Cadmium	0.002	< 0.002		NA	NA	NA	NA
Dissolved Calcium	NS	**16**		NA	NA	NA	NA
Dissolved Chromium	0.01	< 0.005		NA	NA	NA	NA
Dissolved Cobalt	NS	< 0.025		NA	NA	NA	NA
Dissolved Copper	1	< 0.005		NA	NA	NA	NA
Dissolved Iron	0.3	< 0.1		NA	NA	NA	NA
Dissolved Lead	0.015	< 0.01		NA	NA	NA	NA
Dissolved Magnesium	NS	**1.8**	**J//**	NA	NA	NA	NA
Dissolved Manganese	0.05	**0.35**		NA	NA	NA	NA
Dissolved Nickel	0.1	< 0.04		NA	NA	NA	NA
Dissolved Potassium	NS	**3.8**	**J//**	NA	NA	NA	NA
Dissolved Selenium	0.02	< 0.01		NA	NA	NA	NA
Dissolved Silver	0.02	< 0.005		NA	NA	NA	NA
Dissolved Sodium	NS	**5.8**		NA	NA	NA	NA
Dissolved Thallium	NS	**0.0047**	**J//**	NA	NA	NA	NA
Dissolved Vanadium	NS	< 0.05		NA	NA	NA	NA
Dissolved Zinc	1	**0.0085**	**J//**	NA	NA	NA	NA
Dissolved Mercury by Method 7470A (mg/L)							
Dissolved Mercury	0.001	< 0.0001		NA	NA	NA	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-6	MW-6	MW-7	MW-7	MW-7D	MW-7D
Date Collected	2L .0202	02/02/12	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-001	92157594012	NB03008-004	92157594015	NB03008-003	92157594014
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7	44.7-54.7	44.7-54.7
VOCs by Method 8260B (ug/L)							
1,1,1,2-Tetrachloroethane	1*	NA	< 0.33	NA	< 0.33	NA	< 0.33
1,1,1-Trichloroethane	200	< 5	< 0.48	< 5	< 0.48	< 5	< 0.48
1,1,2,2-Tetrachloroethane	0.2	< 5	< 0.4	< 5	< 0.4	< 5	< 0.4
1,1,2-Trichloro-1,2,2-Trifluoroethane	200000	< 5	NA	< 5	NA	< 5	NA
1,1,2-Trichloroethane	NS	< 5	< 0.29	< 5	< 0.29	< 5	< 0.29
1,1-Dichloroethane	6	< 5	< 0.32	< 5	< 0.32	< 5	< 0.32
1,1-Dichloroethene	7**	< 5	< 0.56	< 5	< 0.56	< 5	< 0.56
1,1-Dichloropropene	NS	NA	< 0.49	NA	< 0.49	NA	< 0.49
1,2,3-Trichlorobenzene	NS	NA	< 0.33	NA	< 0.33	NA	< 0.33
1,2,3-Trichloropropane	0.005	NA	< 0.41	NA	< 0.41	NA	< 0.41
1,2,4-Trichlorobenzene	70	< 5	< 0.35	< 5	< 0.35	< 5	< 0.35
1,2-Dibromo-3-chloropropane (DBCP)	0.04	< 5	< 2.5	< 5	< 2.5	< 5	< 2.5
1,2-Dibromoethane (EDB)	0.02	< 5	< 0.27	< 5	< 0.27	< 5	< 0.27
1,2-Dichlorobenzene	20	< 5	< 0.3	< 5	< 0.3	< 5	< 0.3
1,2-Dichloroethane	0.4	< 5	< 0.12	< 5	< 0.12	< 5	< 0.12
1,2-Dichloropropane	0.6	< 5	< 0.27	< 5	< 0.27	< 5	< 0.27
1,3-Dichlorobenzene	200	< 5	< 0.24	< 5	< 0.24	< 5	< 0.24
1,3-Dichloropropane	NS	NA	< 0.28	NA	< 0.28	NA	< 0.28
1,4-Dichlorobenzene	6	< 5	< 0.33	< 5	< 0.33	< 5	< 0.33
1,4-Dioxane	3	< 250	NA	< 250	NA	< 250	NA
2,2-Dichloropropane	NS	NA	< 0.13	NA	< 0.13	NA	< 0.13
2-Butanone (MEK)	4000	< 10	< 0.96	< 10	< 0.96	< 10	< 0.96
2-Chlorotoluene	100	NA	< 0.35	NA	< 0.35	NA	< 0.35
2-Hexanone	NS	< 10	< 0.46	< 10	< 0.46	< 10	< 0.46
4-Chlorotoluene	24*	NA	< 0.31	NA	< 0.31	NA	< 0.31
4-Methyl-2-pentanone	NS	< 10	< 0.33	< 10	< 0.33	< 10	< 0.33
Acetone	6000	< 20	< 10	< 20	< 10	< 20	< 10
Benzene	1	< 5	< 0.25	< 5	< 0.25	< 5	< 0.25
Bromobenzene	NS	NA	< 0.3	NA	< 0.3	NA	< 0.3
Bromochloromethane	NS	NA	< 0.17	NA	< 0.17	NA	< 0.17
Bromodichloromethane	0.6	< 5	< 0.18	< 5	< 0.18	< 5	< 0.18
Bromoform	4	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
Bromomethane (Methyl bromide)	NS	< 5	< 0.29	< 5	< 0.29	< 5	< 0.29
Carbon disulfide	700	< 5	NA	< 5	NA	< 5	NA
Carbon tetrachloride	0.3	< 5	< 0.25	< 5	< 0.25	< 5	< 0.25
Chlorobenzene	50	< 5	< 0.23	< 5	< 0.23	< 5	< 0.23
Chloroethane	3000	< 5	< 0.54	< 5	< 0.54	< 5	< 0.54
Chloroform	70	< 5	< 0.14	< 5	< 0.14	< 5	< 0.14
Chloromethane (Methyl chloride)	3	< 5	< 0.11	< 5	< 0.11	< 5	< 0.11
cis-1,2-Dichloroethene	70	< 5	< 0.19	< 5	< 0.19	< 5	< 0.19
cis-1,3-Dichloropropene	0.4	< 5	< 0.13	< 5	< 0.13	< 5	< 0.13
Cyclohexane	NS	< 5	NA	< 5	NA	< 5	NA
Dibromochloromethane	0.4	< 5	< 0.21	< 5	< 0.21	< 5	< 0.21
Dibromomethane	70*	NA	< 0.21	NA	< 0.21	NA	< 0.21
Dichlorodifluoromethane	1000	< 5	< 0.21	< 5	< 0.21	< 5	< 0.21
Diisopropyl ether	NS	NA	< 0.12	NA	< 0.12	NA	< 0.12
Ethylbenzene	600	< 5	< 0.3	< 5	< 0.3	< 5	< 0.3
Hexachloro-1,3-butadiene	NS	NA	< 0.71	NA	< 0.71	NA	< 0.71
Isopropylbenzene	70	< 5	NA	< 5	NA	< 5	NA
m&p-Xylene	500	NA	< 0.66	NA	< 0.66	NA	< 0.66
Methyl acetate	NS	< 5	NA	< 5	NA	< 5	NA
Methyl tertiary butyl ether (MTBE)	20	< 5	< 0.21	< 5	< 0.21	< 5	< 0.21
Methylcyclohexane	NS	< 5	NA	< 5	NA	< 5	NA
Methylene chloride	5	< 5	< 0.97	< 5	< 0.97	< 5	< 0.97
Naphthalene	6	NA	< 0.24	NA	< 0.24	NA	< 0.24
o-Xylene	500	NA	< 0.23	NA	< 0.23	NA	< 0.23
p-Isopropyltoluene	NS	NA	< 0.31	NA	< 0.31	NA	< 0.31
Styrene	70	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
Tetrachloroethene	0.7	< 5	< 0.46	**12**	**5.2**	**0.7** J//	**3.2**
Toluene	600	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
trans-1,2-Dichloroethene	100	< 5	< 0.49	< 5	< 0.49	< 5	< 0.49
trans-1,3-Dichloropropene	0.4	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
Trichloroethene	3	< 5	< 0.47	< 5	< 0.47	< 5	< 0.47
Trichlorofluoromethane	2000	< 5	< 0.2	< 5	< 0.2	< 5	< 0.2
Vinyl acetate	88*	NA	< 0.35	NA	< 0.35	NA	< 0.35
Vinyl chloride	0.03	< 2	< 0.62	< 2	< 0.62	< 2	< 0.62
Xylenes (total)	500	< 5	< 0.66	< 5	< 0.66	< 5	< 0.66

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-6	MW-6	MW-7	MW-7	MW-7D	MW-7D
Date Collected	2L .0202	02/02/12	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-001	92157594012	NB03008-004	92157594015	NB03008-003	92157594014
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7	44.7-54.7	44.7-54.7
SVOCs by Method 8270D (ug/L)							
1,1'-Biphenyl	400	NA	NA	< 5.2	NA	NA	NA
2,4,5-Trichlorophenol	NS	NA	NA	< 5.2	NA	NA	NA
2,4,6-Trichlorophenol	NS	NA	NA	< 5.2	NA	NA	NA
2,4-Dichlorophenol	NS	NA	NA	< 5.2	NA	NA	NA
2,4-Dimethylphenol	100	NA	NA	< 5.2	NA	NA	NA
2,4-Dinitrophenol	NS	NA	NA	< 26	NA	NA	NA
2,4-Dinitrotoluene	NS	NA	NA	< 10	NA	NA	NA
2,6-Dinitrotoluene	NS	NA	NA	< 10	NA	NA	NA
2-Chloronaphthalene	NS	NA	NA	< 5.2	NA	NA	NA
2-Chlorophenol	0.4	NA	NA	< 5.2	NA	NA	NA
2-Methylnaphthalene	30	NA	NA	< 5.2	NA	NA	NA
2-Methylphenol	NS	NA	NA	< 5.2	NA	NA	NA
2-Nitroaniline	NS	NA	NA	< 10	NA	NA	NA
2-Nitrophenol	NS	NA	NA	< 10	NA	NA	NA
3 & 4-Methylphenol	40 2	NA	NA	< 10	NA	NA	NA
3,3'-Dichlorobenzidine	NS	NA	NA	< 26	NA	NA	NA
3-Nitroaniline	NS	NA	NA	< 10	NA	NA	NA
4,6-Dinitro-2-methylphenol	NS	NA	NA	< 26	NA	NA	NA
4-Bromophenyl phenyl ether	NS	NA	NA	< 5.2	NA	NA	NA
4-Chloro-3-methyl phenol	NS	NA	NA	< 5.2	NA	NA	NA
4-Chloroaniline	NS	NA	NA	< 5.2 /R/c	NA	NA	NA
4-Chlorophenyl phenyl ether	NS	NA	NA	< 5.2	NA	NA	NA
4-Nitroaniline	NS	NA	NA	< 10	NA	NA	NA
4-Nitrophenol	NS	NA	NA	< 26	NA	NA	NA
Acenaphthene	80	NA	NA	< 5.2	NA	NA	NA
Acenaphthylene	200	NA	NA	< 5.2	NA	NA	NA
Acetophenone	NS	NA	NA	< 5.2	NA	NA	NA
Anthracene	2000	NA	NA	< 5.2	NA	NA	NA
Atrazine	3	NA	NA	< 5.2	NA	NA	NA
Benzaldehyde	NS	NA	NA	< 26	NA	NA	NA
Benzo(a)anthracene	0.05	NA	NA	< 5.2	NA	NA	NA
Benzo(a)pyrene	0.005	NA	NA	< 5.2	NA	NA	NA
Benzo(b)fluoranthene	0.05	NA	NA	< 5.2	NA	NA	NA
Benzo(g,h,i)perylene	200	NA	NA	< 5.2	NA	NA	NA
Benzo(k)fluoranthene	0.5	NA	NA	< 5.2	NA	NA	NA
bis(2-Chloroethoxy)methane	NS	NA	NA	< 5.2	NA	NA	NA
bis(2-Chloroethyl)ether	0.03	NA	NA	< 5.2	NA	NA	NA
bis(2-Chloroisopropyl)ether	NS	NA	NA	< 5.2	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	< 5.2	NA	NA	NA
Butyl benzyl phthalate	1000	NA	NA	< 10	NA	NA	NA
Caprolactam	4000	NA	NA	< 26	NA	NA	NA
Carbazole	NS	NA	NA	< 5.2	NA	NA	NA
Chrysene	5	NA	NA	< 5.2	NA	NA	NA
Di-n-butyl phthalate	700	NA	NA	< 5.2	NA	NA	NA
Di-n-octylphthalate	100	NA	NA	< 5.2	NA	NA	NA
Dibenzo(a,h)anthracene	0.005	NA	NA	< 5.2	NA	NA	NA
Dibenzofuran	NS	NA	NA	< 5.2	NA	NA	NA
Diethylphthalate	600	NA	NA	< 5.2	NA	NA	NA
Dimethyl phthalate	NS	NA	NA	< 5.2	NA	NA	NA
Fluoranthene	300	NA	NA	< 5.2	NA	NA	NA
Fluorene	300	NA	NA	< 5.2	NA	NA	NA
Hexachlorobenzene	0.02	NA	NA	< 5.2	NA	NA	NA
Hexachlorobutadiene	0.4	NA	NA	< 5.2	NA	NA	NA
Hexachlorocyclopentadiene	NS	NA	NA	< 26	NA	NA	NA
Hexachloroethane	NS	NA	NA	< 5.2	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	0.05	NA	NA	< 5.2	NA	NA	NA
Isophorone	40	NA	NA	< 5.2	NA	NA	NA
N-Nitrosodi-n-propylamine	NS	NA	NA	< 5.2	NA	NA	NA
N-Nitrosodiphenylamine (Diphenylamine	NS	NA	NA	< 5.2	NA	NA	NA
Naphthalene	6	NA	NA	< 5.2	NA	NA	NA
Nitrobenzene	NS	NA	NA	< 5.2	NA	NA	NA
Pentachlorophenol	0.3	NA	NA	< 26	NA	NA	NA
Phenanthrene	200	NA	NA	< 5.2	NA	NA	NA
Phenol	30	NA	NA	< 5.2	NA	NA	NA
Pyrene	200	NA	NA	< 5.2	NA	NA	NA
Unknown	NS	NA	NA	NA	NA	NA	NA
Unknown-	NS	NA	NA	NA	NA	NA	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-6	MW-6	MW-7	MW-7	MW-7D	MW-7D
Date Collected	2L .0202	02/02/12	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-001	92157594012	NB03008-004	92157594015	NB03008-003	92157594014
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7	44.7-54.7	44.7-54.7
Metals by Method 6010C (mg/L)							
Aluminum	NS	NA	NA	**0.22 B/B/VK**	NA	NA	NA
Antimony	NS	NA	NA	< 0.01	NA	NA	NA
Arsenic	0.01	NA	< 0.01	**0.0075 J/B/V**	< 0.01	NA	NA
Barium	0.7	NA	NA	**0.14**	NA	NA	NA
Beryllium	NS	NA	NA	< 0.004	NA	NA	NA
Cadmium	0.002	NA	NA	< 0.002	NA	NA	NA
Calcium	NS	NA	NA	**1.2 J//**	NA	NA	NA
Chromium	0.01	NA	< 0.005	**0.0073**	< 0.005	NA	NA
Cobalt	NS	NA	NA	**0.0072 J//**	NA	NA	NA
Copper	1	NA	NA	< 0.005	NA	NA	NA
Iron	0.3	NA	NA	**0.083 J//**	NA	NA	NA
Lead	0.015	NA	NA	**0.0019 J/B/V**	NA	NA	NA
Magnesium	NS	NA	NA	**1.5 J//**	NA	NA	NA
Manganese	0.05	NA	NA	**0.6**	NA	NA	NA
Nickel	0.1	NA	NA	< 0.04	NA	NA	NA
Potassium	NS	NA	NA	**4.7 J//**	NA	NA	NA
Selenium	0.02	NA	NA	< 0.01	NA	NA	NA
Silver	0.02	NA	NA	< 0.005	NA	NA	NA
Sodium	NS	NA	NA	**6.7**	NA	NA	NA
Thallium	NS	NA	NA	< 0.05	NA	NA	NA
Vanadium	NS	NA	NA	< 0.05	NA	NA	NA
Zinc	1	NA	NA	**0.014 J//**	NA	NA	NA
Hexavalent Chromium by Method SM 3500-Cr (mg/L)							
Hexavalent Chromium	0.01 1	NA	NA	NA	< 0.01	NA	NA
Mercury by Method 7470A (mg/L)							
Mercury	0.001	NA	NA	< 0.0001	NA	NA	NA
Dissolved Metals by Method 6010C (mg/L)							
Dissolved Aluminum	NS	NA	NA	**0.15 BJ/B/K**	NA	NA	NA
Dissolved Antimony	NS	NA	NA	< 0.01	NA	NA	NA
Dissolved Arsenic	0.01	NA	NA	**0.0065 J//**	NA	NA	NA
Dissolved Barium	0.7	NA	NA	**0.13**	NA	NA	NA
Dissolved Beryllium	NS	NA	NA	< 0.004	NA	NA	NA
Dissolved Cadmium	0.002	NA	NA	< 0.002	NA	NA	NA
Dissolved Calcium	NS	NA	NA	**1.1 J//**	NA	NA	NA
Dissolved Chromium	0.01	NA	NA	**0.0055**	NA	NA	NA
Dissolved Cobalt	NS	NA	NA	**0.0065 J//**	NA	NA	NA
Dissolved Copper	1	NA	NA	< 0.005	NA	NA	NA
Dissolved Iron	0.3	NA	NA	< 0.1	NA	NA	NA
Dissolved Lead	0.015	NA	NA	**0.0033 J//**	NA	NA	NA
Dissolved Magnesium	NS	NA	NA	**1.4 J//**	NA	NA	NA
Dissolved Manganese	0.05	NA	NA	**0.56**	NA	NA	NA
Dissolved Nickel	0.1	NA	NA	< 0.04	NA	NA	NA
Dissolved Potassium	NS	NA	NA	**4.7 J//**	NA	NA	NA
Dissolved Selenium	0.02	NA	NA	< 0.01	NA	NA	NA
Dissolved Silver	0.02	NA	NA	< 0.005	NA	NA	NA
Dissolved Sodium	NS	NA	NA	**6.7**	NA	NA	NA
Dissolved Thallium	NS	NA	NA	**0.005 J//**	NA	NA	NA
Dissolved Vanadium	NS	NA	NA	< 0.05	NA	NA	NA
Dissolved Zinc	1	NA	NA	**0.012 J//**	NA	NA	NA
Dissolved Mercury by Method 7470A (mg/L)							
Dissolved Mercury	0.001	NA	NA	< 0.0001	NA	NA	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
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Sample Location	15A NCAC	TW-1	TW-2	TW-3	TW-5
Date Collected	2L .0202	08/26/11	08/26/11	08/26/11	08/26/11
Laboratory Sample ID	Groundwater	MH27005-003	MH27005-004	MH27005-005	MH27005-006
Screened Interval (Feet bgs)	Standard	22-27	27-37	22-25	15-21
VOCs by Method 8260B (ug/L)					
1,1,1,2-Tetrachloroethane	1*	NA	NA	NA	NA
1,1,1-Trichloroethane	200	< 5	**0.36 J**	< 5	< 5
1,1,2,2-Tetrachloroethane	0.2	< 5	< 5	< 5	< 5
1,1,2-Trichloro-1,2,2-Trifluoroethane	200000	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	NS	< 5	< 5	< 5	< 5
1,1-Dichloroethane	6	< 5	**4.4 J**	< 5	< 5
1,1-Dichloroethene	7**	< 5	**250**	< 5	< 5
1,1-Dichloropropene	NS	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NS	NA	NA	NA	NA
1,2,3-Trichloropropane	0.005	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane (DBCP)	0.04	< 5	< 5	< 5	< 5
1,2-Dibromoethane (EDB)	0.02	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	20	< 5	< 5	< 5	< 5
1,2-Dichloroethane	0.4	< 5	**2 J**	< 5	< 5
1,2-Dichloropropane	0.6	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	200	< 5	< 5	< 5	< 5
1,3-Dichloropropane	NS	NA	NA	NA	NA
1,4-Dichlorobenzene	6	< 5	< 5	< 5	< 5
1,4-Dioxane	3	NA	NA	NA	NA
2,2-Dichloropropane	NS	NA	NA	NA	NA
2-Butanone (MEK)	4000	< 10	< 10	< 10	< 10
2-Chlorotoluene	100	NA	NA	NA	NA
2-Hexanone	NS	< 10	< 10	< 10	< 10
4-Chlorotoluene	24*	NA	NA	NA	NA
4-Methyl-2-pentanone	NS	< 10	< 10	< 10	< 10
Acetone	6000	< 20	< 20	< 20	< 20
Benzene	1	< 5	**0.26 J**	< 5	< 5
Bromobenzene	NS	NA	NA	NA	NA
Bromochloromethane	NS	NA	NA	NA	NA
Bromodichloromethane	0.6	< 5	< 5	< 5	< 5
Bromoform	4	< 5	< 5	< 5	< 5
Bromomethane (Methyl bromide)	NS	< 5	< 5	< 5	< 5
Carbon disulfide	700	< 5	< 5	< 5	< 5
Carbon tetrachloride	0.3	< 5	< 5	< 5	< 5
Chlorobenzene	50	< 5	< 5	< 5	< 5
Chloroethane	3000	< 5	< 5	< 5	< 5
Chloroform	70	< 5	**13**	< 5	< 5
Chloromethane (Methyl chloride)	3	**0.51 J**	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	**1.2 J**	< 5	< 5
cis-1,3-Dichloropropene	0.4	< 5	< 5	< 5	< 5
Cyclohexane	NS	< 5	< 5	< 5	< 5
Dibromochloromethane	0.4	< 5	< 5	< 5	< 5
Dibromomethane	70*	NA	NA	NA	NA
Dichlorodifluoromethane	1000	< 5	< 5	< 5	< 5
Diisopropyl ether	NS	NA	NA	NA	NA
Ethylbenzene	600	< 5	< 5	< 5	< 5
Hexachloro-1,3-butadiene	NS	NA	NA	NA	NA
Isopropylbenzene	70	< 5	< 5	< 5	< 5
m&p-Xylene	500	NA	NA	NA	NA
Methyl acetate	NS	< 5	< 5	< 5	< 5
Methyl tertiary butyl ether (MTBE)	20	< 5	< 5	< 5	< 5
Methylcyclohexane	NS	< 5	< 5	< 5	< 5
Methylene chloride	5	< 5	< 5	< 5	< 5
Naphthalene	6	NA	NA	NA	NA
o-Xylene	500	NA	NA	NA	NA
p-Isopropyltoluene	NS	NA	NA	NA	NA
Styrene	70	< 5	< 5	< 5	< 5
Tetrachloroethene	0.7	< 5	**19**	**6**	< 5
Toluene	600	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	100	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	0.4	< 5	< 5	< 5	< 5
Trichloroethene	3	< 5	**5.5**	< 5	< 5
Trichlorofluoromethane	2000	< 5	< 5	< 5	< 5
Vinyl acetate	88*	NA	NA	NA	NA
Vinyl chloride	0.03	< 2	< 2	< 2	< 2
Xylenes (total)	500	< 5	< 5	< 5	< 5

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location Date Collected Laboratory Sample ID Screened Interval (Feet bgs)	15A NCAC 2L .0202 Groundwater Standard	TW-1 08/26/11 MH27005-003 22-27	TW-2 08/26/11 MH27005-004 27-37	TW-3 08/26/11 MH27005-005 22-25	TW-5 08/26/11 MH27005-006 15-21
SVOCs by Method 8270D (ug/L)					
1,1'-Biphenyl	400	NA	NA	NA	NA
2,4,5-Trichlorophenol	NS	NA	NA	NA	NA
2,4,6-Trichlorophenol	NS	NA	NA	NA	NA
2,4-Dichlorophenol	NS	NA	NA	NA	NA
2,4-Dimethylphenol	100	NA	NA	NA	NA
2,4-Dinitrophenol	NS	NA	NA	NA	NA
2,4-Dinitrotoluene	NS	NA	NA	NA	NA
2,6-Dinitrotoluene	NS	NA	NA	NA	NA
2-Chloronaphthalene	NS	NA	NA	NA	NA
2-Chlorophenol	0.4	NA	NA	NA	NA
2-Methylnaphthalene	30	NA	NA	NA	NA
2-Methylphenol	NS	NA	NA	NA	NA
2-Nitroaniline	NS	NA	NA	NA	NA
2-Nitrophenol	NS	NA	NA	NA	NA
3 & 4-Methylphenol	40 2	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NS	NA	NA	NA	NA
3-Nitroaniline	NS	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NS	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NS	NA	NA	NA	NA
4-Chloro-3-methyl phenol	NS	NA	NA	NA	NA
4-Chloroaniline	NS	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NS	NA	NA	NA	NA
4-Nitroaniline	NS	NA	NA	NA	NA
4-Nitrophenol	NS	NA	NA	NA	NA
Acenaphthene	80	NA	NA	NA	NA
Acenaphthylene	200	NA	NA	NA	NA
Acetophenone	NS	NA	NA	NA	NA
Anthracene	2000	NA	NA	NA	NA
Atrazine	3	NA	NA	NA	NA
Benzaldehyde	NS	NA	NA	NA	NA
Benzo(a)anthracene	0.05	NA	NA	NA	NA
Benzo(a)pyrene	0.005	NA	NA	NA	NA
Benzo(b)fluoranthene	0.05	NA	NA	NA	NA
Benzo(g,h,i)perylene	200	NA	NA	NA	NA
Benzo(k)fluoranthene	0.5	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	NS	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.03	NA	NA	NA	NA
bis(2-Chloroisopropyl)ether	NS	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	NA	NA
Butyl benzyl phthalate	1000	NA	NA	NA	NA
Caprolactam	4000	NA	NA	NA	NA
Carbazole	NS	NA	NA	NA	NA
Chrysene	5	NA	NA	NA	NA
Di-n-butyl phthalate	700	NA	NA	NA	NA
Di-n-octylphthalate	100	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.005	NA	NA	NA	NA
Dibenzofuran	NS	NA	NA	NA	NA
Diethylphthalate	600	NA	NA	NA	NA
Dimethyl phthalate	NS	NA	NA	NA	NA
Fluoranthene	300	NA	NA	NA	NA
Fluorene	300	NA	NA	NA	NA
Hexachlorobenzene	0.02	NA	NA	NA	NA
Hexachlorobutadiene	0.4	NA	NA	NA	NA
Hexachlorocyclopentadiene	NS	NA	NA	NA	NA
Hexachloroethane	NS	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	0.05	NA	NA	NA	NA
Isophorone	40	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	NS	NA	NA	NA	NA
N-Nitrosodiphenylamine (Diphenylami	NS	NA	NA	NA	NA
Naphthalene	6	NA	NA	NA	NA
Nitrobenzene	NS	NA	NA	NA	NA
Pentachlorophenol	0.3	NA	NA	NA	NA
Phenanthrene	200	NA	NA	NA	NA
Phenol	30	NA	NA	NA	NA
Pyrene	200	NA	NA	NA	NA
Unknown	NS	NA	NA	NA	NA
Unknown-	NS	NA	NA	NA	NA

Table 2-5
Summary of Groundwater Analytical Data — 2011 through 2013
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	TW-1	TW-2	TW-3	TW-5
Date Collected	2L .0202	08/26/11	08/26/11	08/26/11	08/26/11
Laboratory Sample ID	Groundwater	MH27005-003	MH27005-004	MH27005-005	MH27005-006
Screened Interval (Feet bgs)	Standard	22-27	27-37	22-25	15-21
Metals by Method 6010C (mg/L)					
Aluminum	NS	NA	NA	NA	NA
Antimony	NS	NA	NA	NA	NA
Arsenic	0.01	NA	NA	NA	NA
Barium	0.7	NA	NA	NA	NA
Beryllium	NS	NA	NA	NA	NA
Cadmium	0.002	NA	NA	NA	NA
Calcium	NS	NA	NA	NA	NA
Chromium	0.01	NA	NA	NA	NA
Cobalt	NS	NA	NA	NA	NA
Copper	1	NA	NA	NA	NA
Iron	0.3	NA	NA	NA	NA
Lead	0.015	NA	NA	NA	NA
Magnesium	NS	NA	NA	NA	NA
Manganese	0.05	NA	NA	NA	NA
Nickel	0.1	NA	NA	NA	NA
Potassium	NS	NA	NA	NA	NA
Selenium	0.02	NA	NA	NA	NA
Silver	0.02	NA	NA	NA	NA
Sodium	NS	NA	NA	NA	NA
Thallium	NS	NA	NA	NA	NA
Vanadium	NS	NA	NA	NA	NA
Zinc	1	NA	NA	NA	NA
Hexavalent Chromium by Method SM 3500-Cr (mg/L)					
Hexavalent Chromium	0.01 1	NA	NA	NA	NA
Mercury by Method 7470A (mg/L)					
Mercury	0.001	NA	NA	NA	NA
Dissolved Metals by Method 6010C (mg/L)					
Dissolved Aluminum	NS	NA	NA	NA	NA
Dissolved Antimony	NS	NA	NA	NA	NA
Dissolved Arsenic	0.01	NA	NA	NA	NA
Dissolved Barium	0.7	NA	NA	NA	NA
Dissolved Beryllium	NS	NA	NA	NA	NA
Dissolved Cadmium	0.002	NA	NA	NA	NA
Dissolved Calcium	NS	NA	NA	NA	NA
Dissolved Chromium	0.01	NA	NA	NA	NA
Dissolved Cobalt	NS	NA	NA	NA	NA
Dissolved Copper	1	NA	NA	NA	NA
Dissolved Iron	0.3	NA	NA	NA	NA
Dissolved Lead	0.015	NA	NA	NA	NA
Dissolved Magnesium	NS	NA	NA	NA	NA
Dissolved Manganese	0.05	NA	NA	NA	NA
Dissolved Nickel	0.1	NA	NA	NA	NA
Dissolved Potassium	NS	NA	NA	NA	NA
Dissolved Selenium	0.02	NA	NA	NA	NA
Dissolved Silver	0.02	NA	NA	NA	NA
Dissolved Sodium	NS	NA	NA	NA	NA
Dissolved Thallium	NS	NA	NA	NA	NA
Dissolved Vanadium	NS	NA	NA	NA	NA
Dissolved Zinc	1	NA	NA	NA	NA
Dissolved Mercury by Method 7470A (mg/L)					
Dissolved Mercury	0.001	NA	NA	NA	NA

Notes:
Bold font and shading indicate the analyte was detected
Bold outline indicates the concentration exceeds the NC 2L Standard (NCDENR, January 2010)
* Indicates an Interim Maximum Allowable Concentration established under 15A NCAC 2L.0202
** The current standard is 350 ug/L; however, the USEPA MCL of 7 ug/L is used for screening
mg/L - milligrams per liter (parts per million)
NA - Not Analyzed
NS - No Standard
ug/L - micrograms per liter (parts per billion)
See Table 2-6 for explanation of data qualifiers

Table 2-6
Summary of Added Data Qualifiers
Ardee Translite
Shelby, North Carolina

Modifier	Description
<	Indicates not detected at the reporting limit indicated.
"/"	Separates the laboratory added data qualifiers from the validation data qualifiers. The laboratory added data qualifiers precede the first "/". The result qualifiers follow the first "/", and the analysis qualifiers follow the second "/". The result qualifiers are a product of the data validation process, and the analysis qualifier defines the type of QC excursion.

Laboratory Data Qualifiers

Qualifier	Description
B	Detected in the method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
J	Estimated result < PQL and ≥ MDL
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Result Data Qualifiers

Qualifier	Description
B	The analyte was found in an associated blank as well as in the sample.
J	The analyte was positively identified. The quantitation is an estimation.
M	A matrix effect was present.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Analysis Data Qualifiers

Qualifier	Description
A	Percent different between the primary and duplicate sample exceeded the established criteria.
c	Laboratory control recovery below the established criteria.
D	Percent difference of matrix spike duplicate exceeded the established criteria.
K	An analyte was detected in the sample at a concentration less than or equal to five times the concentration detected in the associated method blank. Professional judgment must be used to determine if the detect is site-related.
m	Matrix spike recovery below established criteria.
M	Matrix spike recovery above established criteria.
V	Detected in the associated rinsate blank.

TABLE 2-7
SUMMARY OF PARTIAL IMPLEMENTATION OF PHASE I RI REQUIREMENTS TO DATE
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

REC Program Guidance* General Requirement	Specific Requirement	Guidance Reference(s)	Area(s) of Potential Concern	Date(s) of Action	Action Conducted	Location in Work Plan of Results	Results/Comments
Soil sampling at areas of "Visible Evidence of Contamination"	NA	A.2.1.1	NA	NA	To date, there are no areas of visible evidence of soil contamination at the Site.	NA	Based on site reconnaissance and field sampling activities of August 2011, January, February, and November 2012, and May and July 2013
Soil sampling at areas of "No Visible Evidence of Contamination"	Grid sampling outside of building	A.2.1.2.1a	Former 1,1,1-TCA AST/ Former Solvent Degreaser	Jan. 2012	Six grid samples, 50 feet centers max.	Figures 2-4a, 2-4b, and 2-4c	Samples SB-1 through SB-6
"	Surface Samples collected 0 to 6 inches bgs	A.2.1.2.1a	"	Jan. 2012	All parameters except VOCs 0-6 inches bgs	Table 2-4	No exceedences of the PSRGs except for several metals. Potential data gap: No soil borings inside building.
"	VOC surface sample 6-12 inches bgs	A.2.1.2.1a	"	Jan. 2012	VOC samples 6-12 inches bgs	Table 2-4	No exceedences of the PSRGs except for several metals.
"	One boring to the water table	A.2.1.2.1b	"	Jan. 2012	Sampled SB-2 every five feet to water table for VOCs	Table 2-4	No exceedences of the PSRGs except for several metals.
"	Surface Soil Samples	A.2.1.2.1a	Alleged Outdoor Paint Burn Area	Jan. 2012	Boring MW-3: 0.5-1 feet bgs for VOCs and 0-0.5 feet bgs for all other parameters	Table 2-4	No exceedences of the PSRGs except for several metals.
"	"	A.2.1.2.1a	"	May 2013	Borings BG- and BG- for metals	Table 2-4	Metals in the same area: some PSRG exceedences
"	Surface Soil Samples	A.2.1.2.1a	Former Septic Tank Area	Jan. 2012	Surface soil samples only	Table 2-4	No exceedences of the PSRGs except for several metals.
"	Subsurface Release	A.2.1.2.2	Former Septic Tank Area	NA	Historical research did not indicate any subsurface disposal areas on Site.		Potential Data Gap: One area of potential concern is the septic tank; no hazardous substances are known to have been disposed in this unit, but PCE found in gw. Need subsurface soil samples,
Groundwater Sample Collection	Install at least one well centrally within each area of release (only one known area of release, the 1,1,1-TCA spill of 5-20 gallons from the former degreaser area)	A.3.1 (Phase I Sampling)	Former 1,1,1-TCA AST/ Former Solvent Degreaser and Historic Spill of 5-20 Gallons	Aug. 2011 and Feb.. 2012	Installed Well TW-2 and then MW-2 (shallow)	Table 2-5; Figures 2-8a and 2-8b	1,1-DCE exceeded EPA MCL (but not the revised NC 2L standard) in shallow wells
"	"	A.3.2 (Phase II Sampling)	"	Feb. 2012 and May 2013	Vertical Extend of VOCs: Installed Well MW-02D (bedrock).	Table 2-5	: No exceedences in deeper well: Vertical extent of VOCs is determined.
"	"	A.3.2 (Phase II Sampling)	"	"	Horizontal Extent of VOCs: Installed Well MW-4 and MW-3 Downgradient	Table 2-5	No VOC exceedences in downgradient-most well MW-3
"	"	A.3.1 (Phase I Sampling)	Septic tank area (no confirmed release)	Feb. 2012 and May 2013	Installed Well MW-7 (shallow)	Table 2-5	PCE and manganese exceeded the PSRG
"	"	A.3.2 (Phase II Sampling)	"	"	Vertical Extent of VOCs: Installed Well and MW-7D (bedrock) and sample for VOCs	Table 2-5	PCE exceeded the PSRG in May 2013 but not Feb. 2012. Will continue to sample. Potential Data Gap.
"	"	A.3.2 (Phase II Sampling)	"	"	Horizontal Extent of VOCs: Installed Well MW-6 Downgradient and Sample for VOCs	Table 2-5	No VOC exceedences of PSRGs. Potential Data Gap: Does another downgradient well for horizontal extent of VOCs need to be installed?
"	"	A.3.1 (Phase I Sampling)	Alleged Outdoor Paint Burn Area	Feb. 2012 and May 2013	Installed Well MW-3 (shallow)	Table 2-5	No VOC or other constituent exceedences of PSRGs except iron and manganese
"	"	A.3.1 (Phase I Sampling)	Former Indoor Paint Storage Area	Feb. 2012 and May 2013	No known releases: Installed Well MW-1 Downgradient and Outside of Storage Area	Table 2-5	No VOC exceedences of PSRGs either event
"	"	A.3.1 (Phase I Sampling)	Former Indoor TCE Drum Storage Area	Feb. 2012 and May 2013	No known releases: Installed Well MW-4 Downgradient and Outside of Storage Area	Table 2-5	TCE and 1,1-DCE exceeded PSRG in both sampling events. Manganese also exceeded 2L standard. Potential Data Gaps: Is there a soil source for VOCs? Has horizontal and vertical extent of VOCs in groundwater been defined?
"	"	A.3.2 (Phase II Sampling)	"	Feb. 2012 and May 2013	Installed Well MW-03 (shallow)	Table 2-5	No VOC exceedences of PSRGs

TABLE 2-7
SUMMARY OF PARTIAL IMPLEMENTATION OF PHASE I RI REQUIREMENTS TO DATE
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

REC Program Guidance* General Requirement	Specific Requirement	Guidance Reference(s)	Area(s) of Potential Concern	Date(s) of Action	Action Conducted	Location in Work Plan of Results	Results/Comments
"	Install at least one background monitoring well	A.5.1.4	All Areas, Specifically Septic Tank Area	Aug. 2012 and Feb. 2013	Well TW-1 and then MW-5	Table 2-5	Well TW-1: No VOCs detected; Well MW-5: PCE Exceeded the PSRG. (Potential data gap: Suspect that PCE might be coming from upgradient and off-site industrial parcel; suggest another background/upgradient well at property line adj to wood truss facility)
Surface Water and Sediment Sampling	Phase I Sampling	A.4.1	Septic tank area (no confirmed release)	Not yet sampled	Septic Tank and Sand Filter Overflow historically was discharged to creek under NPDES Permit		Potential Data Gap: Need to sample surface and sediment at discharge and downstream for VOCs
"	Sample upstream surface waster and sediment	A.5.1.5	"	Not yet sampled	"		Potential Data Gap: Need to sample surface and sediment at downstream for VOCs
Standard Field Protocols	Field QC Samples	A.6.2a	All Areas	Jan. 2012, Feb. 2012, and May 2013	Sampled and analyzed duplicates, rinsate blanks, and trip blanks	Appendix J	No QC issues found that would impact data quality
Sample Analysis	Run library search for VOC and SVOC TICs	A.7.1.1.2	All Areas	Jan and Feb. 2013	TICs were run for soils and groundwater samples	Appendix J	The only TIC found was in SVOCs: an aldol concentrate, which turned out to be the extraction solvent for SVOCs.
"	Sampling and analysis for other parameters besides VOCs, SVOCs, and metals	A.7.1.1.3	All Areas where other constituents may have been used	NA	No known use of these constituents, other than maybe the septic tank for sanitary waste	Section 2.11	No sampling of these constituents recommended
"	If total chromium exceeds screening levels, must analyze for hexavalent chromium	A.7.2.1.4	Areas with tot Cr exceed	Jan. 2012, Feb. 2012, and May 2013	Hexavalent Cr analyses conducted	Tables 2-4 and 2-5	Only at well MW-2 in Feb. 2012 did hex Cr exceed PSRG. In May 2013, did not exceed PSRG. Potential Data Gap: Will continue to sample Cr at both MW-2 and MW-2D.
"	Analyze for 1,4-dioxane if 1,1,1-TCA is present.	??	NA	NA	No 1,1,1-TCA was detected in any soil or groundwater sample	Tables 2-4 and 2-5	No further analysis of 1,4-dioxane recommended unless 1,1,1-TCA is detected in future samples.

* Registered Environmental Consultant Program Implementation Guidance, November 2012 (NCDENR, 2012)
NA - Not applicable
bgs - Below ground surface

Table 2-8
Screening of Groundwater Data with PAGCs for Vapor Intrusion Evaluation
Ardee/Translite
Shelby, North Carolina

Sample Location	PAGC	MW-1	MW-1	MW-2	MW-2-a
Date Collected	(from Ind/Comm	02/02/12	05/09/13	02/02/12	02/02/12
Laboratory Sample ID	Vapor Intrusion	NB03008-012	92157594019	NB03008-010	NB03008-011
Screened Interval (Feet bgs)	Table (July 2012)	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7
VOCs by Method 8260B (ug/L)					
1,1,1,2-Tetrachloroethane	NS	NA	< 0.33	NA	NA
1,1,1-Trichloroethane	6,300	< 5	< 0.48	< 5	< 5
1,1,2,2-Tetrachloroethane	NS	< 5	< 0.4	< 5	< 5
1,1,2-Trichloro-1,2,2-Trifluoroethane	NS	< 5	NA	< 5	< 5
1,1,2-Trichloroethane	NS	< 5	< 0.29	< 5	< 5
1,1-Dichloroethane	330	< 5	< 0.32	**0.57 J//**	**0.51 J//**
1,1-Dichloroethene	162	**3.6 J//**	**3.6**	**13**	**13**
1,1-Dichloropropene	NS	NA	< 0.49	NA	NA
1,2,3-Trichlorobenzene	NS	NA	< 0.33	NA	NA
1,2,3-Trichloropropane	NS	NA	< 0.41	NA	NA
1,2,4-Trichlorobenzene	NS	< 5	< 0.35	< 5	< 5
1,2-Dibromo-3-chloropropane (DBCP)	NS	< 5	< 2.5	< 5	< 5
1,2-Dibromoethane (EDB)	NS	< 5	< 0.27	< 5	< 5
1,2-Dichlorobenzene	NS	< 5	< 0.3	< 5	< 5
1,2-Dichloroethane	98	< 5	< 0.12	< 5	< 5
1,2-Dichloropropane	NS	< 5	< 0.27	< 5	< 5
1,3-Dichlorobenzene	NS	< 5	< 0.24	< 5	< 5
1,3-Dichloropropane	NS	NA	< 0.28	NA	NA
1,4-Dichlorobenzene	NS	< 5	< 0.33	< 5	< 5
1,4-Dioxane	NS	< 250	NA	< 250	< 250
2,2-Dichloropropane	NS	NA	< 0.13	NA	NA
2-Butanone (MEK)	NS	< 10	< 0.96	< 10	< 10
2-Chlorotoluene	NS	NA	< 0.35	NA	NA
2-Hexanone	NS	< 10	< 0.46	< 10	< 10
4-Chlorotoluene	NS	NA	< 0.31	NA	NA
4-Methyl-2-pentanone	NS	< 10	< 0.33	< 10	< 10
Acetone	1.0 E+7	< 20	< 10	< 20	< 20
Benzene	70	< 5	< 0.25	< 5	< 5
Bromobenzene	NS	NA	< 0.3	NA	NA
Bromochloromethane	NS	NA	< 0.17	NA	NA
Bromodichloromethane	NS	< 5	< 0.18	< 5	< 5
Bromoform	NS	< 5	< 0.26	< 5	< 5
Bromomethane (Methyl bromide)	NS	< 5	< 0.29	< 5	< 5
Carbon disulfide	NS	< 5	NA	< 5	< 5
Carbon tetrachloride	NS	< 5	< 0.25	< 5	< 5
Chlorobenzene	NS	< 5	< 0.23	< 5	< 5
Chloroethane	NS	< 5	< 0.54	< 5	< 5
Chloroform	35	**11**	**8.2**	**9.5**	**9.4**
Chloromethane (Methyl chloride)	220	< 5	< 0.11	< 5	< 5
cis-1,2-Dichloroethene	140	< 5	< 0.19	< 5	< 5
cis-1,3-Dichloropropene	NS	< 5	< 0.13	< 5	< 5
Cyclohexane	NS	< 5	NA	< 5	< 5
Dibromochloromethane	NS	< 5	< 0.21	< 5	< 5
Dibromomethane	NS	NA	< 0.21	NA	NA
Dichlorodifluoromethane	NS	< 5	< 0.21	< 5	< 5
Diisopropyl ether	NS	NA	< 0.12	NA	NA
Ethylbenzene	NS	< 5	< 0.3	< 5	< 5
Hexachloro-1,3-butadiene	NS	NA	< 0.71	NA	NA
Isopropylbenzene	NS	< 5	NA	< 5	< 5
m&p-Xylene	NS	NA	< 0.66	NA	NA
Methyl acetate	NS	< 5	NA	< 5	< 5
Methyl tertiary butyl ether (MTBE)	NS	< 5	< 0.21	< 5	< 5
Methylcyclohexane	NS	< 5	NA	< 5	< 5
Methylene chloride	NS	< 5	< 0.97	< 5	< 5
Naphthalene	NS	NA	< 0.24	NA	NA
o-Xylene	NS	NA	< 0.23	NA	NA
p-Isopropyltoluene	NS	NA	< 0.31	NA	NA
Styrene	NS	< 5	< 0.26	< 5	< 5
Tetrachloroethene	49	< 5	< 0.46	**0.45 J//**	**0.48 J//**
Toluene	NS	< 5	< 0.26	< 5	< 5
trans-1,2-Dichloroethene	NS	< 5	< 0.49	< 5	< 5
trans-1,3-Dichloropropene	NS	< 5	< 0.26	< 5	< 5
Trichloroethene	4.4	< 5	< 0.47	**0.8 J//**	**0.75 J//**
Trichlorofluoromethane	NS	< 5	< 0.2	< 5	< 5
Vinyl acetate	NS	NA	< 0.35	NA	NA
Vinyl chloride	NS	< 2	< 0.62	< 2	< 2
Xylenes (total)	NS	< 5	< 0.66	< 5	< 5

Table 2-8
Screening of Groundwater Data with PAGCs for Vapor Intrusion Evaluation
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-2	MW-2-a	MW-2D	MW-2D	MW-3	MW-3
Date Collected	2L .0202	05/09/13	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	92157594021	92157594022	NB03008-009	92157594020	NB03008-006	92157594016
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	49.7-59.7	49.7-59.7	19.7-29.7	19.7-29.7
VOCs by Method 8260B (ug/L)							
1,1,1,2-Tetrachloroethane	NS	< 0.33	< 0.33	NA	< 0.33	NA	< 0.33
1,1,1-Trichloroethane	6,300	< 0.48	< 0.48	< 5	< 0.48	< 5	< 0.48
1,1,2,2-Tetrachloroethane	NS	< 0.4	< 0.4	< 5	< 0.4	< 5	< 0.4
1,1,2-Trichloro-1,2,2-Trifluoroethane	NS	NA	NA	< 5	NA	< 5	NA
1,1,2-Trichloroethane	NS	< 0.29	< 0.29	< 5	< 0.29	< 5	< 0.29
1,1-Dichloroethane	330	**1.3**	**1.5**	< 5	< 0.32	< 5	< 0.32
1,1-Dichloroethene	162	**62.9**	**69.4**	**0.55 J//**	< 0.56	< 5	< 0.56
1,1-Dichloropropene	NS	< 0.49	< 0.49	NA	< 0.49	NA	< 0.49
1,2,3-Trichlorobenzene	NS	< 0.33	< 0.33	NA	< 0.33	NA	< 0.33
1,2,3-Trichloropropane	NS	< 0.41	< 0.41	NA	< 0.41	NA	< 0.41
1,2,4-Trichlorobenzene	NS	< 0.35	< 0.35	< 5	< 0.35	< 5	< 0.35
1,2-Dibromo-3-chloropropane (DBCP)	NS	< 2.5	< 2.5	< 5	< 2.5	< 5	< 2.5
1,2-Dibromoethane (EDB)	NS	< 0.27	< 0.27	< 5	< 0.27	< 5	< 0.27
1,2-Dichlorobenzene	NS	< 0.3	< 0.3	< 5	< 0.3	< 5	< 0.3
1,2-Dichloroethane	98	**1.3**	**1.5**	< 5	< 0.12	< 5	< 0.12
1,2-Dichloropropane	NS	< 0.27	< 0.27	< 5	< 0.27	< 5	< 0.27
1,3-Dichlorobenzene	NS	< 0.24	< 0.24	< 5	< 0.24	< 5	< 0.24
1,3-Dichloropropane	NS	< 0.28	< 0.28	NA	< 0.28	NA	< 0.28
1,4-Dichlorobenzene	NS	< 0.33	< 0.33	< 5	< 0.33	< 5	< 0.33
1,4-Dioxane	NS	NA	NA	< 250	NA	< 250	NA
2,2-Dichloropropane	NS	< 0.13	< 0.13	NA	< 0.13	NA	< 0.13
2-Butanone (MEK)	NS	< 0.96	< 0.96	< 10	< 0.96	< 10	< 0.96
2-Chlorotoluene	NS	< 0.35	< 0.35	NA	< 0.35	NA	< 0.35
2-Hexanone	NS	< 0.46	< 0.46	< 10	< 0.46	< 10	< 0.46
4-Chlorotoluene	NS	< 0.31	< 0.31	NA	< 0.31	NA	< 0.31
4-Methyl-2-pentanone	NS	< 0.33	< 0.33	< 10	< 0.33	< 10	< 0.33
Acetone	1.0 E+7	< 10	< 10	< 20	< 10	**9 J//**	< 10
Benzene	70	< 0.25	< 0.25	< 5	< 0.25	**0.34 J//**	< 0.25
Bromobenzene	NS	< 0.3	< 0.3	NA	< 0.3	NA	< 0.3
Bromochloromethane	NS	< 0.17	< 0.17	NA	< 0.17	NA	< 0.17
Bromodichloromethane	NS	< 0.18	< 0.18	< 5	< 0.18	< 5	< 0.18
Bromoform	NS	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
Bromomethane (Methyl bromide)	NS	< 0.29	< 0.29	< 5	< 0.29	< 5	< 0.29
Carbon disulfide	NS	NA	NA	< 5	NA	**0.45 J//**	NA
Carbon tetrachloride	NS	< 0.25	< 0.25	< 5	< 0.25	< 5	< 0.25
Chlorobenzene	NS	< 0.23	< 0.23	< 5	< 0.23	< 5	< 0.23
Chloroethane	NS	< 0.54	< 0.54	< 5	< 0.54	< 5	< 0.54
Chloroform	35	**9.5**	**9.5**	**10**	**9.1**	< 5	< 0.14
Chloromethane (Methyl chloride)	220	< 0.11	< 0.11	< 5	< 0.11	< 5	< 0.11
cis-1,2-Dichloroethene	140	< 0.19	< 0.19	< 5	< 0.19	< 5	< 0.19
cis-1,3-Dichloropropene	NS	< 0.13	< 0.13	< 5	< 0.13	< 5	< 0.13
Cyclohexane	NS	NA	NA	< 5	NA	< 5	NA
Dibromochloromethane	NS	< 0.21	< 0.21	< 5	< 0.21	< 5	< 0.21
Dibromomethane	NS	< 0.21	< 0.21	NA	< 0.21	NA	< 0.21
Dichlorodifluoromethane	NS	< 0.21	< 0.21	< 5	< 0.21	< 5	< 0.21
Diisopropyl ether	NS	< 0.12	< 0.12	NA	< 0.12	NA	< 0.12
Ethylbenzene	NS	< 0.3	< 0.3	< 5	< 0.3	< 5	< 0.3
Hexachloro-1,3-butadiene	NS	< 0.71	< 0.71	NA	< 0.71	NA	< 0.71
Isopropylbenzene	NS	NA	NA	< 5	NA	< 5	NA
m&p-Xylene	NS	< 0.66	< 0.66	NA	< 0.66	NA	< 0.66
Methyl acetate	NS	NA	NA	< 5	NA	< 5	NA
Methyl tertiary butyl ether (MTBE)	NS	< 0.21	< 0.21	< 5	< 0.21	< 5	< 0.21
Methylcyclohexane	NS	NA	NA	< 5	NA	< 5	NA
Methylene chloride	NS	< 0.97	< 0.97	< 5	< 0.97	< 5	< 0.97
Naphthalene	NS	< 0.24	< 0.24	NA	< 0.24	NA	< 0.24
o-Xylene	NS	< 0.23	< 0.23	NA	< 0.23	NA	< 0.23
p-Isopropyltoluene	NS	< 0.31	< 0.31	NA	< 0.31	NA	< 0.31
Styrene	NS	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
Tetrachloroethene	49	**5.1**	**5.7**	< 5	< 0.46	< 5	< 0.46
Toluene	NS	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
trans-1,2-Dichloroethene	NS	< 0.49	< 0.49	< 5	< 0.49	< 5	< 0.49
trans-1,3-Dichloropropene	NS	< 0.26	< 0.26	< 5	< 0.26	< 5	< 0.26
Trichloroethene	4.4	**2.7**	**3.2**	< 5	< 0.47	< 5	< 0.47
Trichlorofluoromethane	NS	< 0.2	< 0.2	< 5	< 0.2	< 5	< 0.2
Vinyl acetate	NS	< 0.35	< 0.35	NA	< 0.35	NA	< 0.35
Vinyl chloride	NS	< 0.62	< 0.62	< 2	< 0.62	< 2	< 0.62
Xylenes (total)	NS	< 0.66	< 0.66	< 5	< 0.66	< 5	< 0.66

Table 2-8
Screening of Groundwater Data with PAGCs for Vapor Intrusion Evaluation
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-4	MW-4	MW-4-a	MW-5	MW-5
Date Collected	2L .0202	02/02/12	05/09/13	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-007	92157594017	92157594018	NB03008-005	92157594013
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7
VOCs by Method 8260B (ug/L)						
1,1,1,2-Tetrachloroethane	NS	NA	< 0.33	< 0.33	NA	< 0.33
1,1,1-Trichloroethane	6,300	< 5	< 0.48	< 0.48	< 5	< 0.48
1,1,2,2-Tetrachloroethane	NS	< 5	< 0.4	< 0.4	< 5	< 0.4
1,1,2-Trichloro-1,2,2-Trifluoroethane	NS	< 5	NA	NA	< 5	NA
1,1,2-Trichloroethane	NS	< 5	< 0.29	< 0.29	< 5	< 0.29
1,1-Dichloroethane	330	< 5	< 0.32	< 0.32	< 5	< 0.32
1,1-Dichloroethene	162	**18**	**12.7**	**20.7**	< 5	< 0.56
1,1-Dichloropropene	NS	NA	< 0.49	< 0.49	NA	< 0.49
1,2,3-Trichlorobenzene	NS	NA	< 0.33	< 0.33	NA	< 0.33
1,2,3-Trichloropropane	NS	NA	< 0.41	< 0.41	NA	< 0.41
1,2,4-Trichlorobenzene	NS	< 5	< 0.35	< 0.35	< 5	< 0.35
1,2-Dibromo-3-chloropropane (DBCP)	NS	< 5	< 2.5	< 2.5	< 5	< 2.5
1,2-Dibromoethane (EDB)	NS	< 5	< 0.27	< 0.27	< 5	< 0.27
1,2-Dichlorobenzene	NS	< 5	< 0.3	< 0.3	< 5	< 0.3
1,2-Dichloroethane	98	< 5	< 0.12	< 0.12	< 5	< 0.12
1,2-Dichloropropane	NS	< 5	< 0.27	< 0.27	< 5	< 0.27
1,3-Dichlorobenzene	NS	< 5	< 0.24	< 0.24	< 5	< 0.24
1,3-Dichloropropane	NS	NA	< 0.28	< 0.28	NA	< 0.28
1,4-Dichlorobenzene	NS	< 5	< 0.33	< 0.33	< 5	< 0.33
1,4-Dioxane	NS	< 250	NA	NA	< 250	NA
2,2-Dichloropropane	NS	NA	< 0.13	< 0.13	NA	< 0.13
2-Butanone (MEK)	NS	< 10	< 0.96	< 0.96	< 10	< 0.96
2-Chlorotoluene	NS	NA	< 0.35	< 0.35	NA	< 0.35
2-Hexanone	NS	< 10	< 0.46	< 0.46	< 10	< 0.46
4-Chlorotoluene	NS	NA	< 0.31	< 0.31	NA	< 0.31
4-Methyl-2-pentanone	NS	< 10	< 0.33	< 0.33	< 10	< 0.33
Acetone	1.0 E+7	< 20	< 10	< 10	< 20	< 10
Benzene	70	< 5	< 0.25	< 0.25	< 5	< 0.25
Bromobenzene	NS	NA	< 0.3	< 0.3	NA	< 0.3
Bromochloromethane	NS	NA	< 0.17	< 0.17	NA	< 0.17
Bromodichloromethane	NS	< 5	< 0.18	< 0.18	< 5	< 0.18
Bromoform	NS	< 5	< 0.26	< 0.26	< 5	< 0.26
Bromomethane (Methyl bromide)	NS	< 5	< 0.29	< 0.29	< 5	< 0.29
Carbon disulfide	NS	< 5	NA	NA	< 5	NA
Carbon tetrachloride	NS	< 5	< 0.25	< 0.25	< 5	< 0.25
Chlorobenzene	NS	< 5	< 0.23	< 0.23	< 5	< 0.23
Chloroethane	NS	< 5	< 0.54	< 0.54	< 5	< 0.54
Chloroform	35	< 5	< 0.14	**1.5**	< 5	< 0.14
Chloromethane (Methyl chloride)	220	< 5	< 0.11	< 0.11	< 5	< 0.11
cis-1,2-Dichloroethene	140	< 5	< 0.19	< 0.19	< 5	< 0.19
cis-1,3-Dichloropropene	NS	< 5	< 0.13	< 0.13	< 5	< 0.13
Cyclohexane	NS	< 5	NA	NA	< 5	NA
Dibromochloromethane	NS	< 5	< 0.21	< 0.21	< 5	< 0.21
Dibromomethane	NS	NA	< 0.21	< 0.21	NA	< 0.21
Dichlorodifluoromethane	NS	< 5	< 0.21	< 0.21	< 5	< 0.21
Diisopropyl ether	NS	NA	< 0.12	< 0.12	NA	< 0.12
Ethylbenzene	NS	< 5	< 0.3	< 0.3	< 5	< 0.3
Hexachloro-1,3-butadiene	NS	NA	< 0.71	< 0.71	NA	< 0.71
Isopropylbenzene	NS	< 5	NA	NA	< 5	NA
m&p-Xylene	NS	NA	< 0.66	< 0.66	NA	< 0.66
Methyl acetate	NS	< 5	NA	NA	< 5	NA
Methyl tertiary butyl ether (MTBE)	NS	< 5	< 0.21	< 0.21	< 5	< 0.21
Methylcyclohexane	NS	< 5	NA	NA	< 5	NA
Methylene chloride	NS	< 5	< 0.97	< 0.97	< 5	< 0.97
Naphthalene	NS	NA	< 0.24	< 0.24	NA	< 0.24
o-Xylene	NS	NA	< 0.23	< 0.23	NA	< 0.23
p-Isopropyltoluene	NS	NA	< 0.31	< 0.31	NA	< 0.31
Styrene	NS	< 5	< 0.26	< 0.26	< 5	< 0.26
Tetrachloroethene	49	< 5	< 0.46	< 0.46	**7.2**	**3.7**
Toluene	NS	< 5	< 0.26	< 0.26	< 5	< 0.26
trans-1,2-Dichloroethene	NS	< 5	< 0.49	< 0.49	< 5	< 0.49
trans-1,3-Dichloropropene	NS	< 5	< 0.26	< 0.26	< 5	< 0.26
Trichloroethene	4.4	**25**	**15.3**	**23.6**	< 5	< 0.47
Trichlorofluoromethane	NS	< 5	< 0.2	< 0.2	< 5	< 0.2
Vinyl acetate	NS	NA	< 0.35	< 0.35	NA	< 0.35
Vinyl chloride	NS	< 2	< 0.62	< 0.62	< 2	< 0.62
Xylenes (total)	NS	< 5	< 0.66	< 0.66	< 5	< 0.66

Table 2-8
Screening of Groundwater Data with PAGCs for Vapor Intrusion Evaluation
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	MW-6	MW-6	MW-7	MW-7	MW-7D	MW-7D
Date Collected	2L .0202	02/02/12	05/09/13	02/02/12	05/09/13	02/02/12	05/09/13
Laboratory Sample ID	Groundwater	NB03008-001	92157594012	NB03008-004	92157594015	NB03008-003	92157594014
Screened Interval (Feet bgs)	Standard	24.7-34.7	24.7-34.7	24.7-34.7	24.7-34.7	44.7-54.7	44.7-54.7
VOCs by Method 8260B (ug/L)							
1,1,1,2-Tetrachloroethane	NS	NA	< 0.33	NA	< 0.33	NA	< 0.33
1,1,1-Trichloroethane	6,300	< 5	< 0.48	< 5	< 0.48	< 5	< 0.48
1,1,2,2-Tetrachloroethane	NS	< 5	< 0.4	< 5	< 0.4	< 5	< 0.4
1,1,2-Trichloro-1,2,2-Trifluoroethane	NS	< 5	NA	< 5	NA	< 5	NA
1,1,2-Trichloroethane	NS	< 5	< 0.29	< 5	< 0.29	< 5	< 0.29
1,1-Dichloroethane	330	< 5	< 0.32	< 5	< 0.32	< 5	< 0.32
1,1-Dichloroethene	162	< 5	< 0.56	< 5	< 0.56	< 5	< 0.56
1,1-Dichloropropene	NS	NA	< 0.49	NA	< 0.49	NA	< 0.49
1,2,3-Trichlorobenzene	NS	NA	< 0.33	NA	< 0.33	NA	< 0.33
1,2,3-Trichloropropane	NS	NA	< 0.41	NA	< 0.41	NA	< 0.41
1,2,4-Trichlorobenzene	NS	< 5	< 0.35	< 5	< 0.35	< 5	< 0.35
1,2-Dibromo-3-chloropropane (DBCP)	NS	< 5	< 2.5	< 5	< 2.5	< 5	< 2.5
1,2-Dibromoethane (EDB)	NS	< 5	< 0.27	< 5	< 0.27	< 5	< 0.27
1,2-Dichlorobenzene	NS	< 5	< 0.3	< 5	< 0.3	< 5	< 0.3
1,2-Dichloroethane	98	< 5	< 0.12	< 5	< 0.12	< 5	< 0.12
1,2-Dichloropropane	NS	< 5	< 0.27	< 5	< 0.27	< 5	< 0.27
1,3-Dichlorobenzene	NS	< 5	< 0.24	< 5	< 0.24	< 5	< 0.24
1,3-Dichloropropane	NS	NA	< 0.28	NA	< 0.28	NA	< 0.28
1,4-Dichlorobenzene	NS	< 5	< 0.33	< 5	< 0.33	< 5	< 0.33
1,4-Dioxane	NS	< 250	NA	< 250	NA	< 250	NA
2,2-Dichloropropane	NS	NA	< 0.13	NA	< 0.13	NA	< 0.13
2-Butanone (MEK)	NS	< 10	< 0.96	< 10	< 0.96	< 10	< 0.96
2-Chlorotoluene	NS	NA	< 0.35	NA	< 0.35	NA	< 0.35
2-Hexanone	NS	< 10	< 0.46	< 10	< 0.46	< 10	< 0.46
4-Chlorotoluene	NS	NA	< 0.31	NA	< 0.31	NA	< 0.31
4-Methyl-2-pentanone	NS	< 10	< 0.33	< 10	< 0.33	< 10	< 0.33
Acetone	1.0 E+7	< 20	< 10	< 20	< 10	< 20	< 10
Benzene	70	< 5	< 0.25	< 5	< 0.25	< 5	< 0.25
Bromobenzene	NS	NA	< 0.3	NA	< 0.3	NA	< 0.3
Bromochloromethane	NS	NA	< 0.17	NA	< 0.17	NA	< 0.17
Bromodichloromethane	NS	< 5	< 0.18	< 5	< 0.18	< 5	< 0.18
Bromoform	NS	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
Bromomethane (Methyl bromide)	NS	< 5	< 0.29	< 5	< 0.29	< 5	< 0.29
Carbon disulfide	NS	< 5	NA	< 5	NA	< 5	NA
Carbon tetrachloride	NS	< 5	< 0.25	< 5	< 0.25	< 5	< 0.25
Chlorobenzene	NS	< 5	< 0.23	< 5	< 0.23	< 5	< 0.23
Chloroethane	NS	< 5	< 0.54	< 5	< 0.54	< 5	< 0.54
Chloroform	35	< 5	< 0.14	< 5	< 0.14	< 5	< 0.14
Chloromethane (Methyl chloride)	220	< 5	< 0.11	< 5	< 0.11	< 5	< 0.11
cis-1,2-Dichloroethene	140	< 5	< 0.19	< 5	< 0.19	< 5	< 0.19
cis-1,3-Dichloropropene	NS	< 5	< 0.13	< 5	< 0.13	< 5	< 0.13
Cyclohexane	NS	< 5	NA	< 5	NA	< 5	NA
Dibromochloromethane	NS	< 5	< 0.21	< 5	< 0.21	< 5	< 0.21
Dibromomethane	NS	NA	< 0.21	NA	< 0.21	NA	< 0.21
Dichlorodifluoromethane	NS	< 5	< 0.21	< 5	< 0.21	< 5	< 0.21
Diisopropyl ether	NS	NA	< 0.12	NA	< 0.12	NA	< 0.12
Ethylbenzene	NS	< 5	< 0.3	< 5	< 0.3	< 5	< 0.3
Hexachloro-1,3-butadiene	NS	NA	< 0.71	NA	< 0.71	NA	< 0.71
Isopropylbenzene	NS	< 5	NA	< 5	NA	< 5	NA
m&p-Xylene	NS	NA	< 0.66	NA	< 0.66	NA	< 0.66
Methyl acetate	NS	< 5	NA	< 5	NA	< 5	NA
Methyl tertiary butyl ether (MTBE)	NS	< 5	< 0.21	< 5	< 0.21	< 5	< 0.21
Methylcyclohexane	NS	< 5	NA	< 5	NA	< 5	NA
Methylene chloride	NS	< 5	< 0.97	< 5	< 0.97	< 5	< 0.97
Naphthalene	NS	NA	< 0.24	NA	< 0.24	NA	< 0.24
o-Xylene	NS	NA	< 0.23	NA	< 0.23	NA	< 0.23
p-Isopropyltoluene	NS	NA	< 0.31	NA	< 0.31	NA	< 0.31
Styrene	NS	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
Tetrachloroethene	49	< 5	< 0.46	**12**	**5.2**	**0.7 J//**	**3.2**
Toluene	NS	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
trans-1,2-Dichloroethene	NS	< 5	< 0.49	< 5	< 0.49	< 5	< 0.49
trans-1,3-Dichloropropene	NS	< 5	< 0.26	< 5	< 0.26	< 5	< 0.26
Trichloroethene	4.4	< 5	< 0.47	< 5	< 0.47	< 5	< 0.47
Trichlorofluoromethane	NS	< 5	< 0.2	< 5	< 0.2	< 5	< 0.2
Vinyl acetate	NS	NA	< 0.35	NA	< 0.35	NA	< 0.35
Vinyl chloride	NS	< 2	< 0.62	< 2	< 0.62	< 2	< 0.62
Xylenes (total)	NS	< 5	< 0.66	< 5	< 0.66	< 5	< 0.66

Table 2-8
Screening of Groundwater Data with PAGCs for Vapor Intrusion Evaluation
Ardee/Translite
Shelby, North Carolina

Sample Location	15A NCAC	TW-1	TW-2	TW-3	TW-5
Date Collected	2L .0202	08/26/11	08/26/11	08/26/11	08/26/11
Laboratory Sample ID	Groundwater	MH27005-003	MH27005-004	MH27005-005	MH27005-006
Screened Interval (Feet bgs)	Standard	22-27	27-37	22-25	15-21
VOCs by Method 8260B (ug/L)					
1,1,1,2-Tetrachloroethane	NS	NA	NA	NA	NA
1,1,1-Trichloroethane	6,300	< 5	**0.36 J**	< 5	< 5
1,1,2,2-Tetrachloroethane	NS	< 5	< 5	< 5	< 5
1,1,2-Trichloro-1,2,2-Trifluoroethane	NS	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	NS	< 5	< 5	< 5	< 5
1,1-Dichloroethane	330	< 5	**4.4 J**	< 5	< 5
1,1-Dichloroethene	162	< 5	**250**	< 5	< 5
1,1-Dichloropropene	NS	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NS	NA	NA	NA	NA
1,2,3-Trichloropropane	NS	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NS	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane (DBCP)	NS	< 5	< 5	< 5	< 5
1,2-Dibromoethane (EDB)	NS	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	NS	< 5	< 5	< 5	< 5
1,2-Dichloroethane	98	< 5	**2 J**	< 5	< 5
1,2-Dichloropropane	NS	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	NS	< 5	< 5	< 5	< 5
1,3-Dichloropropane	NS	NA	NA	NA	NA
1,4-Dichlorobenzene	NS	< 5	< 5	< 5	< 5
1,4-Dioxane	NS	NA	NA	NA	NA
2,2-Dichloropropane	NS	NA	NA	NA	NA
2-Butanone (MEK)	NS	< 10	< 10	< 10	< 10
2-Chlorotoluene	NS	NA	NA	NA	NA
2-Hexanone	NS	< 10	< 10	< 10	< 10
4-Chlorotoluene	NS	NA	NA	NA	NA
4-Methyl-2-pentanone	NS	< 10	< 10	< 10	< 10
Acetone	1.0 E+7	< 20	< 20	< 20	< 20
Benzene	70	< 5	**0.26 J**	< 5	< 5
Bromobenzene	NS	NA	NA	NA	NA
Bromochloromethane	NS	NA	NA	NA	NA
Bromodichloromethane	NS	< 5	< 5	< 5	< 5
Bromoform	NS	< 5	< 5	< 5	< 5
Bromomethane (Methyl bromide)	NS	< 5	< 5	< 5	< 5
Carbon disulfide	NS	< 5	< 5	< 5	< 5
Carbon tetrachloride	NS	< 5	< 5	< 5	< 5
Chlorobenzene	NS	< 5	< 5	< 5	< 5
Chloroethane	NS	< 5	< 5	< 5	< 5
Chloroform	35	< 5	**13**	< 5	< 5
Chloromethane (Methyl chloride)	220	**0.51 J**	< 5	< 5	< 5
cis-1,2-Dichloroethene	140	< 5	**1.2 J**	< 5	< 5
cis-1,3-Dichloropropene	NS	< 5	< 5	< 5	< 5
Cyclohexane	NS	< 5	< 5	< 5	< 5
Dibromochloromethane	NS	< 5	< 5	< 5	< 5
Dibromomethane	NS	NA	NA	NA	NA
Dichlorodifluoromethane	NS	< 5	< 5	< 5	< 5
Diisopropyl ether	NS	NA	NA	NA	NA
Ethylbenzene	NS	< 5	< 5	< 5	< 5
Hexachloro-1,3-butadiene	NS	NA	NA	NA	NA
Isopropylbenzene	NS	< 5	< 5	< 5	< 5
m&p-Xylene	NS	NA	NA	NA	NA
Methyl acetate	NS	< 5	< 5	< 5	< 5
Methyl tertiary butyl ether (MTBE)	NS	< 5	< 5	< 5	< 5
Methylcyclohexane	NS	< 5	< 5	< 5	< 5
Methylene chloride	NS	< 5	< 5	< 5	< 5
Naphthalene	NS	NA	NA	NA	NA
o-Xylene	NS	NA	NA	NA	NA
p-Isopropyltoluene	NS	NA	NA	NA	NA
Styrene	NS	< 5	< 5	< 5	< 5
Tetrachloroethene	49	< 5	**19**	**6**	< 5
Toluene	NS	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	NS	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	NS	< 5	< 5	< 5	< 5
Trichloroethene	4.4	< 5	**5.5**	< 5	< 5
Trichlorofluoromethane	NS	< 5	< 5	< 5	< 5
Vinyl acetate	NS	NA	NA	NA	NA
Vinyl chloride	NS	< 2	< 2	< 2	< 2
Xylenes (total)	NS	< 5	< 5	< 5	< 5

Notes:
Bold font and shading indicate the analyte was detected.
Bold outline indicates the concentration exceeds the Preliminary Acceptable Groundwater Concentration (PAGC) (ug/L).
NS - Not screened because constituent not detected in any sample
Only VOCs are screened, and only those with constituent detections have the PAGC included.
ug/L - micrograms per liter (parts per billion)
See Table 2-6 for explanation of data qualifiers

TABLE 3-1
PROPOSED ADDITIONAL RI SOIL AND SEDIMENT SAMPLING PROGRAM
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

Location/Area of Concern	Boring No.	Boring Sample Depth Intervals (ft bgs)	NC Certified Laboratory Analyses			Field Screening Parameters		Comments
			VOCs Plus TICs (Method 8260)	SVOCs Plus TICs (Method 8270)	TAL Metals (Method 6010/7471)	PID Headspace	ColorTec	
Former Indoor Degreaser	SB-DG-1	0-0.5; 0.5-1; 1-5; 9-10	X	X	X	X		All intervals for lab analysis
	SB-DG-2	0-0.5; 0.5-1; 1-5; 9-10	X	X	X	X		All intervals for lab analysis
Former Outdoor 1,1,1-TCA AST	SB-SA-10	0-0.5; 0.5-1; 4-5*	X		X	X		Analyze at least top interval
	SB-SA-11	0-0.5; 0.5-1; 4-5*	X			X		Analyze at least top interval
	SB-SA-12	0-0.5; 0.5-1; 4-5*	X	X	X	X		Analyze at least top interval
	SB-SA-13	0-0.5; 0.5-1; 4-5*	X			X		Analyze at least top interval
	SB-SA-14	0-0.5; 0.5-1; 4-5*	X		X	X		Analyze at least top interval
	SB-SA-15	0-0.5; 0.5-1; 4-5*	X	X		X		Analyze at least top interval
	MW-8	0-0.5; 0.5-1; 4-5*	X		X	X		Analyze at least top interval
Former Septic Tank Area	SB-SA-16	0.5-1.0; 4-5; 9-10; 14-15; 19-20; 24-25	X	X	X	X		All intervals for lab analysis
	SB-SA-17	0.5-1.0; 4-5; 9-10; 14-15; 19-20; 24-25	X		X	X		Lab analysis highest PID reading
	MW-9	0-0.5; 0.5-1; 4-5*	X		X	X		Lab analysis highest PID reading
	MW-10 (Background)	0-0.5; 0.5-1; 4-5, 9-10; 14-15; 19-20; 20-25	X	X	X	X		Lab analysis highest PID reading
	SED-1	0-1	X	X	X			One sample per location
	SED-2	0-1	X	X	X			One sample per location
	SED-3	0-1	X					One sample per location
	SED-4	0-1	X	X	X			One sample per location
Former Indoor TCE Drum Storage Area/Former Outdoor Paint burn Area	SB-SA-18	0-0.5; 0.5-1*	X		X	X		Analyze at least top interval
	SB-SA-19	0-0.5; 0.5-1*	X			X		Analyze at least top interval
	SB-SA-20	0-0.5; 0.5-1*	X	X	X	X		Analyze at least top interval
	SB-SA-21	0-0.5; 0.5-1*	X			X		Analyze at least top interval
	SB-SA-22	0-0.5; 0.5-1*	X			X		Analyze at least top interval

TABLE 3-1
PROPOSED ADDITIONAL RI SOIL AND SEDIMENT SAMPLING PROGRAM
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

Location/Area of Concern	Boring No.	Boring Sample Depth Intervals (ft bgs)	NC Certified Laboratory Analyses			Field Screening Parameters		Comments
			VOCs Plus TICs (Method 8260)	SVOCs Plus TICs (Method 8270)	TAL Metals (Method 6010/7471)	PID Headspace	ColorTec	
Former Indoor TCE Drum Storage Area/Former Outdoor Paint burn Area (Continued)	SB-SA-24	0-0.5; 0.5-1*	X			X		Analyze at least top interval
	SB-SA-25	0-0.5; 0.5-1*	X			X		Analyze at least top interval
	MW-11	0-0.5; 0.5-1; 4-5*	X	X	X	X		Two samples analyzed this boring
	MW-4D	0-0.5; 0.5-1*	X			X		Analyze at least top interval
Additional Background Soil Samples	BG-4A	0.5-1.0			X	X		
	BG-5A	0.5-1.0			X	X		
	BG-8A	0.5-1.0			X	X		
	BG-9A	0.5-1.0			X	X		
		Total No. of Primary Samples	26	11	19			
QA/QC Samples	Duplicate		2	1	1	X		
	Equipment Blank		2	1	1			
	MS/MSD		2	1	1			
		Total No. of Samples + QA/QC	32	14	22			

* If VOC-impacted soils are detected with PID at deepest interval, further depths should be penetrated.
bgs - Below ground surface
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
TAL - Target Analyte :List <(Metals)
TICs - Tentatively Identified Compounds
SED - Sediment Sample from Unnamed Stream

TABLE 3-2
PROPOSED ADDITIONAL RI GROUNDWATER AND SURFACE WATER SAMPLING PROGRAM
ARDEE TRANSLITE, 639 WASHBURN SWITCH ROAD, SHELBY, NC

Location/Area of Concern	New Well or New Location ID	General Location of New Well	NC Certified Laboratory Analyses					Field Screening and Analysis		Comments
			VOCs Plus TICs (Method 8260)	SVOCs Plus TICs (Method 8270)	TAL Metals (Method 6010/7471)	Hexavalent Chromium (Method 3500)	1,4-Dioxane (Method 8260 SIM)	Field Screening and Geochemistry	Field Parameters and Indicators	
Former Indoor Degreaser	None at this Time	None								No well; do not want to make conduit under building
Former Outdoor 1,1,1-TCA AST	MW-8	DG of existing wells MW-1 and MW-2	X		X	X	X		X	
	MW-11	DG of existing wells MW-2 and MW-4	X	X	X	X	X		X	
Former Septic Tank Area	MW-9	DG of existing wells MW-5 and MW-6	X						X	
	MW-7D-BR	Vertical extent of contamination from well MW-7D	X						X	Contingent well: may be installed at a later date
	MW-10 (Background)	Upgradient well adjacent to Piedmont Components site	X	X	X				X	
	SW-1	Upstream, off-site creek location	X	X	X				X	
	SW-2	Discharge point location	X	X	X				X	
	SW-3	Downstream and on-site location	X		X				X	
	SW-4	Downstream and off-site location	X	X	X				X	
Former Indoor TCE Drum Storage Area/Former Outdoor Paint burn Area	MW-8	see above	see above	see above	see above		see above	see above	see above	
	MW-4D	Vertical extent of contamination from well MW-4	X				X		X	
Existing Wells	MW-2		X		X	X	X			
	MW-3		X		X	X	X			
	MW-4		X		X	X	X			
		Total No. of Primary Samples	13	5	10	5	6			
QA/QC Samples	Duplicate		X	X	X	1				
	Equipment Blank		X	X	X					
	Trip Blank		X							
	MS/MSD		X	X	X					
		Total No. of Samples + QA/QC	16	8	12	4	5			

* If VOC-impacted soils are detected with PID at deepest interval, further depths should be penetrated.
bgs - Below ground surface
DG - Downgradient
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
TAL - Target Analyte :List <(Metals)
TICs - Tentatively Identified Compounds

APPENDIX A

ENVIRONMENTAL DATA RESOURCES DATABASE REPORT

Ardee Translite
639 Washburn Switch Road
Shelby, NC 28150

Inquiry Number: 03648009.2r
June 25, 2013

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

639 WASHBURN SWITCH ROAD
SHELBY, NC 28150

COORDINATES

Latitude (North):	35.3127000 - 35˚ 18' 45.72''
Longitude (West):	81.6079000 - 81˚ 36' 28.44''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	444738.3
UTM Y (Meters):	3907692.2
Elevation:	897 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	35081-C5 SHELBY, NC
Most Recent Revision:	2002
West Map:	35081-C6 BOILING SPRINGS NORTH, NC
Most Recent Revision:	2002

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 7 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
SPECIALTY LIGHTING INC 639 WASHBURN SWITCH RD SHELBY, NC 28150	RCRA-CESQG FINDS	NCD986171007
HESS AMERICA 639 WASHBURN SWITCH RD SHELBY, NC 28151	RCRA-CESQG	NCR000010975
JJI LIGHTING GROUP 639 WASHBURN SWITCH RD SHELBY, NC 28150	FINDS	N/A

EXECUTIVE SUMMARY

ARDEE/TRANSLITE 639 WASHBURN SWITCH RD SHELBY, NC	SHWS	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

EXECUTIVE SUMMARY

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

NC HSDS..... Hazardous Substance Disposal Site

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... List of Solid Waste Facilities
OLI..... Old Landfill Inventory

State and tribal leaking storage tank lists

LUST TRUST..... State Trust Fund Database
LAST..... Leaking Aboveground Storage Tanks
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Petroleum Underground Storage Tank Database
AST..... AST Database
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL..... No Further Action Sites With Land Use Restrictions Monitoring

State and tribal voluntary cleanup sites

VCP..... Responsible Party Voluntary Action Sites
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Projects Inventory

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
HIST LF..... Solid Waste Facility Listing
SWRCY..... Recycling Center Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
US HIST CDL..... National Clandestine Laboratory Register

EXECUTIVE SUMMARY

Local Land Records

LIENS 2	CERCLA Lien Information

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
SPILLS 90	SPILLS 90 data from FirstSearch
SPILLS 80	SPILLS 80 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators
DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
UIC	Underground Injection Wells Listing
DRYCLEANERS	Drycleaning Sites
NPDES	NPDES Facility Location Listing
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US AIRS	Aerometric Information Retrieval System Facility Subsystem
PRP	Potentially Responsible Parties
2020 COR ACTION	2020 Corrective Action Program List
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
COAL ASH	Coal Ash Disposal Sites
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
Financial Assurance	Financial Assurance Information Listing
LEAD SMELTERS	Lead Smelter Sites

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR US Hist Auto Stat..... EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners..... EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 02/12/2013 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CLEARWATER PAPER	671 WASHBURN SWITCH RD	N 1/8 - 1/4 (0.206 mi.)	5	12

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incidents Management Database contains an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environment, & Natural Resources' Incidents by Address.

A review of the LUST list, as provided by EDR, and dated 02/08/2013 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARTEE INDUSTRIES Incident Phase: Closed Out	***ARTEE ROAD (1314 COUNTY***	***SSE 1/4 - 1/2 (0.312 mi.)***	***B7***	***18***

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: The EPA's listing of Brownfields properties from the Cleanups in My Community program, which provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

A review of the US BROWNFIELDS list, as provided by EDR, and dated 12/10/2012 has revealed that there is 1 US BROWNFIELDS site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARTEE TEXTILE BUILDING	*105 METROLINA DRIVE*	*SSE 1/4 - 1/2 (0.307 mi.)*	*B6*	*14*

Records of Emergency Release Reports

IMD: Incident Management Database.

A review of the IMD list, as provided by EDR, and dated 07/21/2006 has revealed that there is 1 IMD site within approximately 0.5 miles of the target property.

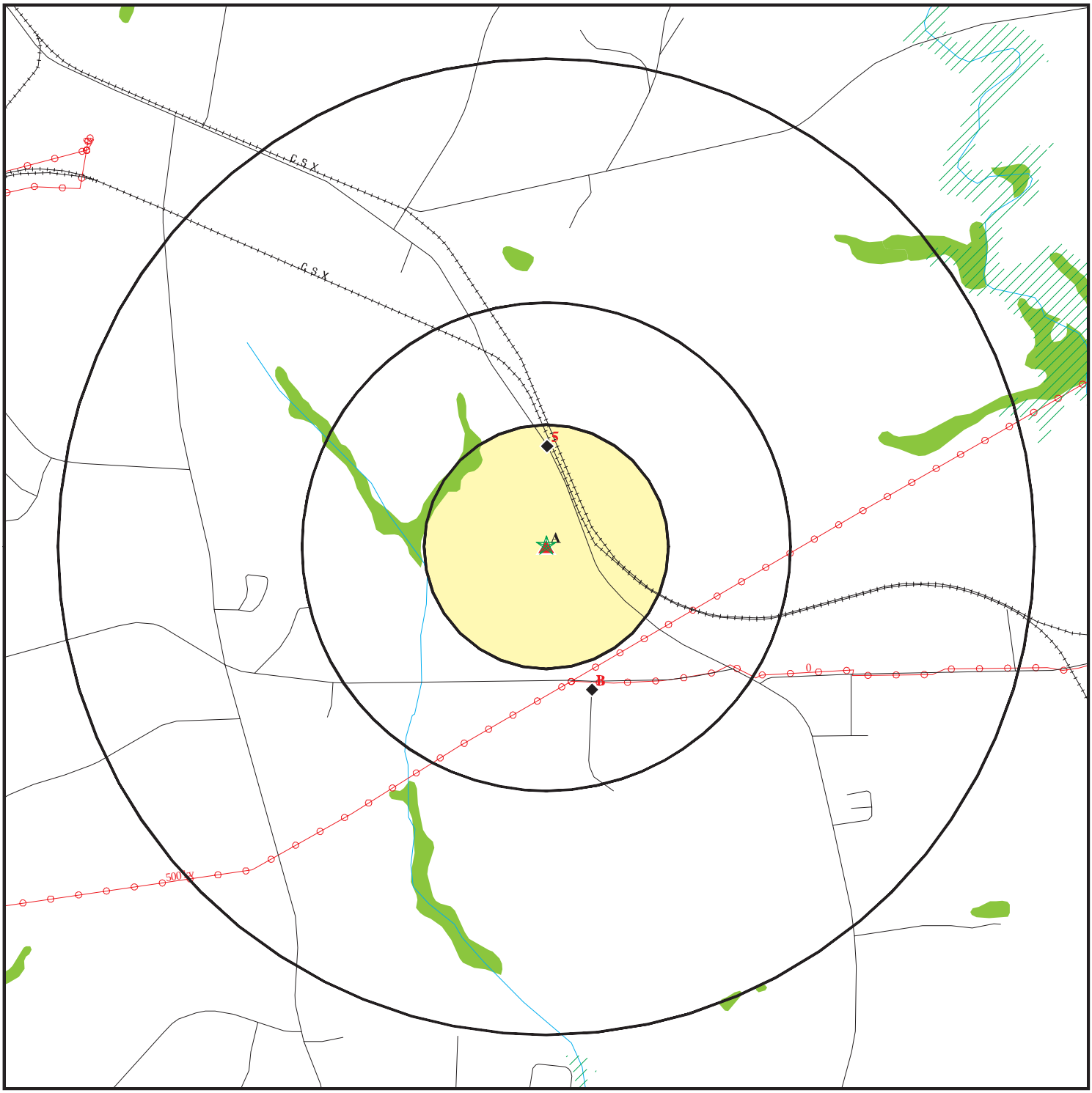
Lower Elevation	Address	Direction / Distance	Map ID	Page
ARTEE INDUSTRIES	*ARTEE ROAD (1314 COUNTY*	*SSE 1/4 - 1/2 (0.312 mi.)*	*B7*	*18*

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 22 records.

Site Name	Database(s)
NCDOT ASPHALT SITE #22 (ASPHALT P	SHWS
FASCO CONTROLS CORPORATION	SHWS, VCP
PPG IND., INC./WKS 52	SHWS
PPG INDUSTRIES	SWF/LF
BOST BAKERY INC	LUST, UST
WASHINGTON SCHOOL	IMD, LUST
DOUG'S MINI MART	LUST
DENVER QUARRY	UST
BATTLEGROUND AMOCO	UST
BOB'S MARINA	UST
E.M. JOHNSON (RED'S WELDING S	UST
CITY AUTOMOTIVE SERVICE	UST
A.B. BLANTON. II DVM	UST
HORACE GLENN	UST
TALMADGE CROTTS	UST
BILL WOODS	UST
FORMER CRAWLEY'S SERVICE	UST
STONE OIL CO. INC.	AST
STONE OIL CO. INC.	AST
OXY-THERM INC	RCRA NonGen / NLR, FINDS
SHELBY WOOD PRESERVING CO	RCRA NonGen / NLR, FINDS
DAVIS PROPERTY	IMD

OVERVIEW MAP - 03648009.2r



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/4 1/2 1 Miles

- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Hazardous Substance Disposal Sites

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Ardee Translite	CLIENT: AECOM
ADDRESS: 639 Washburn Switch Road Shelby NC 28150	CONTACT: Dave Oliphant INQUIRY #: 03648009.2r
LAT/LONG: 35.3127 / 81.6079	DATE: June 25, 2013 5:10 pm

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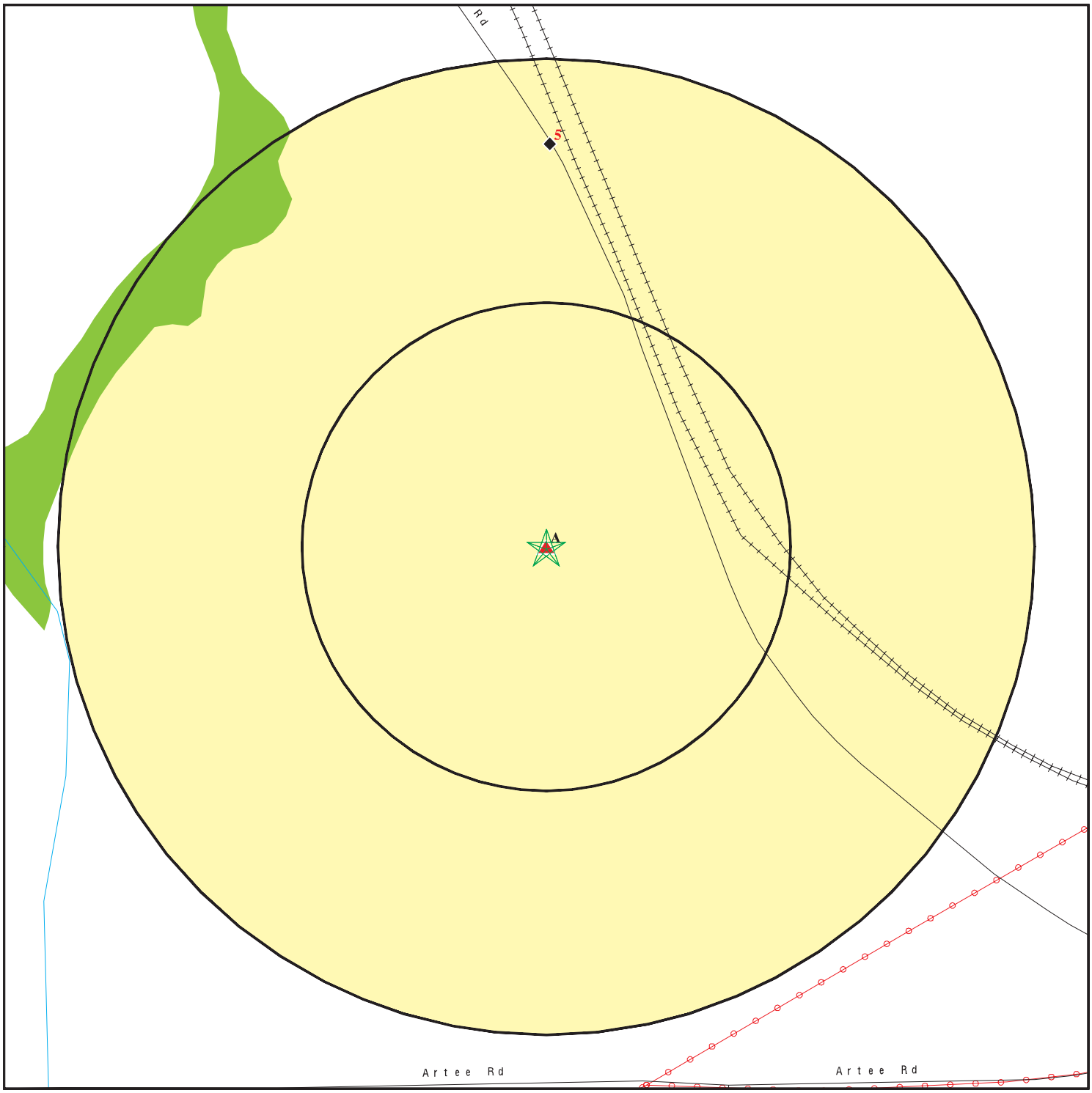
DETAIL MAP - 03648009.2r



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Hazardous Substance Disposal Sites

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Ardee Translite	CLIENT: AECOM
ADDRESS: 639 Washburn Switch Road Shelby NC 28150	CONTACT: Dave Oliphant INQUIRY #: 03648009.2r
LAT/LONG: 35.3127 / 81.6079	DATE: June 25, 2013 5:14 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250	2	0	1	NR	NR	NR	3
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
NC HSDS	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	1.000	1	0	0	0	0	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
OLI	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LUST TRUST	0.500		0	0	0	NR	NR	0
LAST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	1	NR	NR	1
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
HIST LF	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
IMD	0.500		0	0	1	NR	NR	1
SPILLS 90	TP		NR	NR	NR	NR	NR	0
SPILLS 80	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP	2	NR	NR	NR	NR	NR	2
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000	0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250	0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250	0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property | **SPECIALTY LIGHTING INC**
639 WASHBURN SWITCH RD
SHELBY, NC 28150 | **RCRA-CESQG FINDS** | **1000171362**
NCD986171007

Site 1 of 4 in cluster A

Actual: 897 ft.

RCRA-CESQG:

Date form received by agency:	08/22/2008
Facility name:	SPECIALTY LIGHTING INC
Facility address:	639 WASHBURN SWITCH RD SHELBY, NC 28150
EPA ID:	NCD986171007
Mailing address:	PO BOX 1769 SHELBY, NC 28151
Contact:	JEFFREY A SEIDEN
Contact address:	PO BOX 1769 SHELBY, NC 28151
Contact country:	US
Contact telephone:	704-482-2811
Telephone ext.:	305
Contact email:	JSEIDEN@LIGHTOLIER.COM FAX#04-464-0818
EPA Region:	04
Land type:	Private
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	SPECIALTY LIGHTING INC
Owner/operator address:	Not reported NC
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1978
Owner/Op end date:	Not reported

Owner/operator name:	JJI LIGHTING GROUP
Owner/operator address:	MELROSE AVE FRANKLIN PARK, IL 60131
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	04/01/1988
Owner/Op end date:	Not reported

SPECIALTY LIGHTING INC (Continued) **1000171362**

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency: 01/02/2004
Facility name: SPECIALTY LIGHTING INC
Classification: Small Quantity Generator

Date form received by agency: 10/25/1999
Facility name: SPECIALTY LIGHTING INC
Classification: Small Quantity Generator

Date form received by agency: 03/01/1990
Facility name: SPECIALTY LIGHTING INC
Site name: SPECIALTY LIGHTING INC.
Classification: Large Quantity Generator

Hazardous Waste Summary:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE,

SPECIALTY LIGHTING INC (Continued) **1000171362**

2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Facility Has Received Notices of Violations:

Regulation violated:	SR - 262.34(d)(5)(i)(ii)
Area of violation:	Generators - General
Date violation determined:	01/14/1993
Date achieved compliance:	02/16/1993
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	01/14/1993
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Evaluation Action Summary:

Evaluation date:	02/16/1993
Evaluation:	COMPLIANCE SCHEDULE EVALUATION
Area of violation:	Generators - General
Date achieved compliance:	02/16/1993
Evaluation lead agency:	State

Evaluation date:	01/14/1993
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - General
Date achieved compliance:	02/16/1993
Evaluation lead agency:	State

Evaluation date:	08/03/1989
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	State

FINDS:

Registry ID: 110000349105

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

SPECIALTY LIGHTING INC (Continued) **1000171362**

US EPA TRIS (Toxics Release Inventory System) contains information from facilities on the amounts of over 300 listed toxic chemicals that these facilities release directly to air, water, land, or that are transported off-site.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NC-FITS (North Carolina - Facility Identification Template For States) is North Carolina Department of Environment and Natural Resources' (NCDENR) Facility Identification Template for States that provides a common facility identifier in order to improve accessibility to comprehensive information about environmental regulated entities in the state of North Carolina.

A2 Target Property | **HESS AMERICA**
639 WASHBURN SWITCH RD
SHELBY, NC 28151 | **RCRA-CESQG** | **1004746905**
NCR000010975

Site 2 of 4 in cluster A

Actual: 897 ft.

RCRA-CESQG:

Date form received by agency:	06/04/1999
Facility name:	HESS AMERICA
Facility address:	639 WASHBURN SWITCH RD SHELBY, NC 28151
EPA ID:	NCR000010975
Mailing address:	WASHBURN SWITCH RD SHELBY, NC 28151
Contact:	PHIL FISHER
Contact address:	639 WASHBURN SWITCH RD SHELBY, NC 28151
Contact country:	US
Contact telephone:	(704) 482-3416
Contact email:	Not reported
EPA Region:	04
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

HESS AMERICA (Continued) **1004746905**

Owner/Operator Summary:

Owner/operator name:	ROBERT HADINGER
Owner/operator address:	639 WASHBURN SWITCH RD SHELBY, NC 28151
Owner/operator country:	Not reported
Owner/operator telephone:	(704) 482-3416
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Hazardous Waste Summary:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS

HESS AMERICA (Continued) **1004746905**

LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

A3 Target Property | **JJI LIGHTING GROUP** | **FINDS** | **1011930496**
639 WASHBURN SWITCH RD | **N/A**
SHELBY, NC 28150

Site 3 of 4 in cluster A

Actual: 897 ft.

FINDS:

Registry ID: 110037513214

Environmental Interest/Information System
PCS (Permit Compliance System) is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

A4 Target Property | **ARDEE/TRANSLITE** | **SHWS** | **S111380337**
639 WASHBURN SWITCH RD | **N/A**
SHELBY, NC

Site 4 of 4 in cluster A

Actual: 897 ft.

SHWS:
Facility ID: NONCD0002881
Lat/Longitude: 35.31245 / -81.60761
Geolocation Method: ON SCREEN PLACEMENT ON GEOREFERENCED MAP

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5 North 1/8-1/4 0.206 mi. 1090 ft. | **CLEARWATER PAPER** | **RCRA-CESQG** | **1014472658**
671 WASHBURN SWITCH RD | **NCR000150276**
SHELBY, NC 28150

Relative: Lower

Actual: 873 ft.

RCRA-CESQG:
Date form received by agency: 03/15/2011
Facility name: CLEARWATER PAPER
Facility address: 671 WASHBURN SWITCH RD
SHELBY, NC 28150
EPA ID: NCR000150276
Mailing address: WASHBURN SWITCH RD
SHELBY, NC 28150
Contact: GEORGE E BECKEY JR
Contact address: WASHBURN SWITCH RD
SHELBY, NC 28150
Contact country: US
Contact telephone: 704-466-4849
Contact email: GEORGE.BECKEY@CLEARWATERPAPER.COM
EPA Region: 04
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar

CLEARWATER PAPER (Continued) **1014472658**

month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	CLEARWATER PAPER CORP
Owner/operator address:	WASHBURN SWITCH RD SHELBY, NC 28150
Owner/operator country:	US
Owner/operator telephone:	704-466-4849
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	04/18/2011
Owner/Op end date:	Not reported

Owner/operator name:	CLEARWATER PAPER CORP
Owner/operator address:	W RIVERSIDE AVE, STE 1100 SPOKANE, NC 99201
Owner/operator country:	US
Owner/operator telephone:	509-344-5900
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	04/18/2011
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Hazardous Waste Summary:

Waste code:	D001
Waste name:	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS

CLEARWATER PAPER (Continued) **1014472658**

CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: D009
Waste name: MERCURY

Violation Status: No violations found

B6 **ARTEE TEXTILE BUILDING** **US BROWNFIELDS** **1014783492**
SSE **105 METROLINA DRIVE** **FINDS** **N/A**
1/4-1/2 **SHELBY, NC 28150**
0.307 mi.
1622 ft. **Site 1 of 2 in cluster B**

Relative:
Lower

Actual:
888 ft.

US BROWNFIELDS:

Recipient name:	Isothermal Planning and Development Commission
Grant type:	Assessment
Property name:	ARTEE TEXTILE BUILDING
Property #:	28802
Parcel size:	10.85
Property Description:	Not reported
Latitude:	35.3086826
Longitude:	-81.6062966
HCM label:	Not reported
Map scale:	Not reported
Point of reference:	Not reported
Datum:	Not reported
ACRES property ID:	111148
Start date:	Not reported
Completed date:	Not reported
Acres cleaned up:	Not reported
Cleanup funding:	Not reported
Cleanup funding source:	Not reported
Assessment funding:	4227
Assessment funding source:	US EPA - Brownfields Assessment Cooperative Agreement
Redevelopment funding:	Not reported
Redev. funding source:	Not reported
Redev. funding entity name:	Not reported
Redevelopment start date:	Not reported
Assessment funding entity:	EPA
Cleanup funding entity:	Not reported
Grant type:	B
Accomplishment type:	Phase I Environmental Assessment
Accomplishment count:	1
Cooperative agreement #:	95405408
Ownership entity:	Private
Current owner:	Sigfrid Della Valle

ARTEE TEXTILE BUILDING (Continued) **1014783492**

Did owner change:	N
Cleanup required:	Unknown
Video available:	Not reported
Photo available:	Not reported
Institutional controls required:	U
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Not reported
Asbestos cleaned:	Not reported
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Not reported
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Y
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
Unknown found:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	Not reported
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	Not reported
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	Not reported
Future use industrial acreage:	Not reported

ARTEE TEXTILE BUILDING (Continued) **1014783492**

Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	N

Recipient name:	Isothermal Planning and Development Commission
Grant type:	Assessment
Property name:	ARTEE TEXTILE BUILDING
Property #:	28802
Parcel size:	10.85
Property Description:	Not reported
Latitude:	35.3086826
Longitude:	-81.6062966
HCM label:	Not reported
Map scale:	Not reported
Point of reference:	Not reported
Datum:	Not reported
ACRES property ID:	111148
Start date:	Not reported
Completed date:	Not reported
Acres cleaned up:	Not reported
Cleanup funding:	Not reported
Cleanup funding source:	Not reported
Assessment funding:	21800
Assessment funding source:	US EPA - Brownfields Assessment Cooperative Agreement
Redevelopment funding:	Not reported
Redev. funding source:	Not reported
Redev. funding entity name:	Not reported
Redevelopment start date:	Not reported
Assessment funding entity:	EPA
Cleanup funding entity:	Not reported
Grant type:	B
Accomplishment type:	Phase II Environmental Assessment
Accomplishment count:	0
Cooperative agreement #:	95405408
Ownership entity:	Private
Current owner:	Sigfrid Della Valle
Did owner change:	N
Cleanup required:	Unknown
Video available:	Not reported
Photo available:	Not reported
Institutional controls required:	U
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Not reported
Asbestos cleaned:	Not reported
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported

ARTEE TEXTILE BUILDING (Continued) **1014783492**

Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Not reported
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Y
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
Unknown found:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	Not reported
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	Not reported
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	Not reported
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	N

FINDS:

Registry ID: 110043636973

Environmental Interest/Information System
US EPA Assessment, Cleanup and Redevelopment Exchange System (ACRES) is an federal online database for Brownfields Grantees to electronically submit data directly to EPA.

B7 SSE 1/4-1/2 0.312 mi. 1647 ft. | **ARTEE INDUSTRIES**
ARTEE ROAD (1314 COUNTY ROAD)
SHELBY, NC 28150 | **IMD LUST UST** | **U001193728 N/A**

Site 2 of 2 in cluster B

Relative: Lower

Actual: 893 ft.

IMD:

Region:	MOR
Facility ID:	8847
Date Occurred:	3/7/1992
Submit Date:	8/18/1992
GW Contam:	Yes, Groundwater Contamination has been detected
Soil Contam:	No
Incident Desc:	UPON CLOSURE OF UST, SOIL AND GW CONTAM. WERE CONFIRMED.
Operator:	LLOYD WILLIAMS
Contact Phone:	(704)482-9561
Owner Company:	WILLIAMS OIL COMPANY
Operator Address:	515 N. DEKALB ST
Operator City:	SHELBY
Oper City,St,Zip:	SHELBY, NC 28150-
Ownership:	Private
Operation:	Industrial
Material:	PETROLEUM
Qty Lost 1:	Not reported
Qty Recovered 1:	Not reported
Source:	Leak-underground
Type:	Gasoline/diesel
Location:	Facility
Setting:	Urban
Risk Site:	L
Site Priority:	035E
Priority Code:	L
Priority Update:	5/15/1998
Dem Contact:	DPM
Wells Affected:	No
Num Affected:	0
Wells Contam:	Not reported
Sampled By:	Responsible Parties
Samples Include:	Soil Samples
7.5 Min Quad:	Not reported
5 Min Quad:	Not reported
Latitude:	35.30805555
Longitude:	-81.60555555
Latitude Number:	351829
Longitude Number:	813620
Latitude Decimal:	35.3080555555556
Longitude Decimal:	81.6055555555556
GPS:	4
Agency:	DWM
Facility ID:	8847
Last Modified:	Not reported
Incident Phase:	RE
NOV Issued:	Not reported
NORR Issued:	Not reported
45 Day Report:	Not reported
Public Meeting Held:	Not reported
Corrective Action Planned:	Not reported
SOC Sighned:	Not reported
Reclassification Report:	Not reported

ARTEE INDUSTRIES (Continued) **U001193728**

RS Designation: Not reported
Closure Request Date: Not reported
Close-out Report: Not reported

LUST:

Facility ID:	00-0-000
UST Number:	AS-747
Incident Number:	8847
Contamination Type:	Groundwater/Both
Source Type:	Leak-underground
Product Type:	PETROLEUM
Date Reported:	04/23/1992
Date Occur:	03/07/1992
Cleanup:	04/23/1992
Closure Request:	Not reported
Close Out:	05/05/2011
Level Of Soil Cleanup Achieved:	Not reported
Tank Regulated Status:	Regulated
# Of Supply Wells:	0
Commercial/NonCommercial UST Site:	COMMERCIAL
Risk Classification:	L
Risk Class Based On Review:	L
Corrective Action Plan Type:	Not reported
NOV Issue Date:	Not reported
NORR Issue Date:	05/15/1992
Site Priority:	035E
Phase Of LSA Req:	Not reported
Site Risk Reason:	Not reported
Land Use:	Not reported
MTBE:	Not reported
MTBE1:	Unknown
Flag:	No
Flag1:	No
LUR Filed:	01/14/2013
Release Detection:	0
Current Status:	File Located in House
RBCA GW:	Not reported
PETOPT:	3
RPL:	False
CD Num:	0
Reel Num:	0
RPOW:	False
RPOP:	False
Error Flag:	0
Error Code:	Not reported
Valid:	False
Lat/Long:	351829 -813620
Lat/Long Decimal:	0 0
Testlat:	Not reported
Regional Officer Project Mgr:	DME
Region:	Asheville
Company:	WILLIAMS OIL COMPANY
Contact Person:	LLOYD WILLIAMS
Telephone:	(704)482-9561
RP Address:	515 N. DEKALB ST
RP City,St,Zip:	SHELBY, NC 28150-

ARTEE INDUSTRIES (Continued) **U001193728**

RP County: CLEVELAND
Comments: UST Brownfield Environmental Site Assessment, no soil contamination exceeds residential or industrial levels, one gw sample exceeded 2L with benzene 6 ug/l. NFA with NRP for groundwater.
5 Min Quad: Q75I

PIRF:
Facility Id: 8847
Date Occurred: 3/17/1992
Date Reported: 8/18/1992
Description Of Incident: UPON CLOSURE OF UST, SOIL AND GW CONTAM. WERE CONFIRMED.
Owner/Operator: LLOYD WILLIAMS
Ownership: 4
Operation Type: 5
Type: 3
Location: 1
Site Priority: 035E
Priority Update: 5/15/1998
Wells Affected Y/N: N
Samples Include: 0
7#5 Minute Quad: 3
5 Minute Quad: 2
Pirf/Min Soil: Not reported
Release Code: Not reported
Source Code: Pirf
Err Type: Not reported
Cause: Not reported
Source: Not reported
Ust Number: Not reported

Last Modified: Not reported
Incident Phase: Closed Out
NOV Issued: Not reported
NORR Issued: Not reported
45 Day Report: Not reported
Public Meeting Held: Not reported
Corrective Action Planned: Not reported
SOC Signed: Not reported
Reclassification Report: Not reported
RS Designation: Not reported
Closure Request Date: Not reported
Close-out Report: Not reported

UST:
Facility Id: 00-0-0000011974
Contact: WILLIAMS OIL CO OF SHELBY INC
Contact Address1: PO BOX 910 / 515 N DEKALB STREET
Contact Address2: Not reported
Contact City/State/Zip: SHELBY, NC 28151-0910
FIPS County Desc: Cleveland
Latitude: 0
Longitude: 0

Tank Id: 1
Tank Status: Removed
Installed Date: 03/17/1985
Perm Close Date: 03/31/1992

ARTEE INDUSTRIES (Continued) **U001193728**

Product Key:	3
Product Name:	Gasoline, Gas Mix
Tank Capacity:	550
Root Tank Id:	Not reported
Main Tank:	No
Compartment Tank:	No
Manifold Tank:	Not reported
Commercial:	Yes
Regulated:	Yes
Tank Construction:	Single Wall Steel
Piping Construction:	Single Wall Steel
Piping System Key:	Unknown
Other CP Tank:	Not reported

Count: 22 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
DENVER	U003562690	DENVER QUARRY	HWY 16	28150	UST
GASTONIA	U001436201	BATTLEGROUND AMOCO	HWY 216	28150	UST
LAKE LURE	U001191570	BOB'S MARINA	RT 2	28150	UST
PENDLETON	U004019226	BOST BAKERY INC	RT 2 BOX 275	28150	LUST, UST
SHELBY	S109015506	NCDOT ASPHALT SITE #22 (ASPHALT P	HWY74 & LONG BRANCH RD		SHWS
SHELBY	U003134217	E.M. JOHNSON (RED'S WELDING S	RT 1	28150	UST
SHELBY	U003144325	CITY AUTOMOTIVE SERVICE	RT 1	28150	UST
SHELBY	S103131710	WASHINGTON SCHOOL	RT 1		IMD, LUST
SHELBY	U003135370	A.B. BLANTON. II DVM	RT 10	28150	UST
SHELBY	S109611208	PPG INDUSTRIES	HC 1313 & HC 1323		SWF/LF
SHELBY	A100186801	STONE OIL CO. INC.	HWY 18 N	28150	AST
SHELBY	1004746478	OXY-THERM INC	HWY 180 N	28150	RCRA NonGen / NLR, FINDS
SHELBY	A100186800	STONE OIL CO. INC.	HWY 180	28150	AST
SHELBY	S109611348	FASCO CONTROLS CORPORATION	HC 1926		SHWS, VCP
SHELBY	U003135249	HORACE GLENN	RT 2	28150	UST
SHELBY	U001203343	TALMADGE CROTTS	RT 2	28150	UST
SHELBY	U001193693	BILL WOODS	HWY 226 S	28150	UST
SHELBY	U003135277	FORMER CRAWLEY'S SERVICE	RT 3	28150	UST
SHELBY	S106936198	DAVIS PROPERTY	NC HWY 180		IMD
SHELBY	1004744751	SHELBY WOOD PRESERVING CO	LUMBER RD & HWY 18S	28150	RCRA NonGen / NLR, FINDS
SHELBY	S109836889	DOUG'S MINI MART	3321 POLKVILLE ROAD HWY	28150	LUST
SHELBY	S103229391	PPG IND., INC./WKS 52	WASHBURN SWITCH RD		SHWS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 12

Source: EPA
Telephone: N/A
Last EDR Contact: 05/09/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 12

Source: EPA
Telephone: N/A
Last EDR Contact: 05/09/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 02/01/2013	Source: EPA
Date Data Arrived at EDR: 03/01/2013	Telephone: N/A
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 05/09/2013
Number of Days to Update: 12	Next Scheduled EDR Contact: 07/22/2013
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/04/2013	Source: EPA
Date Data Arrived at EDR: 03/01/2013	Telephone: 703-412-9810
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 12	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/09/2012	Telephone: 703-603-8704
Date Made Active in Reports: 12/20/2012	Last EDR Contact: 04/10/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 07/22/2013
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/05/2013	Source: EPA
Date Data Arrived at EDR: 03/01/2013	Telephone: 703-412-9810
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 12	Next Scheduled EDR Contact: 05/09/2013
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 6

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 05/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 05/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 05/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 05/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/20/2013
Next Scheduled EDR Contact: 09/02/2013
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/17/2013
Date Made Active in Reports: 02/15/2013
Number of Days to Update: 29

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Annually

State- and tribal - equivalent NPL

HSDS: Hazardous Substance Disposal Site

Locations of uncontrolled and unregulated hazardous waste sites. The file includes sites on the National Priority List as well as those on the state priority list.

Date of Government Version: 08/09/2011
Date Data Arrived at EDR: 11/08/2011
Date Made Active in Reports: 12/05/2011
Number of Days to Update: 27

Source: North Carolina Center for Geographic Information and Analysis
Telephone: 919-754-6580
Last EDR Contact: 05/03/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Biennially

State- and tribal - equivalent CERCLIS

SHWS: Inactive Hazardous Sites Inventory

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 01/15/2013
Date Data Arrived at EDR: 03/20/2013
Date Made Active in Reports: 03/28/2013
Number of Days to Update: 8

Source: Department of Environment, Health and Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 06/20/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: List of Solid Waste Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 04/01/2013
Date Data Arrived at EDR: 04/02/2013
Date Made Active in Reports: 05/09/2013
Number of Days to Update: 37

Source: Department of Environment and Natural Resources
Telephone: 919-733-0692
Last EDR Contact: 04/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Semi-Annually

OLI: Old Landfill Inventory

Old landfill inventory location information. (Does not include no further action sites and other agency lead sites).

Date of Government Version: 04/05/2013
Date Data Arrived at EDR: 04/18/2013
Date Made Active in Reports: 05/09/2013
Number of Days to Update: 21

Source: Department of Environment & Natural Resources
Telephone: 919-733-4996
Last EDR Contact: 04/16/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Regional UST Database

This database contains information obtained from the Regional Offices. It provides a more detailed explanation of current and historic activity for individual sites, as well as what was previously found in the Incident Management Database. Sites in this database with Incident Numbers are considered LUSTs.

Date of Government Version: 02/08/2013
Date Data Arrived at EDR: 02/13/2013
Date Made Active in Reports: 04/02/2013
Number of Days to Update: 48

Source: Department of Environment and Natural Resources
Telephone: 919-733-1308
Last EDR Contact: 05/16/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Quarterly

LUST TRUST: State Trust Fund Database

This database contains information about claims against the State Trust Funds for reimbursements for expenses incurred while remediating Leaking USTs.

Date of Government Version: 04/03/2013
Date Data Arrived at EDR: 04/17/2013
Date Made Active in Reports: 05/09/2013
Number of Days to Update: 22

Source: Department of Environment and Natural Resources
Telephone: 919-733-1315
Last EDR Contact: 10/17/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Semi-Annually

LAST: Leaking Aboveground Storage Tanks
A listing of leaking aboveground storage tank site locations.

Date of Government Version: 02/08/2013
Date Data Arrived at EDR: 02/13/2013
Date Made Active in Reports: 03/28/2013
Number of Days to Update: 43

Source: Department of Environment & Natural Resources
Telephone: 877-623-6748
Last EDR Contact: 05/16/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/01/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 162

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/01/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Petroleum Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/13/2013
Date Made Active in Reports: 04/02/2013
Number of Days to Update: 48

Source: Department of Environment and Natural Resources
Telephone: 919-733-1308
Last EDR Contact: 05/16/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Quarterly

AST: AST Database
Facilities with aboveground storage tanks that have a capacity greater than 21,000 gallons.

Date of Government Version: 03/25/2013
Date Data Arrived at EDR: 03/25/2013
Date Made Active in Reports: 04/02/2013
Number of Days to Update: 8

Source: Department of Environment and Natural Resources
Telephone: 919-715-6183
Last EDR Contact: 06/20/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Semi-Annually

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 45

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/07/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 156

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012
Date Data Arrived at EDR: 08/03/2012
Date Made Active in Reports: 11/05/2012
Number of Days to Update: 94

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/18/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: No Further Action Sites With Land Use Restrictions Monitoring
A land use restricted site is a property where there are limits or requirements on future use of the property due to varying levels of cleanup possible, practical, or necessary at the site.

Date of Government Version: 01/15/2013
Date Data Arrived at EDR: 03/20/2013
Date Made Active in Reports: 03/28/2013
Number of Days to Update: 8

Source: Department of Environment, Health and Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 12/17/2110
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 10/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 14

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/05/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Responsible Party Voluntary Action Sites
Responsible Party Voluntary Action site locations.

Date of Government Version: 01/15/2013
Date Data Arrived at EDR: 03/20/2013
Date Made Active in Reports: 03/28/2013
Number of Days to Update: 8

Source: Department of Environment and Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 06/20/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Semi-Annually

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Projects Inventory
A brownfield site is an abandoned, idled, or underused property where the threat of environmental contamination has hindered its redevelopment. All of the sites in the inventory are working toward a brownfield agreement for cleanup and liabitliy control.

Date of Government Version: 04/04/2013
Date Data Arrived at EDR: 04/10/2013
Date Made Active in Reports: 05/23/2013
Number of Days to Update: 43

Source: Department of Environment and Natural Resources
Telephone: 919-733-4996
Last EDR Contact: 04/10/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/10/2012
Date Data Arrived at EDR: 12/11/2012
Date Made Active in Reports: 12/20/2012
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: No Update Planned

HIST LF: Solid Waste Facility Listing
A listing of solid waste facilities.

Date of Government Version: 11/06/2006
Date Data Arrived at EDR: 02/13/2007
Date Made Active in Reports: 03/02/2007
Number of Days to Update: 17

Source: Department of Environment & Natural Resources
Telephone: 919-733-0692
Last EDR Contact: 01/19/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: Quarterly

SWRCY: Recycling Center Listing
A listing of recycling center locations.

Date of Government Version: 08/06/2012
Date Data Arrived at EDR: 08/08/2012
Date Made Active in Reports: 09/13/2012
Number of Days to Update: 36

Source: Department of Environment & Natural Resources
Telephone: 919-707-8137
Last EDR Contact: 06/14/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/03/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/12/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 59

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Quarterly

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 55

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Annually

IMD: Incident Management Database

Groundwater and/or soil contamination incidents

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 08/01/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 22

Source: Department of Environment and Natural Resources
Telephone: 919-733-3221
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SPILLS 80: SPILLS80 data from FirstSearch

Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 06/14/2001
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 09/27/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 05/02/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/07/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/19/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 01/15/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 57

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/18/2012
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/11/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 04/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/04/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 131

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/29/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/15/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 114

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/19/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011
Date Data Arrived at EDR: 07/15/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 60

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/09/2013
Date Data Arrived at EDR: 04/11/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/11/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 79

Source: EPA
Telephone: (404) 562-9900
Last EDR Contact: 06/13/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012
Date Data Arrived at EDR: 05/25/2012
Date Made Active in Reports: 07/10/2012
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/29/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/30/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing

A listing of uncerground injection wells locations.

Date of Government Version: 02/11/2013
Date Data Arrived at EDR: 02/12/2013
Date Made Active in Reports: 03/28/2013
Number of Days to Update: 44

Source: Department of Environment & Natural Resources
Telephone: 919-807-6412
Last EDR Contact: 05/13/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Varies

DRYCLEANERS: Drycleaning Sites

Potential and known drycleaning sites, active and abandoned, that the Drycleaning Solvent Cleanup Program has knowledge of and entered into this database.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 03/26/2013
Date Made Active in Reports: 05/09/2013
Number of Days to Update: 44

Source: Department of Environment & Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Varies

NPDES: NPDES Facility Location Listing

General information regarding NPDES(National Pollutant Discharge Elimination System) permits.

Date of Government Version: 02/08/2013
Date Data Arrived at EDR: 04/09/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 10

Source: Department of Environment & Natural Resources
Telephone: 919-733-7015
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/19/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/06/2013
Next Scheduled EDR Contact: 08/05/2013
Data Release Frequency: Varies

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

COAL ASH: Coal Ash Disposal Sites

A listing of coal combustion products distribution permits issued by the Division for the treatment, storage, transportation, use and disposal of coal combustion products.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/04/2009
Date Made Active in Reports: 08/17/2009
Number of Days to Update: 13

Source: Department of Environment & Natural Resources
Telephone: 919-807-6359
Last EDR Contact: 05/06/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 12/02/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 69

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 04/04/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/17/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/08/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/10/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/15/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 05/20/2013
Next Scheduled EDR Contact: 09/02/2013
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/19/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: N/A

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/03/2013
Next Scheduled EDR Contact: 08/12/2013
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/18/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
Information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 10/02/2012
Date Data Arrived at EDR: 10/03/2012
Date Made Active in Reports: 10/26/2012
Number of Days to Update: 23

Source: Department of Environmental & Natural Resources
Telephone: 919-508-8496
Last EDR Contact: 04/01/2013
Next Scheduled EDR Contact: 07/15/2013
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/14/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 09/23/2011
Date Data Arrived at EDR: 10/06/2011
Date Made Active in Reports: 11/01/2011
Number of Days to Update: 26

Source: Department of Environment & Natural Resources
Telephone: 919-733-1322
Last EDR Contact: 05/16/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Quarterly

Financial Assurance 3: Financial Assurance Information
Hazardous waste financial assurance information.

Date of Government Version: 09/30/2012
Date Data Arrived at EDR: 10/19/2012
Date Made Active in Reports: 11/29/2012
Number of Days to Update: 41

Source: Department of Environment & Natural Resources
Telephone: 919-707-8222
Last EDR Contact: 06/13/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/18/2013
Date Data Arrived at EDR: 02/18/2013
Date Made Active in Reports: 03/21/2013
Number of Days to Update: 31

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/21/2013
Next Scheduled EDR Contact: 09/02/2013
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/19/2013
Next Scheduled EDR Contact: 07/29/2013
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 02/07/2013
Date Made Active in Reports: 03/15/2013
Number of Days to Update: 36

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/09/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/23/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 57

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/23/2013
Next Scheduled EDR Contact: 08/05/2013
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 06/22/2012
Date Made Active in Reports: 07/31/2012
Number of Days to Update: 39

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 09/27/2012
Number of Days to Update: 70

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/14/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Facility List
Source: Department of Health & Human Services
Telephone: 919-662-4499

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Department of Environment & Natural Resources
Telephone: 919-733-2090

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

ARDEE TRANSLITE
639 WASHBURN SWITCH ROAD
SHELBY, NC 28150

TARGET PROPERTY COORDINATES

Latitude (North):	35.3127 - 35˚ 18' 45.72''
Longitude (West):	81.6079 - 81˚ 36' 28.44''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	444738.3
UTM Y (Meters):	3907692.2
Elevation:	897 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	35081-C5 SHELBY, NC
Most Recent Revision:	2002
West Map:	35081-C6 BOILING SPRINGS NORTH, NC
Most Recent Revision:	2002

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

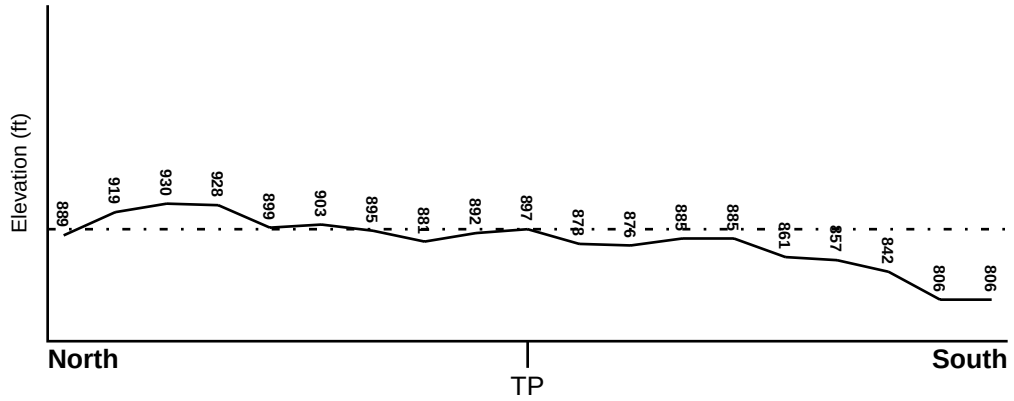
TOPOGRAPHIC INFORMATION

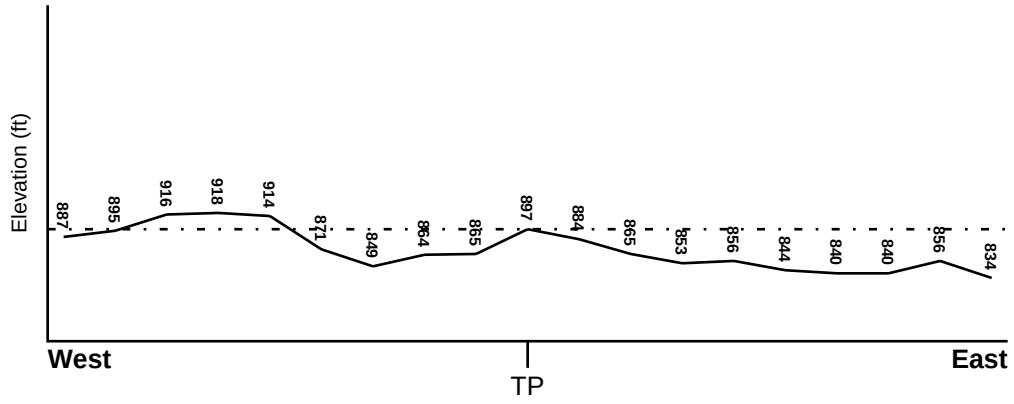
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 897 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
CLEVELAND, NC	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 37045C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SHELBY	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

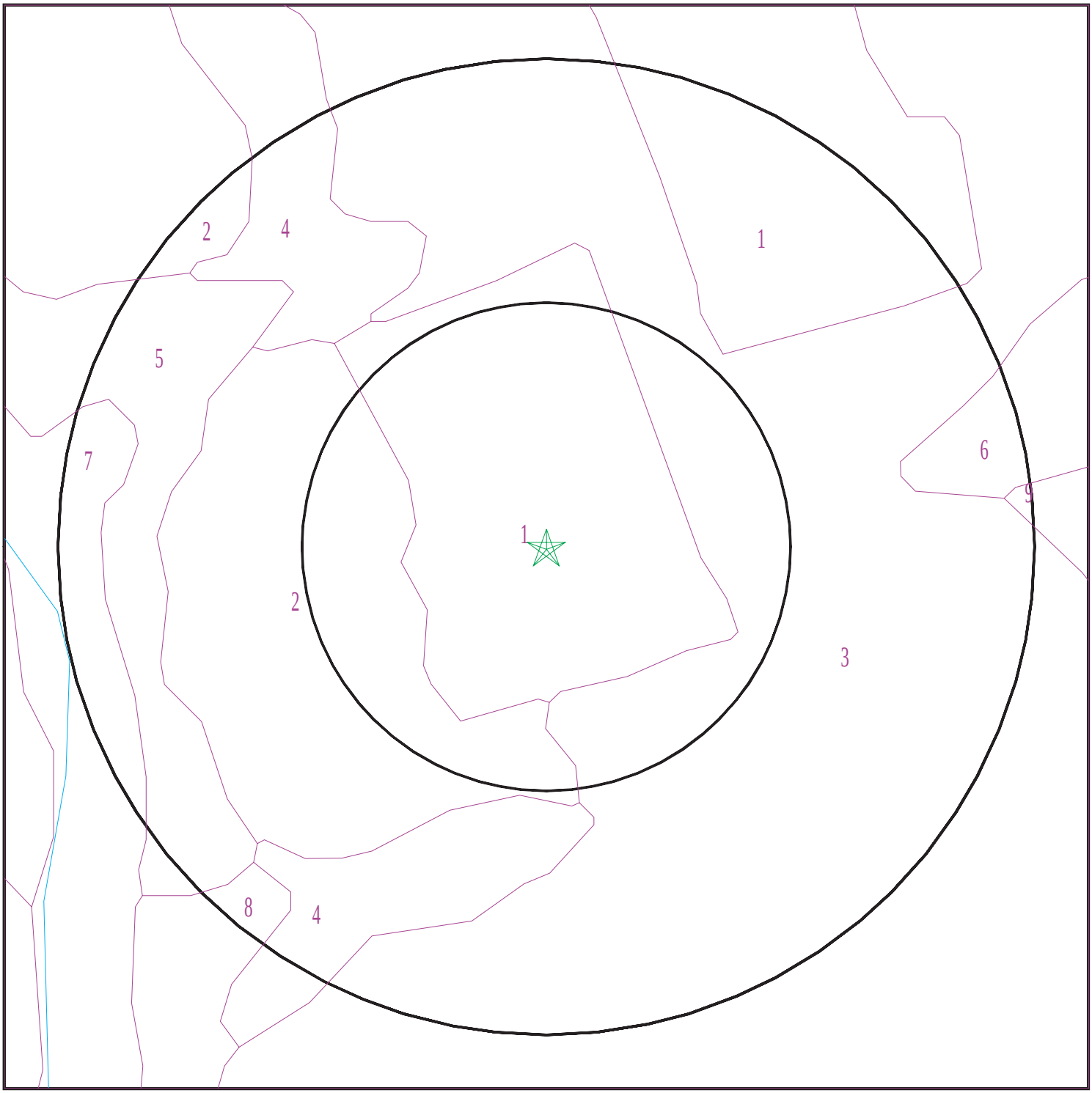
Era:	Paleozoic
System:	Devonian
Series:	Middle Paleozoic granitic rocks
Code:	Pzg2 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 03648009.2r



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Ardee Translite ADDRESS: 639 Washburn Switch Road Shelby NC 28150 LAT/LONG: 35.3127 / 81.6079	CLIENT: AECOM CONTACT: Dave Oliphant INQUIRY #: 03648009.2r DATE: June 25, 2013 5:14 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Urban land

Soil Surface Texture: variable

Hydrologic Group: Not reported

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 2

Soil Component Name: Appling

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	18 inches	35 inches	clay	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
3	35 inches	51 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
4	5 inches	18 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
5	51 inches	62 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 3

Soil Component Name: Cecil

Soil Surface Texture: sandy clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
2	5 inches	48 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
3	48 inches	61 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5

Soil Map ID: 4

Soil Component Name: Helena

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.5
2	9 inches	14 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.5
3	14 inches	53 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.5
4	53 inches	62 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.5

Soil Map ID: 5

Soil Component Name: Appling

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	5 inches	18 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
3	18 inches	35 inches	clay	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
4	35 inches	51 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
5	51 inches	62 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 6

Soil Component Name: Pacolet

Soil Surface Texture: sandy clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy clay loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
2	5 inches	25 inches	clay	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
3	25 inches	37 inches	sandy clay loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
4	37 inches	61 inches	sandy loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5

Soil Map ID: 7

Soil Component Name: Chewacla

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 38 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	loam	Not reported	Not reported	Max: 14 Min: 4	Max: 6.5 Min: 4.5
2	7 inches	61 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 6.5 Min: 4.5

Soil Map ID: 8

Soil Component Name: Pacolet

Soil Surface Texture: sandy clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
2	7 inches	24 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
3	24 inches	33 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
4	33 inches	72 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5

Soil Map ID: 9

Soil Component Name: Pacolet

Soil Surface Texture: sandy clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy clay loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
2	5 inches	25 inches	clay	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
3	25 inches	37 inches	sandy clay loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
4	37 inches	61 inches	sandy loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

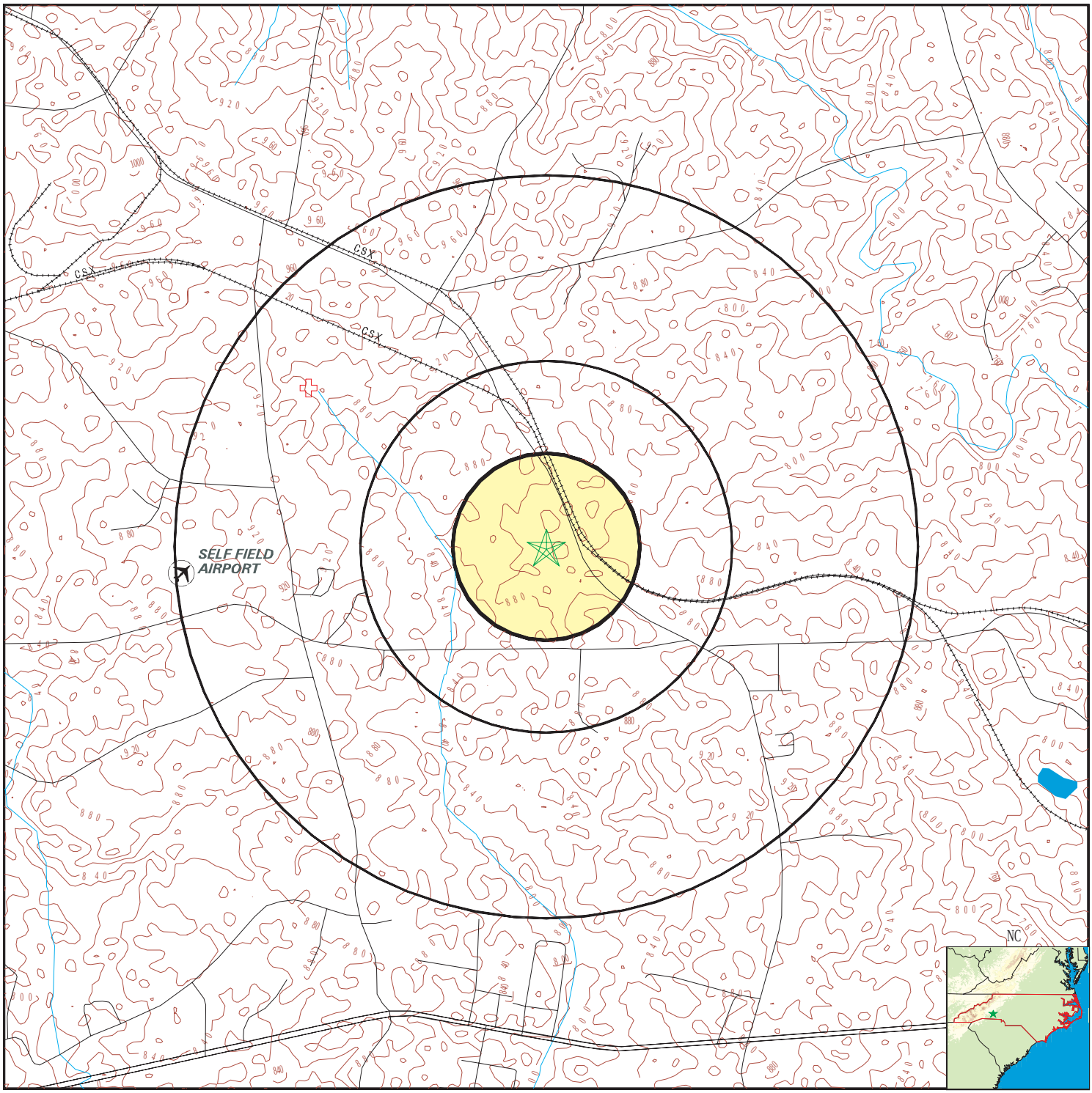
MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

OTHER STATE DATABASE INFORMATION

NORTH CAROLINA NATURAL HERITAGE ELEMENT OCCURRENCES

ID	Class
NC50011834	Plants

PHYSICAL SETTING SOURCE MAP - 03648009.2r



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- Wildlife Areas
- Natural Areas
- Rare & Endangered Species

N

SITE NAME: Ardee Translite	CLIENT: AECOM
ADDRESS: 639 Washburn Switch Road Shelby NC 28150	CONTACT: Dave Oliphant INQUIRY #: 03648009.2r
LAT/LONG: 35.3127 / 81.6079	DATE: June 25, 2013 5:14 pm

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Map ID Direction Distance	Database	EDR ID Number
	NC_NHEO	**NC50011834**

GIS ID:	362102
Classification by Type:	Plants
Occurrence Status:	Extant

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: NC Radon

Radon Test Results

Num Results	Avg pCi/L	Min pCi/L	Max pCi/L
16	3.45	0.3	9.4

Federal EPA Radon Zone for CLEVELAND County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 28150

Number of sites tested: 17

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.941 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	3.533 pCi/L	67%	33%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Department of Environment & Natural Resources
Telephone: 919-733-2090

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

North Carolina Public Water Supply Wells
Source: Department of Environmental Health
Telephone: 919-715-3243

OTHER STATE DATABASE INFORMATION

NC Natural Areas: Significant Natural Heritage Areas
Source: Center for Geographic Information and Analysis
Telephone: 919-733-2090
A polygon converage identifying sites (terrestrial or aquatic that have particular biodiversity significance. A site's significance may be due to the presenceof rare species, rare or hight quality natural communities, or other important ecological features.

NC Game Lands: Wildlife Resources Commission Game Lands
Source: Center for Geographic Information and Analysis
Telephone: 919-733-2090
All publicly owned game lands managed by the North Carolina Wildlife Resources Commission and as listed in Hunting and Fishing Maps.

NC Natural Heritage Sites: Natural Heritage Element Occurrence Sites
Source: Center for Geographic Information and Analysis
Telephone: 919-733-2090
A point coverage identifying locations of rare and endangered species, occurrences of exemplary or unique natural ecosystems (terrestrial or aquatic), and special animal habitats (e.g., colonial waterbird nesting sites).

RADON

State Database: NC Radon
Source: Department of Environment & Natural Resources
Telephone: 919-733-4984
Radon Statistical and Non Statiscal Data

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

STREET AND ADDRESS INFORMATION

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EXECUTIVE SUMMARY

TARGET PROPERTY ADDRESS

ARDEE TRANSLITE
639 WASHBURN SWITCH ROAD
SHELBY, NC 28150
Elevation: 897

EDR Inquiry Number: 03648009.2r

STANDARD ENVIRONMENTAL RECORDS

SEARCH RESULTS Site	Map ID Direction Distance Distance ft Elevation ft	NPL	Proposed NPL	NPL LIENS	Delisted NPL	CERCLIS	FEDERAL FACILITY	CERC-NFRAP	CORRACTS	RCRA-TSDF	RCRA-LQG	RCRA-SQG	RCRA-CESQG	US ENG CONTROLS	US INST CONTROL	LUCIS	ERNS	NC HSDS	SHWS	SWF/LF	OLI	LUST	LUST TRUST	LAST	INDIAN LUST	UST	AST	INDIAN UST	FEMA UST	INST CONTROL	VCP	INDIAN VCP	BROWNFIELDS
SPECIALTY LIGHTING INC 639 WASHBURN SWITCH RD SHELBY, NC 28150 1000171362	A1 TP												X																				
HESS AMERICA 639 WASHBURN SWITCH RD SHELBY, NC 28151 1004746905	A2 TP												X																				
JJI LIGHTING GROUP 639 WASHBURN SWITCH RD SHELBY, NC 28150 1011930496	A3 TP																																
ARDEE/TRANSLITE 639 WASHBURN SWITCH RD SHELBY, NC S111380337	A4 TP																		X														
CLEARWATER PAPER 671 WASHBURN SWITCH RD SHELBY, NC 28150 1014472658	5 North 1/8-1/4 1090 ft. Lower 873 ft.												X																				
ARTEE TEXTILE BUILDING 105 METROLINA DRIVE SHELBY, NC 28150 1014783492	B6 SSE 1/4-1/2 1622 ft. Lower 888 ft.																																
ARTEE INDUSTRIES ARTEE ROAD (1314 COUNTY ROAD) SHELBY, NC 28150 U001193728	B7 SSE 1/4-1/2 1647 ft. Lower 893 ft.																					X				X							

ADDITIONAL ENVIRONMENTAL RECORDS

SEARCH RESULTS Site	US BROWNFIELDS	DEBRIS REGION 9	ODI	HIST LF	SWRCY	INDIAN ODI	US CDL	US HIST CDL	LIENS 2	HMIRS	IMD	SPILLS 90	SPILLS 80	RCRA NonGen / NLR	DOT OPS	DOD	FUDS	CONSENT	ROD	UMTRA	US MINES	TRIS	TSCA	FTTS	HIST FTTS	SSTS	ICIS	FINDS	NOTES
SPECIALTY LIGHTING INC 639 WASHBURN SWITCH RD SHELBY, NC 28150 1000171362																												X	
HESS AMERICA 639 WASHBURN SWITCH RD SHELBY, NC 28151 1004746905																													
JJI LIGHTING GROUP 639 WASHBURN SWITCH RD SHELBY, NC 28150 1011930496																												X	
ARDEE/TRANSLITE 639 WASHBURN SWITCH RD SHELBY, NC S111380337																													
CLEARWATER PAPER 671 WASHBURN SWITCH RD SHELBY, NC 28150 1014472658																													
ARTEE TEXTILE BUILDING 105 METROLINA DRIVE SHELBY, NC 28150 1014783492	X																											X	
ARTEE INDUSTRIES ARTEE ROAD (1314 COUNTY ROAD) SHELBY, NC 28150 U001193728											X																		

Additional databases with no records identified: PADS, MLTS, RADINFO, RAATS, RMP, UIC, DRYCLEANERS, NPDES, INDIAN RESERV, SCRD DRYCLEANERS, US AIRS, PRP, 2020 COR ACTION, EPA WATCH LIST, US FIN ASSUR, PCB TRANSFORMER, COAL ASH, COAL ASH DOE, COAL ASH EPA, Financial Assurance, LEAD SMELTERS, EDR MGP, EDR US Hist Auto Stat, EDR US Hist Cleaners

*** = EDR PROPRIETARY**

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 – 1/4	1/4 – 1/2	1/2 – 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA-TSDF		0.500	0	0	0	NR	NR	0
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG	X	0.250	0	1	NR	NR	NR	3
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
NC HSDS		1.000	0	0	0	0	NR	0
SHWS	X	1.000	0	0	0	0	NR	1
SWF/LF		0.500	0	0	0	NR	NR	0
OLI		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	1	NR	NR	1
LUST TRUST		0.500	0	0	0	NR	NR	0
LAST		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
INDIAN VCP		0.500	0	0	0	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
US BROWNFIELDS		0.500	0	0	1	NR	NR	1
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
HIST LF		0.500	0	0	0	NR	NR	0
SWRCY		0.500	0	0	0	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
US CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
LIENS 2		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
IMD		0.500	0	0	1	NR	NR	1
SPILLS 90		TP	NR	NR	NR	NR	NR	0
SPILLS 80		TP	NR	NR	NR	NR	NR	0
RCRA NonGen / NLR		0.250	0	0	NR	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 – 1/4	1/4 – 1/2	1/2 – 1	> 1	Total Plotted
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
US MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS	X	TP	NR	NR	NR	NR	NR	2
RAATS		TP	NR	NR	NR	NR	NR	0
RMP		TP	NR	NR	NR	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
US AIRS		TP	NR	NR	NR	NR	NR	0
PRP		TP	NR	NR	NR	NR	NR	0
2020 COR ACTION		0.250	0	0	NR	NR	NR	0
EPA WATCH LIST		TP	NR	NR	NR	NR	NR	0
US FIN ASSUR		TP	NR	NR	NR	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
COAL ASH		0.500	0	0	0	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
Financial Assurance		TP	NR	NR	NR	NR	NR	0
LEAD SMELTERS		TP	NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR MGP		1.000	0	0	0	0	NR	0
EDR US Hist Auto Stat		0.250	0	0	NR	NR	NR	0
EDR US Hist Cleaners		0.250	0	0	NR	NR	NR	0

NOTES:
TP = Target Property
NR = Not Requested at this Search Distance
Sites may be listed in more than one database

APPENDIX B

COPY OF THE MOST-RECENTLY AVAILABLE SITE SURVEY PLAT

(60' EASEMENT Ref: DB 9,Z Pg 62)

741.78'

N 79°00'00"E

ASPHALT DRIVE

SAND FILTRATION PIT

FIRE HYDRANT

LIGHT POLE

POWER LINE

DOCK

MH

CONCRETE DRAIN

CB

CULVERT

VERT

ASPHALT

CONCRETE

WALK

BRICK BUILDING

METAL BUILDING

GAS METER

HYDRANT

WATER VALVE

GAS VALVE

S 18°49'43"E 245.12'

S 19°25'55"E 100.01'

S 22°12'38"E 100.06'

S 27°40'43"E 100.06'

LINE WITH CENTERLINE

NAIL IN CENTERLINE LOCATED N 14°08'49"W 396.92' FROM NCDOT CONTROL MON - BY7-355

NAIL IN CENTERLINE

TRACK

TRACK

NCDOT CONTROL MON - BY7-355

ASPHALT PARKING

SOIL DRIVE

S 79°28'17"W

REBAR 2.52' NORTH OF LINE

IRON PIN 1.82' NORTH OF LINE

R/W

R/W

CORNER OF PARKING LOT ENCROACHES 1.00'

ROSA M. JAMERSON
13,V-503 75,E-229

:. DOGETT
-231

100 0 100 200 300

GRAPHIC SCALE - FEET

OWNER and SURVEY FOR

JJI Lighting Group, Inc.

DEED REF : DB 1125 Pg 2356

TWSP# 7 CLEVELAND COUNTY, N.C.

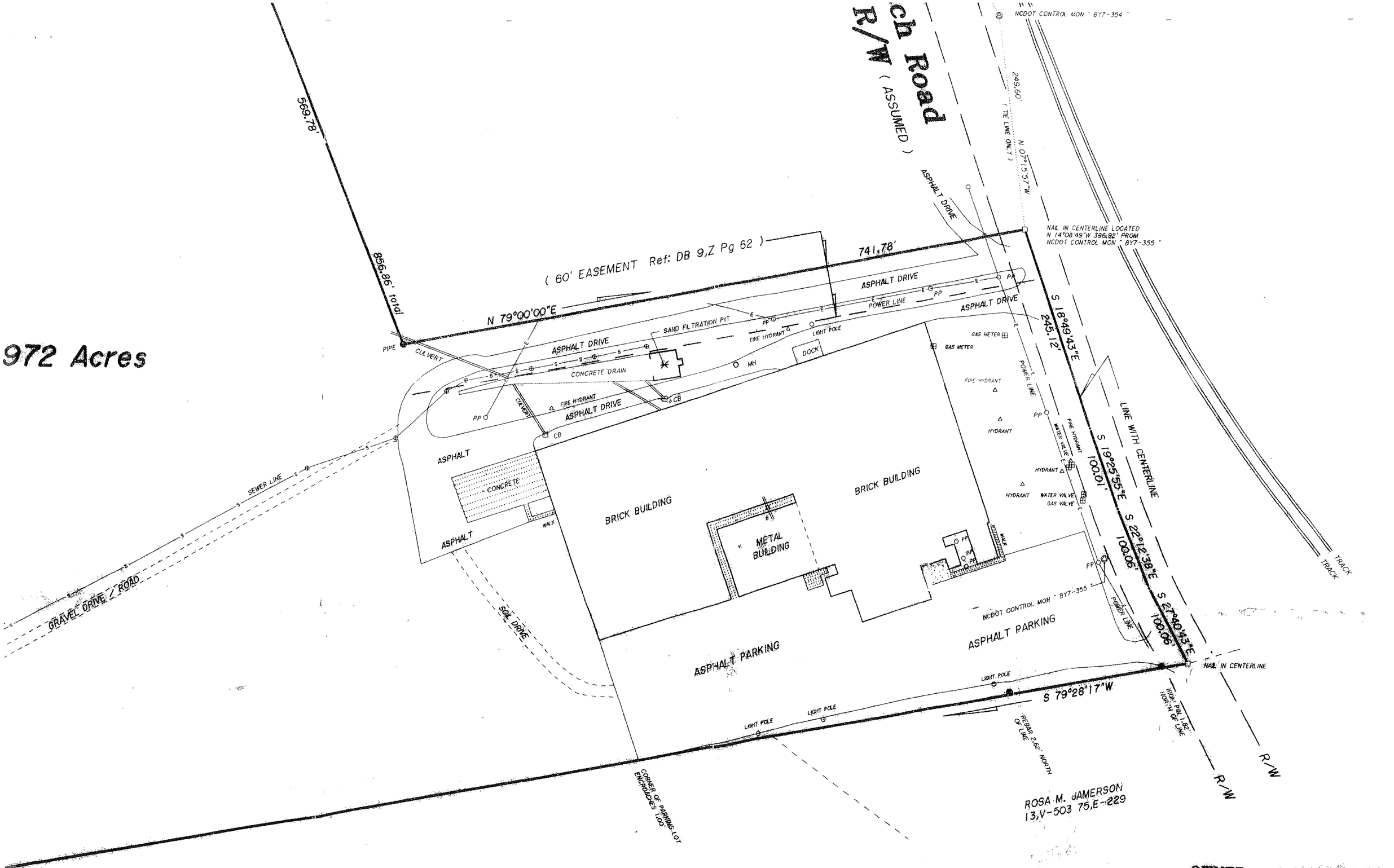
TAX MAP REF: 3294-1-49

SCALE 1" = 100' DATE 01/26/93

REVISED 10/28/02

SURVEY BY :
T. SCOTT BANKHEAD
1203 E. MARION ST., STE. I
SHELBY , N.C. 28150
(704) 481 - 1040

972 Acres



OWNER and SURVEY FOR

GEORGE C. DOGETT

DEED

ALAN S. HOVIS
1227-334

N 35°01'32"E

PIPE

361.72'

N 43°18'16"W

ANGLE IRON

495.54'

N 09°00'33"E

BRANCH

MH

MH

JOHN F. WEAVER
1149-2331

DISCHARGE PVC PIPE

DISCHARGE PVC PIPE

SEPTIC SYSTEM

SEWER LINE

SEWER LINE

GRAVEL DRIVE / ROAD

1888.20' TOTAL FROM CENTERLINE

569.78'

856.86' total

PIPE

36.972 Acres

LEGEND

- EXISTING IRON
- EXISTING NAIL
- UNMARKED POINT IN CENTERLINE
- FIRE HYDRANT
- GAS METER
- WATER VALVE / METER
- POWER POLE / LIGHT POLE
- MANHOLE
- SEWER CLEANOUT

NORTH CAROLINA PROFESSIONAL SEAL L-3001 LAND SURVEYOR T. SCOTT BANKHEAD

I, T. SCOTT BANKHEAD, Professional Land Surveyor, certify that this map was drawn from an actual field survey

APPENDIX C

HISTORIC REPORT: PHASE II ESA

Privileged and Confidential

AECOM

AECOM
Greenville, SC
October 2011

Phase II Environmental Site Assessment
Ardee/Translite, Shelby, North Carolina

Prepared for:

Genlyte Thomas Group LLC
Burlington, Massachusetts

Prepared by:

AECOM
Greenville, South Carolina

Privileged and Confidential

AECOM

AECOM
Greenville, SC
October 2011

Prepared for:

Genlyte Thomas Group LLC
Burlington, Massachusetts

Prepared by:

AECOM
Greenville, South Carolina

Prepared by Michael Branson, PG

Prepared by Dave Oliphant, CHMM

Reviewed by Richard Hixon, NH PG, CT LEP

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Executive Summary

AECOM Technical Services (AECOM) has prepared this report for the Limited Phase II Environmental Site Assessment (ESA) performed for the Ardee/Translite (formerly Specialty Lighting) manufacturing facility located at 639 Washburn Switch Road, Shelby, North Carolina.

The subject property (the Property) is located approximately five miles northwest of the downtown part of the City of Shelby. The Property includes one approximately 126,000 square foot building. According to historic documents, approximately 60,000 square feet of the facility was constructed in 1960 and was used for the production of rayon hosiery made from yarn. The office portion reportedly was renovated in 1980 and 2008, and an additional 60,000 to 65,000 square feet was added to the manufacturing part of the building. The building is situated on a 5.36-acre portion of the 37-acre site. The remaining 32 acres are primarily undeveloped and wooded. The facility building consists of approximately 23,200 square feet of office space with the remainder of the building used for manufacturing operations. Ardee/Translite currently manufactures lighting fixtures. Operations conducted at this site include lighting fixture assembly only.

Based on a review of available documents, AECOM believes that Phase I ESAs have been conducted at the Ardee/Translite site by others during the following times: June 1996, 2002 (month not indicated), December 2004, and December 2005. According to American Society for Testing and Materials (ASTM) Standard Practice E-1527-05, the purpose of the Phase I ESA is to identify existing and potential recognized environmental conditions (RECs), which are defined by the ASTM as *"the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property."* RECs for the Property were identified in the four Phase I ESA reports completed to date by other environmental consultants.

AECOM reviewed excerpts of the 1996, 2004, and 2005 Phase I ESA reports; complete reports were not available. No excerpts from the 2002 Phase II ESA report were available. These reports indicated that the chlorinated solvents trichloroethene (TCE) and 1,1,1-

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trichloroethane (TCA) were used on site in the past, likely for metal degreasing. The information in the report excerpts indicated the following known or potential historic solvent uses:

- A former 1,1,1-TCA aboveground storage tank (AST), reportedly used prior to the mid-1990s, and located adjacent to the south end of the building outside the paint line area;
- A former TCE degreaser, location unknown but assumed to be inside the building in the area of the paint line;
- A 1988 release of TCA from a 5- to 20-gallon (reportedly) spill in the paint room, which overflowed into a concrete ditch outside of the building;
- A pre-1988 paint burn off area, in which solvents were used to remove paint and assist in the burn off; this area reportedly was located adjacent to the parking lot in the southwest part of the Property (exact location unknown); and
- A septic tank, which according to site personnel interviewed during the Phase I ESAs reportedly never received solvents. Current personnel indicated that the septic tank has been filled in but has not been removed from the ground.

Long-time local Ardee/Translite personnel on August 25, 2011 stated to AECOM that to their knowledge, no paint burning was ever conducted outside in the southwest part of the Property or anywhere outside. The paint removal process reportedly occurred inside the building at the paint shop. Therefore, the southwest part of the property does not appear to represent a concern. Soil samples were collected from that area as part of this Phase II ESA, and no evidence of soil impacts were found.

AECOM completed this Phase II ESA as a continuation of the historic Phase I ESAs performed by others, to further evaluate RECs in a manner consistent with the provisions of ASTM 1903-97(2002) guidance for the completion of Phase II ESAs. As a result of additional investigation completed during this Phase II ESA, the probable location of the former AST was determined with the assistance of site personnel. One soil boring was installed in the area of the former AST, and soil samples were collected for visual identification, on-site screening for total volatile organic vapors, and laboratory analysis for volatile organic compounds (VOCs). Four other borings were also installed on site, and

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temporary groundwater monitoring wells were installed in all five of the borings to the depth of drilling equipment refusal. Soil samples were collected from two borings based on the soil screening protocols and other predetermined criteria. Groundwater samples were collected from four of the temporary wells; no water was present in the fifth well at the depth of drilling equipment refusal.

Laboratory analytical results indicated the following:

- Soil Media: No VOCs attributable to site conditions were detected in any of the soil samples analyzed.

- Groundwater Media: VOC species exceeded the North Carolina 2L standards in samples from wells TW-2 (in the vicinity of the former 1,1,1-TCA tank) and TW-3 (in the vicinity of the former septic tank). The constituents PCE, TCE, and 1,2-dichloroethane (DCA) slightly exceeded the 2L standards in the TW-2 sample, and 1,1-dichloroethene (DCE) was reported at 250 micrograms per liter (µg/L), exceeding the 2L standard of 7 µg/L. These data are evidence of a VOC release to groundwater from one of the potential sources in this area. At point TW-3, one constituent (PCE) was detected, slightly exceeding the 2L standard. No VOCs were detected in the downgradient-most sample (TW-5), indicating that there is no evidence of a release to groundwater that is moving near the Property boundary in that direction. Also, no VOCs were detected in the presumed upgradient sample (TW-1), indicating that there is no evidence of migration of VOCs onto or off the Property in that direction.

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1.0 Introduction

1.1 Purpose

AECOM has prepared this report for the Limited Phase II Environmental Site Assessment (ESA) for the Ardee/Translite property located at 639 Washburn Switch Road, Shelby, North Carolina. The Phase II ESA was conducted for the Genlyte Thomas Group LLC pursuant to AECOM's proposal dated March 28, 2011. This Phase II ESA was completed as a continuation of Phase I ESAs conducted by others in 1996, 2002, 2004, and 2005. The Phase II ESA was performed to further evaluate potential recognized environmental conditions (RECs) in a manner consistent with the provisions of ASTM 1903-97(2002) guidance for Phase II ESAs.

1.2 Objectives

The primary objective of the Phase II ESA was to address the RECs identified during the previous Phase I ESAs, particularly as related to historic usage of chlorinated solvents in manufacturing processes. As stated in the March 28, 2011 proposal, the Phase II ESA was designed to determine if there are indications that groundwater at or downgradient of the historic TCA and TCE use areas is currently impacted by past releases of these or other volatile organic compounds (VOCs). The March 2011 proposal listed five areas of the Property for groundwater sampling, and soil sampling also was to be conducted if field instrumentation indicated the potential for soil contamination. Those five areas were:

1. **Presumed upgradient area.** The 1996 Phase I ESA Report indicates that the nearest surface water body is a small creek west of the Property, so it was initially assumed that the topographically and hydraulically upgradient part of the Property borders Washburn Switch Road; however, based on field observations during the Phase II ESA, it is possible that the area between the building and Washburn Switch Road may be a topographic divide on the Property;
2. **South side of the building**. The area of the former TCA above-ground storage tank and former TCA spill area;
3. **North side of the building.** Near the septic tank and sand filtration pit;

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4. **Southwest side of building**. Presumed downgradient area of the Property and assumed pre-1998 paint burn and solvent use area; and
5. **Northwest side of building.** Presumed downgradient area below the sand filtration pit and near the outfall for the storm drains on the north side of the Property.

Regarding Area 4 above, long-time local Ardee/Translite personnel stated to AECOM on August 25, 2011 that to their knowledge, no paint burning was ever conducted outside in the southwest part of the Property or anywhere outside. The paint removal process reportedly occurred inside the building at the paint shop where paint-encrusted hooks were run through the degreaser until the paint was removed.

1.3 Study Limitations and Exceptions

This report describes the results of AECOM's due diligence assessment to identify the presence of environmental liabilities materially affecting the Property. In conducting this due diligence evaluation, AECOM assessed the presence of liability conditions within the limits of the established scope of work as described in our letter proposal.

In the conduct of this due diligence investigation, AECOM attempted to independently assess the presence of such conditions within the limits of the established scope of work as described in our proposal. As with any due diligence evaluation, there is a certain degree of dependence upon oral information provided by facility representatives which is not readily verifiable through visual observations or supported by any available written documentation. AECOM shall not be held responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed by site representatives at the time this assessment was performed. In addition, the findings in the report are subject to certain conditions and assumptions. The conditions and assumptions are noted in the report, and any party reviewing the findings of the report must carefully review and consider all such conditions and assumptions.

This report and all field data and notes were gathered and/or prepared by AECOM in accordance with the agreed upon scope of work and generally accepted engineering and scientific practice in effect at the time the Phase II ESA was completed. The statements, conclusions, and opinions contained in this report are only intended to give approximations of the environmental conditions at the Property.

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This report is prepared pursuant to an agreement between the Genlyte Thomas Group LLC and AECOM and is for the exclusive use of the Genlyte Thomas Group LLC. Use of the report by any third party is prohibited without the express written consent of AECOM and its customer. The passage of time may result in changes in technology, economic conditions, site variations, or regulatory provisions which would render the report inaccurate. Reliance on the report after the date of issuance as an accurate representation of current site conditions shall be at the user's sole risk.

1.4 Site-Specific Limitations

Groundwater was encountered in four of the five borings (TW-1, TW-2, TW-3, and TW-5), but only at depths close to the drilling equipment refusal points. Therefore, the groundwater sampling represents only the upper part of the uppermost aquifer. One temporary well (TW-4) that was installed was dry at the time of installation and continued to be dry the following day. As a result, no groundwater sample was collected for laboratory analysis from that location.

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2.0 Site Description

2.1 Site Location and Description

The Property is located approximately five miles northwest of the downtown part of the City of Shelby, North Carolina (Figure 1). The Property includes one building with surface area of approximately 126,000 square feet. According to previous reports, approximately 60,000 square feet of the facility was constructed in 1960; and was used for the production of rayon hosiery made from yarn. The office portion reportedly was renovated in 1980 and 2008, and an additional 60,000 to 65,000 square feet was added to the manufacturing part of the building. The building is situated on a 5.36-acre portion of the 37-acre site. Surrounding the building are asphalt paved areas which serve as parking and loading areas for the facility (Figure 2). The remaining 32 acres are primarily undeveloped and wooded. The facility building consists of approximately 23,200 square feet of office space with the remainder of the building used for manufacturing operations.

2.2 Site and Vicinity Characteristics

General land use surrounding the Property consists of commercial/light industrial properties. Uses of adjacent properties identified during the site visit are as follows:

North: The Property is bordered to the north by Piedmont Components, a wooden truss manufacturing facility.
East: The Property is bordered to the east by Washburn Switch Road and CSX Railroad.
South: The Property is bordered to the south by private residences.
West: The Property is bordered to the west by undeveloped farmland.

2.3 Current Use of the Property

Ardee/Translite is a lighting fixture manufacturer that performs sheet metal fabrication, assembly, warehousing, and administrative functions at the Property. The facility formerly conducted machining, powder coat painting, and welding, but these activities were discontinued around 2003.

The facility is comprised of administrative, manufacturing, storage, and distribution areas. The office areas are located in the eastern portion of the building and consist of office spaces, a break room, janitor closets, and restrooms. The office areas are generally finished

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interiors (e.g., drywall, carpet covered floors, ceiling tiles, some floor tiles). The manufacturing areas, consisting primarily of storage, assembly, shipping and receiving, are generally unfinished with bare concrete floors, exposed block walls, exposed ceilings. Some of the materials, equipment, and machinery noted in manufacturing areas during AECOM's site reconnaissance include large metal presses (present at the facility, but not used), steel and aluminum coils, maintenance areas, and compressed air tanks.

Four truck-level loading docks are situated along the north and west sides of the building. According to site personnel, no hazardous waste is generated or stored at the Property. 1,1,1-TCA was used as a degreaser in the paint shop, but its use has been discontinued.

Access is via Washburn Switch Road, which borders the east side of the Property. Asphalt-paved parking areas are located on the south side of the building.

2.4 Physical Setting Information

Based on a review of the United States Geological Survey (USGS) topographic map covering the Property (Shelby, NC quadrangle, Figure 1), the Property is located at an elevation at approximately 880 feet above mean sea level. The surface topography of the Property is gently sloping with an overall regional topographic gradient downward to the west-southwest. The topographic map also suggests that across Washburn Switch Road from the Property, topography drops sharply to the east.

The dominant soil component underlying the Property, as described in the Soil Survey of Cleveland County, North Carolina, is Urban land, which consists of areas that are covered by streets, parking lots, driveways, or buildings. The western section of the Property is underlain by Appling, a loamy sand, moderately well drained, with moderate infiltration rates. The remaining sections of the Property are underlain by the Cecil series, with characteristics similar to the Appling. Data collected during the Phase II ESA indicated that bedrock in the area of the Property, typically dense metamorphic gneisses and schists, is encountered at least 22 to 35 feet below the surface of the ground, which were the depths of refusal of the geoprobe. Based on a review of the USGS topographic map for the area and the field observations of August 2011 during the Phase II ESA field activities, groundwater flow is inferred to be generally to the west.

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3.0 Subsurface Investigation Methods

AECOM performed a Phase II ESA in conformance with the proposal dated March 28, 2011. As stated previously in Section 1.0, the primary objective of the Phase II ESA was to determine if there are indications that soil and groundwater at the historic TCA and TCE use areas or groundwater downgradient of those use areas is currently impacted by past releases of these or other VOCs. In addition, sampling of groundwater was attempted from an upgradient area and at areas at and downgradient of the septic tank and sand filtration pit as part of this Phase II ESA.

3.1 Soil Borings and Soil and Groundwater Sample Collection

Prior to the subsurface drilling, potential locations were cleared by a private utility locator firm, Utility Specialists of Pelzer, South Carolina. Also, a telephone call was made on August 18, 2011 to the North Carolina "One Call" hotline, the public utility dig and excavation clearing house, and dig ticket number A112300845 was issued.

During the Phase II ESA, five borings (SB-1/TW-1 through SB-5/TW-5) were advanced using a Geoprobe, Model 7820, at the locations depicted in Figure 2. Boring SB-2/TW-2 was advanced in the immediate vicinity of the former 1,1,1-TCA AST on the south side of the building. That boring was located downgradient of the indoor TCA release area and downgradient of the former indoor TCE degreaser. Boring SB-3/TW-3 was advanced at a location between the septic tank and the sand filtration pit, on the north side of the building. Borings SB-4/TW-4 and SB-5/TW-5 were located in the presumed hydraulically downgradient direction (to the southwest or west, respectively) of points SB-2/TW-2, and SB-3/TW-3, respectively, to evaluate groundwater quality downgradient of those two potential VOC release areas. Boring SB-1/TW-1, the upgradient boring, was advanced in the presumed hydraulically upgradient direction to evaluate the quality of groundwater coming onto the Property.

The soil borings were advanced on August 25, 2011 using a Geoprobe rig operated by SAEDACCO, a drilling firm from Fort Mill, South Carolina. Mr. Michael Branson, a North Carolina professional geologist with AECOM, was on-site to direct the boring program and also to collect soil samples for visual identification and on-site screening for volatile organic

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vapor. Based on the field screening of soils from all five locations, using a Mini-Rae® photoionization detector (PID) with an 11.7 eV bulb, Mr. Branson collected soil samples from two locations for laboratory analysis of VOCs, and he collected groundwater samples from four of the five borings for VOC analysis.

Soil samples were collected and contained in acetate sleeves inside the direct push sampler. Each of these sleeves was divided into 2-foot long sections for soil sample screening. Each 2-foot interval was placed in a resealable container, and the container was set aside for a sufficient amount of time to allow volatilization of organic compounds from the soil to the headspace. The probe of a PID was inserted into the container and the reading was recorded. If no sample in the boring resulted in a reading of 5 ppm or more, no sample was collected for analysis. The exception to this protocol was boring SB-1/TW-1 where a background soil sample was collected for quality assurance/quality control (QA/QC) purposes.

The lithology at the site was consistent throughout. The top four to six feet consisted of a medium to reddish brown reworked fill. Below the fill was a multicolored silt/sand saprolite that increased in hardness until geoprobe refusal was encountered. The lithology at the refusal depths was partially weathered rock to a coarse-grained sandy saprolite. The borings were terminated upon encountering refusal at depths of 22 to 35 feet below ground surface. Additional details on the subsurface conditions are presented in the soil boring logs in Appendix A.

Following completion of the soil boring, temporary groundwater monitoring wells were installed at each location. Well installation consisted of placing a 10-foot section of pre-packed, 1”-diameter polyvinyl chloride (PVC) well screen at the bottom of the boring and attaching sufficient casing to bring the well above grade. After installation, groundwater was confirmed in all the wells except TW-4. Well TW-4 continued to be dry the following day, August 26, 2011. SAEDACCO developed each of the other four wells with a peristaltic pump and continued development until the water cleared. The water columns ranged from 3.5 feet in TW-3 to 9.7 feet in TW-2. These water columns represented sufficient groundwater for sampling.

Groundwater samples were collected using a peristaltic pump and new tubing. Prior to inserting the tubing, depth-to-groundwater measurements were made at each temporary

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well. This depth established whether a peristaltic pump or bailer could be used for groundwater retrieval. All groundwater depths were such that the peristaltic pump was able to be used for sample collection. The wells were sampled via the low-flow technique whereby the bottom of the tubing was placed at the approximate midpoint of the water column and a low flow rate was used to obtain representative groundwater samples. Generally the purge flow rate was established by inserting a water level probe into the well to determine the drawdown and varying the flow until minimal drawdown was established. However, the small diameter casing did not allow for the insertion of the water level probe, so flow rates ranging from 100 to 200 milliliters per minute were maintained. Even at these low rates, each well was pumped dry to the bottom of the tubing but still produced adequate groundwater volumes for sampling. Purging was considered complete when the field parameters of temperature, pH, specific conductance, dissolved oxygen, and redox potential had stabilized. QA/QC samples were collected from well TW-1, the background location. Copies of the groundwater sample collection record forms are contained in Appendix B.

3.2 Laboratory Analysis of Soil and Groundwater Samples

Soil and groundwater samples were collected and placed into the laboratory-supplied containers. Samples were placed on ice in a sturdy shipping cooler and sent under standard chain-of-custody procedures to Shealy Environmental Services in West Columbia, South Carolina for analysis. Laboratory analysis was performed using U.S. Environmental Protection Agency (EPA) Method 8260 for VOCs.

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4.0 Investigation Results

4.1 Soil Analytical Results

A summary of the field and laboratory analytical results for the soil samples submitted for laboratory analysis are presented below. A copy of the laboratory report is included in Appendix C.

Summary of Organic Vapor (Field Screening) and VOC (Laboratory) Soil Results Samples Collected on August 25, 2011

Boring/Sample ID	Soil sample ID and sample depth	Maximum organic vapor concentrations (ppm), field result	Concentrations of Detected VOCs (µg/kg)
SB-1	SB-1, 6 - 8 feet bgs, SB-1MS, SB-1MSD (QA/QC samples)	0.7	No VOCs detected
SB-2	SB-2, 8 - 10 feet bgs	32.5	4-methyl-2-pentanone (5.7BJ/B/K)
SB-3	No sample collected for lab analysis	0.5	No sample collected for lab analysis
SB-4	No sample collected for lab analysis	0.0	No sample collected for lab analysis
SB-5	No sample collected for lab analysis	0.0	No sample collected for lab analysis

Notes:
ppm – parts per million
µg/kg – micrograms per kilogram
B – constituent detected in the laboratory method blank and therefore deemed to be a laboratory artifact
J – estimated concentration, less than practical quantitation limit (PQL) but greater than or equal to method detection limit (MDL)
K – detected in the sample at a concentration less than or equal to five times the concentration detected in the associated method blank; professional judgment must be used to determine if the detection is site-related

As indicated above, only two soil samples were collected for laboratory analysis. At boring SB-2, the maximum organic vapor concentration of 32 ppm exceeded the threshold vapor concentration of 5 ppm, so a soil sample was collected at the depth interval with the highest

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reading (8 - 10 feet below ground surface). The only VOC parameter detected in the sample was 4-methly-2-pentaone, at 5.7 µg/kg. However, this constituent was also detected in the laboratory method blank, so it is deemed that this is a laboratory artifact and not site-related. The only other soil sample collected was at background boring SB-1. No VOCs were detected in that sample.

From a QC sample viewpoint, the matrix spike (MS) and matrix spike duplicate (MSD) soil sample was collected at boring SB-1. Analytical results for this sample indicated that all surrogate recoveries were within acceptable analytical limits, which indicates that the analytical results are valid.

Since no VOCs were found to be site-related in any of the soil samples collected, no comparison with state of North Carolina standards was conducted.

4.2 Groundwater Analytical Results

A summary of the analytical results for the groundwater samples submitted for lab analysis are presented below. A copy of the laboratory report is included in Appendix B.

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Summary of VOC (Laboratory) Groundwater Results
Samples Collected on August 25-26, 2011

Temporary Well ID	Groundwater sample ID and well screen depth	Concentrations of Detected VOCs (µg/L)	North Carolina 2L Groundwater Standard (µg/L)	Exceeds the 2L Standard?
TW-1	TW-1, 22 – 27 feet bgs, TW-1MS, TW-1MSD (QA/QC samples)	chloromethane (methyl chloride) (0.51J)	3	No
TW-2	TW-2, 27 – 37 feet bgs	Benzene (0.26J); chloroform (13); 1,1-DCA (4.4J); 1,2-DCA (2.0J); 1,1-DCE (250); cis-1,2-DCE (1.2J), PCE (19); 1,1,1-TCA (0.36J); TCE (5.5);	1 70 6 0.4 7 70 0.7 200 3	No No No Yes Yes No Yes No Yes
TW-3	TW-3, 22 - 25 feet bgs	PCE (6.0);	0.7	Yes
TW-4	Well dry, not sampled	No sample collected for lab analysis		
TW-5	TW-5, 15 - 21 feet bgs	No VOCs detected		

Notes:
µg/L – micrograms per liter
J – estimated concentration, less than practical quantitation limit (PQL) but greater than or equal to method detection limit (MDL)
DCA – dichloroethane
DCE – dichloroethene
PCE – tetrachloroethene (perchloroethene)
TCA – trichloroethane
TCE – trichloroethene

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The analytical results were compared with the North Carolina 2L groundwater standards (15A NCAC 2L.0202). As indicated above, the only samples in which the 2L standards were exceeded were those collected from wells TW-2 and TW-3. The primary constituent detected was PCE and its degradation products of TCE; 1,1-DCE; and cis-1,2-DCE (Montgomery and Welkom, 1990). PCE was detected slightly above the 2L standard in groundwater from both the TW-2 and TW-3 monitoring wells. The secondary constituent detected was 1,1,1-TCA and its degradation products of 1,1-DCA, 1,2-DCA, and 1,1-DCE (Montgomery and Welkom, 1990). For the TW-2 groundwater sample, the 2L standards

were slightly exceeded for 1,2-DCA and for TCE. The constituent 1,1-DCE was detected at 250 µg/L, exceeding the 2L standard of 7 µg/L.

For QC purposes, a matrix spike (MS) and matrix spike duplicate (MSD) groundwater sample was collected at location TW-1. The QC samples for the groundwater samples indicate that several compounds were detected outside the acceptable surrogate recovery analytical limits. The compounds detected outside the acceptable limits were not those of concern for the Property and analytical results are considered valid.

Both PCE and 1,1,1-TCA, along with TCE, are chlorinated solvents historically used in metal degreasing operations. According to facility personnel, both 1,1,1-TCA and TCE have been used on site in the past. Historic use of PCE could not be confirmed by current facility personnel.

The presence of the detected constituents at the TW-2 location could be attributed to the former TCA aboveground tank and/or the indoor TCA release area the former indoor or former TCE degreaser. The presence of PCE in groundwater at a concentration exceeding the 2L standard at point TW-3 could indicate a small release from the septic tank. The absence of any VOCs in the groundwater sample from downgradient well TW-5 is an indication that there is no evidence of a groundwater contaminant plume that could be moving toward the Property boundary in that area. The absence of VOCs in the presumed upgradient sample TW-1 indicates that there currently is no evidence of a VOC source migrating onto or off the Property through groundwater in that area.

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5.0 Summary and Conclusions

AECOM conducted a Phase II ESA at the Ardee/Translite (formerly Specialty Lighting) Property located at 639 Washburn Switch Road, Shelby, North Carolina, approximately 5 miles northwest of downtown Shelby. During the Phase I ESAs conducted by others in 1996, 2002, 2004, and 2005, RECs were identified, and those RECs particularly were related to historic usage of chlorinated solvents in manufacturing processes at the Property. Therefore, a subsurface investigation was conducted during this Phase II ESA to assess the quality of the soil and groundwater in the areas of known and potential chlorinated solvent historical usage.

Drilling activities were conducted at the Property on August 25 and 26, 2011. Soil samples were collected from five borings on the Property, and the soil samples were screening in the field for volatile organic vapors. At the one boring (SB-2) where organic vapor concentrations exceeded the screening threshold concentration of 5 ppm, a soil sample was collected at the interval of the highest organic vapor concentration (32 ppm at the depth interval of 8 to 10 feet below ground surface) and packaged for laboratory analysis. A soil sample and associated QC samples were also collected at the background boring location SB-1.

Temporary groundwater monitoring wells were then installed at all five locations at the depth of auger refusal, which ranged from 22 to 35 feet below ground surface. Groundwater was encountered at four of the five locations. At point TW-4, located in the southwest direction from the main building, no groundwater was encountered. Groundwater samples were collected from the other four temporary wells, including upgradient well TW-1. Soil and groundwater samples were shipped under standard chain of custody protocol to the laboratory for analysis.

Laboratory analytical results indicated the following:

- <u>Soil media:</u> No VOCs attributable to site conditions were detected in any of the soil samples analyzed. This includes the alleged paint burn area in the southwest area of the Property. These data indicate that this alleged area does not appear to represent a concern.

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- Groundwater media: VOC species exceeded the North Carolina 2L standards in samples from wells TW-2 (in the vicinity of the former 1,1,1-TCA aboveground tank) and TW-3 (in the vicinity of the former septic tank). The constituents PCE, TCE, and 1,2-DCA slightly exceeded the 2L standards in the TW-2 sample, and 1,1-DCE was reported at 250 µg/L, exceeding the 2L standard of 7 µg/L. These data are evidence of a VOC release to groundwater from one of the potential sources in this area. At point TW-3, one constituent (PCE) was detected, slightly exceeding the 2L standard. No VOCs were detected in the downgradient-most sample (TW-5) indicating that there is no evidence of a release to groundwater that is moving near the Property boundary in that area. Also, no VOCs were detected in the presumed upgradient sample (TW-1), indicating that there is no evidence of migration of VOCs onto or off the Property in that area.

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6.0 References

Environ, 2004. *Final Phase I ESA Update for the JJI Lighting Group Facility Located in Shelby, North Carolina* (excerpts only).

Environ, date unknown. Environmental assessments of nine facilities operated by JJI Lighting (Including Specialty Lighting, Shelby, North Carolina (excerpts only).

Montgomery, John and Linda Welkom, 1990. Groundwater Chemicals Desk Reference. Lewis Publishers, Chelsea, Michigan.

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United States Department of Agriculture, 2006. *Soil Survey of Cleveland County,* North Carolina, US Government Printing Office, Washington, DC, 286 pp.

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Figures

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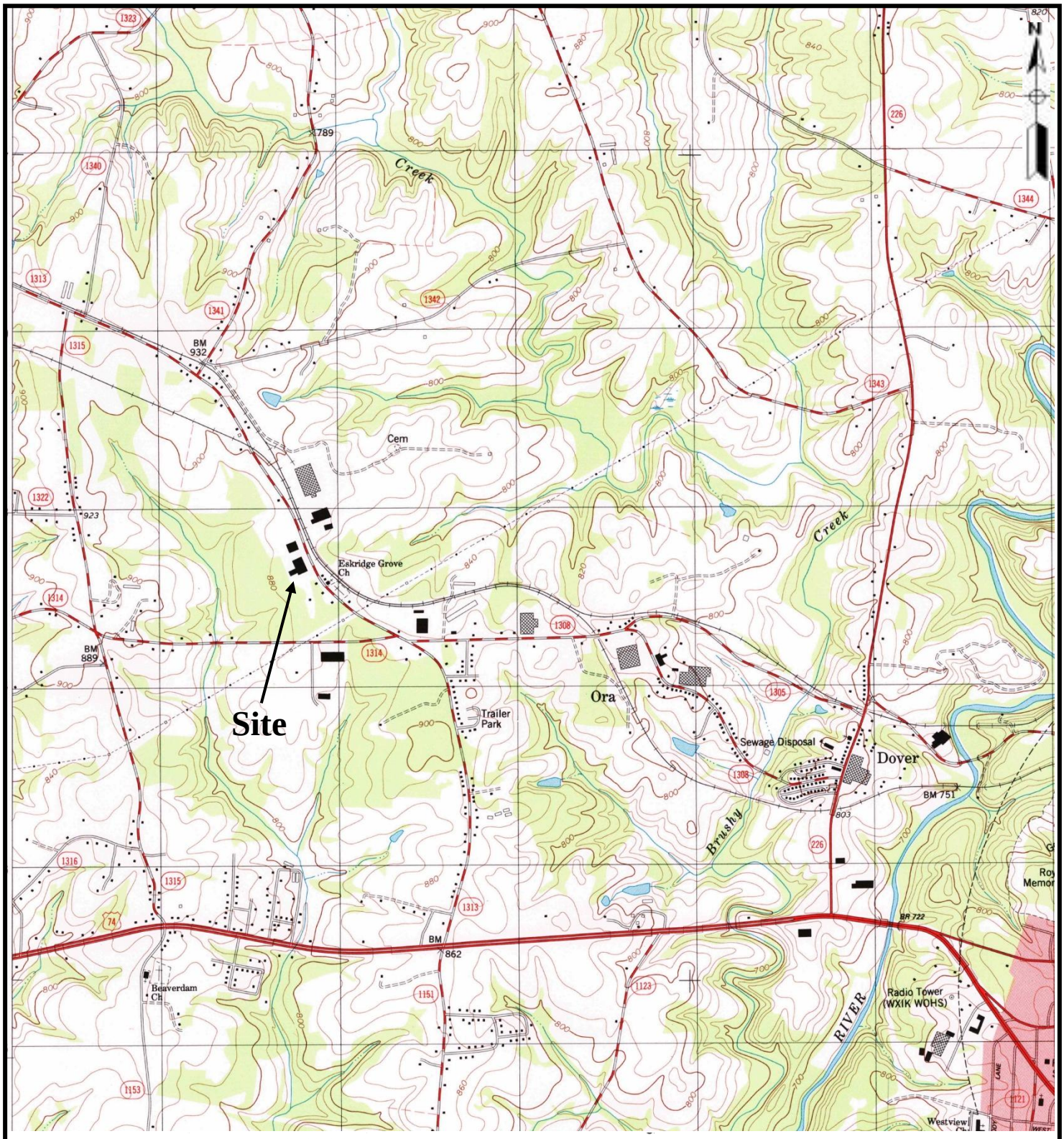

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KILOMETERS 1 0.5 0 1 2

METERS 1000 0 1000 2000

MILES 1 0.5 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

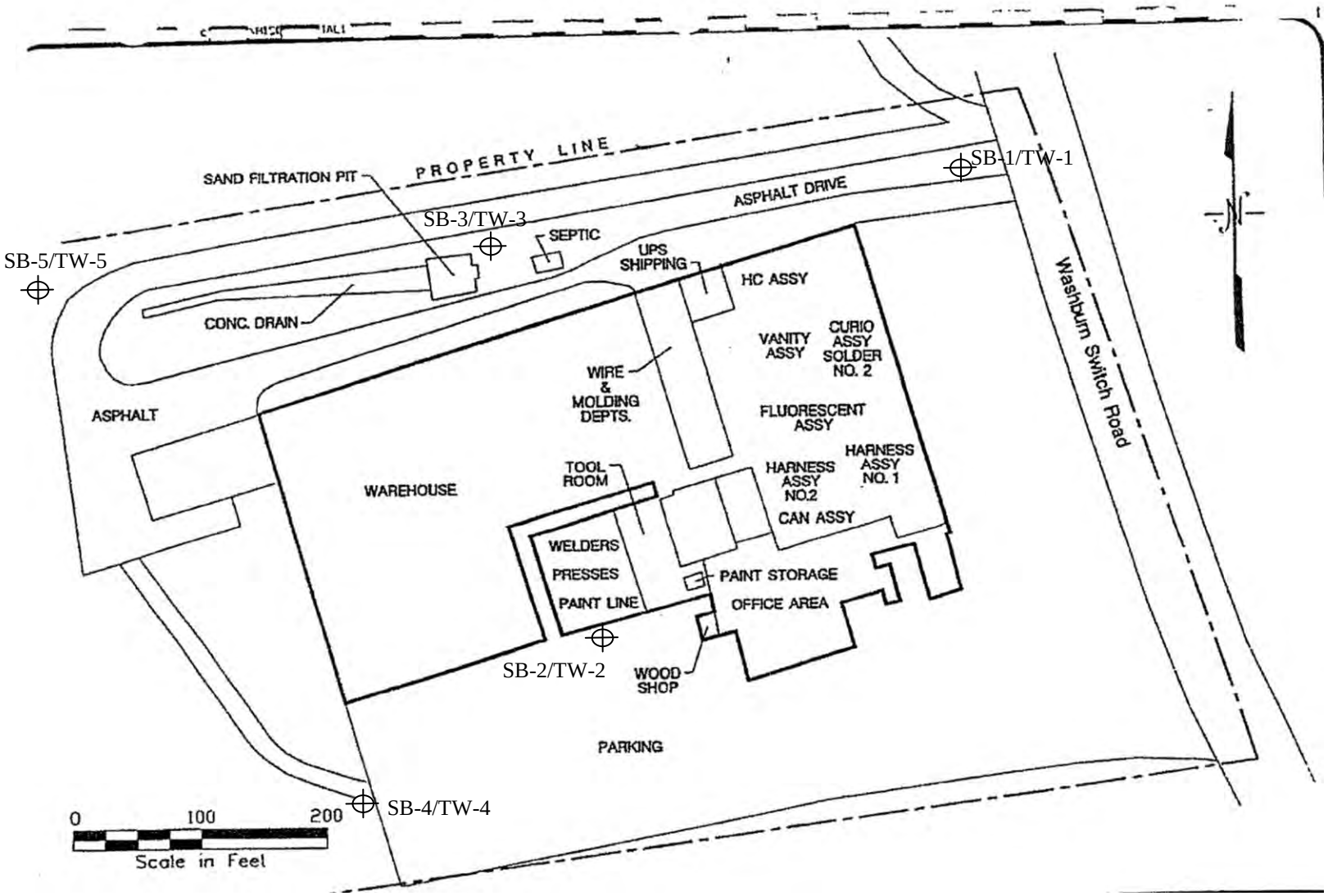
Modified from ENVIRON, 1996.

Source: USGS 7.5 Minute (Topographic)
Series: Shelby, North Carolina Quadrangle

AECOM

Figure 1
Site Location Map
ARDEE/TRANSLITE
Phase II ESA
Shelby, North Carolina

August 2011



Temporary Boring/Monitoring Well

Modified from ENVIRON, 1996.

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Figure 2
Site Plan
ARDEE/TRANSLITE
Phase II ESA
Shelby, North Carolina

August 2011

Appendix A

Soil Boring Logs

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TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-1/SB-1
PAGE
ELEVATION 35-18-46.758N 81-36-28.864W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				(CL) MEDIUM TO REDDISH BROWN STIFF SILT/CLAY.
	0.0				AS ABOVE
	0.5				AS ABOVE
5.0					
	0.7				(SM) MEDIUM BROWN TO TAN MEDIUM- TO COARSE-GRAINED SAND WITH SOME SILT. SUBMIT TO LABORATORY FOR ANALYSIS.
	0.0				AS ABOVE.
10.0					
	0.1				(CL) MOTTLED MEDIUM BROWN, REDDISH BROWN, TAN, AND BLACK SILT/CLAY. OCCASIONAL SAND (SAPROLITE)
	0.0				AS ABOVE
	0.0				AS ABOVE
15.0					
	0.0				AS ABOVE
	0.0				AS ABOVE TO 19 FEET. BECOMES (SM) MEDIUM- TO COARSE-GRAINED SAND SAPROLITE, WHITE WITH BLACK BANDS.
20.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-1/SB-1
PAGE 2
LOCATION 35-18-46.758N 81-36-28.864W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.0		AS ABOVE
			0.0		AS ABOVE
			0.0		AS ABOVE
25.0					
			0.0		AS ABOVE, WET AT 28 FEET.
					AS ABOVE
30.0					
					AS ABOVE
					AS ABOVE.
					REFUSAL ENCOUNTERED AT 33 FEET.
35.0					
40.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-2/SB-2
PAGE 1
ELEVATION 35-18-43.809N 81-36-27.599W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	24.9				4" ASPHALT AND GRAVEL - (CL) MEDIUM TO REDDISH BROWN STIFF SILT/CLAY.
	13.7				AS ABOVE
	28.6				AS ABOVE
5.0					
	18.2				AS ABOVE TO 7 FEET. BECOMES (CL) MOTTLED MEDIUM BROWN, REDDISH BROWN, AND TAN SILT/CLAY SAPROLITE
	32.5				AS ABOVE. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0					
	2.4				AS ABOVE
	1.3				AS ABOVE
	1.3				AS ABOVE
15.0					
	0.4				AS ABOVE
	0.6				AS ABOVE
20.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-2/SB-2
PAGE 2
LOCATION 35-18-43.809N 81-36-27.599W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.3		AS ABOVE
			0.1		AS ABOVE
			0.1		AS ABOVE
25.0					
			0.7		AS ABOVE
			0.6		AS ABOVE
30.0					
			0.5		AS ABOVE
			0.5		AS ABOVE, WET AT 35 FEET.
					REFUSAL ENCOUNTERED AT 35 FEET.
35.0					
40.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-3/SB-3
PAGE
ELEVATION 35-18-46.758N 81-36-28.864W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.5				(CL) MEDIUM TO REDDISH BROWN STIFF SILT/CLAY.
	0.0				(CL) MOTTLED MEDIUM BROWN, REDDISH BROWN, AND TAN SILT/CLAY
	0.0				AS ABOVE
5.0					
	0.0				AS ABOVE
	0.0				AS ABOVE.
10.0					
	0.0				AS ABOVE TO 11 FEET. BECOMES (SM) WHITE MEDIUM-GRAINED SAND.
	0.0				AS ABOVE
	0.0				(CL) MOTTLED MEDIUM BROWN, REDDISH BROWN, TAN, AND BLACK FINE-GRAINED SAND/CLAY SAPROLITE. SAND INCREASES DOWNWARD.
15.0					
	0.0				AS ABOVE
	0.0				AS ABOVE
20.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-3/SB-3
PAGE 2
LOCATION 35-18-46.758N 81-36-28.864W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.0		(SP) COARSE-GRAINED SANDSAPROLITE, WHITE WITH FREQUENT BLACK BANDS.
			0.0		AS ABOVE
			0.0		AS ABOVE
25.0					
					REFUSAL ENCOUNTERED AT 26 FEET.
30.0					
35.0					
40.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-4/SB-4
PAGE
ELEVATION 35-18-42.475N 81-36-29.645W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				(CL) MEDIUM TO REDDISH BROWN STIFF SILT/CLAY
	0.0				AS ABOVE
	0.0				AS ABOVE TO 5 FEET. BECOMES (CL) MOTTLED MEDIUM BROWN, REDDISH BROWN, TAN, AND BLACK SILT/CLAY SAPROLITE.
5.0					
	0.0				AS ABOVE
	0.0				AS ABOVE.
10.0					
	0.0				AS ABOVE TO 11 FEET. BECOMES (SM) MEDIUM- TO COARSE-GRAINED SAND SAPROLITE. SOME SILT, WHITE WITH OCCASIONAL BLACK BANDS.
	0.0				AS ABOVE
	0.0				AS ABOVE
15.0					
	0.0				AS ABOVE
	0.0				AS ABOVE
20.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-4/SB-4
PAGE 2
LOCATION 35-18-42.475N 81-36-29.645W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.0		AS ABOVE
			0.0		AS ABOVE
					REFUSAL ENCOUNTERED AT 23 FEET.
25.0					
30.0					
35.0					
40.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-5/SB-5
PAGE
ELEVATION 35-18-46.756N 81-36-33.375W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	OVA (ppm)	BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				(CL) MEDIUM TO REDDISH BROWN STIFF SILT/CLAY.
	0.0				AS ABOVE
	0.0				(ML) YELLOWISH BROWN FINE-GRAINED SAND AND CLAY, SOMEWHAT STIFF. SAND INCREASES AND BECOMES COARSER DOWNWARD.
5.0					
	0.0				AS ABOVE
	0.0				AS ABOVE.
10.0					
	0.0				AS ABOVE
	0.0				AS ABOVE
					AS ABOVE TO 15 FEET. BECOMES (SM) MEDIUM- TO COARSE-GRAINED SAND, WHITE TO TAN, WET AT 15 FEET.
15.0					
					AS ABOVE TO 17 FEET. BECOMES (CL) MOTTLED MEDIUM BROWN, TAN, AND BLACK SAPROLITE.
					AS ABOVE
20.0					

TEST BORING REPORT

PROJECT ARDEE/TRANSLITE
CLIENT GENLYTE THOMAS GROUP LLC
PROJECT NUMBER 60222287
CONTRACTOR SAEDACCO
EQUIPMENT GEOPROBE

BORING NUMBER TW-5/SB-5
PAGE 2
LOCATION 35-18-46.756N 81-36-33.375W
DATE AUGUST 25, 2011
DRILLER RANDY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					AS ABOVE
					REFUSAL ENCOUNTERED AT 22 FEET.
25.0					
30.0					
35.0					
40.0					

Appendix B

Groundwater Sample Collection Record Forms

Privileged and Confidential, Attorney Work Product

AECOM

Well ID: TW-1

Low Flow Ground Water Sample Collection Record

Client: GenLyte Thomas Group LLC Date: 8/26/11 Time: Start ____ am/pm
Project No: 60222287 Finish 0830 am/pm
Site Location: Shelby
Weather Conds: Clear/warm Collector(s): M Branson

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 29.9 c. Length of Water Column 5.26 (a-b)

Casing Diameter/Material 1" PVC

b. Water Table Depth 24.64 d. Calculated System Volume (see back) ____

2. WELL PURGE DATA

a. Purge Method: Low-flow

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	±1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
YSI	556 MPS	07910749

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0800	0.100	20.71	5.28	151	5.98	-90.3	—	100	—	cloudy
0805	.5	20.61	5.16	135	6.55	-93.7	—	100	—	clearing
0810	1.1	20.57	5.03	128	6.88	-96.4	—	100	—	clear
0815	1.6	20.53	4.95	126	7.48	-94.1	—	100	—	clear

(continued on back)

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Have parameters stabilized	☐	☐	☐

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
TW-1	VOA	3	HCL	8260	0820
TW-1MS	VOA	3	HCL	8260	0820
TW-1MSD	VOA	3	HCL	8260	0820

Comments Could not fit w/c probe in well while pumping. Set flow at 100 ml/min. No turbidity meter was on-site. Pumps DRY @ 100 ml/min

Signature M Branson Date 8/26/11

AECOM

Well ID: TW-2

Low Flow Ground Water Sample Collection Record

Client: Genlyte Thomas Group LLC Date: 8/26/11 Time: Start 1000 am/pm
Project No: 60222287 Finish _____ am/pm
Site Location: Shelby
Weather Conds: Clear/warm Collector(s): M Branson

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 37.35 c. Length of Water Column 9.69 (a-b) Casing Diameter/Material 1" PVC

b. Water Table Depth 27.66 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used: Make YSI Model 556 MPS Serial Number 07G101749

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1015	—	22.66	6.45	225	4.48	-161.3	—	200	—	Cloudy
1020	1.0	22.68	6.63	305	2.66	-163.0	—	200	—	clearing
1025	2.0	22.68	6.72	332	2.22	-165.1	—	200	—	clear
1030	3.0	22.73	6.77	330	2.10	-166.7	—	200	—	clear

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Have parameters stabilized	☐	☐	☐

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Low Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
TW-2	VOA	3	HCL	8260	1030

Comments Could not fit w/ probe in well while pumping. Set flow @ 200 ml/min

Signature M Branson Date 8/26/11

AECOM

Well ID: TW-3

Low Flow Ground Water Sample Collection Record

Client: GeNLyte Thomas Group LLC Date: 8/26/11 Time: Start 0830 am/pm
Project No: 60222287 Finish _____ am/pm
Site Location: Shelby
Weather Conds: Clear/warm Collector(s): MBranson

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 27.8 c. Length of Water Column 3.48 (a-b)

Casing Diameter/Material 1" PVC

b. Water Table Depth 24.32 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Low flow

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used: Make: YSI Model: 556 MPS Serial Number: 07G101749

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0845	—	20.15	5.62	122	4.87	-128.1	—	200	—	Clear
0850	1.0	20.53	5.34	119	4.34	-122.7	—	100	—	Clear
0855	1.5	20.80	5.44	116	3.74	-125.6	—	100	—	Clear
0900	2.0	20.61	5.25	110	3.65	-120.5	—	100	—	Clear

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Have parameters stabilized	☐	☐	☐

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
TW-3	VOA	3	HCL	8260	0900

Comments Could not fit w/L probe in well while pumping. Set flow rate @ 200 ml/min, well goes dry - reset to 100 ml/min

Signature MBranson Date 8/26/11

AECOM

Well ID: TW-4

Low Flow Ground Water Sample Collection Record

Client: Genlyte Thomas Group LLC Date: 8/26/11 Time: Start 1000 am/pm
Project No: 60222287 Finish _____ am/pm
Site Location: Shelby
Weather Conds: Clear / Warm Collector(s): M Branson

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 24.7 c. Length of Water Column — (a-b) Casing Diameter/Material

b. Water Table Depth — d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: _____

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used: Make Model Serial Number

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Have parameters stabilized	☐	☐	☐

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: _____

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time

Comments Well Dry

Signature M Branson Date 8/26/11

AECOM

Well ID: TW-5

Low Flow Ground Water Sample Collection Record

Client: GEnlyte Thomas Group LLC Date: 8/26/11 Time: Start 0920 am/pm
Project No: 60722287 Finish _____ am/pm
Site Location: Shelby
Weather Conds: Clear/warm Collector(s): M Brandon

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 22.8 c. Length of Water Column 5.89 (a-b)

Casing Diameter/Material 1" PVC

b. Water Table Depth 16.91 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used: Make YSI Model 556MPS Serial Number 07G101749

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0925	—	16.95	6.71	112	7.37	-151.3	—	150	—	clear
0930	0.75	17.13	7.37	107	7.34	-145.6	—	150	—	clear
0935	1.5	16.96	7.77	106	5.77	-137.2	—	150	—	clear
0940	2.25	16.88	7.60	107	5.66	-134.1	—	150	—	clear
0945	3.0	16.83	7.77	107	5.71	-133.1	—	150	—	clear

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Have parameters stabilized	☐	☐	☐

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Low Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
TW-5	VOA	3	HCL	8260	0945

Comments Could not fit w/c probe in well while pumping. Set flow @ 150 ml/min.

Signature M Brandon Date 8/26/11

Appendix C

Laboratory Analytical Report

Privileged and Confidential, Attorney Work Product

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Earth Tech / AECOM
10 Patewood Drive
Building 6, Suite 500
Greenville, SC 29615
Attention: Dave Oliphant

Project Name: **Genlyte Thomas Group LLC**

Project Number: **60222287**

Lot Number: **MH27005**

Date Completed: **09/02/2011**

Date Revised: **10/25/2011**

Nisreen Saikaly
Project Manager

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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

MH27005

Case Narrative
Earth Tech / AECOM
Lot Number: MH27005

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

Shealy is not NELAC certified for Phosphorus by 365.1 but is certified in SC and NC.

Shealy is not NELAC certified for VPH, but is certified for VPH in NC.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Volatile Organic Compounds

The MS/MSD recoveries in batch 66853 were outside acceptance criteria. All other QA/QC criteria for the batch were within acceptance criteria and method control limits. The MS/MSD recovery results are attributed to matrix interference. The associated sample results were reported and no corrective action was required.
The LCS recovery for Chloromethane (Methyl chloride), Methyl acetate and Vinyl chloride was slightly outside method control limits in batch 66944. As per method, it is statistically likely that a few analytes will be outside control limits; up to five analytes may marginally exceed the control limits. Therefore the associated sample results were reported and no corrective action was required.

Report Revision (10/25/2011)
This report was revised to updated the project name.

Sample Summary
Earth Tech / AECOM
Lot Number: MH27005

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	SB-2	Solid	08/25/2011 0930	08/27/2011
002	SB-1	Solid	08/25/2011 1400	08/27/2011
003	TW-1	Aqueous	08/26/2011 0820	08/27/2011
004	TW-2	Aqueous	08/26/2011 1030	08/27/2011
005	TW-3	Aqueous	08/26/2011 0900	08/27/2011
006	TW-5	Aqueous	08/26/2011 0945	08/27/2011
007	TRIP BLANK	Aqueous	08/26/2011	08/27/2011

(7 samples)

Executive Summary
Earth Tech / AECOM
Lot Number: MH27005

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	SB-2	Solid	4-Methyl-2-pentanone	8260B	5.7	BJ	ug/kg	5
003	TW-1	Aqueous	Chloromethane (Methyl chloride)	8260B	0.51	J	ug/L	9
004	TW-2	Aqueous	Benzene	8260B	0.26	J	ug/L	11
004	TW-2	Aqueous	Chloroform	8260B	13		ug/L	11
004	TW-2	Aqueous	1,1-Dichloroethane	8260B	4.4	J	ug/L	11
004	TW-2	Aqueous	1,2-Dichloroethane	8260B	2.0	J	ug/L	11
004	TW-2	Aqueous	1,1-Dichloroethene	8260B	250		ug/L	11
004	TW-2	Aqueous	cis-1,2-Dichloroethene	8260B	1.2	J	ug/L	11
004	TW-2	Aqueous	Tetrachloroethene	8260B	19		ug/L	11
004	TW-2	Aqueous	1,1,1-Trichloroethane	8260B	0.36	J	ug/L	11
004	TW-2	Aqueous	Trichloroethene	8260B	5.5		ug/L	12
005	TW-3	Aqueous	Tetrachloroethene	8260B	6.0		ug/L	13

(12 detections)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-001**
Description: **SB-2**
Matrix: **Solid**
Date Sampled: **08/25/2011 0930**
% Solids: **86.2** **08/28/2011 1230**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/30/2011 1234	SAS		66730	4.08
2	5035	8260B	1	08/31/2011 1326	SAS		66820	4.46

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		28	9.5	ug/kg	1
Benzene	71-43-2	8260B	ND		7.1	1.6	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		7.1	2.4	ug/kg	1
Bromoform	75-25-2	8260B	ND		7.1	1.0	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		7.1	2.6	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		14	3.4	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		7.1	1.8	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		7.1	2.6	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		7.1	2.4	ug/kg	1
Chloroethane	75-00-3	8260B	ND		7.1	1.8	ug/kg	1
Chloroform	67-66-3	8260B	ND		7.1	1.2	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		7.1	1.4	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		7.1	0.96	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		7.1	2.1	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		7.1	2.4	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		7.1	1.2	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		7.1	2.4	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		7.1	2.4	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		7.1	2.4	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		7.1	2.3	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		7.1	1.0	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		7.1	1.4	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		7.1	2.4	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		7.1	1.1	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		7.1	2.1	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		7.1	1.3	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		7.1	0.97	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		7.1	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.1	2.4	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		13	1.7	ug/kg	2
Isopropylbenzene	98-82-8	8260B	ND		7.1	0.33	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		7.1	1.4	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		7.1	0.57	ug/kg	1
4-Methyl-2-pentanone	**108-10-1**	**8260B**	**5.7**	**BJ**	**14**	**2.1**	**ug/kg**	**1**
Methylcyclohexane	108-87-2	8260B	ND		7.1	0.58	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		7.1	3.7	ug/kg	1
Styrene	100-42-5	8260B	ND		7.1	1.6	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		7.1	0.67	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		7.1	0.71	ug/kg	1
Toluene	108-88-3	8260B	ND		7.1	2.4	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		7.1	0.90	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		7.1	2.4	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		7.1	1.2	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-001**
Description: **SB-2**
Matrix: **Solid**
Date Sampled: **08/25/2011 0930**
% Solids: **86.2** **08/28/2011 1230**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/30/2011 1234	SAS		66730	4.08
2	5035	8260B	1	08/31/2011 1326	SAS		66820	4.46

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		7.1	1.1	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		7.1	2.7	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		7.1	2.1	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		7.1	1.2	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.1	4.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	53-142		95	53-142
Bromofluorobenzene		99	47-138		103	47-138
Toluene-d8		98	68-124		99	68-124

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-002**
Description: **SB-1**
Matrix: **Solid**
Date Sampled: **08/25/2011 1400**
% Solids: **86.3** **08/28/2011 1230**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/29/2011 2236	SAS		66671	4.39
3	5035	8260B	1	08/31/2011 1348	SAS		66820	4.56

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		26	8.8	ug/kg	1
Benzene	71-43-2	8260B	ND		6.6	1.5	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		6.6	2.2	ug/kg	1
Bromoform	75-25-2	8260B	ND		6.6	0.92	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		6.6	2.4	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		13	3.2	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		6.6	1.7	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		6.6	2.4	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		6.6	2.2	ug/kg	1
Chloroethane	75-00-3	8260B	ND		6.6	1.7	ug/kg	1
Chloroform	67-66-3	8260B	ND		6.6	1.1	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		6.6	1.3	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		6.6	0.89	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		6.6	2.0	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		6.6	2.2	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		6.6	1.1	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		6.6	2.2	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		6.6	2.2	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		6.6	2.2	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		6.6	2.1	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		6.6	0.96	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		6.6	1.3	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		6.6	2.2	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		6.6	1.0	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		6.6	2.0	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		6.6	1.2	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		6.6	0.90	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		6.6	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.6	2.2	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		13	1.7	ug/kg	3
Isopropylbenzene	98-82-8	8260B	ND		6.6	0.30	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		6.6	1.3	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		6.6	0.53	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		13	2.0	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		6.6	0.54	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		6.6	3.4	ug/kg	1
Styrene	100-42-5	8260B	ND		6.6	1.5	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		6.6	0.62	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		6.6	0.66	ug/kg	1
Toluene	108-88-3	8260B	ND		6.6	2.2	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		6.6	0.83	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		6.6	2.2	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		6.6	1.1	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
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H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-002**
Description: **SB-1**
Matrix: **Solid**
Date Sampled: **08/25/2011 1400**
% Solids: **86.3** **08/28/2011 1230**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/29/2011 2236	SAS		66671	4.39
3	5035	8260B	1	08/31/2011 1348	SAS		66820	4.56

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		6.6	1.0	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		6.6	2.5	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		6.6	2.0	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		6.6	1.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.6	3.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		102	53-142		93	53-142
Bromofluorobenzene		100	47-138		99	47-138
Toluene-d8		102	68-124		95	68-124

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
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ND = Not detected at or above the MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-003**
Description: **TW-1**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 0820**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	09/01/2011 1534	BM		66944

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	2
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	2
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	2
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	2
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	2
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	2
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	2
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	2
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	2
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	2
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	2
Chloromethane (Methyl chloride)	**74-87-3**	**8260B**	**0.51**	**J**	**5.0**	**0.30**	**ug/L**	**2**
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	2
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	2
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	2
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	2
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	2
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	2
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	2
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	2
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	2
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	2
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	2
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	2
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	2
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	2
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	2
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	2
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	2
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	2
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	2
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	2
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	2
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	2
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	2
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	2
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	2
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	2
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	2
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	2
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	2
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-003**
Description: **TW-1**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 0820**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	09/01/2011 1534	BM		66944

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	2
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	2
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	2
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		106	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-004**
Description: **TW-2**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 1030**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/31/2011 1539	BM		66853

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	**71-43-2**	**8260B**	**0.26**	**J**	**5.0**	**0.20**	**ug/L**	**1**
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	**67-66-3**	**8260B**	**13**		**5.0**	**1.7**	**ug/L**	**1**
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	**75-34-3**	**8260B**	**4.4**	**J**	**5.0**	**0.30**	**ug/L**	**1**
1,2-Dichloroethane	**107-06-2**	**8260B**	**2.0**	**J**	**5.0**	**0.30**	**ug/L**	**1**
1,1-Dichloroethene	**75-35-4**	**8260B**	**250**		**5.0**	**0.50**	**ug/L**	**1**
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**1.2**	**J**	**5.0**	**0.20**	**ug/L**	**1**
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	**127-18-4**	**8260B**	**19**		**5.0**	**0.40**	**ug/L**	**1**
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	**71-55-6**	**8260B**	**0.36**	**J**	**5.0**	**0.20**	**ug/L**	**1**
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1

PQL = Practical quantitation limit
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E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-004**
Description: **TW-2**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 1030**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/31/2011 1539	BM		66853

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Trichloroethene	**79-01-6**	**8260B**	**5.5**		**5.0**	**0.30**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-005**
Description: **TW-3**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 0900**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/31/2011 1600	BM		66853

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	**127-18-4**	**8260B**	**6.0**		**5.0**	**0.40**	**ug/L**	**1**
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-005**
Description: **TW-3**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 0900**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/31/2011 1600	BM		66853

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		90	70-130
Toluene-d8		94	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-006**
Description: **TW-5**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 0945**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/01/2011 1555	BM		66944

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-006**
Description: **TW-5**
Matrix: **Aqueous**
Date Sampled: **08/26/2011 0945**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/01/2011 1555	BM		66944

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		106	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-007**
Description: **TRIP BLANK**
Matrix: **Aqueous**
Date Sampled: **08/26/2011**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/01/2011 1616	BM		66944

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **Earth Tech / AECOM**
Laboratory ID: **MH27005-007**
Description: **TRIP BLANK**
Matrix: **Aqueous**
Date Sampled: **08/26/2011**
Date Received: **08/27/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/01/2011 1616	BM		66944

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		106	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66671-001
Batch: 66671
Analytical Method: 8260B
Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/kg	08/29/2011 1705
Benzene	ND		1	5.0	1.1	ug/kg	08/29/2011 1705
Bromodichloromethane	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
Bromoform	ND		1	5.0	0.70	ug/kg	08/29/2011 1705
Bromomethane (Methyl bromide)	ND		1	5.0	1.8	ug/kg	08/29/2011 1705
2-Butanone (MEK)	ND		1	10	2.4	ug/kg	08/29/2011 1705
Carbon disulfide	ND		1	5.0	1.3	ug/kg	08/29/2011 1705
Carbon tetrachloride	ND		1	5.0	1.8	ug/kg	08/29/2011 1705
Chlorobenzene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
Chloroethane	ND		1	5.0	1.3	ug/kg	08/29/2011 1705
Chloroform	ND		1	5.0	0.83	ug/kg	08/29/2011 1705
Chloromethane (Methyl chloride)	ND		1	5.0	1.0	ug/kg	08/29/2011 1705
Cyclohexane	ND		1	5.0	0.67	ug/kg	08/29/2011 1705
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	1.5	ug/kg	08/29/2011 1705
Dibromochloromethane	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
1,2-Dibromoethane (EDB)	ND		1	5.0	0.85	ug/kg	08/29/2011 1705
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
Dichlorodifluoromethane	ND		1	5.0	1.6	ug/kg	08/29/2011 1705
1,1-Dichloroethane	ND		1	5.0	0.73	ug/kg	08/29/2011 1705
1,2-Dichloroethane	ND		1	5.0	1.0	ug/kg	08/29/2011 1705
1,1-Dichloroethene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
cis-1,2-Dichloroethene	ND		1	5.0	0.76	ug/kg	08/29/2011 1705
trans-1,2-Dichloroethene	ND		1	5.0	1.5	ug/kg	08/29/2011 1705
1,2-Dichloropropane	ND		1	5.0	0.91	ug/kg	08/29/2011 1705
cis-1,3-Dichloropropene	ND		1	5.0	0.68	ug/kg	08/29/2011 1705
trans-1,3-Dichloropropene	ND		1	5.0	0.82	ug/kg	08/29/2011 1705
Ethylbenzene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
Isopropylbenzene	ND		1	5.0	0.23	ug/kg	08/29/2011 1705
Methyl acetate	ND		1	5.0	0.98	ug/kg	08/29/2011 1705
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/kg	08/29/2011 1705
4-Methyl-2-pentanone	**2.3**	**J**	**1**	**10**	**1.5**	**ug/kg**	**08/29/2011 1705**
Methylcyclohexane	ND		1	5.0	0.41	ug/kg	08/29/2011 1705
Methylene chloride	ND		1	5.0	2.6	ug/kg	08/29/2011 1705
Styrene	ND		1	5.0	1.1	ug/kg	08/29/2011 1705
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.47	ug/kg	08/29/2011 1705
Tetrachloroethene	ND		1	5.0	0.50	ug/kg	08/29/2011 1705
Toluene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.63	ug/kg	08/29/2011 1705
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/kg	08/29/2011 1705
1,1,2-Trichloroethane	ND		1	5.0	0.79	ug/kg	08/29/2011 1705
1,1,1-Trichloroethane	ND		1	5.0	0.85	ug/kg	08/29/2011 1705
Trichloroethene	ND		1	5.0	1.9	ug/kg	08/29/2011 1705

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66671-001
Batch: 66671
Analytical Method: 8260B
Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Trichlorofluoromethane	ND		1	5.0	1.5	ug/kg	08/29/2011 1705
Vinyl chloride	ND		1	5.0	0.86	ug/kg	08/29/2011 1705
Xylenes (total)	ND		1	5.0	2.9	ug/kg	08/29/2011 1705

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	47-138
1,2-Dichloroethane-d4		103	53-142
Toluene-d8		102	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66671-002
Batch: 66671
Analytical Method: 8260B
Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	140		1	136	42-149	08/29/2011 1536
Benzene	50	44		1	88	69-123	08/29/2011 1536
Bromodichloromethane	50	47		1	93	69-121	08/29/2011 1536
Bromoform	50	46		1	92	61-119	08/29/2011 1536
Bromomethane (Methyl bromide)	50	47		1	95	35-144	08/29/2011 1536
2-Butanone (MEK)	100	91		1	91	57-148	08/29/2011 1536
Carbon disulfide	50	34		1	69	58-122	08/29/2011 1536
Carbon tetrachloride	50	43		1	86	58-136	08/29/2011 1536
Chlorobenzene	50	44		1	89	59-129	08/29/2011 1536
Chloroethane	50	46		1	92	42-163	08/29/2011 1536
Chloroform	50	45		1	90	71-125	08/29/2011 1536
Chloromethane (Methyl chloride)	50	44		1	88	34-134	08/29/2011 1536
Cyclohexane	50	39		1	78	53-139	08/29/2011 1536
1,2-Dibromo-3-chloropropane (DBCP)	50	42		1	83	55-125	08/29/2011 1536
Dibromochloromethane	50	46		1	91	66-119	08/29/2011 1536
1,2-Dibromoethane (EDB)	50	47		1	95	74-124	08/29/2011 1536
1,2-Dichlorobenzene	50	45		1	90	57-131	08/29/2011 1536
1,4-Dichlorobenzene	50	44		1	89	52-133	08/29/2011 1536
1,3-Dichlorobenzene	50	44		1	88	51-134	08/29/2011 1536
Dichlorodifluoromethane	50	45		1	89	10-157	08/29/2011 1536
1,1-Dichloroethane	50	45		1	90	71-127	08/29/2011 1536
1,2-Dichloroethane	50	47		1	94	67-129	08/29/2011 1536
1,1-Dichloroethene	50	43		1	86	69-138	08/29/2011 1536
cis-1,2-Dichloroethene	50	45		1	90	70-122	08/29/2011 1536
trans-1,2-Dichloroethene	50	45		1	89	68-131	08/29/2011 1536
1,2-Dichloropropane	50	46		1	92	72-124	08/29/2011 1536
cis-1,3-Dichloropropene	50	47		1	94	70-126	08/29/2011 1536
trans-1,3-Dichloropropene	50	49		1	97	70-124	08/29/2011 1536
Ethylbenzene	50	45		1	89	59-128	08/29/2011 1536
Isopropylbenzene	50	45		1	89	50-136	08/29/2011 1536
Methyl acetate	50	53		1	105	59-137	08/29/2011 1536
Methyl tertiary butyl ether (MTBE)	50	47		1	94	72-122	08/29/2011 1536
4-Methyl-2-pentanone	100	110		1	107	60-134	08/29/2011 1536
Methylcyclohexane	50	44		1	87	41-144	08/29/2011 1536
Methylene chloride	50	43		1	86	77-129	08/29/2011 1536
Styrene	50	45		1	90	54-136	08/29/2011 1536
1,1,2,2-Tetrachloroethane	50	46		1	93	69-132	08/29/2011 1536
Tetrachloroethene	50	43		1	86	45-150	08/29/2011 1536
Toluene	50	44		1	88	61-129	08/29/2011 1536
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	42		1	84	49-136	08/29/2011 1536
1,2,4-Trichlorobenzene	50	46		1	93	34-145	08/29/2011 1536
1,1,2-Trichloroethane	50	47		1	94	55-128	08/29/2011 1536
1,1,1-Trichloroethane	50	43		1	86	63-128	08/29/2011 1536
Trichloroethene	50	44		1	88	62-126	08/29/2011 1536

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66671-002
Batch: 66671
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Trichlorofluoromethane	50	45		1	90	45-138	08/29/2011 1536
Vinyl chloride	50	42		1	85	42-132	08/29/2011 1536
Xylenes (total)	100	90		1	90	58-128	08/29/2011 1536

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	47-138
1,2-Dichloroethane-d4		98	53-142
Toluene-d8		102	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: MH27005-002MS
Batch: 66671
Analytical Method: 8260B
Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	ND	100	100		1	99	42-149	08/29/2011 2258
Benzene	ND	52	44		1	84	69-123	08/29/2011 2258
Bromodichloromethane	ND	52	44		1	85	69-121	08/29/2011 2258
Bromoform	ND	52	42		1	81	61-119	08/29/2011 2258
Bromomethane (Methyl bromide)	ND	52	50		1	95	35-144	08/29/2011 2258
2-Butanone (MEK)	ND	100	81		1	78	57-148	08/29/2011 2258
Carbon disulfide	ND	52	37		1	71	58-122	08/29/2011 2258
Carbon tetrachloride	ND	52	47		1	89	58-136	08/29/2011 2258
Chlorobenzene	ND	52	42		1	80	59-129	08/29/2011 2258
Chloroethane	ND	52	50		1	95	50-132	08/29/2011 2258
Chloroform	ND	52	45		1	85	71-125	08/29/2011 2258
Chloromethane (Methyl chloride)	ND	52	49		1	93	34-134	08/29/2011 2258
Cyclohexane	ND	52	44		1	83	53-139	08/29/2011 2258
1,2-Dibromo-3-chloropropane (DBCP)	ND	52	35		1	67	55-125	08/29/2011 2258
Dibromochloromethane	ND	52	43		1	82	66-119	08/29/2011 2258
1,2-Dibromoethane (EDB)	ND	52	44		1	84	74-124	08/29/2011 2258
1,2-Dichlorobenzene	ND	52	39		1	74	57-131	08/29/2011 2258
1,4-Dichlorobenzene	ND	52	37		1	71	52-133	08/29/2011 2258
1,3-Dichlorobenzene	ND	52	38		1	72	51-134	08/29/2011 2258
Dichlorodifluoromethane	ND	52	53		1	101	10-157	08/29/2011 2258
1,1-Dichloroethane	ND	52	45		1	87	71-127	08/29/2011 2258
1,2-Dichloroethane	ND	52	45		1	85	67-129	08/29/2011 2258
1,1-Dichloroethene	ND	52	47		1	90	69-138	08/29/2011 2258
cis-1,2-Dichloroethene	ND	52	46		1	87	70-122	08/29/2011 2258
trans-1,2-Dichloroethene	ND	52	46		1	87	68-131	08/29/2011 2258
1,2-Dichloropropane	ND	52	45		1	85	72-124	08/29/2011 2258
cis-1,3-Dichloropropene	ND	52	44		1	84	70-126	08/29/2011 2258
trans-1,3-Dichloropropene	ND	52	45		1	85	70-124	08/29/2011 2258
Ethylbenzene	ND	52	42		1	81	59-128	08/29/2011 2258
Isopropylbenzene	ND	52	42		1	81	50-136	08/29/2011 2258
Methyl acetate	ND	52	51		1	97	59-137	08/29/2011 2258
Methyl tertiary butyl ether (MTBE)	ND	52	45		1	85	72-122	08/29/2011 2258
4-Methyl-2-pentanone	ND	100	85		1	81	60-134	08/29/2011 2258
Methylcyclohexane	ND	52	50		1	95	41-144	08/29/2011 2258
Methylene chloride	ND	52	42		1	80	77-129	08/29/2011 2258
Styrene	ND	52	41		1	79	54-136	08/29/2011 2258
1,1,2,2-Tetrachloroethane	ND	52	44		1	84	69-132	08/29/2011 2258
Tetrachloroethene	ND	52	43		1	83	70-130	08/29/2011 2258
Toluene	ND	52	43		1	83	61-129	08/29/2011 2258
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	52	50		1	96	49-136	08/29/2011 2258
1,2,4-Trichlorobenzene	ND	52	35		1	68	34-145	08/29/2011 2258
1,1,2-Trichloroethane	ND	52	45		1	86	55-128	08/29/2011 2258
1,1,1-Trichloroethane	ND	52	47		1	89	63-128	08/29/2011 2258
Trichloroethene	ND	52	44		1	84	62-126	08/29/2011 2258

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: MH27005-002MS
Batch: 66671
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Trichlorofluoromethane	ND	52	52		1	99	45-138	08/29/2011 2258
Vinyl chloride	ND	52	51		1	98	42-132	08/29/2011 2258
Xylenes (total)	ND	100	84		1	80	58-128	08/29/2011 2258

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	47-138
1,2-Dichloroethane-d4		94	53-142
Toluene-d8		101	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: MH27005-002MD
Batch: 66671
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	120	170	+	1	145	48	42-149	20	08/29/2011 2320
Benzene	ND	58	49		1	84	11	69-123	20	08/29/2011 2320
Bromodichloromethane	ND	58	50		1	85	12	69-121	20	08/29/2011 2320
Bromoform	ND	58	50		1	86	17	61-119	20	08/29/2011 2320
Bromomethane (Methyl bromide)	ND	58	59		1	102	17	35-144	20	08/29/2011 2320
2-Butanone (MEK)	ND	120	110	+	1	96	31	57-148	20	08/29/2011 2320
Carbon disulfide	ND	58	42		1	71	11	58-122	20	08/29/2011 2320
Carbon tetrachloride	ND	58	52		1	90	12	58-136	20	08/29/2011 2320
Chlorobenzene	ND	58	48		1	83	15	59-129	20	08/29/2011 2320
Chloroethane	ND	58	58		1	99	15	50-132	20	08/29/2011 2320
Chloroform	ND	58	50		1	85	11	71-125	20	08/29/2011 2320
Chloromethane (Methyl chloride)	ND	58	60	+	1	103	21	34-134	20	08/29/2011 2320
Cyclohexane	ND	58	49		1	83	11	53-139	20	08/29/2011 2320
1,2-Dibromo-3-chloropropane (DBCP)	ND	58	48	+	1	83	33	55-125	20	08/29/2011 2320
Dibromochloromethane	ND	58	49		1	83	12	66-119	20	08/29/2011 2320
1,2-Dibromoethane (EDB)	ND	58	51		1	88	15	74-124	20	08/29/2011 2320
1,2-Dichlorobenzene	ND	58	47		1	81	19	57-131	20	08/29/2011 2320
1,4-Dichlorobenzene	ND	58	45		1	77	19	52-133	20	08/29/2011 2320
1,3-Dichlorobenzene	ND	58	45		1	78	18	51-134	20	08/29/2011 2320
Dichlorodifluoromethane	ND	58	60		1	102	12	10-157	20	08/29/2011 2320
1,1-Dichloroethane	ND	58	49		1	84	8.0	71-127	20	08/29/2011 2320
1,2-Dichloroethane	ND	58	50		1	86	12	67-129	20	08/29/2011 2320
1,1-Dichloroethene	ND	58	51		1	88	8.6	69-138	20	08/29/2011 2320
cis-1,2-Dichloroethene	ND	58	51		1	87	10	70-122	20	08/29/2011 2320
trans-1,2-Dichloroethene	ND	58	51		1	87	11	68-131	20	08/29/2011 2320
1,2-Dichloropropane	ND	58	50		1	85	11	72-124	20	08/29/2011 2320
cis-1,3-Dichloropropene	ND	58	49		1	84	11	70-126	20	08/29/2011 2320
trans-1,3-Dichloropropene	ND	58	51		1	87	13	70-124	20	08/29/2011 2320
Ethylbenzene	ND	58	49		1	85	15	59-128	20	08/29/2011 2320
Isopropylbenzene	ND	58	49		1	85	16	50-136	20	08/29/2011 2320
Methyl acetate	ND	58	63	+	1	108	21	59-137	20	08/29/2011 2320
Methyl tertiary butyl ether (MTBE)	ND	58	52		1	89	16	72-122	20	08/29/2011 2320
4-Methyl-2-pentanone	ND	120	130	+	1	113	44	60-134	20	08/29/2011 2320
Methylcyclohexane	ND	58	56		1	96	12	41-144	20	08/29/2011 2320
Methylene chloride	ND	58	46		1	80	10	77-129	20	08/29/2011 2320
Styrene	ND	58	48		1	81	14	54-136	20	08/29/2011 2320
1,1,2,2-Tetrachloroethane	ND	58	52		1	89	16	69-132	20	08/29/2011 2320
Tetrachloroethene	ND	58	50		1	86	14	70-130	20	08/29/2011 2320
Toluene	ND	58	48		1	82	10	61-129	20	08/29/2011 2320
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	58	56		1	96	11	49-136	20	08/29/2011 2320
1,2,4-Trichlorobenzene	ND	58	48	+	1	82	30	34-145	20	08/29/2011 2320
1,1,2-Trichloroethane	ND	58	51		1	87	13	55-128	20	08/29/2011 2320
1,1,1-Trichloroethane	ND	58	52		1	89	11	63-128	20	08/29/2011 2320
Trichloroethene	ND	58	50		1	85	12	62-126	20	08/29/2011 2320

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: MH27005-002MD
Batch: 66671
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Trichlorofluoromethane	ND	58	58		1	99	11	45-138	20	08/29/2011 2320
Vinyl chloride	ND	58	63		1	107	20	42-132	20	08/29/2011 2320
Xylenes (total)	ND	120	99		1	85	17	58-128	20	08/29/2011 2320

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	47-138
1,2-Dichloroethane-d4		95	53-142
Toluene-d8		100	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66730-001
Batch: 66730
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/kg	08/30/2011 1048
Benzene	ND		1	5.0	1.1	ug/kg	08/30/2011 1048
Bromodichloromethane	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
Bromoform	ND		1	5.0	0.70	ug/kg	08/30/2011 1048
Bromomethane (Methyl bromide)	ND		1	5.0	1.8	ug/kg	08/30/2011 1048
2-Butanone (MEK)	ND		1	10	2.4	ug/kg	08/30/2011 1048
Carbon disulfide	ND		1	5.0	1.3	ug/kg	08/30/2011 1048
Carbon tetrachloride	ND		1	5.0	1.8	ug/kg	08/30/2011 1048
Chlorobenzene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
Chloroethane	ND		1	5.0	1.3	ug/kg	08/30/2011 1048
Chloroform	ND		1	5.0	0.83	ug/kg	08/30/2011 1048
Chloromethane (Methyl chloride)	ND		1	5.0	1.0	ug/kg	08/30/2011 1048
Cyclohexane	ND		1	5.0	0.67	ug/kg	08/30/2011 1048
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	1.5	ug/kg	08/30/2011 1048
Dibromochloromethane	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
1,2-Dibromoethane (EDB)	ND		1	5.0	0.85	ug/kg	08/30/2011 1048
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
Dichlorodifluoromethane	ND		1	5.0	1.6	ug/kg	08/30/2011 1048
1,2-Dichloroethane	ND		1	5.0	1.0	ug/kg	08/30/2011 1048
1,1-Dichloroethane	ND		1	5.0	0.73	ug/kg	08/30/2011 1048
trans-1,2-Dichloroethene	ND		1	5.0	1.5	ug/kg	08/30/2011 1048
cis-1,2-Dichloroethene	ND		1	5.0	0.76	ug/kg	08/30/2011 1048
1,1-Dichloroethene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
1,2-Dichloropropane	ND		1	5.0	0.91	ug/kg	08/30/2011 1048
trans-1,3-Dichloropropene	ND		1	5.0	0.82	ug/kg	08/30/2011 1048
cis-1,3-Dichloropropene	ND		1	5.0	0.68	ug/kg	08/30/2011 1048
Ethylbenzene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
Isopropylbenzene	ND		1	5.0	0.23	ug/kg	08/30/2011 1048
Methyl acetate	ND		1	5.0	0.98	ug/kg	08/30/2011 1048
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/kg	08/30/2011 1048
4-Methyl-2-pentanone	**1.8**	**J**	**1**	**10**	**1.5**	**ug/kg**	**08/30/2011 1048**
Methylcyclohexane	ND		1	5.0	0.41	ug/kg	08/30/2011 1048
Methylene chloride	ND		1	5.0	2.6	ug/kg	08/30/2011 1048
Styrene	ND		1	5.0	1.1	ug/kg	08/30/2011 1048
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.47	ug/kg	08/30/2011 1048
Tetrachloroethene	ND		1	5.0	0.50	ug/kg	08/30/2011 1048
Toluene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.63	ug/kg	08/30/2011 1048
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/kg	08/30/2011 1048
1,1,2-Trichloroethane	ND		1	5.0	0.79	ug/kg	08/30/2011 1048
1,1,1-Trichloroethane	ND		1	5.0	0.85	ug/kg	08/30/2011 1048
Trichloroethene	ND		1	5.0	1.9	ug/kg	08/30/2011 1048

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66730-001
Batch: 66730
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Trichlorofluoromethane	ND		1	5.0	1.5	ug/kg	08/30/2011 1048
Vinyl chloride	ND		1	5.0	0.86	ug/kg	08/30/2011 1048
Xylenes (total)	ND		1	5.0	2.9	ug/kg	08/30/2011 1048

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	47-138
1,2-Dichloroethane-d4		99	53-142
Toluene-d8		99	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66730-002
Batch: 66730
Analytical Method: 8260B
Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	120		1	116	42-149	08/30/2011 0942
Benzene	50	44		1	88	69-123	08/30/2011 0942
Bromodichloromethane	50	44		1	89	69-121	08/30/2011 0942
Bromoform	50	44		1	89	61-119	08/30/2011 0942
Bromomethane (Methyl bromide)	50	47		1	94	35-144	08/30/2011 0942
2-Butanone (MEK)	100	86		1	86	57-148	08/30/2011 0942
Carbon disulfide	50	33		1	67	58-122	08/30/2011 0942
Carbon tetrachloride	50	43		1	86	58-136	08/30/2011 0942
Chlorobenzene	50	46		1	93	59-129	08/30/2011 0942
Chloroethane	50	44		1	89	42-163	08/30/2011 0942
Chloroform	50	42		1	84	71-125	08/30/2011 0942
Chloromethane (Methyl chloride)	50	49		1	98	34-134	08/30/2011 0942
Cyclohexane	50	39		1	79	53-139	08/30/2011 0942
1,2-Dibromo-3-chloropropane (DBCP)	50	39		1	77	55-125	08/30/2011 0942
Dibromochloromethane	50	44		1	89	66-119	08/30/2011 0942
1,2-Dibromoethane (EDB)	50	46		1	92	74-124	08/30/2011 0942
1,4-Dichlorobenzene	50	49		1	99	52-133	08/30/2011 0942
1,3-Dichlorobenzene	50	48		1	96	51-134	08/30/2011 0942
1,2-Dichlorobenzene	50	47		1	94	57-131	08/30/2011 0942
Dichlorodifluoromethane	50	45		1	90	10-157	08/30/2011 0942
1,2-Dichloroethane	50	43		1	86	67-129	08/30/2011 0942
1,1-Dichloroethane	50	42		1	84	71-127	08/30/2011 0942
trans-1,2-Dichloroethene	50	43		1	87	68-131	08/30/2011 0942
cis-1,2-Dichloroethene	50	43		1	85	70-122	08/30/2011 0942
1,1-Dichloroethene	50	42		1	85	69-138	08/30/2011 0942
1,2-Dichloropropane	50	44		1	88	72-124	08/30/2011 0942
trans-1,3-Dichloropropene	50	48		1	97	70-124	08/30/2011 0942
cis-1,3-Dichloropropene	50	46		1	92	70-126	08/30/2011 0942
Ethylbenzene	50	47		1	94	59-128	08/30/2011 0942
Isopropylbenzene	50	48		1	96	50-136	08/30/2011 0942
Methyl acetate	50	49		1	98	59-137	08/30/2011 0942
Methyl tertiary butyl ether (MTBE)	50	42		1	83	72-122	08/30/2011 0942
4-Methyl-2-pentanone	100	120		1	118	60-134	08/30/2011 0942
Methylcyclohexane	50	48		1	96	41-144	08/30/2011 0942
Methylene chloride	50	39		1	79	77-129	08/30/2011 0942
Styrene	50	47		1	93	54-136	08/30/2011 0942
1,1,2,2-Tetrachloroethane	50	45		1	90	69-132	08/30/2011 0942
Tetrachloroethene	50	48		1	96	45-150	08/30/2011 0942
Toluene	50	45		1	90	61-129	08/30/2011 0942
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	44		1	88	49-136	08/30/2011 0942
1,2,4-Trichlorobenzene	50	58		1	116	34-145	08/30/2011 0942
1,1,2-Trichloroethane	50	45		1	91	55-128	08/30/2011 0942
1,1,1-Trichloroethane	50	43		1	85	63-128	08/30/2011 0942
Trichloroethene	50	47		1	93	62-126	08/30/2011 0942

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66730-002
Batch: 66730
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Trichlorofluoromethane	50	46		1	91	45-138	08/30/2011 0942
Vinyl chloride	50	48		1	95	42-132	08/30/2011 0942
Xylenes (total)	100	95		1	95	58-128	08/30/2011 0942

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	47-138
1,2-Dichloroethane-d4		93	53-142
Toluene-d8		99	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66820-001
Batch: 66820
Analytical Method: 8260B
Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
2-Hexanone	ND		1	10	1.3	ug/kg	08/31/2011 1303

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	47-138
1,2-Dichloroethane-d4		93	53-142
Toluene-d8		97	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66820-002
Batch: 66820
Analytical Method: 8260B
Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
2-Hexanone	100	120		1	122	54-137	08/31/2011 0908

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	47-138
1,2-Dichloroethane-d4		92	53-142
Toluene-d8		97	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66853-001
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/L	08/31/2011 1006
Benzene	ND		1	5.0	0.20	ug/L	08/31/2011 1006
Bromodichloromethane	ND		1	5.0	1.7	ug/L	08/31/2011 1006
Bromoform	ND		1	5.0	0.40	ug/L	08/31/2011 1006
Bromomethane (Methyl bromide)	ND		1	5.0	0.80	ug/L	08/31/2011 1006
2-Butanone (MEK)	ND		1	10	1.8	ug/L	08/31/2011 1006
Carbon disulfide	ND		1	5.0	0.30	ug/L	08/31/2011 1006
Carbon tetrachloride	ND		1	5.0	0.40	ug/L	08/31/2011 1006
Chlorobenzene	ND		1	5.0	1.7	ug/L	08/31/2011 1006
Chloroethane	ND		1	5.0	0.50	ug/L	08/31/2011 1006
Chloroform	ND		1	5.0	1.7	ug/L	08/31/2011 1006
Chloromethane (Methyl chloride)	ND		1	5.0	0.30	ug/L	08/31/2011 1006
Cyclohexane	ND		1	5.0	0.98	ug/L	08/31/2011 1006
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	0.60	ug/L	08/31/2011 1006
Dibromochloromethane	ND		1	5.0	1.7	ug/L	08/31/2011 1006
1,2-Dibromoethane (EDB)	ND		1	5.0	0.30	ug/L	08/31/2011 1006
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/L	08/31/2011 1006
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/L	08/31/2011 1006
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/L	08/31/2011 1006
Dichlorodifluoromethane	ND		1	5.0	0.20	ug/L	08/31/2011 1006
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/31/2011 1006
1,1-Dichloroethane	ND		1	5.0	0.30	ug/L	08/31/2011 1006
trans-1,2-Dichloroethene	ND		1	5.0	0.40	ug/L	08/31/2011 1006
cis-1,2-Dichloroethene	ND		1	5.0	0.20	ug/L	08/31/2011 1006
1,1-Dichloroethene	ND		1	5.0	0.50	ug/L	08/31/2011 1006
1,2-Dichloropropane	ND		1	5.0	0.30	ug/L	08/31/2011 1006
trans-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	08/31/2011 1006
cis-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	08/31/2011 1006
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/31/2011 1006
2-Hexanone	ND		1	10	1.0	ug/L	08/31/2011 1006
Isopropylbenzene	ND		1	5.0	1.0	ug/L	08/31/2011 1006
Methyl acetate	ND		1	5.0	0.72	ug/L	08/31/2011 1006
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/31/2011 1006
4-Methyl-2-pentanone	ND		1	10	0.80	ug/L	08/31/2011 1006
Methylcyclohexane	ND		1	5.0	0.95	ug/L	08/31/2011 1006
Methylene chloride	ND		1	5.0	1.7	ug/L	08/31/2011 1006
Styrene	ND		1	5.0	0.10	ug/L	08/31/2011 1006
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.40	ug/L	08/31/2011 1006
Tetrachloroethene	ND		1	5.0	0.40	ug/L	08/31/2011 1006
Toluene	ND		1	5.0	1.7	ug/L	08/31/2011 1006
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.30	ug/L	08/31/2011 1006
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/L	08/31/2011 1006
1,1,2-Trichloroethane	ND		1	5.0	0.30	ug/L	08/31/2011 1006
1,1,1-Trichloroethane	ND		1	5.0	0.20	ug/L	08/31/2011 1006

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66853-001
Batch: 66853
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Trichloroethene	ND		1	5.0	0.30	ug/L	08/31/2011 1006
Trichlorofluoromethane	ND		1	5.0	0.30	ug/L	08/31/2011 1006
Vinyl chloride	ND		1	2.0	0.10	ug/L	08/31/2011 1006
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/31/2011 1006

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		98	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66853-002
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	110		1	108	70-130	08/31/2011 0841
Benzene	50	47		1	94	70-130	08/31/2011 0841
Bromodichloromethane	50	51		1	102	70-130	08/31/2011 0841
Bromoform	50	62		1	124	70-130	08/31/2011 0841
Bromomethane (Methyl bromide)	50	64		1	128	60-140	08/31/2011 0841
2-Butanone (MEK)	100	110		1	113	60-140	08/31/2011 0841
Carbon disulfide	50	54		1	107	60-140	08/31/2011 0841
Carbon tetrachloride	50	54		1	107	70-130	08/31/2011 0841
Chlorobenzene	50	49		1	98	70-130	08/31/2011 0841
Chloroethane	50	59		1	118	42-163	08/31/2011 0841
Chloroform	50	47		1	95	70-130	08/31/2011 0841
Chloromethane (Methyl chloride)	50	52		1	104	70-130	08/31/2011 0841
Cyclohexane	50	50		1	99	70-130	08/31/2011 0841
1,2-Dibromo-3-chloropropane (DBCP)	50	53		1	105	70-130	08/31/2011 0841
Dibromochloromethane	50	53		1	107	70-130	08/31/2011 0841
1,2-Dibromoethane (EDB)	50	49		1	98	70-130	08/31/2011 0841
1,4-Dichlorobenzene	50	49		1	97	70-130	08/31/2011 0841
1,3-Dichlorobenzene	50	52		1	104	70-130	08/31/2011 0841
1,2-Dichlorobenzene	50	51		1	102	70-130	08/31/2011 0841
Dichlorodifluoromethane	50	56		1	112	60-140	08/31/2011 0841
1,2-Dichloroethane	50	47		1	94	70-130	08/31/2011 0841
1,1-Dichloroethane	50	48		1	96	70-130	08/31/2011 0841
trans-1,2-Dichloroethene	50	51		1	103	70-130	08/31/2011 0841
cis-1,2-Dichloroethene	50	52		1	104	70-130	08/31/2011 0841
1,1-Dichloroethene	50	50		1	100	70-130	08/31/2011 0841
1,2-Dichloropropane	50	48		1	95	70-130	08/31/2011 0841
trans-1,3-Dichloropropene	50	51		1	102	70-130	08/31/2011 0841
cis-1,3-Dichloropropene	50	51		1	101	70-130	08/31/2011 0841
Ethylbenzene	50	51		1	103	70-130	08/31/2011 0841
2-Hexanone	100	120		1	118	60-140	08/31/2011 0841
Isopropylbenzene	50	50		1	100	70-130	08/31/2011 0841
Methyl acetate	50	62		1	124	70-130	08/31/2011 0841
Methyl tertiary butyl ether (MTBE)	50	51		1	102	70-130	08/31/2011 0841
4-Methyl-2-pentanone	100	120		1	117	60-140	08/31/2011 0841
Methylcyclohexane	50	54		1	107	70-130	08/31/2011 0841
Methylene chloride	50	47		1	95	70-130	08/31/2011 0841
Styrene	50	52		1	103	70-130	08/31/2011 0841
1,1,2,2-Tetrachloroethane	50	48		1	97	70-130	08/31/2011 0841
Tetrachloroethene	50	51		1	102	70-130	08/31/2011 0841
Toluene	50	48		1	97	70-130	08/31/2011 0841
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	51		1	102	70-130	08/31/2011 0841
1,2,4-Trichlorobenzene	50	57		1	115	70-130	08/31/2011 0841
1,1,2-Trichloroethane	50	49		1	97	70-130	08/31/2011 0841
1,1,1-Trichloroethane	50	51		1	102	70-130	08/31/2011 0841

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66853-002
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Trichloroethene	50	51		1	102	70-130	08/31/2011 0841
Trichlorofluoromethane	50	56		1	112	70-130	08/31/2011 0841
Vinyl chloride	50	51		1	102	70-130	08/31/2011 0841
Xylenes (total)	100	110		1	106	70-130	08/31/2011 0841

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ66853-003
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	100		1	105	3.2	70-130	20	08/31/2011 0903
Benzene	50	48		1	95	0.89	70-130	20	08/31/2011 0903
Bromodichloromethane	50	50		1	100	1.3	70-130	20	08/31/2011 0903
Bromoform	50	57		1	114	8.7	70-130	20	08/31/2011 0903
Bromomethane (Methyl bromide)	50	51	+	1	102	23	60-140	20	08/31/2011 0903
2-Butanone (MEK)	100	100		1	103	8.9	60-140	20	08/31/2011 0903
Carbon disulfide	50	51		1	103	4.2	60-140	20	08/31/2011 0903
Carbon tetrachloride	50	52		1	105	2.3	70-130	20	08/31/2011 0903
Chlorobenzene	50	49		1	99	0.59	70-130	20	08/31/2011 0903
Chloroethane	50	49		1	97	20	42-163	20	08/31/2011 0903
Chloroform	50	46		1	91	3.7	70-130	20	08/31/2011 0903
Chloromethane (Methyl chloride)	50	46		1	91	13	70-130	20	08/31/2011 0903
Cyclohexane	50	48		1	96	3.3	70-130	20	08/31/2011 0903
1,2-Dibromo-3-chloropropane (DBCP)	50	50		1	100	4.9	70-130	20	08/31/2011 0903
Dibromochloromethane	50	53		1	106	0.96	70-130	20	08/31/2011 0903
1,2-Dibromoethane (EDB)	50	49		1	98	0.81	70-130	20	08/31/2011 0903
1,4-Dichlorobenzene	50	48		1	97	0.35	70-130	20	08/31/2011 0903
1,3-Dichlorobenzene	50	52		1	103	0.63	70-130	20	08/31/2011 0903
1,2-Dichlorobenzene	50	52		1	104	2.1	70-130	20	08/31/2011 0903
Dichlorodifluoromethane	50	54		1	107	4.4	60-140	20	08/31/2011 0903
1,2-Dichloroethane	50	46		1	91	3.6	70-130	20	08/31/2011 0903
1,1-Dichloroethane	50	46		1	92	3.7	70-130	20	08/31/2011 0903
trans-1,2-Dichloroethene	50	49		1	98	4.1	70-130	20	08/31/2011 0903
cis-1,2-Dichloroethene	50	50		1	101	3.5	70-130	20	08/31/2011 0903
1,1-Dichloroethene	50	49		1	97	3.0	70-130	20	08/31/2011 0903
1,2-Dichloropropane	50	48		1	96	0.81	70-130	20	08/31/2011 0903
trans-1,3-Dichloropropene	50	50		1	99	2.6	70-130	20	08/31/2011 0903
cis-1,3-Dichloropropene	50	49		1	98	3.0	70-130	20	08/31/2011 0903
Ethylbenzene	50	52		1	105	1.8	70-130	20	08/31/2011 0903
2-Hexanone	100	110		1	111	6.0	60-140	20	08/31/2011 0903
Isopropylbenzene	50	53		1	106	5.0	70-130	20	08/31/2011 0903
Methyl acetate	50	59		1	117	5.8	70-130	20	08/31/2011 0903
Methyl tertiary butyl ether (MTBE)	50	49		1	98	4.0	70-130	20	08/31/2011 0903
4-Methyl-2-pentanone	100	110		1	110	6.4	60-140	20	08/31/2011 0903
Methylcyclohexane	50	53		1	106	1.3	70-130	20	08/31/2011 0903
Methylene chloride	50	45		1	90	5.1	70-130	20	08/31/2011 0903
Styrene	50	52		1	105	1.6	70-130	20	08/31/2011 0903
1,1,2,2-Tetrachloroethane	50	49		1	97	0.65	70-130	20	08/31/2011 0903
Tetrachloroethene	50	53		1	105	2.9	70-130	20	08/31/2011 0903
Toluene	50	48		1	95	1.2	70-130	20	08/31/2011 0903
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	49		1	98	3.9	70-130	20	08/31/2011 0903
1,2,4-Trichlorobenzene	50	59		1	118	3.2	70-130	20	08/31/2011 0903
1,1,2-Trichloroethane	50	48		1	97	0.49	70-130	20	08/31/2011 0903
1,1,1-Trichloroethane	50	50		1	100	1.9	70-130	20	08/31/2011 0903

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ66853-003
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	50	51		1	103	0.81	70-130	20	08/31/2011 0903
Trichlorofluoromethane	50	55		1	109	2.8	70-130	20	08/31/2011 0903
Vinyl chloride	50	43		1	86	16	70-130	20	08/31/2011 0903
Xylenes (total)	100	110		1	106	0.36	70-130	20	08/31/2011 0903

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		98	70-130
Toluene-d8		98	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: MH27005-003MS
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	ND	100	330	N	1	331	60-140	08/31/2011 1829
Benzene	ND	50	47		1	95	70-130	08/31/2011 1829
Bromodichloromethane	ND	50	49		1	98	71-143	08/31/2011 1829
Bromoform	ND	50	52		1	104	65-131	08/31/2011 1829
Bromomethane (Methyl bromide)	ND	50	14	N	1	28	36-168	08/31/2011 1829
2-Butanone (MEK)	ND	100	79		1	79	60-140	08/31/2011 1829
Carbon disulfide	ND	50	15	N	1	30	60-140	08/31/2011 1829
Carbon tetrachloride	ND	50	60		1	119	37-166	08/31/2011 1829
Chlorobenzene	ND	50	50		1	99	78-129	08/31/2011 1829
Chloroethane	ND	50	17	N	1	34	60-140	08/31/2011 1829
Chloroform	ND	50	45		1	90	63-123	08/31/2011 1829
Chloromethane (Methyl chloride)	0.51	50	17		1	34	20-158	08/31/2011 1829
Cyclohexane	ND	50	45		1	90	70-130	08/31/2011 1829
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	47		1	94	70-130	08/31/2011 1829
Dibromochloromethane	ND	50	49		1	99	74-134	08/31/2011 1829
1,2-Dibromoethane (EDB)	ND	50	45		1	90	70-130	08/31/2011 1829
1,4-Dichlorobenzene	ND	50	45		1	91	70-130	08/31/2011 1829
1,3-Dichlorobenzene	ND	50	52		1	104	70-130	08/31/2011 1829
1,2-Dichlorobenzene	ND	50	54		1	109	70-130	08/31/2011 1829
Dichlorodifluoromethane	ND	50	28		1	56	10-158	08/31/2011 1829
1,2-Dichloroethane	ND	50	50		1	101	70-130	08/31/2011 1829
1,1-Dichloroethane	ND	50	21	N	1	43	69-132	08/31/2011 1829
trans-1,2-Dichloroethene	ND	50	20	N	1	39	70-130	08/31/2011 1829
cis-1,2-Dichloroethene	ND	50	43		1	87	70-130	08/31/2011 1829
1,1-Dichloroethene	ND	50	18	N	1	37	50-132	08/31/2011 1829
1,2-Dichloropropane	ND	50	48		1	95	71-126	08/31/2011 1829
trans-1,3-Dichloropropene	ND	50	43		1	85	73-131	08/31/2011 1829
cis-1,3-Dichloropropene	ND	50	45		1	89	69-130	08/31/2011 1829
Ethylbenzene	ND	50	51		1	102	70-130	08/31/2011 1829
2-Hexanone	ND	100	92		1	92	60-140	08/31/2011 1829
Isopropylbenzene	ND	50	57		1	114	70-130	08/31/2011 1829
Methyl acetate	ND	50	18		1	36	15-128	08/31/2011 1829
Methyl tertiary butyl ether (MTBE)	ND	50	21	N	1	42	70-130	08/31/2011 1829
4-Methyl-2-pentanone	ND	100	100		1	102	60-140	08/31/2011 1829
Methylcyclohexane	ND	50	52		1	104	70-130	08/31/2011 1829
Methylene chloride	ND	50	16	N	1	32	69-129	08/31/2011 1829
Styrene	ND	50	50		1	100	70-130	08/31/2011 1829
1,1,2,2-Tetrachloroethane	ND	50	49		1	98	60-155	08/31/2011 1829
Tetrachloroethene	ND	50	50		1	100	70-130	08/31/2011 1829
Toluene	ND	50	50		1	101	70-130	08/31/2011 1829
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	21	N	1	43	70-130	08/31/2011 1829
1,2,4-Trichlorobenzene	ND	50	60		1	120	70-130	08/31/2011 1829
1,1,2-Trichloroethane	ND	50	46		1	92	77-132	08/31/2011 1829
1,1,1-Trichloroethane	ND	50	49		1	98	77-132	08/31/2011 1829

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: MH27005-003MS
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Trichloroethene	ND	50	53		1	105	73-124	08/31/2011 1829
Trichlorofluoromethane	ND	50	31		1	62	60-140	08/31/2011 1829
Vinyl chloride	ND	50	14		1	29	29-159	08/31/2011 1829
Xylenes (total)	ND	100	100		1	105	70-130	08/31/2011 1829

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: MH27005-003MD
Batch: 66853
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	100	53	N,+	1	53	150	60-140	20	08/31/2011 1851
Benzene	ND	50	48		1	95	0.56	70-130	20	08/31/2011 1851
Bromodichloromethane	ND	50	51		1	102	3.9	71-143	20	08/31/2011 1851
Bromoform	ND	50	51		1	101	3.0	65-131	20	08/31/2011 1851
Bromomethane (Methyl bromide)	ND	50	15	N	1	30	6.7	36-168	20	08/31/2011 1851
2-Butanone (MEK)	ND	100	95		1	95	19	60-140	20	08/31/2011 1851
Carbon disulfide	ND	50	16	N	1	32	4.5	60-140	20	08/31/2011 1851
Carbon tetrachloride	ND	50	53		1	106	12	37-166	20	08/31/2011 1851
Chlorobenzene	ND	50	50		1	100	0.28	78-129	20	08/31/2011 1851
Chloroethane	ND	50	13	N,+	1	26	25	60-140	20	08/31/2011 1851
Chloroform	ND	50	45		1	91	1.0	63-123	20	08/31/2011 1851
Chloromethane (Methyl chloride)	0.51	50	19		1	38	12	20-158	20	08/31/2011 1851
Cyclohexane	ND	50	49		1	97	8.1	70-130	20	08/31/2011 1851
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	44		1	87	7.7	70-130	20	08/31/2011 1851
Dibromochloromethane	ND	50	50		1	99	0.39	74-134	20	08/31/2011 1851
1,2-Dibromoethane (EDB)	ND	50	47		1	95	4.7	70-130	20	08/31/2011 1851
1,4-Dichlorobenzene	ND	50	49		1	98	7.7	70-130	20	08/31/2011 1851
1,3-Dichlorobenzene	ND	50	52		1	105	0.38	70-130	20	08/31/2011 1851
1,2-Dichlorobenzene	ND	50	50		1	101	7.9	70-130	20	08/31/2011 1851
Dichlorodifluoromethane	ND	50	31		1	62	9.3	10-158	20	08/31/2011 1851
1,2-Dichloroethane	ND	50	44		1	87	14	70-130	20	08/31/2011 1851
1,1-Dichloroethane	ND	50	37	+	1	74	54	69-132	20	08/31/2011 1851
trans-1,2-Dichloroethene	ND	50	30	N,+	1	59	41	70-130	20	08/31/2011 1851
cis-1,2-Dichloroethene	ND	50	50		1	100	14	70-130	20	08/31/2011 1851
1,1-Dichloroethene	ND	50	19	N	1	38	2.2	50-132	20	08/31/2011 1851
1,2-Dichloropropane	ND	50	49		1	98	2.5	71-126	20	08/31/2011 1851
trans-1,3-Dichloropropene	ND	50	42		1	84	0.91	73-131	20	08/31/2011 1851
cis-1,3-Dichloropropene	ND	50	45		1	90	0.40	69-130	20	08/31/2011 1851
Ethylbenzene	ND	50	52		1	105	2.8	70-130	20	08/31/2011 1851
2-Hexanone	ND	100	100		1	105	12	60-140	20	08/31/2011 1851
Isopropylbenzene	ND	50	52		1	103	9.7	70-130	20	08/31/2011 1851
Methyl acetate	ND	50	20		1	40	10	15-128	20	08/31/2011 1851
Methyl tertiary butyl ether (MTBE)	ND	50	28	N,+	1	55	27	70-130	20	08/31/2011 1851
4-Methyl-2-pentanone	ND	100	110		1	105	3.3	60-140	20	08/31/2011 1851
Methylcyclohexane	ND	50	54		1	107	2.8	70-130	20	08/31/2011 1851
Methylene chloride	ND	50	19	N	1	37	16	69-129	20	08/31/2011 1851
Styrene	ND	50	49		1	98	2.2	70-130	20	08/31/2011 1851
1,1,2,2-Tetrachloroethane	ND	50	45		1	90	8.5	60-155	20	08/31/2011 1851
Tetrachloroethene	ND	50	52		1	104	3.3	70-130	20	08/31/2011 1851
Toluene	ND	50	51		1	101	0.81	70-130	20	08/31/2011 1851
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	21	N	1	42	2.1	70-130	20	08/31/2011 1851
1,2,4-Trichlorobenzene	ND	50	54		1	109	9.7	70-130	20	08/31/2011 1851
1,1,2-Trichloroethane	ND	50	47		1	94	1.8	77-132	20	08/31/2011 1851
1,1,1-Trichloroethane	ND	50	50		1	100	2.1	77-132	20	08/31/2011 1851

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: MH27005-003MD
Batch: 66853
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	ND	50	54		1	106	0.93	73-124	20	08/31/2011 1851
Trichlorofluoromethane	ND	50	29	N	1	58	7.2	60-140	20	08/31/2011 1851
Vinyl chloride	ND	50	15		1	30	4.8	29-159	20	08/31/2011 1851
Xylenes (total)	ND	100	100		1	104	0.53	70-130	20	08/31/2011 1851

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		100	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66944-001
Batch: 66944
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/L	09/01/2011 1017
Benzene	ND		1	5.0	0.20	ug/L	09/01/2011 1017
Bromodichloromethane	ND		1	5.0	1.7	ug/L	09/01/2011 1017
Bromoform	ND		1	5.0	0.40	ug/L	09/01/2011 1017
Bromomethane (Methyl bromide)	ND		1	5.0	0.80	ug/L	09/01/2011 1017
2-Butanone (MEK)	ND		1	10	1.8	ug/L	09/01/2011 1017
Carbon disulfide	ND		1	5.0	0.30	ug/L	09/01/2011 1017
Carbon tetrachloride	ND		1	5.0	0.40	ug/L	09/01/2011 1017
Chlorobenzene	ND		1	5.0	1.7	ug/L	09/01/2011 1017
Chloroethane	ND		1	5.0	0.50	ug/L	09/01/2011 1017
Chloroform	ND		1	5.0	1.7	ug/L	09/01/2011 1017
Chloromethane (Methyl chloride)	ND		1	5.0	0.30	ug/L	09/01/2011 1017
Cyclohexane	ND		1	5.0	0.98	ug/L	09/01/2011 1017
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	0.60	ug/L	09/01/2011 1017
Dibromochloromethane	ND		1	5.0	1.7	ug/L	09/01/2011 1017
1,2-Dibromoethane (EDB)	ND		1	5.0	0.30	ug/L	09/01/2011 1017
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/L	09/01/2011 1017
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/L	09/01/2011 1017
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/L	09/01/2011 1017
Dichlorodifluoromethane	ND		1	5.0	0.20	ug/L	09/01/2011 1017
1,1-Dichloroethane	ND		1	5.0	0.30	ug/L	09/01/2011 1017
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	09/01/2011 1017
1,1-Dichloroethene	ND		1	5.0	0.50	ug/L	09/01/2011 1017
trans-1,2-Dichloroethene	ND		1	5.0	0.40	ug/L	09/01/2011 1017
cis-1,2-Dichloroethene	ND		1	5.0	0.20	ug/L	09/01/2011 1017
1,2-Dichloropropane	ND		1	5.0	0.30	ug/L	09/01/2011 1017
trans-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	09/01/2011 1017
cis-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	09/01/2011 1017
Ethylbenzene	ND		1	5.0	1.7	ug/L	09/01/2011 1017
2-Hexanone	ND		1	10	1.0	ug/L	09/01/2011 1017
Isopropylbenzene	ND		1	5.0	1.0	ug/L	09/01/2011 1017
Methyl acetate	ND		1	5.0	0.72	ug/L	09/01/2011 1017
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	09/01/2011 1017
4-Methyl-2-pentanone	ND		1	10	0.80	ug/L	09/01/2011 1017
Methylcyclohexane	ND		1	5.0	0.95	ug/L	09/01/2011 1017
Methylene chloride	ND		1	5.0	1.7	ug/L	09/01/2011 1017
Styrene	ND		1	5.0	0.10	ug/L	09/01/2011 1017
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.40	ug/L	09/01/2011 1017
Tetrachloroethene	ND		1	5.0	0.40	ug/L	09/01/2011 1017
Toluene	ND		1	5.0	1.7	ug/L	09/01/2011 1017
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.30	ug/L	09/01/2011 1017
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/L	09/01/2011 1017
1,1,1-Trichloroethane	ND		1	5.0	0.20	ug/L	09/01/2011 1017
1,1,2-Trichloroethane	ND		1	5.0	0.30	ug/L	09/01/2011 1017

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ66944-001
Batch: 66944
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Trichloroethene	ND		1	5.0	0.30	ug/L	09/01/2011 1017
Trichlorofluoromethane	ND		1	5.0	0.30	ug/L	09/01/2011 1017
Vinyl chloride	ND		1	2.0	0.10	ug/L	09/01/2011 1017
Xylenes (total)	ND		1	5.0	1.7	ug/L	09/01/2011 1017

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66944-002
Batch: 66944
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	120		1	119	70-130	09/01/2011 0852
Benzene	50	52		1	105	70-130	09/01/2011 0852
Bromodichloromethane	50	58		1	115	70-130	09/01/2011 0852
Bromoform	50	51		1	101	70-130	09/01/2011 0852
Bromomethane (Methyl bromide)	50	41		1	83	60-140	09/01/2011 0852
2-Butanone (MEK)	100	110		1	114	60-140	09/01/2011 0852
Carbon disulfide	50	54		1	107	60-140	09/01/2011 0852
Carbon tetrachloride	50	62		1	123	70-130	09/01/2011 0852
Chlorobenzene	50	50		1	100	70-130	09/01/2011 0852
Chloroethane	50	54		1	109	42-163	09/01/2011 0852
Chloroform	50	54		1	107	70-130	09/01/2011 0852
Chloromethane (Methyl chloride)	50	66	N	1	133	70-130	09/01/2011 0852
Cyclohexane	50	52		1	103	70-130	09/01/2011 0852
1,2-Dibromo-3-chloropropane (DBCP)	50	48		1	96	70-130	09/01/2011 0852
Dibromochloromethane	50	50		1	99	70-130	09/01/2011 0852
1,2-Dibromoethane (EDB)	50	53		1	105	70-130	09/01/2011 0852
1,4-Dichlorobenzene	50	49		1	98	70-130	09/01/2011 0852
1,3-Dichlorobenzene	50	50		1	101	70-130	09/01/2011 0852
1,2-Dichlorobenzene	50	52		1	103	70-130	09/01/2011 0852
Dichlorodifluoromethane	50	57		1	113	60-140	09/01/2011 0852
1,1-Dichloroethane	50	54		1	107	70-130	09/01/2011 0852
1,2-Dichloroethane	50	55		1	110	70-130	09/01/2011 0852
1,1-Dichloroethene	50	52		1	104	70-130	09/01/2011 0852
trans-1,2-Dichloroethene	50	53		1	107	70-130	09/01/2011 0852
cis-1,2-Dichloroethene	50	54		1	108	70-130	09/01/2011 0852
1,2-Dichloropropane	50	53		1	107	70-130	09/01/2011 0852
trans-1,3-Dichloropropene	50	52		1	103	70-130	09/01/2011 0852
cis-1,3-Dichloropropene	50	52		1	105	70-130	09/01/2011 0852
Ethylbenzene	50	53		1	105	70-130	09/01/2011 0852
2-Hexanone	100	120		1	115	60-140	09/01/2011 0852
Isopropylbenzene	50	53		1	107	70-130	09/01/2011 0852
Methyl acetate	50	67	N	1	134	70-130	09/01/2011 0852
Methyl tertiary butyl ether (MTBE)	50	57		1	113	70-130	09/01/2011 0852
4-Methyl-2-pentanone	100	120		1	121	60-140	09/01/2011 0852
Methylcyclohexane	50	57		1	113	70-130	09/01/2011 0852
Methylene chloride	50	50		1	101	70-130	09/01/2011 0852
Styrene	50	53		1	106	70-130	09/01/2011 0852
1,1,2,2-Tetrachloroethane	50	52		1	104	70-130	09/01/2011 0852
Tetrachloroethene	50	50		1	101	70-130	09/01/2011 0852
Toluene	50	52		1	105	70-130	09/01/2011 0852
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	53		1	105	70-130	09/01/2011 0852
1,2,4-Trichlorobenzene	50	54		1	107	70-130	09/01/2011 0852
1,1,1-Trichloroethane	50	58		1	117	70-130	09/01/2011 0852
1,1,2-Trichloroethane	50	50		1	100	70-130	09/01/2011 0852

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ66944-002
Batch: 66944
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Trichloroethene	50	53		1	105	70-130	09/01/2011 0852
Trichlorofluoromethane	50	41		1	83	70-130	09/01/2011 0852
Vinyl chloride	50	67	N	1	134	70-130	09/01/2011 0852
Xylenes (total)	100	110		1	108	70-130	09/01/2011 0852

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		109	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ66944-003
Batch: 66944
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	110		1	114	3.7	70-130	20	09/01/2011 0913
Benzene	50	54		1	109	3.3	70-130	20	09/01/2011 0913
Bromodichloromethane	50	59		1	118	2.4	70-130	20	09/01/2011 0913
Bromoform	50	51		1	102	0.42	70-130	20	09/01/2011 0913
Bromomethane (Methyl bromide)	50	54	+	1	108	26	60-140	20	09/01/2011 0913
2-Butanone (MEK)	100	110		1	112	2.3	60-140	20	09/01/2011 0913
Carbon disulfide	50	54		1	109	1.3	60-140	20	09/01/2011 0913
Carbon tetrachloride	50	62		1	124	0.51	70-130	20	09/01/2011 0913
Chlorobenzene	50	51		1	102	1.8	70-130	20	09/01/2011 0913
Chloroethane	50	55		1	109	0.33	42-163	20	09/01/2011 0913
Chloroform	50	55		1	109	1.7	70-130	20	09/01/2011 0913
Chloromethane (Methyl chloride)	50	62		1	124	6.9	70-130	20	09/01/2011 0913
Cyclohexane	50	53		1	106	2.6	70-130	20	09/01/2011 0913
1,2-Dibromo-3-chloropropane (DBCP)	50	47		1	95	0.78	70-130	20	09/01/2011 0913
Dibromochloromethane	50	50		1	100	0.75	70-130	20	09/01/2011 0913
1,2-Dibromoethane (EDB)	50	53		1	106	1.1	70-130	20	09/01/2011 0913
1,4-Dichlorobenzene	50	50		1	101	2.6	70-130	20	09/01/2011 0913
1,3-Dichlorobenzene	50	52		1	104	3.1	70-130	20	09/01/2011 0913
1,2-Dichlorobenzene	50	53		1	105	2.1	70-130	20	09/01/2011 0913
Dichlorodifluoromethane	50	57		1	113	0.11	60-140	20	09/01/2011 0913
1,1-Dichloroethane	50	55		1	111	3.1	70-130	20	09/01/2011 0913
1,2-Dichloroethane	50	55		1	111	1.1	70-130	20	09/01/2011 0913
1,1-Dichloroethene	50	53		1	105	1.7	70-130	20	09/01/2011 0913
trans-1,2-Dichloroethene	50	54		1	108	1.2	70-130	20	09/01/2011 0913
cis-1,2-Dichloroethene	50	55		1	110	2.0	70-130	20	09/01/2011 0913
1,2-Dichloropropane	50	55		1	110	2.7	70-130	20	09/01/2011 0913
trans-1,3-Dichloropropene	50	52		1	104	1.3	70-130	20	09/01/2011 0913
cis-1,3-Dichloropropene	50	54		1	108	3.0	70-130	20	09/01/2011 0913
Ethylbenzene	50	54		1	108	2.1	70-130	20	09/01/2011 0913
2-Hexanone	100	110		1	113	1.5	60-140	20	09/01/2011 0913
Isopropylbenzene	50	55		1	109	2.4	70-130	20	09/01/2011 0913
Methyl acetate	50	66	N	1	132	1.7	70-130	20	09/01/2011 0913
Methyl tertiary butyl ether (MTBE)	50	57		1	114	0.92	70-130	20	09/01/2011 0913
4-Methyl-2-pentanone	100	120		1	121	0.28	60-140	20	09/01/2011 0913
Methylcyclohexane	50	59		1	118	4.5	70-130	20	09/01/2011 0913
Methylene chloride	50	51		1	103	1.9	70-130	20	09/01/2011 0913
Styrene	50	54		1	107	1.2	70-130	20	09/01/2011 0913
1,1,2,2-Tetrachloroethane	50	53		1	106	1.7	70-130	20	09/01/2011 0913
Tetrachloroethene	50	52		1	103	2.3	70-130	20	09/01/2011 0913
Toluene	50	54		1	108	2.8	70-130	20	09/01/2011 0913
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	54		1	108	2.6	70-130	20	09/01/2011 0913
1,2,4-Trichlorobenzene	50	55		1	110	2.9	70-130	20	09/01/2011 0913
1,1,1-Trichloroethane	50	60		1	119	1.7	70-130	20	09/01/2011 0913
1,1,2-Trichloroethane	50	51		1	102	2.0	70-130	20	09/01/2011 0913

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ66944-003
Batch: 66944
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	50	54		1	109	3.3	70-130	20	09/01/2011 0913
Trichlorofluoromethane	50	39		1	78	6.4	70-130	20	09/01/2011 0913
Vinyl chloride	50	63		1	125	6.7	70-130	20	09/01/2011 0913
Xylenes (total)	100	110		1	110	2.4	70-130	20	09/01/2011 0913

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		110	70-130
Toluene-d8		108	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record** Number 04047

Client: AECom	Report to Contact: DAVE OLIPHANT	Sampler (Printed Name): MICHAEL BRANSON	Quote No.: 14679
Address: 10 PATEWOOD DR. BLDG VI	Telephone No. / Fax No. / Email: 864-234-3560	Waybill No.	Page 1 of 2
City: GREENVILLE; State: SC; Zip Code: 29615	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: Philips Electric			
Project Number: 60222287	P.O Number		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix GW	DW	WW	S	Other	Analysis 8260	8260	Number of Containers	Bottle (See instructions on back)	Preservative	Lot No.	Remarks / Cooler ID
									4	3					
									A	A					
									1	5					
														MH27006	
SB-2	8/25/11	0930					X		✓						
SB-1	8/25/11	1400					X		✓						
SB-1MS	8/25/11	1400					X		✓						NC per NS 8/18/11
SB-1MSD	8/25/11	1400					X		✓						NC per NS 8/18/11
TW-1	8/26/11	0820		X						✓					
TW-1MS	8/26/11	0820		X						✓					NC per NS 8/18/11
TW-1MSD	8/26/11	0820		X						✓					NC per NS 8/18/11
TW-2	8/26/11	1030		X						✓					
TW-3	8/26/11	0900		X						✓					
TW-5	8/26/11	0945		X						✓					

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

QC Requirements (Specify):

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

1. Relinquished by / Sampler: MBranson	Date: 8/26/11	Time: 1700	1. Received by	Date	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	Date: 8/27/11	Time: 1051	4. Laboratory Received by	Date: 8/27/11	Time: 1051

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☒ Yes ☐ No ☐ Ice Pack
Receipt Temp. 2.0 °C
Temp. Blank ☐ Y ☒ N

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 8

Page 1 of 1
Replaces Date: 02/23/11
Effective Date: 05/06/11

Sample Receipt Checklist (SRC)

Client: AECOM Cooler Inspected by/date: 14/27/11 Lot #: MH27004

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☒ FedEx ☐ Airborne Exp ☐ Other

Yes ☐	No ☒		1. Were custody seals present on the cooler?
Yes ☐	No ☒		2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 2.0 °C / °C / °C / °C / °C / °C / °C / °C

Method: ☐ Temperature Blank ☒ Against Bottles
Method of coolant: ☒ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☒	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other:_____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☒	No ☐	NA ☒	4. Is the commercial courier's packing slip attached to this form?
Yes ☒	No ☒		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☒	NA ☐	5a Were samples relinquished by client to commercial courier?
Yes ☒	No ☐		6. Were sample IDs listed?
Yes ☒	No ☐		7. Was collection date & time listed?
Yes ☒	No ☐		8. Were tests to be performed listed on the COC?
Yes ☒	No ☐		9. Did all samples arrive in the proper containers for each test?
Yes ☒	No ☐		10. Did all container label information (ID, date, time) agree with COC?
Yes ☒	No ☐		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☒	No ☐		12. Was adequate sample volume available?
Yes ☐	No ☒		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☒		14. Were any samples containers missing?
Yes ☒	No ☒		15. Were there any excess samples not listed on COC?
Yes ☒	No ☐	NA ☐	16. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☒	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☒	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☒	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L)samples free of residual chlorine?
Yes ☐	No ☐	NA ☒	20. Were collection temperatures documented on the COC for NC samples?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s)_____were received incorrectly preserved and were adjusted accordingly in sample receiving with _____(H_2SO_4,HNO_3,HCl,NaOH) with the SR # (number) _____.

Sample(s) ~all(1) were received with bubbles >6 mm in diameter.

Sample(s)_____were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.

Date 8/26/11 FedEx Tracking Number 873129917525

Sender's Name Mace Brown Phone 864 234-3000

Company AECOM TECHNICAL SERVICES

Address 10 PATEWOOD DR BLDG 6

Dept/Floor/Suite/Room

GREENVILLE State SC ZIP 29615-6317

Corrective Action taken, if necessary:
Was client notified: Yes ☐ No ☐
SESI employee:_____
Comments:_____

APPENDIX D

FIELD DATA FROM 2012 AND 2013

AECOM

WATER LEVEL DATA SUMMARY

PROJECT: Ardee / Translite

LOCATION: Shelby, NC

CLIENT: Genlyte Thomas Group, LLC

SURVEY DATUM:

MEASURING DEVICE: Solinst wl probe

JOB NUMBER: 60241001

DATE: 2/2/10

MEASURED BY: M. Law

WELL NUMBER	TIME (Military)	MEASURING POINT		DEPTH TO WATER (FT)	ELEVATION OF WATER (FT)	COMMENTS
		Description	Elevation (FT)			
MW-01	1646		889.62	25.93		
MW-02	1550		890.36	26.19		- slight upward
MW-02D	1525		890.51	25.83		
MW-03	1245		887.80	25.46		
MW-04	1405		888.62	24.67		
MW-05	1201		888.26	20.52		
MW-06	0950		881.99	17.18		
MW-07	1104		887.15	21.98		— Flat gradient
MW-07D	1034		887.06	21.97		

AECOM

WATER LEVEL DATA SUMMARY

PROJECT: Ardee Translite

LOCATION Shelby, NC

CLIENT Genlyte Thomas Group, LLC

SURVEY DATUM:

MEASURING DEVICE: Solinst WL probe

JOB NUMBER 60280505.3

DATE 5/9/13

MEASURED BY M. Law

WELL NUMBER	TIME (Military)	MEASURING POINT		DEPTH TO WATER (FT)	ELEVATION OF WATER (FT)	COMMENTS
		Description	Elevation (FT)			
MW-01	1023		889.62	26.02		
MW-02	1028		890.36	26.27		slight upward gradient
MW-03	1030		890.51	26.31		
MW-03	1035		887.90	25.61		
MW-04	1042		888.62	24.65		
MW-05	1100		888.26	20.96		
MW-06	1115		881.99	17.01		
MW-07	1120		887.15	22.15		Downward gradient
MW-07D	1126		887.06	21.93		

AECOM

Test Boring Report

BORING NO. SB-SA-01

PAGE 1 OF 2

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: Geoprobe 7822 DT

PROJECT NO: 60241001

LOCATION: Former AST Area

ELEVATION: 890.70

DATE START: 1/16/2012

DATE FINISH: 1/16/2012

DRILLER: K. Hatt

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				**ASPHALT** (0-4")
					SILT (ML) dry, red (4/6 2.5YR), mostly silt, trace clay, trace sand, fine grain, slightly plastic.
	0.0				
5.0					**SAME AS ABOVE** dry, yellowish red (5/6 7.5YR), mostly silt, trace clay, fine grain, micaceous, relic structure SAPROLITE.
	0.0				
10.0					**SAME AS ABOVE** dry, yellowish red (6/6 7.5YR), mostly silt, trace sand, non-plastic, fine grain, micaceous, relic structure , SAPROLITE.
	0.0				
15.0					**SAME AS ABOVE** dry, strong brown (5/6 7.5YR), mostly silt, trace mica, trace sand, fine grain, non-plastic, relic structure, SAPROLITE.
	0.0				
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. SB-SA-02

PAGE 1 OF 1

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: GUS PECH

PROJECT NO: 60241001

LOCATION: Former AST Area

ELEVATION: 890.79

DATE START: 1/9/2012

DATE FINISH: 1/9/2012

DRILLER: S. Poloniewicz

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					For Soil Descriptions see MW-02D Log.
5.0					
10.0					
15.0					
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. MW-02D

PAGE 1 OF 3

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: GUS PECH

PROJECT NO: 60241001

LOCATION: Former AST Area

ELEVATION: 890.79

DATE START: 1/9/2012

DATE FINISH: 1/13/2012

DRILLER: S. Poloniewicz

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	HAS	Split spoon	-
					SIZE ID	10.25"	2"	-
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIME	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				**ASPHALT** (0 -4")
					SILT (ML) dry, red (4/8 2.5YR), mostly silt, few clay, fine grain, slightly plastic, trace sand.
	0.0		13:26	5'	
5.0		6, 9, 9, 15	13:40		**SAME AS ABOVE** very stiff, red (5/8 2.5YR), with relic structure,, SAPROLITE: mica schist
	0.0		13:45	10'	
10.0		3, 7, 8, 12	13:49		**SAME AS ABOVE** stiff
	0.0		13:53	15'	
15.0		4, 5, 10, 13	14:05		**SAME AS ABOVE** stiff, light red (6/6 2.5YR)
	0.0		14:07	20'	
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. MW-02D

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIME	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0	1.3	7, 7, 15, 16	14:17		**SILT WITH SAND (ML)** very stiff, moist, weak red (5/4 10R), mostly silt, little sand, trace clay, slightly plastic, micaceous, fine grain, relic structure, SAPROLITE.
				25'	
25.0	2.0	7, 16, 21, 30			**SILT (ML)** hard, moist, weak red (4/4 10R), mostly silt, trace clay, micaceous, non-plastic, relic structure, SAPROLITE.
				30'	
30.0	3.4	7, 15, 17, 27			**SAME AS ABOVE** hard, weak red (4/4 10R), mostly silt, trace clay. **SILT (ML)** hard, brown (4/3 10YR), mostly silt, trace clay, micaceous, fine grain, non-plastic, relic structure, SAPROLITE.
				35'	▽
35.0	2.6	50/6"			**POORLY GRADED GRAVEL WITH SAND (GP - SP)** hard, wet, dark grayish brown (4/2 10YR), mostly quartz and feldspar (orthoclase), gravel (~ 2mm), coarse grain sands, micaceous, non-plastic, PWR.
				40'	
40.0					Auger refused @ 40' Bgs; switch to Air hammer to get to 45'
				45'	
45.0					Set surface casing @ 45'

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. MW-02D

PAGE 3 OF 3

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIME	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
45.0			13:30	45'	1/13/12 - Continue with 5 5/8" Air Hammer -
					Dry cuttings, reddish gray (6/1 10R), few quartz fragments, mica.
50.0					
			13:43	55'	
55.0					Dry cuttings, white, (681 5Y), more quartz fragments (< 2mm), trace mica.
			14:45	60'	
60.0					End of boring @ 60' Bgs Total depth = 60' Bgs
65.0					
70.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. SB-SA-03

PAGE 1 OF 2

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: Geoprobe 7822 DT

PROJECT NO: 60241001

LOCATION: Former AST Area

ELEVATION: 889.66

DATE START: 1/16/2012

DATE FINISH: 1/16/2012

DRILLER: K. Hatt

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.5				**Asphalt** (0-4")
					Gravel (4"- 6")
					SILT WITH SAND (ML) dry, reddish yellow (6/6 5YR), mostly silt, little sand, fine grain, non-plastic to slightly plastic, trace clay
	0.0				
5.0					
					SAME AS ABOVE dry, strong brown (4/6 7.5YR), mostly silt, little sand, fine grain, non-plastic, relic structure, trace chert fragments (> 2mm), SAPROLITE.
	1.1				
10.0					
	1.8				
15.0					**SAME AS ABOVE** dry, brownish yellow (6/6 10YR)
	0.0				**SAME AS ABOVE** moist, pale red (6/2 2.5Y)
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. SB-SA-04

PAGE 1 OF 2

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: Geoprobe 7822 DT

PROJECT NO: 60241001

LOCATION: Former AST Area

ELEVATION: 889.90

DATE START: 1/16/2012

DATE FINISH: 1/16/2012

DRILLER: K. Hatt

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				**Asphalt** (0-4")
					SILT (ML) dry, red (4/6 2.5YR), mostly silt, trace clay, fine grain, slightly plastic.
	0.0				
5.0					**SILT (ML)** dry, reddish yellow (6/6 7.5YR), mostly silt, trace clay, fine grain, slightly plastic.
	0.0				
10.0					**SAME AS ABOVE** dry, brownish yellow (6/6 10YR), mostly silt, trace sand, trace clay, fine grain, non-plastic, relic structure, trace mica, SAPROLITE
	0.0				
15.0					**SAME AS ABOVE** dry, dark yellowish brown (4/4 10YR), mostly silt, trace sand, trace clay, trace mica
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM Test Boring Report

BORING NO. SB-SA-05
PAGE 1 OF 2

PROJECT: Ardee/Translite Phase II B
CLIENT: Genlyte Thomas Group, LLC
CONTRACTOR: SAEDACCO
EQUIPMENT: Geoprobe 7822 DT

PROJECT NO: 60241001
LOCATION: Former AST Area
ELEVATION: 890.12
DATE START: 1/16/2012
DATE FINISH: 1/16/2012
DRILLER: K. Hatt
PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					ASPHALT (0 - 4")
	1.8				**SILT (ML)** dry, red (4/6 2.5 YR), mostly silt, trace clay, fine grain, slightly plastic.
	2.2				
5.0					**SAME AS ABOVE** dry, yellowish red (5/8 5YR).
	4.1				
10.0					**SAME AS ABOVE** dry, yellowish brown (5/4 10YR).
	2.6				
15.0					**SILT WITH SAND (ML)** dry, pale yellow (8/2 2.5Y), mostly silt, little sand, fine grain, non-plastic, relic structure, SAPROLITE
	2.6				**SAME AS ABOVE** Moist, strong brown (5/6 7.5YR).
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. SB-SA-06

PAGE 1 OF 2

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: Geoprobe 7822 DT

PROJECT NO: 60241001

LOCATION: Former AST Area

ELEVATION: 889.46

DATE START: 1/16/2012

DATE FINISH: 1/16/2012

DRILLER: K. Hatt

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				**ASPHALT** (0 - 4")
					SILT (ML) dry, red (4/6 2.5YR), mostly silt, trace clay, fine grain, slightly plastic.
	0.0				
5.0					**SILT WITH SAND (ML)** dry, strong brown (5/6 2.5YR), mostly silt, little sand, micaceous, non-plastic, fine grain, SAPROLITE.
	0.0				
10.0					**SAME AS ABOVE** dry, yellowish brown (5/4 10YR).
	0.0				
15.0					**SAME AS ABOVE** dry, dark yellowish brown (4/4 10YR).
	0.0				
20.0					**SAME AS ABOVE**

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. SB-SA-07

PAGE 1 OF 1

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: GUS PECH

PROJECT NO: 60241001

LOCATION: Former AST Area

ELEVATION: 887.43

DATE START: 1/12/2012

DATE FINISH: 1/12/2012

DRILLER: S. Poloniewicz

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					For Soil Descriptions see MW-07 Log.
5.0					
10.0					
15.0					
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM Test Boring Report

BORING NO. MW-07D
PAGE 1 OF 3

PROJECT: Ardee/Translite Phase II B
CLIENT: Genlyte Thomas Group, LLC
CONTRACTOR: SAEDACCO
EQUIPMENT: GUS PECH

PROJECT NO: 60241001
LOCATION: Former Septic Area
ELEVATION: 887.28
DATE START: 1/10/2012
DATE FINISH: 1/12/2012
DRILLER: S. Poloniewicz
PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	HSA		
					SIZE ID	10.25'		
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0		15:02	0'	- See MW-07 Boring Log for soil descriptions -
					SILT (ML) dry, red (5/8 2.5YR), mostly silt, few clay, fine grain, slightly plastic, trace sand.
	0.0		15:03	5'	
5.0			15:06		**SAME AS ABOVE** relic structure, micaceous, SAPROLITE.
	0.0		15:09	10'	
10.0			15:09		
	0.0		15:14	15'	
15.0			15:17		
	0.0		15:20	20'	
20.0			15:31		

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. MW-07D

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0	0.0		15:31	20'	
25.0			15:35	25'	
					Auger refused @ 25' Bgs - Switch to air hammer -
	0.6				**POORLY GRADDED SAND (SP)** moist, pale yellow (8/3 5Y), mostly sand, fine-to-medium grain, few gravel (< 2mm), non-plastic, strong odor.
30.0					
35.0					▽ - Harder drilling -
					SILT WITH SAND (ML) wet, dark grayish brown (4/2 10YR), mostly silt, non-plastic, micaceous, fine grain, PWR.
			16:32	40'	1/10/12
40.0			15:25		1/12/12 Surface casing @ 40' Bgs - Continue with 5 5/8" air hammer -
					dry cuttings, reddish gray (6/1 10YR), few quartz fragments, mica
45.0			15:28	45'	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. MW-07D

PAGE 3 OF 3

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
45.0					
50.0			15:30	50'	Dry-to-moist cuttings, grading to white (8/1 5Y), around 50' then back to reddish gray (6/1 10R) more quartz fragments (< 2mm), trace mica.
					- Driller called top of rock @ 53' Bgs -
			15:33	55'	
55.0			16:26		- Stopped to check for water production -
					- Continued Drilling -
			16:30	60'	- Stopped to check for water production -
60.0					End of Boring @ 60' Bgs Total depth = 60' Bgs
65.0					
70.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. SB-SA-08

PAGE 1 OF 1

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: Geoprobe 7822 DT

PROJECT NO: 60241001

LOCATION: Former Septic Area

ELEVATION: 888.32

DATE START: 1/16/2012

DATE FINISH: 1/16/2012

DRILLER: K. Hatt

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				**TOP SOIL** (0 - 2")
					SILT (ML) dry, red (4/6 2.5YR), mostly silt, trace clay, fine grain, slightly plastic.
	0.0				
5.0					**SAME AS ABOVE** non-plastic.
	0.0				
10.0					**SILT WITH SAND (ML)** dry, strong brown (4/6 7.5YR), mostly silt, little sand, fine-to-medium grain, non-plastic, relic structure, SAPROLITE.
	0.0				
15.0					**SAME AS ABOVE** moist, brown (4/3 10YR), with white veins throughout, relic structure, non-plastic, SAPROLITE.
	0.0				Geoprobe refused @ 20' Bgs Total depth = 20' Bgs
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. SB-SA-09

PAGE 1 OF 2

PROJECT: Ardee/Translite Phase II B

CLIENT: Genlyte Thomas Group, LLC

CONTRACTOR: SAEDACCO

EQUIPMENT: Geoprobe 7822 DT

PROJECT NO: 60241001

LOCATION: Former Septic Area

ELEVATION: 888.28

DATE START: 1/16/2012

DATE FINISH: 1/16/2012

DRILLER: K. Hatt

PREPARED BY: M. Law

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	DRILLING TIMES	DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	0.0				**TOP SOIL** (0 - 2")
					SILT (ML) dry, red (4/6 2.5YR), mostly silt, trace clay, fine grain, slightly plastic.
	0.0				
5.0					**SAME AS ABOVE** dry, strong brown (4/6 7.5YR), with relic structures, non-plastic, SAPROLITE.
	0.0				
10.0					**SILT WITH SAND (ML)** dry, dark grayish brown (4/2 10YR), mostly silt, little sand, fine-to-medium grain, non-plastic, micaceous, relic structure, SAPROLITE.
	0.0				
15.0					**SAME AS ABOVE** moist.
	0.0				
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

APPENDIX E

SENSITIVE ENVIRONMENTS CORRESPONDENCE

NC Department of Environment and Natural Resources

Natural Heritage Program - NHP Map Viewer

Natural Heritage Program Map Viewer

(Data last updated on April 4, 2013)

Help (http://portal.ncdenr.org/c/document_library/get_file?uuid=df73d13e-0113-473b-bee3-d55c3b1ef344&groupId=61587)

639 Washburn Switch Road, Shelby, NC 28150, USA

35.312815 -81.60987899999998

Search Radius: 2 miles

Search Clear Fields and Reset Map (Searched on Jun 25, 2013)

Enter an Address

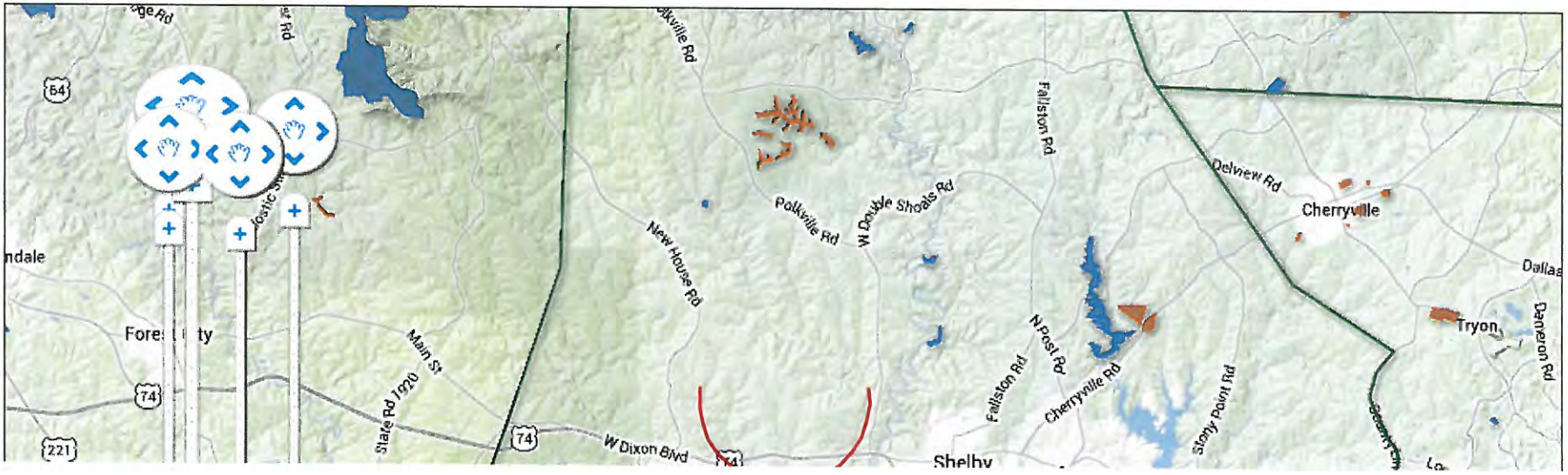
OR

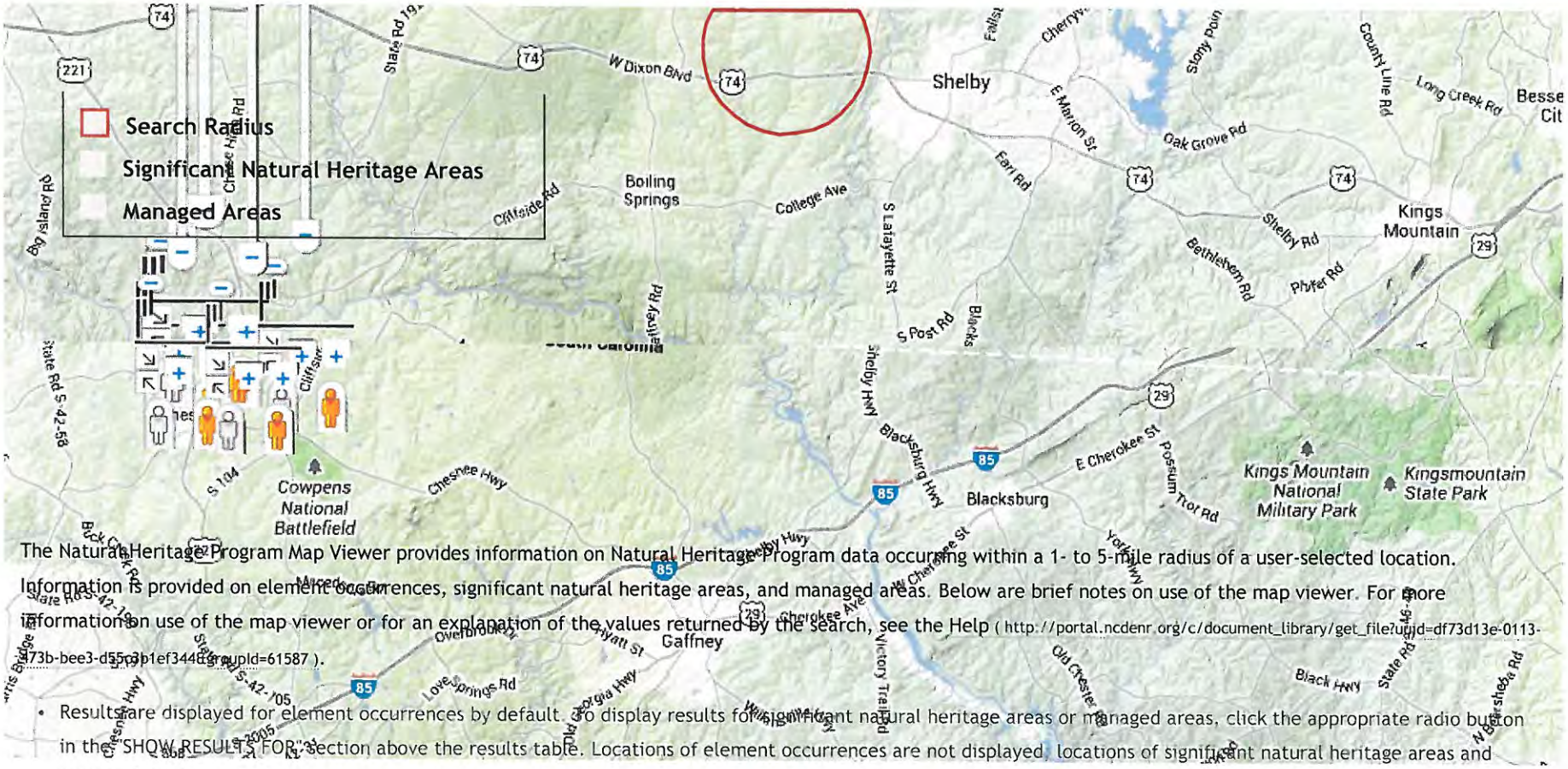
Latitude and Longitude

(decimal degrees)

OR

just click a map location below...





The Natural Heritage Program Map Viewer provides information on Natural Heritage Program data occurring within a 1- to 5-mile radius of a user-selected location. Information is provided on element occurrences, significant natural heritage areas, and managed areas. Below are brief notes on use of the map viewer. For more information on use of the map viewer or for an explanation of the values returned by the search, see the Help (http://portal.ncdenr.org/c/document_library/get_file?uuid=df73d13e-0113-473b-bee3-d55c3b1ef344&groupId=61587).

- Results are displayed for element occurrences by default. To display results for significant natural heritage areas or managed areas, click the appropriate radio button in the "SHOW RESULTS FOR" section above the results table. Locations of element occurrences are not displayed, locations of significant natural heritage areas and managed areas are displayed.
- Clicking on a column name in the results table will sort all entries in that column; clicking a second time on the column name will reverse the sort.
- The results can be further refined by entering a text string in the "Filter search results" field. Entries not containing the text string will be removed from the table of results.
- Clicking the "Download Results' button will give you the option of saving the results table to a comma-separated-values file. This type of file can be opened in most spreadsheet programs, including Microsoft Excel.
- Records for the Blue Ridge Parkway are not included in the shapefile. You must contact the Blue Ridge Parkway if you need information for this area.
- If you have any questions regarding the data contained on the map viewer, contact Natural Heritage Program staff (http://portal.ncdenr.org/web/nhp/contact) . For technical issues regarding the application, contact the Conservation Information Manager

Use of North Carolina Natural Heritage Program data should not be substituted for actual field surveys, particularly if the project area contains suitable habitat for rare species. If a database search lists no records for a project area, it does not necessarily mean that they are not present. The area may not have been surveyed by biologists, or the data may not have been reported to NC Natural Heritage Program.

Information obtained from the North Carolina Natural Heritage Program Map Viewer should be cited as follows: North Carolina Natural Heritage Program Online Map Viewer. [search date]. Department of Environment and Natural Resources, Office of Conservation, Planning, and Community Affairs, Raleigh, NC. Available at: www.ncnhp.org.

NORTH CAROLINA Natural Heritage Program SCIENCE GUIDING CONSERVATION

(http://portal.ncdenr.org/web/nhp)**North Carolina Natural Heritage Program** • 1601 Mail Service Center • Raleigh, NC 27699-1601

N.C. Department of Environment and Natural Resources

1601 Mail Service Center, Raleigh, NC 27699-1601

Headquarters (Environment and Natural Resources Building): 217 W. Jones St.

Archdale Building: 512 N. Salisbury St.

Toll Free: (877) 623-6748

NCDENR

North Carolina Department of Environment and Natural Resources
Office of Conservation, Planning, and Community Affairs

Pat McCrory
Governor

Linda Pearsall
Director

John E. Skvarla, III
Secretary

June 26, 2013

Mr. Dave Oliphant
AECOM North Carolina, Inc.
REC in North Carolina

Subject: Sensitive Environment Search – Ardee Translite; 639 Washburn Switch Road, Shelby, Cleveland County

Dear Mr. Oliphant:

The Natural Heritage Program Map Viewer search engine seems to have some problem, and it failed to capture several locations of a rare plant within a mile of the project area. Our database shows at least four locations of the Federally Threatened dwarf-flowered heartleaf (*Hexastylis naniflora*) within a mile of the project site. These are shown on the attached map; all are at least 0.5-mile from the 539 Washburn Switch Road location. If the proposed project work does not extend more than 0.1-mile from the site, there are not expected to be any impacts to these rare plant populations. Our database shows no other sensitive features within a mile of the project site.

Please do not hesitate to contact me at 919-707-8603 if you have questions or need further information.

Sincerely,

Harry E. LeGrand Jr.

Harry E. LeGrand, Jr., Zoologist
Natural Heritage Program

Attachment

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-707-8600 \ Internet: www.ncdenr.gov

An Equal Opportunity \ Affirmative Action Employer – 50% Recycled \ 10% Post Consumer Paper

From: Barnett, Anita [anita_barnett@nps.gov]
Sent: Wednesday, June 26, 2013 9:53 AM
To: Oliphant, Dave
Subject: Re: Sensitive Environment Search Request

Dave,

Kings Mountain National Military Park is about 17 miles Southeast and Cow Pens National Battlefield is about 17 miles Southwest away from from the address you listed : 639 Washburn Switch Road, Shelby, NC (Cleveland County).

What is the proposed action at this site for this site?
Anita Barnett
404-507-5706

On Tue, Jun 25, 2013 at 2:44 PM, Oliphant, Dave <DAVE.OLIPHANT@aecom.com> wrote:
Ms. Barnett,

I am the environmental consultant and RSM for a new REC site in North Carolina and need to request a sensitive environment search.
The new REC site under the NCDENR IHSB is as follows:

Ardee Translite
639 Washburn Switch Road
Shelby, NC (Cleveland County)

A topographic map copy showing the site location is attached.

Appendix B of the REC Guidance gives the email address above and your name as the contact. The guidance requests that we look for the following:

- National Seashore (our site in inland), lakeshore, and river recreational areas
- National parks or monuments
- Federal designated wild and scenic rivers

I have been on the web site and find none of these near our site. However, response from your office is requested as to whether or not any of these are located near the Site listed above.

Thank you for your assistance.

Dave Oliphant
AECOM North Carolina, Inc.
REC in North Carolina

864-380-6950
dave.oliphant@aecom.com

--
Anita Barnett
Environmental Protection Specialist
Planning and Compliance Division
National Park Service
Southeast Region
404-507-5706
678-883-4770

From: Berner, Ruth -FS [rberner@fs.fed.us]
Sent: Tuesday, June 25, 2013 1:54 PM
To: Oliphant, Dave
Subject: RE: Sensitive Environment Search Request

The U.S. Forest Service has NO CONCERNS regarding any sensitive environments at or adjacent to the location described in Shelby, NC

Ruth Berner
National Forests in North Carolina
Forest Planner
828-257-4862

From: Oliphant, Dave [mailto:DAVE.OLIPHANT@aecom.com]
Sent: Tuesday, June 25, 2013 1:42 PM
To: Berner, Ruth -FS
Cc: Oliphant, Dave
Subject: Sensitive Environment Search Request

Ms. Berner,

Thank you for taking my phone call a few minutes ago. The new REC site under the NCDENR IHSB is as follows:

Ardee Translite
639 Washburn Switch Road
Shelby, NC (Cleveland County)

Appendix B of the REC Guidance requests that we look for the following:

- Designated and Proposed Federal Wilderness and Natural Areas
- National Preserves and Forests
- Federal Land Designated for the Protection of Natural Ecosystems

A response from your office is requested as to whether or not any of these are located near the Site listed above.

Thank you for your assistance.

Dave Oliphant
AECOM North Carolina, Inc.
REC in North Carolina
864-380-6950
dave.oliphant@aecom.com

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

From: Williams, Melanie [melanie.williams@ncdenr.gov]
Sent: Wednesday, June 26, 2013 4:42 PM
To: Oliphant, Dave
Cc: Manning, Jeff
Subject: FW: Sensitive Environment Search Request

Mr. Oliphant,
The property located at 639 Washburn Switch Rd. Shelby, NC drains to an unnamed tributary to Beaverdam Creek [AU#: 9-50-32] in the Broad River Basin. The unnamed tributary is not currently monitored. According to our most recent data (2010), Beaverdam Creek is supporting it's designated uses. At this time, the site listed above is not considered to be environmentally sensitive.

For additional information about water quality in this area, you can reference the First Broad River Chapter of the 2008 Broad River Basin Plan, or please feel free to contact me with any additional questions or concerns.

Thanks and hope you have a great rest of the week.

Melanie Williams, River Basin Planner
NC DENR, Div. of Water Quality, Basinwide Planning Unit
1617 Mail Service Center, Raleigh, NC 27699-1617
Phone: (919) 807-6447

-- E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Oliphant, Dave [mailto:DAVE.OLIPHANT@aecom.com]
Sent: Tuesday, June 25, 2013 2:05 PM
To: Manning, Jeff
Cc: Oliphant, Dave
Subject: Sensitive Environment Search Request

Mr. Manning,

Thank you for taking my phone call a few minutes ago. The new REC site under the NCDENR IHSB is as follows:

Ardee Translite
639 Washburn Switch Road
Shelby, NC (Cleveland County)

A topographic map copy showing the site location is attached, per your request.

I understand that the site is in the Broad River Basin.

Appendix B of the REC Guidance requests that we look for the following:

- State-Designated Areas of Protection of Maintenance of Aquatic Life
- That we ask for a Clean Water Act 305b Report

A response from your office is requested as to whether or not any of these are located near the Site listed above.

Thank you for your assistance.

Dave Oliphant
AECOM North Carolina, Inc.
REC in North Carolina
864-380-6950
dave.oliphant@aecom.com

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

July 24, 2013

Mr. David Oliphant
AECOM North Carolina, Inc.
8540 Colonnade Center Drive, Ste. 306
Raleigh, NC 27615

Dear Mr. Oliphant:

Subject: Environmental Review for 639 Washburn Switch Road, Shelby, Cleveland County, North Carolina

We received your email dated July 8, 2013, requesting our comments on the subject project. The following comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C.§4321 et seq.) and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

According to our records and a review of the information you provided (email of July 8, 2013 and phone conversation of July 24, 2013), no federally listed endangered or threatened species or their habitats occur in the project area. Therefore, we believe the requirements under section 7 of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Thank you for allowing us to comment on this project. If you have any questions, please contact Mr. Allen Ratzlaff of our staff at 828/258-3939, Ext. 229. In any future correspondence concerning this project, please reference our Log Number 4-2-13-314.

cc:
Ms. Shari L. Bryant, Eastern Piedmont Region Permit Reviewer, North Carolina Wildlife Resources Commission, P.O. Box 129, Sedalia, NC 27342-0129

From: Oliphant, Dave
Sent: Tuesday, June 25, 2013 2:38 PM
To: 'Environment.Review@ncdcr.gov'
Cc: Oliphant, Dave
Subject: Sensitive Environment Search Request
Attachments: 639 Washburn Switch Rd., Shelby, NC Sens Env Req Topo Map.pdf

Sir/Madam:

I am the environmental consultant and RSM for a new REC site in North Carolina and need to request a sensitive environment search.
The new REC site under the NCDENR IHSB is as follows:

Ardee Translite
639 Washburn Switch Road
Shelby, NC (Cleveland County)

A topographic map copy showing the site location is attached.

Appendix B of the REC Guidance gives the email address above and a contact name of Renee Gledhill-Earley.
The guidance requests that we look for the following:

- National or State Historical Sites

A response from your office is requested as to whether or not any of these are located near the Site listed above.

Thank you for your assistance.

Dave Oliphant
AECOM North Carolina, Inc.
REC in North Carolina
864-380-6950
dave.oliphant@aecom.com

North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

28 June 2013

Mr. Dave Oliphant
AECOM North Carolina, Inc.
REC in North Carolina

Subject: Information Request for Ardee Translite Site Located at 639 Washburn Switch Road, Shelby, Cleveland County, North Carolina.

Dear Mr. Oliphant:

Biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the subject document and we are familiar with the habitat values of the area. Our comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667e) and North Carolina General Statutes (G.S. 113-131 et seq.).

It appears the site drains to an unnamed tributary to Beaverdam Creek in the Broad River basin. A request for information has been made regarding the following environmentally sensitive areas.

- **National or State Wildlife Refuges:** The site is not located within or near National or State Wildlife Refuges. Please note: The U.S. Fish and Wildlife Service (USFWS) manages National Wildlife Refuges. Although we do not have records of any National Wildlife Refuges within or near the site, we suggest confirming this with the USFWS.
- **State Lands Designated for Wildlife or Game Management:** The site is not located within or near NCWRC game lands.
- **Wetlands:** National Wetlands Inventory maps (http://www.fws.gov/wetlands/) can provide a general overview of wetland resources within the area; however, these should not be used to determine definitively whether there are wetlands on or near the site. Wetlands (or streams) within the project boundaries should be identified through on-site surveys. If wetlands (or streams) are found, then coordination with the U.S. Army Corps of Engineers and the N.C. Division of Water Quality should occur prior to any construction or land disturbing activities.
- **Migratory Pathways and Feeding Areas Critical for Maintenance of Anadromous Fish Species within River Reaches or Areas in Lakes or Coastal Tide Waters in which such Fish Spend Extended Periods of Time:** We are not aware of any migratory pathways or critical feeding areas for anadromous fish species within or near the site.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

- **Spawning Areas Critical for the Maintenance of Fish/Shellfish Species within River, Lake or Coastal Tidal Waters:** Beaverdam Creek supports a Piedmont warmwater fishery. Although we are not aware of any specific reaches of this stream that are critical spawning areas, protecting water quality and aquatic habitat are essential for the continued survival of any fish and mussel populations in this watershed.

If we can be of further assistance, please contact our office at (336) 449-7625 or shari.bryant@ncwildlife.org.

Sincerely,

Shari L. Bryant
Piedmont Region Coordinator
Habitat Conservation Program

st for Information and Comment About the Former Gastonia PSNC Energy Manufactured Gas Plant (UNCLASSIFI

From: Brown, David W SAW [David.W.Brown@usace.army.mil]
Sent: Monday, July 01, 2013 1:24 PM
To: Oliphant, Dave
Subject: Request for Information and Comment About the Former Gastonia PSNC Energy Manufactured Gas Plant (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

July 1, 2013

USACE Wilmington District
Regulatory Division

Dear Dave Oliphant:

Reference is made to your e-mail of June 26, 2013, regarding a request for information and comment about the Former JJI Lighting Group, now Ardee Translite, facility located on an approximately 37 acres tract of land (Parcel No. 32699) at 639 Washburn Switch Road west of Shelby, Cleveland County, North Carolina. The e-mail requested an evaluation of potential presences of jurisdictional waters and wetlands of the United States (U.S.) for the above mentioned property or on surrounding properties.

We determined, based upon review of the information provided, there is potential for jurisdictional waters, possibly including wetlands, of the U.S. at this property and surrounding properties. A blue-line feature (unnamed tributary to Beaverdam Creek) on the Shelby, North Carolina, U.S. Geological Survey 7.5 minute topographic quadrangle is located on the west boundary of this facility. Based on this preliminary information we strongly suggest you have this property inspected to determine the extent of Department of Army (DA) jurisdiction. You may request the Army Corps of Engineers (Corps) to conduct a jurisdictional determination (JD) inspection. However, the Corps may not be able to accomplish this inspection in a timely manner. For a more timely JD inspection, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

Please be aware that impacts associated with the discharge of fill into jurisdictional waters of the U.S. are subject to our regulatory authority pursuant to Section 404 of the Clean Water Act. Any discharge of excavated or fill material into waters of the U.S. and/or any adjacent wetlands would require DA permit authorization. The type of DA authorization required (i.e., general or individual permit) is determined by the location, type, and extent of jurisdictional area(s) impacted by the project, and by the project design and work limits.

Until additional data is furnished which details jurisdictional waters of the U.S., including wetlands, we are unable to fully verify the DA jurisdictional areas on this property and surrounding properties. Further the Corps cannot determine if upcoming proposed project activities will have jurisdictional impacts, or to provide specific comments concerning DA permit requirements. When this information becomes available, it should be forwarded to our office for review and comment, as well as, a determination of DA permit eligibility. Should you have any further questions, please contact me at 828-271-7980, extension 232.

Thank you,
David Brown, PG
Regulatory Specialist/Geologist
828-271-7980, ext. 232
david.w.brown@usace.army.mil

151 Patton Avenue, Room 208
Asheville, NC 28801-5006

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://per2.nwp.usace.army.mil/survey.html to complete the survey online.

Classification: UNCLASSIFIED
Caveats: NONE

APPENDIX F

CURRENT OWNER'S DEED AND PROPERTY OWNERSHIP INFORMATION

Ardee Translite
639 Washburn Switch Road
Shelby, NC 28150

Inquiry Number: 03648009.9R
June 29, 2013

The EDR Chain of Title Report

EDR Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Chain of Title

The EDR Chain of Title Report tracks a line of successive owners from the present back to 1940 of a particular parcel of property, linked together by recorded transactions which pass title. Available nationwide, this report provides a summary of a property's ownership history and is a valuable source for determining the prior uses of a property

A network of professional abstractors following established procedures, uses client supplied address Information to locate:

- Historical Chain of Title research
- Leases and Miscellaneous

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Chain of Title

TARGET PROPERTY INFORMATION

ADDRESS

639 Washburn Switch Road

Shelby, NC 28150

Research Source

Official Public Records

County of Cleveland

EXAMINER"S NOTE: Public records of Cleveland County , Florida were searched from January 1, 1940, to June 21, 2013, and no other deeds vesting title in the subject property were found of record during the period searched.

PROPERTY DESCRIPTION

Current Owner:	JJI Lighting Group, Inc. n/k/a Genlyte Thomas Group, LLC successor by merger
Legal Description:	As shown in current vesting deed attached hereto and made a part hereof.
Property Identifiers:	32699

HISTORICAL CHAIN OF TITLE

See Exhibit "A"

CURRENT VESTING DEED

See Deed Exhibit

EDR Chain of Title

Chain of Title

Exhibit “A”

EDR Chain of Title

HISTORICAL CHAIN OF TITLE

Type of Deed:	Warranty Deed
Title is vested in:	JJI Lighting Group, Inc.
Title received from:	Specialty Lighting Inc.
Date Executed:	3-10-1993
Date Recorded:	3-12-1993
Book:	1125
Page:	2356

Type of Deed:	Warranty Deed
Title is vested in:	Specialty Lighting Inc.
Title received from:	Coleman A. Doggett
Date Executed:	11-22-1982
Date Recorded:	11-274-1982
Book:	17-Y
Page:	279

Type of Deed:	Warranty Deed
Title is vested in:	Specialty Lighting Inc
Title received from:	Coleman A. Doggett
Date Executed:	5-25-1971
Date Recorded:	5-31-1971
Book:	16-A
Page:	412

Type of Deed:	Warranty Deed
Title is vested in:	Coleman A. Doggett
Title received from:	Bryan A. Causby and Leonard Causby
Date Executed:	6-20-1957
Date Recorded:	6-29-1957
Book:	7-Z
Page:	72

Type of Deed:	Warranty Deed
Title is vested in:	Bryan A. Causby and Leonard Causby
Title received from:	W.I. Humphries and Gladys P. Humphries his wife
Date Executed:	9-01-1953
Date Recorded:	9-02-1953
Book:	6-T
Page:	514

EDR Chain of Title

Type of Deed:	Warranty Deed
Title is vested in:	W.I. Humphries and Gladys P. Humphries his wife
Title received from:	Scheiman McSwain and Doris Mcswain his wife
Date Executed:	9-01-1945
Date Recorded:	9-08-1945
Book:	5-M
Page:	399
Comments:	searched back to 1940 and found no other deds

DEED EXHIBIT

RECORDING FEE $ 8.00 REVENUES -0-

BOOK 1125 PAGE 2356

Mail To: _____

This instrument was prepared by: Charles W. Wray, Jr., Attorney at Law, PO Drawer 1879, Shelby, NC 28150

CORPORATION WARRANTY DEED–Form CWD-403 Printed and for sale by James Williams & Co., Inc., Yadkinville, N. C. 27055

STATE OF NORTH CAROLINA, CLEVELAND COUNTY.

THIS DEED, Made this 10th day of MARCH, 19 93, by and between

2732

SPECIALTY LIGHTING, INC.

a Corporation of CLEVELAND County and State of North Carolina, hereinafter called Grantor, and

JJI LIGHTING GROUP, INC.

Mailing Address: 67 Holly Hill Lane, Greenwich, Connecticut 06830

of Greenwich ~~XXXXX~~ and State of ~~XXXXXXXX~~ Connecticut hereinafter called Grantee, a Delaware Corporation

WITNESSETH: That the Grantor, for and in consideration of the sum of ---TEN AND NO/100----- Dollars and other good and valuable considerations to him in hand paid by the Grantee, the receipt whereof is hereby acknowledged, has given, granted, bargained, sold and conveyed, and by these presents does give, grant, bargain, sell, convey and confirm unto the Grantee, his heirs and/or successors and assigns, premises in Number Seven (7) Township, Cleveland County, North Carolina, described as follows:

Being a tract of land described in Deed Book 16-A, Page 412 and Deed Book 17-Y at Page 279, lying in Number Seven (7) Township, Cleveland County, North Carolina, bounded on the North by Bryan A. Causby and Leanard Causby, on the East by Washburn Switch Road (SR 1313) and Capital Funds, Inc., on the South by Rosa M. Jamerson and Meredith Doggett and on the West by Julia W. Weaver and being more particularly described as follows:

BEGINNING at an iron pin in the Western right of way of Washburn Switch Road, the Southeast corner of Leanard Causby's property described in Deed Book 8-T, Page 452, said iron being located South 32-40-45 East 101.72 feet from an existing iron, also located South 74-44-12 West 134.92 feet from the center of Seaboard Coastline R.R; and runs thence along the right of way of SR 1313, South 30-50-52 East 59.98 feet to an existing pipe, said pipe being located North 31-10-17 West 107.20 feet from a P/K nail in a concrete headwall over water culvert, also located North 61-48-18 West 185.58 feet from a P/K nail in the center of railroad tracks and asphalt drive to Seal Wire Company, said pipe being the Northeast corner of Capital Funds, Inc. property, thence with Capital Funds Inc. North line, South 74-47-21 West 718.99 feet to a set rebar, thence South 21-36-56 East a total distance of 856.86 feet to an existing pipe crossing over an existing iron at 287.08 feet, thence with the South line of Capital Funds, Inc., North 79-00-00 East 741.78 feet to an existing iron pin in the centerline of SR 1313, thence with the centerline of SR 1313 the following calls and distances: South 18-49-44 East 245.24 feet to a point, South 19-26-06 East 100.00 feet to a point, South 22-12-49 East 100.00 feet to a point, South 27-40-43 East 100.00 feet to an existing nail, the Northeast corner of Rosa M. Jamerson, said nail being located South 74-02-06 West 28.98 feet from an iron on the East side of SR 1313; thence with the North lines of Rosa M. Jamerson and Meredith Doggett, South 79-28-17 West 1838.20 feet to an iron set on the West side of a branch, Julia W. Weaver's corner, said iron being located North 72-29-27 West 331.20 feet from an existing iron; thence with Weaver's line, North 09-00-33 East 495.54 feet to an existing angle iron; thence North 43-18-16 West 361.72 feet to an existing pipe, common corner of Specialty Lighting, Inc., Alan S. Hovis and Bryan A. Causby; thence with Causby's line, North 35-01-32 East 907.43 feet to an existing stone, thence continuing with Bryan Causby's line, North 74-52-27 East 556.94 feet to an existing iron pin, Leanard Causby's Southwest corner; thence with Leanard Causby's South line, North 74-44-12 East 405.32 feet to the place of **BEGINNING**, containing 36.972 acres, by coordinate computation, as surveyed by T. Scott Bankhead on January 26, 1993.

For Title Reference see Deed Book 16-A, Page 412 and Deed Book 17-Y, Page 270.

The foregoing property is subject to easements and rights of way on record in Book 7-Z, Page 659, Deed Book 8-H, Page 690, Deed Book 7-Z, Page 173, Deed Book 9-Z, Page 62, Deed Book 8-Z, Page 315 and Deed Book 11-O, Page 359 of the Cleveland County, North Carolina, Registry.

93 MAR 12 AM 11:34
CLEV. CO., N. C.
REGISTER OF DEEDS

LEASES and MISCELLANEOUS

Exhibit “B”

EDR Chain of Title

LEASES and MISCELLANEOUS

1. Type of Instrument: Sewer Line Easement
First Party: JJI Lighting Group, Inc.
Second Party: Jefferson Smurfit Corporation
Recorded: 10-16-1996
Book: 1187
Page: 1675

Comments: copy of document is attached herewith,

2. Type of Instrument: Deed for Highway Right of Way
First Party: Genlyte Thomoas Group, LLC successor by merger to JJI Lighting Group, Inc.
Second Party: North Carolina department of Transportation
Recorded: 5-06-2013
Book: 1656
Page: 120

Comments: copy of document is attached herewith,

172039

2013-004502 B: 1656 P: 1201
05/06/2013 11:30:13 AM Total Pages: 3 Fees: 57.00
Bonnie E. Reece, Register of Deeds, Cleveland County, NC

Receipt# 13-7648 2013-004502
Issued 05/06/2013 ClevelandCounty, NC
by Bonnie E. Reece, Register of Deeds
Excise Amount: $31.00 Excise ID #026638
Real Estate Excise Tax

3

RECORDING FEE $ 26.00 REVENUES 31.00

Revenue Stamps $ 31.00

DEED FOR HIGHWAY RIGHT OF WAY

THIS INSTRUMENT DRAWN BY [illegible] CHECKED BY David Angel

The hereinafter described property ☐ Does ☒ Does not include the primary residence of the Grantor.

RETURN TO: Division Right of Way Agent - NCDOT
840 Wallace Grove Drive
Shelby, NC 28150

NORTH CAROLINA
COUNTY OF Cleveland
TAX MAP AND LOT 32700

T.I.P No.: R-2707B
WBS ELEMENT: 34497.2.8
TIP/PARCEL NUMBER: R-2707B-009
ROUTE: US 74

THIS FEE SIMPLE DEED, made and entered into this the 10th day of April, 2013 by and between Genlyte Thomas Group LLC, successor by merger to JJI Lighting Group Inc.

Mailing address: 200 Franklin Square Drive Somerset, NJ 08875

hereinafter referred to as GRANTORS, and the Department of Transportation, an agency of the State of North Carolina, 1546 Mail Service Center, Raleigh, NC 27611, hereinafter referred to as the Department;

WITNESSETH

That the GRANTORS, for themselves, their heirs, successors, and assigns, for and in consideration of the sum of $ 15,400.00---------- agreed to be paid by the DEPARTMENT to the GRANTORS, do hereby give, grant and convey unto the DEPARTMENT, its successors and assigns, in FEE SIMPLE (together with any provisions relating to abutter's rights of access which may be hereinafter stated), that certain property located in Number seven Township, Cleveland County, North Carolina, which is particularly described as follows:

TRACT 1: Point of beginning being N 46^45'35.2" W, 53.057 feet from -Y7- Sta 15+00; thence to a point on a bearing of N 18^37'6.3" W, 13.215 feet; thence to a point on a bearing of S 71^22'53.7" W, 25.000 feet; thence to a point on a bearing of S 18^37'6.3" E, 20.912 feet; thence to a point on a bearing of S 20^05'15.6" E, 253.752 feet; thence along a curve 171.865 feet and having a radius of 1687.022 feet. The chord of said curve being on a bearing of S 23^46'10.9" E, a distance of 45.711 feet; thence to a point on a bearing of S 58^02'24.5" W, 124.637 feet; thence along a curve 1.513 feet and having a radius of 850.000 feet. The chord of said curve being on a bearing of S 58^05'26.2" W, a distance of 1.513 feet; thence to a point on a bearing of N 79^39'11.3" E, 163.598 feet; thence along a curve 845.833 feet and having a radius of 1550.000 feet. The chord of said curve being on a bearing of N 30^15'0.9" W, a distance of 2.078 feet; thence along a curve 843.756 feet and having a radius of 1075.000 feet. The chord of said curve being on a bearing of N 25^12'55.3" W, a distance of 187.253 feet; thence to a point on a bearing of N 20^13'7.4" W, 31.158 feet; thence along a curve 625.107 feet and having a radius of 5025.000 feet. The chord of said curve being on a bearing of N 19^25'7.2" W, a distance of 140.359 feet; returning to the point and place of beginning.

Unofficial Copy

COUNTY: Cleveland WBS ELEMENT: 34497.2.8 TIP/PARCEL NO. R-2707B-009

IN ADDITION, and for the aforestated consideration, the GRANTORS further hereby convey to the DEPARTMENT, its successors and assigns the following described areas and interests:

PERMANENT UTILITY EASEMENT - TRACT 1:
Point of beginning being S 08^31'28.0" E, 238.682 feet from -Y7- Sta 15+00; thence to a point on a bearing of S 58^02'24.5" W, 128.049 feet; thence along a curve 59.799 feet and having a radius of 875.002 feet. The chord of said curve being on a bearing of S 56^10'58.4" W, a distance of 59.787 feet; thence to a point on a bearing of N 79^39'11.3" E, 62.609 feet; thence along a curve 339.239 feet and having a radius of 850.000 feet. The chord of said curve being on a bearing of N 58^05'25.6" E, a distance of 1.518 feet; thence to a point on a bearing of N 58^02'24.5" E, 124.637 feet; thence along a curve 213.084 feet and having a radius of 1687.022 feet. The chord of said curve being on a bearing of N 24^07'2.7" W, a distance of 25.236 feet; returning to the point and place of beginning.

Said Permanent Utility easement in perpetuity is for the installation and maintenance of utilities, and for all purposes for which the DEPARTMENT is authorized by law to subject same. The Department and its agents or assigns shall have the right to construct and maintain in a proper manner in, upon and through said premises utility line or lines with all necessary pipes, poles and appurtenances, together with the right at all times to enter said premises for the purpose of inspecting said utility lines and making all necessary repairs and alterations thereon; together with the right to cut away and keep clear of said utility lines, all trees and other obstructions that may in any way endanger or interfere with the proper maintenance and operation of the same with the right at all times of ingress, egress and regress.

It is understood and agreed that the Department shall have the right to construct and maintain the cut and/or fill slopes in the above-described permanent drainage easement area(s). It is further understood and agreed that Permanent Drainage shall be used by the Department for additional working area during the above described project.

TEMPORARY CONSTRUCTION EASEMENT – TRACT 1:
Point of beginning being S 71^16'28.6" W, 60.000 feet from -Y7- Sta 15+00; thence to a point on a bearing of S 21^12'47.9" E, 101.319 feet; thence to a point on a bearing of S 10^00'49.7" E, 52.105 feet; thence to a point on a bearing of S 28^28'7.4" E, 51.991 feet; thence to a point on a bearing of S 18^47'41.2" E, 33.853 feet; thence to a point on a bearing of N 58^02'24.5" E, 12.721 feet; thence along a curve 608.064 feet and having a radius of 1687.022 feet. The chord of said curve being on a bearing of N 23^20'28.1" W, a distance of 20.476 feet; thence to a point on a bearing of N 20^05'15.6" W, 253.752 feet; thence to a point on a bearing of N 18^37'6.3" W, 20.912 feet; thence to a point on a bearing of S 09^11'45.9" E, 60.934 feet; returning to the point and place of beginning.

It is understood and agreed that the DEPARTMENT shall have the right to construct and maintain the cut and/or fill slopes in the above-described Temporary Construction Area until such time that the property owners alter the adjacent lands in such a manner that the lateral support of the cut and/or fill slopes is no longer needed. Any additional construction areas lying beyond the cut and/or fill slopes and extending beyond the right of way limits will terminate upon completion of the project

SPECIAL PROVISIONS. This deed is subject to the following provisions only:

The undersigned owners further request that the Department of Transportation enter upon our lands outside of the right of way to the extent as is necessary to reconnect our driveway and we will have no further claim against the Department as a result of the reconstruction of said driveway

The property hereinabove described was acquired by the GRANTORS by instrument(s) recorded in the Cleveland County Registry in Deed Book 1125 Page 2856

The final right of way plans showing the above described right of way are to be certified and recorded in the Office of the Register of Deeds for said County pursuant to N.C.G.S. 136-19.4, reference to which plans is hereby made for purposes of further description and for greater certainty.

The Grantors acknowledge that the project plans for Project # 34497.2.8 have been made available to them. The Grantors further acknowledge that the consideration stated herein is full and just compensation pursuant to Article 9, Chapter 136 of the North Carolina General Statutes for the acquisition of the said interests and areas by the Department of Transportation and for any and all damages to the value of their remaining property; for any and all claims for interest and costs; for any and all damages caused by the acquisition for the construction of Department of Transportation Project # 34497.2.8 , Cleveland County; and for the past and future use of said areas by the Department of Transportation, its successors and assigns for all purposes for which the said Department is authorized by law to subject the same.

Unofficial Copy

COUNTY: Cleveland WBS ELEMENT: 34497.2.8 TIP/PARCEL NO. R-2707B-009

IT IS UNDERSTOOD AND AGREED between the parties hereto that this conveyance is made for the purpose of constructing and establishing upon the right of way hereby conveyed a road or highway designated as State Highway Project 34497.2.8 , Cleveland County, which road or highway is a controlled access facility as defined by law and the GRANTORS shall have no right of access to said road or highway, except such access as may be provided by way of local service or frontage roads and streets or specific access points as shown and designated as such on the right of way plans for said State Highway Project on file in the office of the DEPARTMENT in Raleigh, North Carolina and to be recorded in the Register of Deeds Office of Cleveland County pursuant to NCGS 136-19.4.

The access as provided is more particularly described as follows:

By means of a specific access point 24' in width which is located right of and between Survey Station 16+26.00 and Survey Station 16+50.00 on Survey Line -Y7-.

As to such local service or frontage roads and streets or specific points of access, the GRANTORS reserve unto themselves, their heirs, successors, executors and assigns for the benefit of their remaining property abutters' rights of access thereto as at common law; subject, however, to the right of the DEPARTMENT to reasonably regulate said abutters' rights of access in order to protect and safeguard the traveling public.

TO HAVE AND TO HOLD the aforesaid premises and all privileges and appurtenances thereunto belonging to the DEPARTMENT, its successors and assigns in FEE SIMPLE, or by easement as indicated, for the past, present and future use thereof and for all purposes which the said Department is authorized by law to subject the same.

And the GRANTORS covenant with the DEPARTMENT, that the GRANTORS are seized of the premises in fee simple, have the right to convey the same in fee simple, or by easement as indicated, that the title thereto is marketable and free and clear of all encumbrances, and that the GRANTORS will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated. Title to the property hereinabove described is hereby conveyed subject to the following exceptions:

NONE

IN WITNESS WHEREOF, the GRANTORS have hereunto set their hands and seals (or if corporate, has caused the instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors) the day and year first above written

Genlyte Thomas Group LLC,
successor by merger to JJI Lighting Group Inc.
(Corporate Name)

BY: [signature]
Michael L. Manning,
Vice-President

ACCEPTED FOR THE DEPARTMENT OF TRANSPORTATION BY: David Angel

state MASSACHUSETTS, Essex COUNTY

I, Irma I. Gomez, a Notary Public for said County and State, do hereby certify that Michael L. Manning, Vice-President Genlyte Thomas Group LLC, successor by merger to JJI Lighting Group Inc., a limited liability company, personally appeared before me this day and acknowledged the due execution of the foregoing instrument on behalf of the company.

Witness my hand and official stamp or seal, this the 10th day of April, 20 13.

My Commission Expires: 7/21/17

Irma I. Gomez
Notary Public

IRMA I. GOMEZ MY COMM. EXPIRES JULY 21, 2017 NOTARY PUBLIC COMMONWEALTH OF MASSACHUSETTS

IRMA I. GOMEZ MY COMMISSION EXPIRES JULY 21, 2017 NOTARY PUBLIC COMMONWEALTH OF MASSACHUSETTS

Unofficial Copy

Return to and prepared by: Mark Lackey

BK 1187 PG 1675

RECORDING FEE $ 16.00

13390

NORTH CAROLINA

CLEV. CO., NC
FILED

96 OCT 16 PM 2:07

BONNIE S. REECE
REGISTER OF DEEDS

E A S E M E N T

CLEVELAND COUNTY

THIS EASEMENT made this 25th day of September, 1995, by and between JJI Lighting Group, Inc., hereinafter called "Grantor" and JEFFERSON SMURFIT CORPORATION (U.S.), a Delaware corporation, hereinafter called "Grantee";

W I T N E S S E T H :

THAT WHEREAS Grantor is the owner of a certain parcel of real property located in Number Seven (7) Township, Cleveland County, N.C., described in Deed Book 1125, Page 2356, Cleveland County Registry, being located on the West side of S.R. 1313; and whereas, Grantee desires an easement for the purpose of constructing a sewer line across the property of Grantor, in connection with the use and enjoyment of the property owned by Grantee located on S.R. 1313;

NOW THEREFORE, Grantor, for and in consideration of the sum of Ten and no/100, ($10.00) Dollars and other valuable considerations, paid by Grantee, receipt of which is hereby acknowledged, does by these presents, grant, bargain, sell, and convey unto the said Grantee, its successors and assigns, a perpetual, non-exclusive easement 30 feet in width for construction and maintenance of a sewer line, with necessary appurtenances over, through, across and upon the abovementioned property of Grantor in Cleveland County, N.C., the centerline of

said easement being described in EXHIBIT "A" attached hereto and made a part hereof for all purposes.

Grantee, its successors or assigns, shall have the right, without prior notice or proceeding at law, at such times as may be necessary to enter upon said above described property for the purpose of constructing, maintaining, repairing, altering or reconstructing said utilities, or making any connections therewith, without incurring any legal obligations or liability therefor, provided that if such construction, maintaining, repairing, altering or reconstruction of said utilicies shall be accomplished in such a manner that the private improvements existing in the right of way shall be disturbed or damaged, they will be replaced in as good a condition as they were immediately before the property was entered upon by the Grantee. Grantor hereby grants to Grantee herein a temporary construction easement 50 feet in width for the purpose of installation of the abovementioned sewer line; thereafter, said easement shall be 30 feet in width as set forth above.

The Grantor shall fully use and enjoy the aforesaid premises, including the right to retain the right to use the surface of said right of way if such does not reasonably interfere with installation and maintenance of the utilities. However, the Grantor shall not erect buildings or permanent structures over, under or across the right of way during the existence of such utilities without the prior consent of Grantee.

This easement shall run with the land and shall be binding on the Grantor, its successors and assigns. Grantor covenants

BK 1187 PG 1677

that it is the lawful owner of the property and that it has a good and lawful right to execute this agreement.

IN TESTIMONY WHEREOF, the parties hereto have set their hands and seals, upon authority duly given by their boards of directors, the day and year above first written.

J J I Lighting Group, Inc.

By: Robert N. Hardinger
President

ATTEST: Donald Herver
Secretary

Jefferson Smurfit Corporation

By: [illegible]
Vice President

Carrance Owrow

ATTEST: [illegible]
Assistant Secretary

NORTH CAROLINA CLEVELAND COUNTY

The Foregoing (or annexed) certificate of Jacqueline C. Bickelmeyer and a Notary Public is certified to be correct. This 16 day of Oct A.D. 1996

Bonnie E. Reece By Barbara H. Dawn
Register of Deeds Assistant

Filed for registration on 16 day of Oct A.D. 1996 at 2:37 o'clock P M, and registered in the office of Register of Deeds, Cleveland County, NC in Book 1187 Page 1675

Bonnie E. Reece By Barbara H. Dawn
Register of Deeds Assistant

NORTH CAROLINA CLEVELAND COUNTY

The Foregoing (or annexed) certificate of Elizabeth C. McClure and a Notary Public is certified to be correct. This 16 day of Oct A.D. 1996

Bonnie E. Reece By Barbara H. Dawn
Register of Deeds Assistant

BK 1187 PG 1678

STATE OF MISSOURI

COUNTY OF ST. LOUIS

I, a Notary Public of the County and State aforesaid, certify that Craig A. Hunt personally came before me this day and acknowledged that ___ he is Assistant Secretary of Jefferson Smurfit Corporation, a Delaware, U.S corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its Vice President, sealed with its corporate seal and attested by Craig A. Hunt as its Assistant Secretary.

WITNESS my hand and official stamp or seal, this 29th day of September, 1995.

My Comm. Expires: 9/1/97 Jacqueline C. Brockelmeyer Notary Public
Jacqueline C. Brockelmeyer

STATE OF _____

COUNTY OF _____

I, a Notary Public of the County and State aforesaid, certify that Donald A Heaton personally came before me this day and acknowledged that ___ he is _____ Secretary of J J I Lighting Group, Inc., a ~~North Carolina~~ Delaware corporation. and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its _____ President, sealed with its corporate seal and attested by him as its _____ Secretary.

WITNESS my hand and official stamp or seal, this 29th day of September, 1995.

My Comm. Expires: 3/31/98 Elizabeth C. Gilbert Notary Public

ELIZABETH C. GILBERT NOTARY PUBLIC

EXHIBIT "A"

BEGINNING at an unmarked point in the Western boundary of the J.J.I. Lighting Group, Inc. property as shown in Book 1125, Page 2356, said unmarked point being located North 09-00-33 East 94.72 feet from an existing iron pin, being the Southwest corner of said property, and said existing iron pin also being the Northwest corner of Doggett as shown in Book 6-S, Page 242; and running thence from said point of BEGINNING as follows: South 85-58-34 East 68.03 feet to a manhole; North 01-54-39 East 401.71 feet to a manhole; North 35-08-18 West 103.91 feet to manhole; North 08-30-44 East 228.06 feet to a manhole; North 33-34-56 East 220.34 feet to a manhole; North 31-16-03 East 297.84 feet to a manhole; North 87-05-06 East 170.33 feet to a manhole; North 53-27-55 East 56.01 feet to a manhole; North 60-29-19 East 131.08 feet to a manhole; and North 79-50-54 East 11.37 feet to an unmarked point in the Western boundary of the Capital Funds, Inc. property described in Book 9-Z, Page 62 (said unmarked point being located South 21-39-42 East 161.31 feet from an existing iron pin, said iron pin being the Northwest corner of said Capital Funds, Inc. property).

Unofficial

APPENDIX G

ENVIRONMENTAL DATA RESOURCES CITY DIRECTORY INFORMATION

Ardee Translite
639 Washburn Switch Road
Shelby, NC 28150

Inquiry Number: 3648009.6
June 28, 2013

The EDR-City Directory Image Report

Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2000	☑	☐	Polk's City Directory
1996	☑	☐	Polk's City Directory
1967	☐	☐	Con Survey City Directory
1963	☐	☐	Miller's City Directory

RECORD SOURCES

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FINDINGS

TARGET PROPERTY STREET

639 Washburn Switch Road
Shelby, NC 28150

Year	***CD Image***	***Source***	
Washburn Switch Road			
2000	pg A1	Polk's City Directory	
1996	pg A2	Polk's City Directory	
1967	-	Con Survey City Directory	Street not listed in Source
1963	-	Miller's City Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	Polk's City Directory

Washburn Switch Road 2000

WASHBURN RD
2570ⓃParsons Maxine O 434-5174
+ W CABANISS DR INTERSECTS
BUSINESSES 3 HOUSEHOLDS 36

WASHBURN SWITCH RD (SHELBY)-FROM 2519 W DIXON BLVD NORTHWEST
+ POPLAR SPRINGS CHURCH RD BEGINS
+ OLD RUTHERFORD RD BEGINS
+ AMBER LN BEGINS
+ JOYFUL DR BEGINS
+ CROSBY DR BEGINS
- ZIP CODE 28150 CAR-RT R004
303-311 Not Verified (2 Hses)
317ⓃMorgan William D 482-8125
321ⓃJones Shirley 487-6022
323 Woodard Carol [2] 487-8549
325 Hyder Della M [9]+ 487-7475
Hyder Casey W 487-7475
331ⓃWatts Roy 484-0089
335 Dover Michael L & Cynthia [9]+ ☗ 482-8402
DOVER MIKE PLUMBING plumb-htg-a'c 482-8402
+ W RANDOLPH RD ENDS
341 Moss Robin L [9]+ ☗ 484-2868
Moss Frances L 484-2868
343 Hoppes Z B & Lois [9]+ ☗ 482-7934
345 Daman Constance A [9]+ ☗ 482-0207
Daman Roy L 482-0207
348 Greene Mark C [4] ☗ 487-8271
Greene Sara S 487-8271
349ⓃGreene David F 480-1497
350 McDowell William M [5] ☗ 487-9222
McDowell Lizzie M 487-9222
T-JAK DAY CARE child day care svcs 484-0219
351 Rogers Johnny E & Patsy [9]+ ☗ 482-1933
352 Not Verified
354 Parrish Timothy S [3]
Parrish Michelle S
357ⓃGraham Charles W 482-1011
+ ARTEE RD BEGINS
358 Walker Larry [4] 487-5548
359-360 Not Verified (2 Hses)
361ⓃPatrick Tammy 487-8550
363ⓃOaks James ☗
366-369 Not Verified (2 Hses)
384 Washburn Vera Y [9]+ ☗ 487-9901
388 Heffner Cheryl W [7] 481-8423
Peeler Joseph E [2] ☗
Peeler Cheryl W
398ⓃHardin C B Jr 482-4257
400 Cooper David A [9]+ ☗
Cooper Joy B
402 Walker Floyd E & Maryann [9]+ ☗ 487-1718
404 Allen Kay L [9]+ ☗ 487-8037
406 Lowery Clinton B [3] ☗
408 Bailey Carl W [9]+ ☗ 482-3369
412 Daniel Joyce L [9]+ ☗ 484-2569
414 Wright Arvel A [9]+ ☗ 487-6833
415 Smith Kenneth R [9]+
Yates C L [3] 480-1368
416 Willis Bobby D & Shirley [9]+ ☗ 482-0430
508 Searles Scott F [4] ☗ 480-6123
511 Page Steve R & Kathy [9]+ ☗ 482-4982
515 Doggett George C [9]+ ☗ 482-9995
Doggett Susan B 482-9995
+ RAILROAD CROSSES
565 PIEDMONT COMPONENTS strctrl wd mbrs 482-0645
+ FARMVILLE RD ENDS
624ⓃBrown Ricardo L 481-2983
633 Camp Willis M Jr [8] 487-7400
634 ESKRIDGE GROVE BAPTIST CHURCH religious orgs 487-6928
635ⓃYoung Brenda Y 482-3174
636 Davis Herman E [9]+ ☗ 482-0278
Davis Rosemary 482-0278
639 ARDEE LIGHTING'USA comrcl lghtng fxtrs 482-2811
HESS AMERICA rsdntl lghtng fxtrs. 471-2211
SPECIALTY LIGHTING comrcl lghtng fxtrs 482-3416
658 SEAL WIRE CO stl wire rltd prds 482-3804
662 SMURFIT-STONE CONTAINER CORP crrgtd sld fbr bxs 482-4471
667 Causby Leonard S [9]+ 482-2889
+ GREENBROOK DR BEGINS
705 Lovelace Rafe R [9]+ 434-7769
706 ROYSTER-CLARK frtlzrs mixing onl. 434-6400
+ PLATO LEE RD ENDS
712 Olvera Jaime [3] 434-4845
714 1 Not Verified

WASHBURN SWITCH RD
716 Not Verified
718 Jones Chris [2] 434-7358
719 Lovelace Asa [9]+ ☗ 434-2140
Lovelace Geraldine B 434-2140
720 Not Verified
721 Lovelace Mark A [9]+ 434-0852
ⓃSwink Christine M
722 Atkins J T [2] 434-8587
ⓃHopper James A 434-2169
724 Causby Margaret E [9]+ 434-6106
728 Lovelace Hazel W [9]+ ☗
Lovelace James P
730 NEEDMORE STORE grocery stores. 434-9880
803ⓃSmith Mary E 434-8107
806 CAROLINA FARM & GARDEN SUPPLY misc rtl strs 434-7586
807 Not Verified
809 Crawford Linwood D & Karen [9]+ ☗ 434-6665
KAREWOOD KENNELS animal specity svcs 434-6665
815 McSwain Leonard M [9]+ 434-7783
McSwain Brenda J 434-7783
+ WASHBURN RD INTERSECTS
841 Bodwell Robert F Sr [5] 434-8519
Bodwell Annette F 434-8519
+ RAILROAD CROSSES
925 SANDERS BROTHERS indl bldngs wrhses 434-2922
+ ALPHA DR ENDS
940 ALCAR CONSTRUCTORS spcl trd cntrs 434-0388
ONE SOURCE bldng maint svc 434-0777
P P G INDUSTRIES indus gases.... 434-9577
+ DOUBLE SPRINGS CH RD BEGINS
1020ⓃEaker Steve 434-7061
1022 Washburn Dietz B Jr [9]+ ☗
Washburn Susan H
1024 Henderson Sandra K [7] ☗ 434-7376
Henderson John 434-7376
1033 Huntley Frank W [9]+ ☗ 434-7944
Huntley Will F 434-7944
1106 Williamson Sarah D [9]+
1122 Bridges Donald G [6] ☗
Bridges Jason
+ BIRCHBROOK LN BEGINS
1200 Blanton Charles R [9]+ 434-2002
Blanton Annette B 434-2002
1220 Blanton Nathan T [9]+ 434-6526
Blanton Janet R 434-6526
1221ⓃVasqez Chessady 434-5223
+ JOHNNY BRIDGES RD ENDS
+ KEE LN BEGINS
+ ENGLEWOOD DR ENDS
+ W ZION CHURCH RD INTERSECTS
BUSINESSES 17 HOUSEHOLDS 74

N WASHINGTON ST (SHELBY)-FROM 86 E MARION ST NORTH
+ S WASHINGTON ST BEGINS
+ CAMPBELL ST INTERSECTS
- ZIP CODE 28150 CAR-RT C002
101 HISTORIC SHELBY FOUNDATION museums art gallery 481-1842
102 FARMERS MUTUAL FIRE INSURANCE CO ins agts'svcs 487-9692
+ E SUMTER ST INTERSECTS
201 BROAD RIVER GLASS CO glass glazing work 487-4000
214 WINTER NIGHT SHELTER THE indvdl family svcs 481-1055
216 ROSS'S COIFFURES beauty shops.. 482-7728
+ MARIETTA ST ENDS
+ SUTTLE ST BEGINS
300 MACK'S GENERAL STORE grocery stores 480-0572
302 MILLER'S TOWING SERVICE auto svcs 481-9983
303 Surratt Bobby G [4] 481-0238
304 ABUNDANT LIFE FELLOWSHIP CHURCH religious orgs 482-8002
308 POTEAT'S FRONT END & BRAKE SHOP auto rpr 482-8471
309ⓃRoss Keith R
311 Not Verified
317 Washington Ollie F [9]+ ☗ 482-1939
Washington Rochell 482-1939
319ⓃBriscoe Carolyn P
Briscoe Darryl Q
ⓃPeterson Carolin 487-6147
+ KENDALL ST INTERSECTS
404 COMBOS INC stationery stores 484-8841

Target Street	Cross Street	Source
✓	-	Polk's City Directory

Washburn Switch Road 1996

WARWICK CT *cont'd*

Address	Zip+4	CarrRte	Phone
Hensley Scott	-7418	R013	736-9989
1650 Hoyle Terry L	-7418	R013	735-7769
1661 Erbes Gary	-7418	R013	735-9886

HOUSEHOLDS 11

WASHBURN RD (S) 28150

Address	Zip+4	CarrRte	Phone
Gragg Larry			434-6883
Jordan A J			434-7774
Lockridge James M			434-9385
Royster John T			434-7128
Sossm W G			434-6481
Tate Paul C Jr			434-7840
Washburn Gaines B			434-6093
Washburn Lela			434-6093
Wilson H B			434-6581
1809 Brooks Jennin	-9410	R016	434-6363
1814 Humphries Charles E	-9410	R016	434-7941
1816 Ledford Thurman B	-9410	R016	434-6227
1822 Brooks Kenneth W	-9410	R016	434-7367
1825 Cabiness John W	-9410	R016	434-9250
Cabiness Linda P	-9410	R016	434-9250
1826 Brooks William H	-9410	R016	434-6641
1828 Brooks Wilson	-9410	R016	434-0394
1838 Black A T Jr	-9410	R016	434-9189
2018 Cabiness Douglas D	-7772	R016	434-7524
2100 JONES HEATING & AIR COND	-7773	R016	434-0502
Jones Martha C	-7773	R016	434-0011
2113 Henderson Judy	-7773	R016	434-9541
Henderson Randy	-7773	R016	434-9541
2207 Kay Lisa	-7774	R016	434-5530
2217 Hamrick C D	-7774	R016	434-0835
2221 Huffstickler Boyce	-7774	R016	434-6098
2226 Jenkins E W	-7774	R016	434-6325
2326 McClintock Angela	-7775	R016	434-7218
McClintock Luther	-7775	R016	434-7218
2327 Zarate F	-7775	R016	434-0649
Zarate Linda	-7775	R016	434-0649
2331 Collier Brian	-7775	R016	434-7247
Powell Johnnie	-7775	R016	434-6549
Powell Randi	-7775	R016	434-6549
2422 Oshields Brian	-7776	R016	434-5383
2438 Bridges Hershel	-7776	R016	434-9248
2440 Bridges Kenneth W	-7776	R016	434-2193
2570 Parsons Robert T Jr	-7777	R016	434-5174

BUSINESSES 1 HOUSEHOLDS 37

WASHBURN ST (CH) 28021

Address	Zip+4	CarrRte	Phone
802 McGinnis Paul	-3546	C001	435-6437
804 Carpenter Darrell G	-3546	C001	435-3928
806 Washburn G B	-3546	C001	435-9380

HOUSEHOLDS 3

WASHBURN SWITCH RD (S) 28150

Address	Zip+4	CarrRte	Phone
Bumgarner Jerry			434-2049
Camp Willis M			487-7400
Causby Leonard S			482-2889
Crawford Linwood			434-6665
Crosby William B			487-8359
Davis Rosema			482-0278
McCurry Joe			487-0452
McMurry Dale			487-6653
Montgomery C D			482-7952
Page Steve			482-4982
Petty Robert			482-3519
Washburn Beaman			434-7271
Weathers D Z			487-4908

ZIP CODE 28152

Address	Zip+4	CarrRte	Phone
WRENN HANDLING INC			434-6698

ZIP CODE 28150

Address	Zip+4	CarrRte	Phone
303 Parker Lawson	-7013	R004	480-7657
311 Cochran Keith	-7013	R004	484-8889
Cochran Sue	-7013	R004	484-8889
317 Morgan William D	-7013	R004	482-8125
321 White Dorothy M	-7013	R004	480-7538
323 Hill Donald	-7013	R004	482-0321
325 Hyder Della	-7013	R004	487-7475
331 Watts Roy R	-7013	R004	480-1274
335 Dover Michael L	-7013	R004	482-8402
336 D & M SALES	-9002	R004	487-6810
341 Moss Harold E	-7013	R004	484-2868
343 Heppes Z B	-7013	R004	482-7934
345 Daman Connie	-7013	R004	482-0207
Daman Roy H	-7013	R004	482-0207
348 Greene Mark	-9002	R004	487-8271
Greene Sara	-9002	R004	487-8271
349 Webb D R	-7013	R004	480-6011
350 McDowell Lizzie	-9002	R004	484-0219
351 Rogers J E	-7013	R004	482-1933
354 Baugham Robert	-9002	R004	480-7708
357 Graham Charles W	-7013	R004	482-1011
361 Powell Dwayne	-7013	R004	482-5511
Sanders Lolanda	-7013	R004	480-7417
384 Washburn Vera Y	-9002	R004	487-9901
388 Heffner C W	-9002	R004	481-8423
398 Hardin C B Jr	-9002	R004	482-4257
402 Walker Floyd E	-9038	R004	487-1718
404 Allen Ben	-9038	R004	487-8037
Allen K L	-9038	R004	487-8037
408 Bailey Carl W	-9038	R004	482-3369
412 Daniel J L	-9038	R004	484-2569
414 Wright Arvel A	-9038	R004	487-6833
416 Willis Bobby D	-9038	R004	482-0430
515 Doggett George C	-7011	R004	482-9995
565 PIEDMONT COMPONENTS & HOMES	-7011	R004	482-0645
626 Davis Herman E	-9480	R004	487-7480
634 ESKRIDGE GROVE BAPTIST CHURCH	-9480	R004	487-6928

WASHBURN SWITCH RD *cont'd*

Address	Zip+4	CarrRte	Phone
635 Carson Laura	-7712	R004	487-1060
639 SPECIALTY LIGHTING INC	-7712	R004	482-3416
662 JEFFERSON SMURFIT CORP	-9480	R004	482-4471
705 Lovelace Rafe R	-7010	R004	434-7769
706 ROYSTER FERTILIZER CO	-9069	R004	434-6400
714 Pettis Diane	-9069	R004	434-5320
716 Woodard Sidney	-9069	R004	434-5393
717 Gain Robert Jr	-7010	R004	434-6764
719 Lovelace Asa	-7010	R004	434-2140
Speer Donnie	-7010	R004	434-0912
721 Lovelace Marc A	-7010	R004	434-0852
724 Causby Margaret E	-9069	R004	434-6106
730 CAUSBY STOP & SHOP	-9069	R004	434-6293
803 Moore Ralph	-7009	R004	434-7869
806 CAROLINA FARM & GARDEN SUPPLY	-9079	R004	434-7586
809 KAREWOOD KENNELS	-7009	R004	434-6665
Marquis C A	-7009	R004	434-5404
815 McSwain Leonard M	-7009	R004	434-7783
925 AZDEL INC	-7008	R004	434-2271
940 ALCAR CONSTRUCTORS INC	-9089	R004	434-0388
DAVIS ELECTRICAL CONSTRUCTORS	-9089	R004	434-7401
ISS CLEANING SVC GROUP INC	-9089	R004	434-0777
PPG INDUSTRIES INC	-9089	R004	434-2261
1010 Bolton R J	-9093	R004	434-5497
1020 Webb James M	-9093	R004	434-9688
1024 Henderson John	-9093	R004	434-7376
1033 Huntley Frank W	-7007	R004	434-7944
1200 Blanton Charles	-7004	R004	434-2002
1220 Blanton Jan	-7004	R004	434-6526
Blanton Nathan	-7004	R004	434-6526

BUSINESSES 15 HOUSEHOLDS 66

E WASHINGTON AVE (BC) 28016

Address	Zip+4	CarrRte	Phone
102 Sears Beverly	-2352	C001	629-9459
104 Sanders Michael	-2352	C001	629-5716
106 Johnson Glenn	-2352	C001	629-4178
Johnson Julia	-2352	C001	629-4178
107 FIRST BAPTIST CHURCH	-2351	C001	629-4158
FIRST BAPTIST CHURCH CHILDCARE	-2351	C001	629-2130
110 Lackey Wade T	-2352	C001	629-3156
113 Harmon James L	-2351	C001	629-3148
115 Hoyle W F	-2351	C001	629-2083
120 Mayo L L	-2352	C001	629-2787
122 Shields J E	-2352	C001	629-5480
124 Steedly L M	-2352	C001	629-4639
201 Payne Earl	-2353	C001	629-2816
202 Carpenter Donald R Jr	-2354	C001	629-4784
203 Wells B L	-2353	C001	629-5192
210 Carpenter Betty H	-2354	C001	629-2495
211 Eaves Emma Shriner J	-2353	C001	629-3039
	-2353	C001	629-3039
213 Coon Hoke	-2353	C001	629-2076
214 McDaniel David H	-2354	C001	629-3001
301 Guilton M K	-2355	C001	629-2457
302 Brennecke Sid H	-2386	C001	629-6473
307 Bonnin P A	-2355	C001	629-6332
309 Johnson Elmer	-2355	C001	629-5444
310 Goates Joe	-2356	C001	629-6312
Goates Karen	-2356	C001	629-6312
314 Wise Randy D	-2356	C001	629-6913
401 BESSEMER CITY CENTRAL ELEM GASTON LITERACY COUNCIL	-2357	C001	629-2206
	-2357	C001	629-9936
408 Turner Forrest	-2358	C001	629-9410
414 Waddell Daniel	-2358	C001	629-9633
416 Clark John Jr	-2358	C001	629-3377
422 Paire Pauline	-2358	C001	629-4496
507 Lowery Samuel J	-2359	C001	629-4505
510 Parton Lynn W	-2360	C001	629-4706
512 Martin Joe	-2360	C001	629-6126
Martin Rachel	-2360	C001	629-6126
514 Wykle Marie	-2360	C001	629-9295
Wykle Robin	-2360	C001	629-9295
603 Neeley Earl F	-2361	C001	629-2720

BUSINESSES 4 HOUSEHOLDS 36

W WASHINGTON AVE (BC) 28016

Address	Zip+4	CarrRte	Phone
104 Varnadore Rossie	-2364	C001	629-5702
105 Gacusana K L	-2363	C001	629-4506
108 Crosby George A	-2364	C001	629-2416
112 Rhinehart L A	-2364	C001	629-6091
113 McDonald Amy	-2363	C001	629-3709
McDonald David	-2363	C001	629-3709
114 Hager Loyd	-2364	C001	629-2570
115 Branks L	-2363	C001	629-2989
117 Woody M E	-2363	C001	629-2636
119 BESSEMER CITY FIRE DEPT	-2363	C001	629-5396
201 LASHAY ART & PHOTOGRAPHY	-2365	C001	629-3555
202 Cantrell Flora K	-2366	C001	629-3288
205 Burleson Eric A	-2365	C001	629-5514
206 Lindsay W A Jr	-2366	C001	629-2544
Shumate Alva A	-2366	C001	629-2544
208 Johnson Calvin	-2366	C001	629-2873
211 Wright Carnell	-2365	C001	629-9289
Wright Charles	-2365	C001	629-9289
214 Hayes Ben Sr	-2366	C001	629-5406
215 Hallman Bryan R	-2365	C001	629-5934
216 Russell Don	-2366	C001	629-3887
217 Rumney H K	-2365	C001	629-2727
301 Laduke Douglas C	-2204	C001	629-3678
303 Bass Doris	-2204	C001	629-3408
Bass Reid	-2204	C001	629-3408
306 Crane Jess	-2205	C001	629-4666
307 Hannah William S	-2204	C001	629-4238
308 Sarvis Sidney	-2205	C001	629-5403
309 Crawford Elmer N	-2204	C001	629-3375
311 Neeley Gerald	-2204	C001	629-5037

BUSINESSES 2 HOUSEHOLDS 28

APPENDIX H

ENVIRONMENTAL DATA RESOURCES AERIAL PHOTOGRAPHS

Ardee Translite
639 Washburn Switch Road
Shelby, NC 28150

Inquiry Number: 3648009.5
June 26, 2013

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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Date EDR Searched Historical Sources:

Aerial Photography June 26, 2013

Target Property:

639 Washburn Switch Road

Shelby, NC 28150

Year	***Scale***	***Details***	***Source***
1948	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Date: March 01, 1948	EDR
1961	Aerial Photograph. Scale: 1"=1000'	Panel #: 35081-C5, Shelby, NC;/Flight Date: August 16, 1961	EDR
1976	Aerial Photograph. Scale: 1"=1000'	Panel #: 35081-C5, Shelby, NC;/Flight Date: March 28, 1976	EDR
1979	Aerial Photograph. Scale: 1"=750'	Panel #: 35081-C5, Shelby, NC;/Flight Date: April 16, 1979	EDR
1983	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Date: February 15, 1983	EDR
1993	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/DOQQ - acquisition dates: March 01, 1993	EDR
1998	Aerial Photograph. Scale: 1"=750'	Panel #: 35081-C5, Shelby, NC;/Flight Date: March 14, 1998	EDR
2005	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Year: 2006	EDR
2008	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Year: 2008	EDR
2009	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Year: 2009	EDR
2010	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Year: 2010	EDR
2012	Aerial Photograph. Scale: 1"=500'	Panel #: 35081-C5, Shelby, NC;/Flight Year: 2012	EDR

INQUIRY #: 3648009.5
YEAR: 1948
= 500'
N

INQUIRY #: 3648009.5
YEAR: 1961
= 1000'
N

INQUIRY #: 3648009.5
YEAR: 1976
= 1000'
N

INQUIRY #: 3648009.5
YEAR: 1979
= 750'
N
EDR Environmental Data Resources Inc

INQUIRY #: 3648009.5
YEAR: 1983
= 500'
N
EDR Environmental Data Resources Inc

INQUIRY #: 3648009.5
YEAR: 1993
= 500'
N
EDR Environmental Data Resources Inc

INQUIRY #: 3648009.5
YEAR: 1998
= 750'
N

INQUIRY #: 3648009.5
YEAR: 2005
= 500'
N

INQUIRY #: 3648009.5
YEAR: 2006
= 500'
N
EDR Environmental Data Resources Inc

INQUIRY #: 3648009.5
YEAR: 2008
= 500'
N
EDR Environmental Data Resources Inc

INQUIRY #: 3648009.5
YEAR: 2009
= 500'
N

INQUIRY #: 3648009.5
YEAR: 2010
= 500'
N

INQUIRY #: 3648009.5
YEAR: 2012
= 500'
N
EDR Environmental Data Resources Inc

APPENDIX I

ENVIRONMENTAL DATA RESOURCES TOPOGRAPHIC MAPS

Ardee Translite
639 Washburn Switch Road
Shelby, NC 28150

Inquiry Number: 3648009.4
June 25, 2013

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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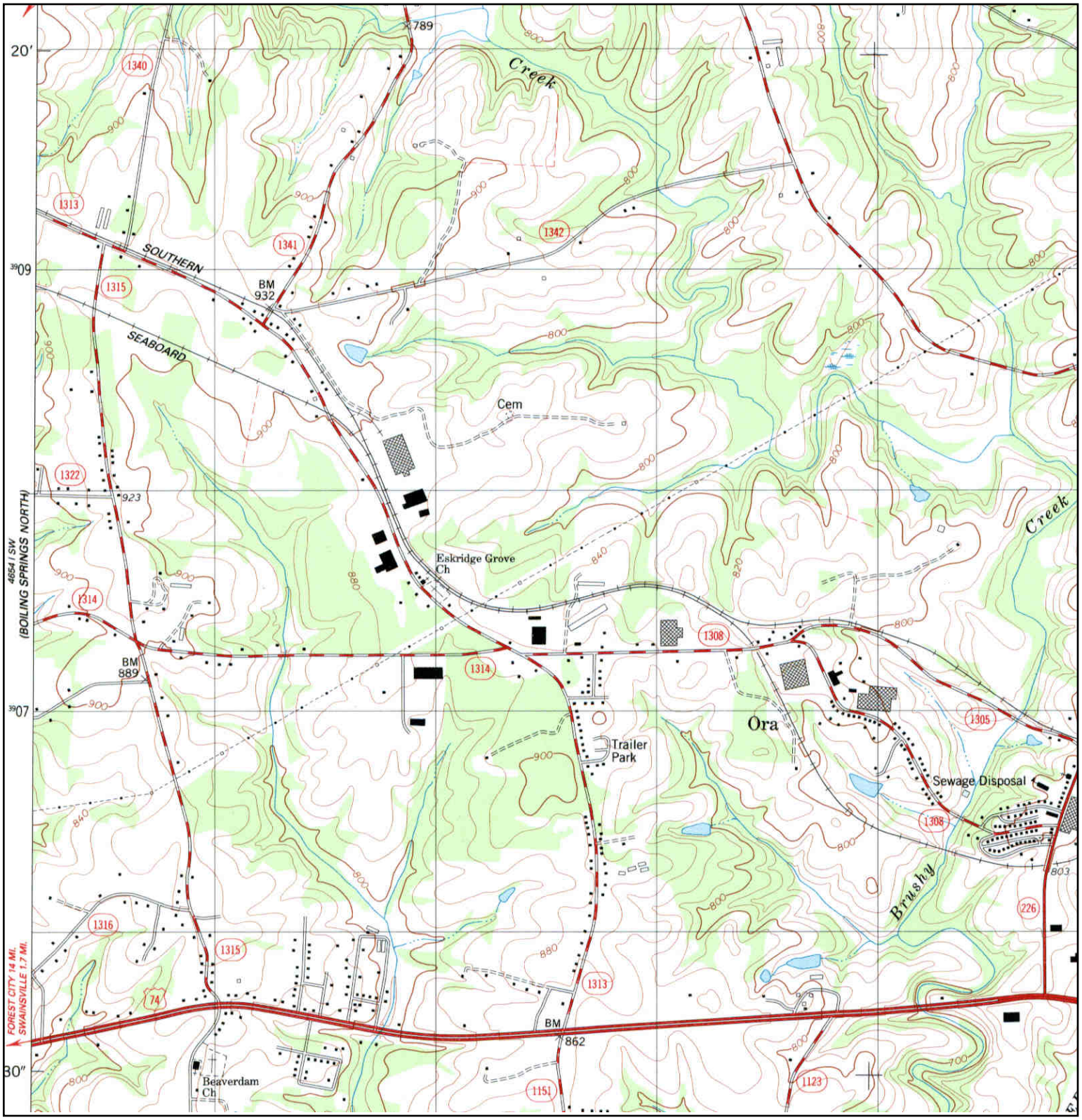
Historical Topographic Map

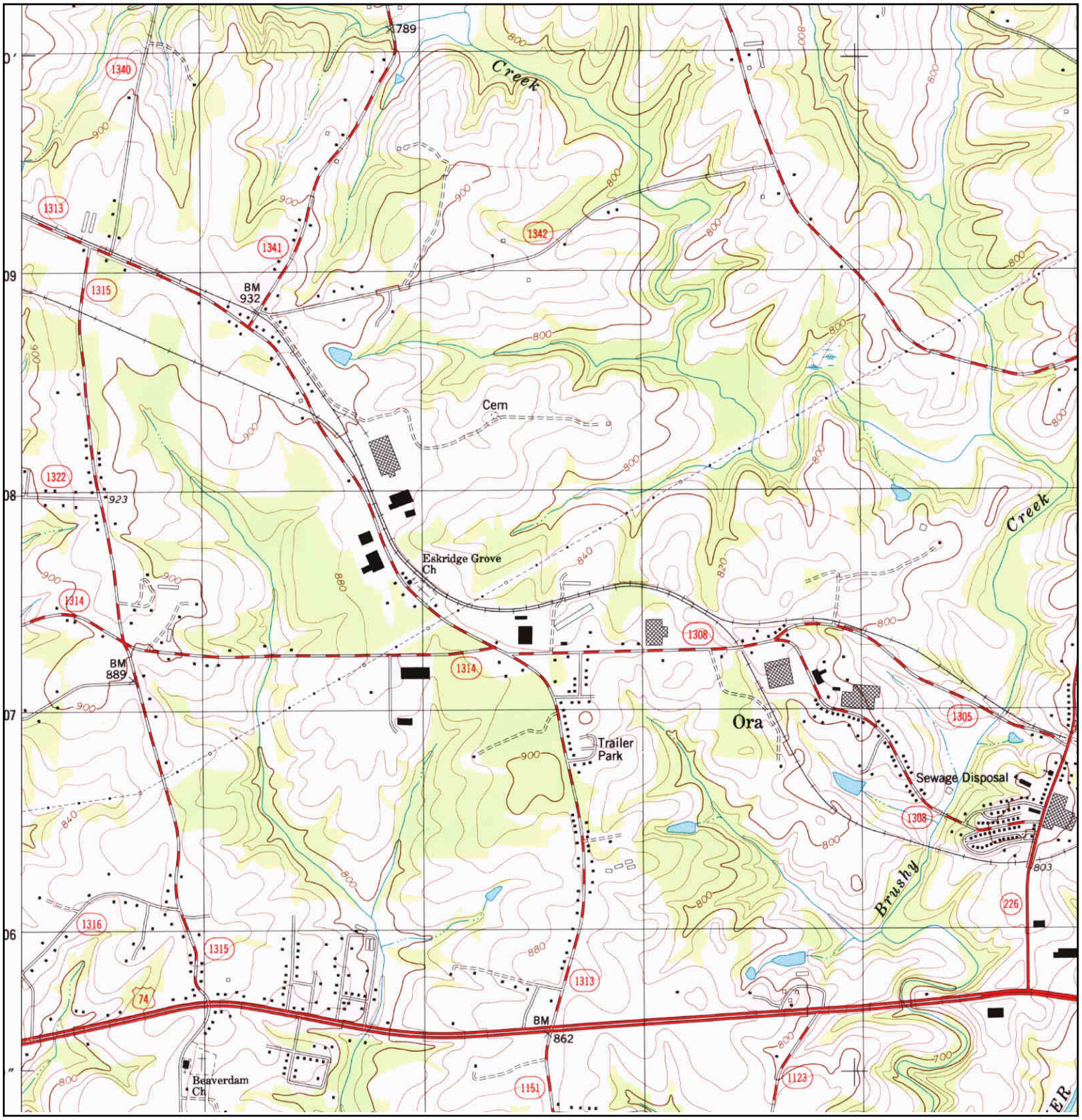
N	TARGET QUAD NAME: SHELBY MAP YEAR: 1950 SERIES: 15 SCALE: 1:62500	SITE NAME: Ardee Translite ADDRESS: 639 Washburn Switch Road Shelby, NC 28150 LAT/LONG: 35.3127 / -81.6079	CLIENT: AECOM CONTACT: Dave Oliphant INQUIRY#: 3648009.4 RESEARCH DATE: 06/25/2013

Historical Topographic Map



N	TARGET QUAD NAME: SHELBY MAP YEAR: 1983 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Ardee Translite ADDRESS: 639 Washburn Switch Road Shelby, NC 28150 LAT/LONG: 35.3127 / -81.6079	CLIENT: AECOM CONTACT: Dave Oliphant INQUIRY#: 3648009.4 RESEARCH DATE: 06/25/2013

Historical Topographic Map



N	TARGET QUAD NAME: SHELBY MAP YEAR: 2002 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Ardee Translite ADDRESS: 639 Washburn Switch Road Shelby, NC 28150 LAT/LONG: 35.3127 / -81.6079	CLIENT: AECOM CONTACT: Dave Oliphant INQUIRY#: 3648009.4 RESEARCH DATE: 06/25/2013

APPENDIX J

ENVIRONMENTAL DATA RESOURCES SANBORN MAP COVERAGE

Ardee Translite
639 Washburn Switch Road
Shelby, NC 28150

Inquiry Number: 3648009.3
June 25, 2013

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

6/25/13

Site Name:
Ardee Translite
639 Washburn Switch Road
Shelby, NC 28150

Client Name:
AECOM
250 Apollo Drive
Chelmsford, MA 01824-0000

EDR Inquiry # 3648009.3

Contact: Dave Oliphant

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by AECOM were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Ardee Translite
Address: 639 Washburn Switch Road
City, State, Zip: Shelby, NC 28150
Cross Street:
P.O. # NA
Project: 60180505
Certification # B916-4BA5-818A

Sanborn® Library search results
Certification # B916-4BA5-818A

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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APPENDIX K

HISTORIC ENVIRONMENTAL PERMITS

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF AIR QUALITY
MOORESVILLE REGIONAL OFFICE

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

ALAN W. KLIMEK, P.E.
DIRECTOR

November 3, 1998

Mr. Phil Fisher
Specialty Lighting, Inc.
Post Office Box 1680
Shelby, North Carolina 28151-1680

Subject: **Air Permit No. 06504R04**
Specialty Lighting, Inc.
Shelby, North Carolina
Cleveland County
Fee Class: Prohibitory Small
Site Number: 03/23/00319

Dear Mr. Fisher:

In accordance with your completed application received August 20, 1998, we are forwarding herewith Permit No. 06504R04 to Specialty Lighting, Inc., Shelby, North Carolina for the construction and operation of air emissions sources or air cleaning devices and appurtenances. Additionally, any emissions activities determined from your air permit application as meeting the exemption requirements contained in 15A NCAC 2Q .0102 have been listed for information purposes as an "ATTACHMENT" to the enclosed air permit.

If any parts, requirements, or limitations contained in this Permit are unacceptable to you, you have the right to request a formal adjudicatory hearing within thirty (30) days following receipt of this Permit, identifying the specific issues to be contested. This hearing request must be in the form of a written petition, conforming to G.S. 150B-23 of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, Post Office Drawer 27447, Raleigh, North Carolina 27611-7447. The form for requesting a formal adjudicatory hearing may be obtained upon request from the Director of the Division of Air Quality. Unless a request for a hearing is made pursuant to G.S. 150B-23, this Air Permit shall be final and binding.

You may request modification of your Air Permit through informal means pursuant to G.S. 150B-22. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which the modification is sought. Please note that the permit will become final and binding regardless of a request for informal modification unless a request for a hearing is also made under G.S. 150B-23.

Unless exempted by a condition of this Permit or the regulations, construction of new air pollution sources or air cleaning devices, or modifications to the sources or air cleaning devices described in this Permit must be covered under a Permit issued

919 NORTH MAIN STREET, MOORESVILLE, NORTH CAROLINA 28115
PHONE 704-663-1699 FAX 704-663-7579
AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER

by this Division prior to construction. Failure to do so is a violation of G.S. 143-215.108 and may subject the Permittee to civil or criminal penalties as described in G.S. 143-215.114A and 143-215.114B.

This permit shall be effective from November 3, 1998 until August 31, 2002, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein.

Should you have any questions concerning this matter, please contact Jim Hafner at 704-663-1699.

Sincerely,

Michael S. Landis
Regional Supervisor

JAH:sl

Enclosures

c: Central Files
Laura Butler, DAQ Headquarters

G:\DEM\AQ\WPDATA\COUNTIES\CLEVELAN\00319\23A0319S.R04

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF AIR QUALITY

AIR PERMIT NO. 06504R04

Issue Date: November 3, 1998 | Effective Date: November 3, 1998

Expiration Date: August 31, 2002 | Replaces Permit: 06504R03

To construct and operate air emission source(s) and/or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere. In accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina (NCGS) as amended, and other applicable Laws, Rules and Regulations,

Specialty Lighting, Inc.
639 Washburn Switch
Shelby, Cleveland County, North Carolina
Fee Class: Prohibitory Small
Site Number: 03/23/00319

(the Permittee) is hereby authorized to construct and operate air emissions sources and/or air cleaning devices and appurtenances consisting of:

a. One (1) dry filter-type paint spray booth (ID No. ES-01, 108 pounds per hour process weight rate); and

b. Two (2) dip tanks (ID No. ES-02 and ES-04, 1060 pounds per hour and 760 pounds per hour process weight rate, respectively).

in accordance with the completed application (2300319.98B) received August 20, 1998, including any plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment and Natural Resources, Division of Air Quality (DAQ) and are incorporated as part of this Permit.

This Permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, OR MONITORING REQUIREMENTS:

A. SPECIFIC CONDITIONS AND LIMITATIONS

1. Any air emission sources or control devices authorized to construct and operate above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including Title 15A North Carolina Administrative Code (NCAC), Subchapter 2D .0515, .0518, 0521, .0535, Subchapter 2Q .0711, and 2Q .0803.

2. PARTICULATE CONTROL REQUIREMENT - As required by 15A NCAC 2D .0515 "Particulates from Miscellaneous Industrial Processes," particulate matter emissions from the paint spray booth (ID No. ES-01) and dip tanks (ID Nos. ES-02 and ES-04) shall not exceed allowable emission rates. The allowable emission rates are, as defined in 2D .0515, a function of the process weight rate and shall be determined by the following equations(s), where **P** is the process throughput rate in tons per hour (tons/hr) and **E** is the allowable emission rate in pounds per hour (lbs/hr).

$$E = 4.10 * (P)^{0.67} \quad \textit{for } P \leq 30 \text{ tons/hr, or}$$

$$E = 55.0 * (P)^{0.11} - 40 \quad \textit{for } P > 30 \text{ tons/hr.}$$

3. As required by 15A NCAC 2D .0518(d) "Miscellaneous Volatile Organic Compound Emissions," volatile organic compound emissions from photochemically reactive solvent formulations, as defined in 15A NCAC 2D .0518(d), shall not exceed 40 pounds per calendar day from the entire plant or facility, unless the discharge has been reduced by a minimum of 85 percent by weight.

   a. MONITORING REQUIREMENT - Daily records must demonstrate that the photochemically reactive VOC emissions from the solvents as applied do not exceed 40 pounds per calendar day from the entire plant site or facility. Calculations of photochemically reactive VOC emissions per day must be made at the end of each workday. Photochemically reactive VOC emissions shall be determined by multiplying the daily consumption of photochemically reactive solvent by the total VOC content of each material. This calculation and the total amount of photochemically reactive VOC emissions must be recorded in a daily emissions log.

   b. REPORTING REQUIREMENTS - If the permittee changes solvents formulation to reactive solvents as defined in 15A NCAC 2D .0518(d), the Permittee shall notify the Regional Office within 30 days of the change.

   c. RECORD KEEPING REQUIREMENT - The permittee shall maintain records, in written or electronic form, of the information required in paragraph (a) on site for a

minimum of three (3) years. This information shall be made available to Division of Air Quality personnel upon request.

4. As required by 15A NCAC 2D .0521, "Control of Visible Emissions," visible emissions from the paint spray booth (ID No. ES-01) and the dips tanks (ID Nos. ES-02 and ES-04), manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four (4) times in any 24-hour period. However, sources which must comply with 15A NCAC 2D .0524 "New Source Performance Standards" or .1110 "National Emission Standards for Hazardous Air Pollutants" must comply with applicable visible emissions requirements contained therein.

5. TOXIC AIR POLLUTANT EMISSIONS LIMITATION REQUIREMENT - Pursuant to 15A NCAC 2Q .0711, for each of the below listed toxic air pollutants (TAPs), the Permittee has made a demonstration that facility-wide actual emissions, including those emissions from the Hessamerica facility permitted under all revisions of Permit Number 08467, as defined in 15A NCAC 2Q .0103, do not exceed the Toxic Permit Emission Rates (TPERs) listed in 15A NCAC 2Q .0711. The facility shall be operated and maintained in such a manner that emissions of any listed toxic air pollutant(s) from the facility, including fugitive emissions, will not exceed the toxic permit emission rate(s) (TPERs) specified in 15A NCAC 2Q .0711.

   a. A permit to emit any of the below listed TAPs shall be required for this facility if actual emissions from all sources, including those emissions from the Hessamerica facility permitted under all revisions of Permit Number 08467, will become greater than the corresponding TPER.

   b. PRIOR to exceeding any of these listed TPERs, the Permittee shall be responsible for obtaining a permit to emit TAPS and for demonstrating compliance with the requirements of 15A NCAC 2D .1100.

   c. In accordance with the approved application, the Permittee shall maintain records of operational information demonstrating that the toxic air pollutant emissions do not exceed the TPERs as listed below:

	TPERs Limitations			
Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)

	TPERs Limitations			
ethyl acetate (141-78-6)			36	
methyl ethyl ketone (78-93-1)		78		22.4
toluene (108-88-3)		98		14.4
xylene (1330-20-7)		57		16.4

6. LIMITATION TO AVOID 15A NCAC 2Q .0501 "TITLE V PROCEDURES" To comply with this permit and avoid the applicability of 15A NCAC 2Q .0501, pursuant to 15A NCAC 2Q .0803 "Coating, Solvent Cleaning, and Graphic Arts," as requested by the Permittee, potential emissions shall be determined using actual emissions without accounting for any air pollution control devices. As required by 15A NCAC 2Q .0803, the facility potential emissions (defined as actuals), including those emissions from the Hessamerica facility permitted under all revisions of Permit Number 08467, as defined in 15A NCAC 2Q .0103, shall be less than:

a. 100 tons per year of volatile organic compounds,
b. 10 tons per year of each hazardous air pollutant, and
c. 25 tons per year of all hazardous air pollutants combined.

As required by **15A NCAC 2Q .0803**, the Permittee shall:

a. submit to the Regional Supervisor, Division of Air Quality, by February 15th of each year a report summarizing emissions of volatile organic compounds and hazardous air pollutants from the facility, including those emissions from the Hessamerica facility permitted under all revisions of Permit Number 08467, as defined in 15A NCAC 2Q .0103, containing the following:

(i) Pounds of volatile organic compounds used during the previous calendar year,

(ii) Greatest quantity in pounds of an individual hazardous air pollutant used during the previous calendar year, and

(iii) Total pounds of all hazardous air pollutants used during the previous calendar year.

b. Maintain purchase orders and invoices of materials containing volatile organic compounds. These purchase orders and invoices shall be maintained for a period of at least three years and be made available to Division of Air Quality personnel upon request,

c. Report to the Regional Supervisor, Division of Air Quality, any exceedance of a requirement of rule 15A NCAC 2Q .0803 within one week of occurrence, and

d. Certify all submittals as to the truth, completeness, and accuracy of all information recorded and reported over the signature of the appropriate official as identified in rule 15A NCAC 2Q .0304(j).

Compliance with the record keeping and reporting requirements contained in this specific condition shall not relieve the Permittee from the requirement to have a Title V permit if the actual emissions from the facility, including those emissions from the Hessamerica facility permitted under all revisions of Permit Number 08467, as defined in 15A NCAC 2Q .0103, exceed 100 tons per year of volatile organic compounds, or 10 tons per year of an individual hazardous air pollutant, or 25 tons per year of all hazardous air pollutants combined.

7. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, when emissions exceed Environmental Management Regulations for more than four (4) hours, the Regional Supervisor, Division of Air Quality, shall be notified as promptly as possible, but in no case later than twenty-four (24) hours or on the next working day of becoming aware of the occurrence. Such notice shall specify the facility name and location, the nature and cause of the excess emission, the time when first observed, the expected duration, and the estimated rate of emissions. This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

B. GENERAL CONDITIONS AND LIMITATIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to the:

Regional Supervisor
North Carolina Division of Air Quality
Mooresville Regional Office
919 North Main Street
Mooresville, NC 28115
704-663-1699

2. PERMIT RENEWAL REQUIREMENT - The Permittee, at least ninety (90) days prior to the expiration date of this Permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304 (d) and (f). Pursuant to 15A NCAC 2Q .0203 (I), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, Division of Air Quality.

3. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203 (a), the Permittee shall pay the Annual Permit Fee within thirty (30) days of being billed by the Division. Failure to pay the fee in a timely manner will cause the Division to initiate action to revoke the permit.

4. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.

5. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, Division of Air Quality:

   a. Changes in the information submitted in the application regarding facility emissions;

   b. Changes that modify equipment or processes of existing permitted facilities; or

   c. Changes in the quantity or quality of materials processed.

   If appropriate, modifications to the permit may then be made by the Division of Air Quality to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

6. This permit is subject to revocation or modification by this Division upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.

7. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the Division of Air Quality.

8. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.

9. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

10. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, Division of Air Quality, at such intervals and in such of form and detail as may be required in such by the Division. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

11. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.

12. Pursuant to North Carolina General Statute 143-215.3 (a) (2), no person shall refuse entry or access to any authorized representative of the Division of Air Quality who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

13. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

14. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the Air Permit at the site. The Permittee must make available to personnel of the Division of Air Quality, upon request, the current copy of the Air Permit for the site.

Permit issued this the 3rd day of November, 1998.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Michael S. Landis, Regional Supervisor
Division of Air Quality
By Authority of the Environmental Management Commission

ATTACHMENT to Permit No. 06504R04, November 3, 1998

Activities Exempted from Permitting Under 15A NCAC 2Q .0102(b)(2)

Source	Date of Application	Exemption Regulation	Source of TAPs?	Source of Title V Pollutants?
portable cold parts washer	8/18/98	2Q .0102 (b)(2)(E)(i)	Yes	Yes

1. Because an activity is exempted from being required to have a permit or permit modification does not mean that the activity is exempted from an applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.

2. When applicable, emissions from stationary source activities identified above shall be included in determining compliance with the permit requirements for toxic air pollutants under 15 A NCAC 2D .1100 or 2Q .0700.

State of North Carolina
Department of Environment, Health, and Natural Resources
Mooresville Regional Office

James B. Hunt, Jr., Governor Jonathan B. Howes, Secretary

DIVISION OF ENVIRONMENTAL MANAGEMENT

RECEIVED
APR - 9 1993

April 8, 1993

Mr. Rick Porter, EPA Administrator
Specialty Lighting, Inc.
Post Office Box 1680
Shelby, North Carolina 28151

Dear Mr. Porter:

Subject: Air Permit No. 6504R
Specialty Lighting, Inc.
Shelby, North Carolina
Cleveland County

In accordance with your completed application received April 1, 1993, we are forwarding herewith Permit No. 6504R to Specialty Lighting, Inc., Shelby, Cleveland County, North Carolina for the construction and operation of air emission sources or air cleaning devices and appurtenances.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you may request modification of your air permit pursuant to General Statute 150B-22 and Regulation 15A NCAC 2B .0508(b), through which the permit may be modified by the Director. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which modification is being sought. Unless such a request is made within thirty (30) days following the receipt of this permit, this permit shall become final and binding.

In the alternative, you have the right to request a formal adjudicatory hearing within thirty (30) days following receipt of this permit, identifying the specific issues to be contested. This hearing request must be in the form of a written petition, conforming to General Statute 150B-23 of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, Post Office Drawer 27447, Raleigh, North Carolina 27611-7447. Unless a request is made for either an informal modification procedure pursuant to G.S. 150B-22 or a formal adjudicatory hearing pursuant to G.S. 150B-23, this air permit shall be final and binding.

P.O. Box 950, 919 North Main Street, Mooresville, N.C. 28115-0950 • Telephone 704-663-1699 • FAX 704-663-6040

An Equal Opportunity Affirmative Action Employer

The North Carolina General Assembly in 1987 authorized the North Carolina Environmental Management Commission (EMC) to adopt regulations which charge annual fees for air permits issued, renewed, revised, or modified on or after August 1, 1988.

Annual fees are not charged for a farmer whose permit is for farming operations, for minor sources who emit less than three tons per year of each air pollutant, and for sources not expected to operate during the annual billing period.

The range of annual fees is from $250.00 to $1,375.00, and the amount of the fee is determined by the source type category. If the Permittee has not received any notices of violation or non-compliance for the previous calendar year, then a reduced annual fee ranging from $190.00 to $1030.00 is charged. Within sixty days you will receive an invoice for either annual fee payment or certification that no fee is required. If a fee is required and timely payment is not received, the Division will initiate steps to revoke the permit.

As a reminder, all new construction of air pollution sources, air cleaning devices, or modifications to the sources contained in this permit must obtain as required a permit from this Division prior to construction. Failure to do so is a violation of General Statute 143-215.108 and may subject the permittee to civil or criminal penalties contained in General Statute 143-215.114.

This permit shall be effective from April 8, 1993, until April 30, 1994, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein.

Sincerely,

D. Rex Gleason/for

Brenda J. Smith, P. G.
Regional Supervisor

Enclosures

cc: Alan Klimek

YPC:fk

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL MANAGEMENT

AIR PERMIT NO. 6504R

Issue Date: April 8, 1993 Effective Date: April 8, 1993

Expiration Date: April 30, 1994 Replaces Permit: 6504

To construct and operate air emission source(s) or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere. In accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations,

Specialty Lighting, Inc.
Washburn Switch Road, Shelby
Cleveland County, North Carolina

is hereby authorized to construct and operate air emission sources or air cleaning devices and appurtenances consisting of:

a. Two paint dip tanks (ID Nos. 01 and 02) and one dry-filter type paint spray booth (ID No. 03) installed on a metal lighting parts spray painting operation; and

b. One open-top type vapor degreaser (ID No. 4) which is equipped with surface vapor condensers/cooling coils and utilizes trichloroethylene as the metal parts cleaning solvent,

in accordance with the completed application (APP016319) received April 1, 1993, including any plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment, Health and Natural Resources and are incorporated as part of this Permit.

This Permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, OR MONITORING REQUIREMENTS:

A. SPECIFIC CONDITIONS AND LIMITATIONS

1. Any air emission sources or control devices authorized above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including 15A NCAC 2D .0515, .0518, .0521, and .0535.

2. Visible emissions from the air emission source(s) (Item a. and b. above) shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. However, sources which must comply with 15A NCAC 2D .0524 or .0525 must comply with applicable visible emissions requirements contained therein.

3. Volatile organic compound emissions that are photochemically reactive as defined in 15A NCAC 2D .0518(d) shall not exceed 40 pounds per calendar day from the entire plant site or facility unless the total photochemically reactive solvent emissions from this facility have been reduced by 85% of weight.

4. The Permittee shall comply DAILY with EMC Regulation 15A NCAC 2D .0518, "Miscellaneous Volatile Organic Compounds Emissions". The Permittee shall keep records which indicate the following information:

   a) the amount (in gallons per day) of paints/thinners/solvents used;

   b) the weight percentage of volatile organic compounds in the paints/thinners/solvents; and

   c) the total photochemically reactive solvents (in pounds) from the entire facility.

   Calculations of the daily photochemically reactive solvent emissions shall begin on May 1, 1993. These records shall be maintained at this Plant for a period of two years from the date of recording.

5. The Permittee shall take all reasonable precautions with any operation, process, handling, transportation, or storage facilities to prevent fugitive particulate and/or visible emissions from becoming airborne.

6. The Permittee shall comply with any applicable Federal, State, or local requirements which govern the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Solid Waste Management.

7. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, or for sources applicable to 15A NCAC 2D .0524 or .0525, when particulate and/or visible emissions exceed Environmental Management Regulations for more than four hours, the Regional Supervisor, Division of Environmental Management, Mooresville Region (704) 663-1699, shall be notified as promptly as possible but in no case later than 24 hours or the next working day after becoming aware of the occurrence. Such notice shall specify the facility name and location, the nature and cause of the excess emissions, the time when first observed, the expected duration, and the estimated rate of emissions. This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

B. GENERAL CONDITIONS AND LIMITATIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to the:

   Regional Supervisor
   North Carolina Division Environmental Management
   919 North Main Street, Post Office Box 950
   Mooresville, North Carolina 28115

2. PERMIT RENEWAL REQUIREMENT - The Permittee, at least ninety (90) days prior to the expiration of this Permit, shall request its extension by letter. The letter should include the permit number, the appropriate renewal fee, description of any modifications, and should be sent to the Regional Supervisor, Division of Environmental Management.

3. ANNUAL FEE PAYMENT - The Permittee shall pay the annual administering and compliance fee or submit a certification for exemption within 30 days after being billed by the Division. Failure to timely pay the fee or submit a certification for exemption in accordance with 15A NCAC 2H .0609(m) will cause the Division to initiate action to revoke the permit.

4. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.

5. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions shall be reported to the Regional Supervisor, Division of Environmental Management:

   (a) changes in the information submitted in the application regarding facility emissions,

   (b) changes that modify equipment or processes of existing permitted facilities, or

   (c) changes in the quantity or quality of materials processed.

   If appropriate, modifications to the permit may then be made by the Division of Environmental Management to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.

6. This Permit is subject to revocation or modification by this Division upon a determination that information contained in the application or presented in support thereof is incorrect, conditions under which this Permit was granted have changed, or violations of conditions contained in this Permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no air emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.

7. This Permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the Division of Environmental Management.

8. This Permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

9. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, Division of Environmental Management at such intervals and in such form and detail as may be required by the Division. Information required in such reports may include, but is not limited to process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

10. A violation of any term or condition of this Permit shall subject the Permittee to enforcement pursuant to North Carolina General Statute 143-215.114, including assessment of civil penalties.

11. Pursuant to G.S 143-215.3 (a)(2), no person shall refuse entry or access to any authorized representative of the Division of Environmental Management who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

Permit issued this the 8th day of April, 1993.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

D. R. Gleason / for

Brenda J. Smith, P. G.
Division of Environmental Management
By Authority of the Environmental Management Commission

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Water Quality
Beverly Eaves Perdue, Governor
Coleen H. Sullins, Director
Dee Freeman, Secretary

March 12, 2010

RECEIVED
MAR 15 2010
By

Mr. Alex Pachter
Specialty Lighting
P.O. Box 1769
Shelby, N.C. 28151-1769

Subject: Rescission of NPDES Permit NC0042293
Specialty Lighting
Cleveland County

Dear Mr. Pachter:

Division staff has confirmed that the subject permit is no longer required. Therefore, in accordance with your request, NPDES Permit **NC0042293** is rescinded, effective immediately.

If in the future your company wishes to discharge wastewater to the State's surface waters, you must first apply for and receive a new NPDES permit. Discharge of wastewater without a valid NPDES permit will subject the responsible party to a civil penalty of up to $25,000 per day.

If you have questions about this matter, please contact Charles Weaver of my staff at the telephone number or address listed below.

Sincerely,

Charles H. Weaver
for Coleen H. Sullins

cc: Central Files
Mooresville Regional Office / Donna Hood
NPDES Permit file
Fran McPherson, DWQ Budget Office

1617 Mail Service Center, Raleigh, North Carolina 27699-1617
512 North Salisbury Street, Raleigh, North Carolina 27604
Internet: www.ncwaterquality.org
Phone: 919-807-6391 / FAX 919 807-6495
charles.weaver@ncdenr.gov

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Ardee
LIGHTING

COPY

639 Washburn Switch Road
P.O. Box 1769
Shelby, NC 28151
(704) 482-2811
(800) 275-1544 Fax
www.ardeelighting.com

March 1, 2010

Mr. Rob Krebs
NCDENR/Mooresville Regional Office
610 E. Center Avenue Suite 301
Mooresville, NC 28115

Subject: NPDES Permit No. NC0042293
Termination of Discharge Permit

Dear Mr. Krebs:

As you may be aware, the City of Shelby has just completed the installation of gravity outfall sewer to our area that runs adjacent to our property. This letter is to notify you that Specialty Lighting has connected to City of Shelby sewer system on February 26, 2010 and we ceased discharge to the receiving stream.

With this connection to City of Shelby (NPDES #NC0024538) system, Specialty Lighting hereby requests that our NPDES Permit NC0042293 be terminated effective immediately. If you have any questions regarding this matter, please do not hesitate to contact me at 704-482-2811.

Sincerely,

Alex Pachter
Operations Manager

cc: Rick Howell, City Manager – Shelby
Brad R. Cornwell, Public Utilities Director – Shelby

Certified 7005 1160 0004 9219 5361

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality
Charles Wakild, P. E.
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

December 6, 2012

Alex Pachter
Genlyte Thomas Group LLC
639 Washburn Switch Rd
Shelby, NC 28151

Subject: NPDES General Permit NCG030000
Certificate of Coverage NCG030570
Gen;yte Thomas Group LLC
Formerly JJI Lighting Group
Cleveland County

Dear Mr Pachter:

Division personnel received your request to revise your stormwater permit Certificate of Coverage to accurately reflect your new company and facility name.

Please find enclosed the revised Certificate of Coverage. The terms and conditions contained in the General Permit remain unchanged and in full effect. This revised Certificate of Coverage is issued under the requirements of North Carolina General Statutes 143-215.1 and the Memorandum of Agreement between North Carolina and the U.S. Environmental Protection Agency.

If you have any questions, please contact the Stormwater Permitting Unit at 919-807-6300.

Sincerely,

Ken Pickle
for Charles Wakild, P.E.

cc: Mooresville Regional Office
Central Files
Stormwater Permitting Unit

Wetlands and Stormwater Branch
1617 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6494 \ Customer Service: 1-877-623-6748
Internet: www.ncwaterquality.org

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STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER QUALITY

GENERAL PERMIT NO. NCG030000
CERTIFICATE OF COVERAGE No. NCG030570

STORMWATER DISCHARGES

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provision of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

Genlyte Thomas Group LLC

is hereby authorized to discharge stormwater from a facility located at

Genlyte Thomas Group LLC
639 Washburn Switch Rd
Shelby
Cleveland County

to receiving waters designated as a UT to Beaverdam Creek, a class C, waters in the Broad River Basin in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, IV, V and VI of General Permit No. NCG030000 as attached.

This certificate of coverage shall become effective December 6, 2012.

This Certificate of Coverage shall remain in effect for the duration of the General Permit.

Signed this day December 6, 2012.

Ken Pickle

for Charles Wakild, P.E., Director
Division of Water Quality
By Authority of the Environmental Management Commission

APPENDIX L

DATA VALIDATION AND LABORATORY ANALYTICAL REPORTS (2012 AND 2013)

Report of Analysis

Earth Tech / AECOM
10 Patewood Drive
Building 6, Suite 500
Greenville, SC 29615
Attention: Doria Cullom

Project Name: Ardee Translite

Project Number: 60241001

Lot Number: NA18016

Date Completed: 01/31/2012

Date Revised: 02/02/2012

Nisreen Saikaly
Project Manager

This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* N A 1 8 0 1 6 *

Case Narrative
Earth Tech / AECOM
Lot Number: NA18016

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Volatile Organic Compounds

The MS/MSD recoveries in batch 76060 were outside acceptance criteria. All other QA/QC criteria for the batch were within acceptance criteria and method control limits. The MS/MSD recovery results are attributed to matrix interference. The associated sample results were reported and no corrective action was required.

Semivolatile Organic Compounds

The LCSD recovery for 2,4-Dimethylphenol exceeded method control limits in batch 76147; however, all other QA/QC criteria for the LCS/LCSD were within acceptance criteria and method control limits. The associated sample results were non-detect, therefore the results were reported and no corrective action was required.

The LCS recovery for N-Nitrosodiphenylamine (Diphenylamine) was slightly outside method control limits in batch 76228. As per method, it is statistically likely that a few analytes will be outside control limits; up to five analytes may marginally exceed the control limits. Therefore the associated sample results were reported and no corrective action was required.

The MS/MSD recoveries in batch 76228 were outside acceptance criteria. All other QA/QC criteria for the batch were within acceptance criteria and method control limits. The MS/MSD recovery results are attributed to matrix interference. The associated sample results were reported and no corrective action was required.

Metals

The MS/MSD recoveries in batches 75910 and 76059 were outside acceptance criteria. All other QA/QC criteria for the batch were within acceptance criteria and method control limits. The MS/MSD recovery results are attributed to matrix interference. The associated sample results were reported and no corrective action was required.

Sample Summary
Earth Tech / AECOM
Lot Number: NA18016

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	SB-SA-2-0-1	Solid	01/09/2012 1204	01/18/2012
002	SB-SA-2-0-1-a	Solid	01/09/2012 1204	01/18/2012
003	SB-SA-2-5-6	Solid	01/09/2012 1345	01/18/2012
004	SB-SA-2--10-11	Solid	01/09/2012 1352	01/18/2012
005	SB-SA-2-15-16	Solid	01/09/2012 1405	01/18/2012
006	SB-SA-2-20-21	Solid	01/09/2012 1420	01/18/2012
007	SB-SA-3-0-1	Solid	01/16/2012 1030	01/18/2012
008	SB-SA-1-0-1	Solid	01/16/2012 1115	01/18/2012
009	SB-SA-4-0-1	Solid	01/16/2012 1150	01/18/2012
010	SB-SA-5-0-1	Solid	01/16/2012 1330	01/18/2012
011	SB-SA-5-1D	Solid	01/16/2012 1410	01/18/2012
012	SB-SA-6-0-1	Solid	01/16/2012 1420	01/18/2012
013	SB-SA-7-0-1	Solid	01/16/2012 1600	01/18/2012
014	SB-SA-7-0-1-a	Solid	01/16/2012 1600	01/18/2012
015	SB-SA-8-0-1	Solid	01/16/2012 1640	01/18/2012
016	SB-SA-9-0-1	Solid	01/16/2012 1540	01/18/2012
017	MW-03-0-1	Solid	01/16/2012 1500	01/18/2012
018	BG-1-1	Solid	01/16/2012 1710	01/18/2012
019	BG-2-1	Solid	01/16/2012 1715	01/18/2012
020	BG-3-1	Solid	01/16/2012 1720	01/18/2012
021	SB-SA-7-d	Aqueous	01/17/2012 1600	01/18/2012
022	Trip Blank	Aqueous	01/17/2012 1600	01/18/2012

(22 samples)

Executive Summary
Earth Tech / AECOM
Lot Number: NA18016

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	SB-SA-2-0-1	Solid	Unknown	8270D	16000		ug/kg	15
001	SB-SA-2-0-1	Solid	Aluminum	6010C	74000		mg/kg	18
001	SB-SA-2-0-1	Solid	Arsenic	6010C	18		mg/kg	18
001	SB-SA-2-0-1	Solid	Barium	6010C	38		mg/kg	18
001	SB-SA-2-0-1	Solid	Beryllium	6010C	0.43	J	mg/kg	18
001	SB-SA-2-0-1	Solid	Cadmium	6010C	0.27	J	mg/kg	18
001	SB-SA-2-0-1	Solid	Calcium	6010C	9500		mg/kg	18
001	SB-SA-2-0-1	Solid	Chromium	6010C	100		mg/kg	18
001	SB-SA-2-0-1	Solid	Cobalt	6010C	4.6	J	mg/kg	18
001	SB-SA-2-0-1	Solid	Copper	6010C	28		mg/kg	18
001	SB-SA-2-0-1	Solid	Iron	6010C	96000		mg/kg	18
001	SB-SA-2-0-1	Solid	Lead	6010C	27		mg/kg	18
001	SB-SA-2-0-1	Solid	Magnesium	6010C	6800		mg/kg	18
001	SB-SA-2-0-1	Solid	Manganese	6010C	130		mg/kg	18
001	SB-SA-2-0-1	Solid	Mercury	7471B	0.10	J	mg/kg	18
001	SB-SA-2-0-1	Solid	Nickel	6010C	19		mg/kg	18
001	SB-SA-2-0-1	Solid	Potassium	6010C	1400	J	mg/kg	18
001	SB-SA-2-0-1	Solid	Sodium	6010C	140	J	mg/kg	18
001	SB-SA-2-0-1	Solid	Vanadium	6010C	180		mg/kg	18
001	SB-SA-2-0-1	Solid	Zinc	6010C	42		mg/kg	18
002	SB-SA-2-0-1-a	Solid	Unknown	8260B	8.9		ug/kg	21
002	SB-SA-2-0-1-a	Solid	Unknown	8270D	24000		ug/kg	22
002	SB-SA-2-0-1-a	Solid	Aluminum	6010C	110000		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Arsenic	6010C	9.8		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Barium	6010C	35		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Beryllium	6010C	0.57	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Cadmium	6010C	0.25	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Calcium	6010C	1100	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Chromium	6010C	120		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Cobalt	6010C	4.3	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Copper	6010C	36		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Iron	6010C	140000		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Lead	6010C	35		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Magnesium	6010C	790	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Manganese	6010C	97		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Mercury	7471B	0.17		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Nickel	6010C	14	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Potassium	6010C	990	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Selenium	6010C	3.7	J	mg/kg	25
002	SB-SA-2-0-1-a	Solid	Vanadium	6010C	280		mg/kg	25
002	SB-SA-2-0-1-a	Solid	Zinc	6010C	49		mg/kg	25
004	SB-SA-2--10-11	Solid	1,1-Dichloroethene	8260B	5.7		ug/kg	29
006	SB-SA-2-20-21	Solid	1,1-Dichloroethene	8260B	25		ug/kg	35
006	SB-SA-2-20-21	Solid	1,4-Dioxane	8260B	150	J	ug/kg	35
006	SB-SA-2-20-21	Solid	Tetrachloroethene	8260B	2.5	J	ug/kg	35

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	SB-SA-3-0-1	Solid	Toluene	8260B	24		ug/kg	39
007	SB-SA-3-0-1	Solid	Methane, dibromofluoro-	8260B	21		ug/kg	41
007	SB-SA-3-0-1	Solid	Unknown Aldol Condensate	8270D	14000		ug/kg	42
007	SB-SA-3-0-1	Solid	Benzo(a)anthracene	8270D	110	J	ug/kg	43
007	SB-SA-3-0-1	Solid	Fluoranthene	8270D	88	J	ug/kg	43
007	SB-SA-3-0-1	Solid	Phenanthrene	8270D	160	J	ug/kg	44
007	SB-SA-3-0-1	Solid	Aluminum	6010C	42000		mg/kg	45
007	SB-SA-3-0-1	Solid	Barium	6010C	48		mg/kg	45
007	SB-SA-3-0-1	Solid	Cadmium	6010C	0.37	J	mg/kg	45
007	SB-SA-3-0-1	Solid	Calcium	6010C	780	J	mg/kg	45
007	SB-SA-3-0-1	Solid	Chromium	6010C	120		mg/kg	45
007	SB-SA-3-0-1	Solid	Cobalt	6010C	7.2	J	mg/kg	45
007	SB-SA-3-0-1	Solid	Copper	6010C	20		mg/kg	45
007	SB-SA-3-0-1	Solid	Iron	6010C	68000		mg/kg	45
007	SB-SA-3-0-1	Solid	Lead	6010C	22		mg/kg	45
007	SB-SA-3-0-1	Solid	Magnesium	6010C	2100	J	mg/kg	45
007	SB-SA-3-0-1	Solid	Manganese	6010C	260		mg/kg	45
007	SB-SA-3-0-1	Solid	Nickel	6010C	17	J	mg/kg	45
007	SB-SA-3-0-1	Solid	Potassium	6010C	2600	J	mg/kg	45
007	SB-SA-3-0-1	Solid	Vanadium	6010C	110		mg/kg	45
007	SB-SA-3-0-1	Solid	Zinc	6010C	57		mg/kg	45
008	SB-SA-1-0-1	Solid	Hexavalent Chromium	7196A	2.7		mg/kg	46
008	SB-SA-1-0-1	Solid	Unknown Aldol Condensate	8270D	16000		ug/kg	50
008	SB-SA-1-0-1	Solid	Aluminum	6010C	61000		mg/kg	53
008	SB-SA-1-0-1	Solid	Arsenic	6010C	13		mg/kg	53
008	SB-SA-1-0-1	Solid	Barium	6010C	12		mg/kg	53
008	SB-SA-1-0-1	Solid	Beryllium	6010C	0.99	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Cadmium	6010C	1.2	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Calcium	6010C	570	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Chromium	6010C	76		mg/kg	53
008	SB-SA-1-0-1	Solid	Cobalt	6010C	4.2	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Copper	6010C	22		mg/kg	53
008	SB-SA-1-0-1	Solid	Iron	6010C	100000		mg/kg	53
008	SB-SA-1-0-1	Solid	Lead	6010C	29		mg/kg	53
008	SB-SA-1-0-1	Solid	Magnesium	6010C	350	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Manganese	6010C	71		mg/kg	53
008	SB-SA-1-0-1	Solid	Mercury	7471B	0.018	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Nickel	6010C	8.7	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Potassium	6010C	700	J	mg/kg	53
008	SB-SA-1-0-1	Solid	Vanadium	6010C	140		mg/kg	53
008	SB-SA-1-0-1	Solid	Zinc	6010C	47		mg/kg	53
009	SB-SA-4-0-1	Solid	Unknown Aldol Condensate	8270D	21000		ug/kg	57
009	SB-SA-4-0-1	Solid	Aluminum	6010C	53000		mg/kg	60
009	SB-SA-4-0-1	Solid	Arsenic	6010C	8.9		mg/kg	60
009	SB-SA-4-0-1	Solid	Barium	6010C	31		mg/kg	60
009	SB-SA-4-0-1	Solid	Beryllium	6010C	0.48	J	mg/kg	60
009	SB-SA-4-0-1	Solid	Cadmium	6010C	0.48	J	mg/kg	60
009	SB-SA-4-0-1	Solid	Calcium	6010C	980	J	mg/kg	60

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
009	SB-SA-4-0-1	Solid	Chromium	6010C	47		mg/kg	60
009	SB-SA-4-0-1	Solid	Cobalt	6010C	3.7	J	mg/kg	60
009	SB-SA-4-0-1	Solid	Copper	6010C	30		mg/kg	60
009	SB-SA-4-0-1	Solid	Iron	6010C	66000		mg/kg	60
009	SB-SA-4-0-1	Solid	Lead	6010C	24		mg/kg	60
009	SB-SA-4-0-1	Solid	Magnesium	6010C	580	J	mg/kg	60
009	SB-SA-4-0-1	Solid	Manganese	6010C	110		mg/kg	60
009	SB-SA-4-0-1	Solid	Mercury	7471B	0.047	J	mg/kg	60
009	SB-SA-4-0-1	Solid	Nickel	6010C	7.2	J	mg/kg	60
009	SB-SA-4-0-1	Solid	Potassium	6010C	660	J	mg/kg	60
009	SB-SA-4-0-1	Solid	Vanadium	6010C	120		mg/kg	60
009	SB-SA-4-0-1	Solid	Zinc	6010C	32		mg/kg	60
010	SB-SA-5-0-1	Solid	1,1-Dichloroethene	8260B	4.0	J	ug/kg	61
010	SB-SA-5-0-1	Solid	Unknown Aldol Condensate	8270D	17000		ug/kg	64
010	SB-SA-5-0-1	Solid	Aluminum	6010C	77000		mg/kg	67
010	SB-SA-5-0-1	Solid	Antimony	6010C	3.1	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Arsenic	6010C	11		mg/kg	67
010	SB-SA-5-0-1	Solid	Barium	6010C	29		mg/kg	67
010	SB-SA-5-0-1	Solid	Beryllium	6010C	0.44	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Cadmium	6010C	1.3		mg/kg	67
010	SB-SA-5-0-1	Solid	Calcium	6010C	1400	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Chromium	6010C	68		mg/kg	67
010	SB-SA-5-0-1	Solid	Cobalt	6010C	5.1	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Copper	6010C	26		mg/kg	67
010	SB-SA-5-0-1	Solid	Iron	6010C	85000		mg/kg	67
010	SB-SA-5-0-1	Solid	Lead	6010C	21		mg/kg	67
010	SB-SA-5-0-1	Solid	Magnesium	6010C	860	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Manganese	6010C	80		mg/kg	67
010	SB-SA-5-0-1	Solid	Mercury	7471B	0.15		mg/kg	67
010	SB-SA-5-0-1	Solid	Nickel	6010C	13	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Potassium	6010C	850	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Sodium	6010C	290	J	mg/kg	67
010	SB-SA-5-0-1	Solid	Vanadium	6010C	150		mg/kg	67
010	SB-SA-5-0-1	Solid	Zinc	6010C	37		mg/kg	67
012	SB-SA-6-0-1	Solid	Unknown Aldol Condensate	8270D	19000		ug/kg	74
012	SB-SA-6-0-1	Solid	Benzo(a)anthracene	8270D	130	J	ug/kg	75
012	SB-SA-6-0-1	Solid	Fluoranthene	8270D	120	J	ug/kg	75
012	SB-SA-6-0-1	Solid	Phenanthrene	8270D	84	J	ug/kg	76
012	SB-SA-6-0-1	Solid	Pyrene	8270D	96	J	ug/kg	76
012	SB-SA-6-0-1	Solid	Aluminum	6010C	44000		mg/kg	77
012	SB-SA-6-0-1	Solid	Antimony	6010C	3.2	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Arsenic	6010C	5.7	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Barium	6010C	36		mg/kg	77
012	SB-SA-6-0-1	Solid	Beryllium	6010C	0.66	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Cadmium	6010C	0.76	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Calcium	6010C	750	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Chromium	6010C	49		mg/kg	77
012	SB-SA-6-0-1	Solid	Cobalt	6010C	4.4	J	mg/kg	77

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
012	SB-SA-6-0-1	Solid	Copper	6010C	39		mg/kg	77
012	SB-SA-6-0-1	Solid	Iron	6010C	66000		mg/kg	77
012	SB-SA-6-0-1	Solid	Lead	6010C	20		mg/kg	77
012	SB-SA-6-0-1	Solid	Magnesium	6010C	830	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Manganese	6010C	100		mg/kg	77
012	SB-SA-6-0-1	Solid	Mercury	7471B	0.010	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Nickel	6010C	14	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Potassium	6010C	1200	J	mg/kg	77
012	SB-SA-6-0-1	Solid	Vanadium	6010C	140		mg/kg	77
012	SB-SA-6-0-1	Solid	Zinc	6010C	31		mg/kg	77
013	SB-SA-7-0-1	Solid	Unknown	8270D	17000		ug/kg	82
013	SB-SA-7-0-1	Solid	Aluminum	6010C	51000		mg/kg	85
013	SB-SA-7-0-1	Solid	Arsenic	6010C	5.8	J	mg/kg	85
013	SB-SA-7-0-1	Solid	Barium	6010C	43		mg/kg	85
013	SB-SA-7-0-1	Solid	Beryllium	6010C	0.59	J	mg/kg	85
013	SB-SA-7-0-1	Solid	Cadmium	6010C	0.97	J	mg/kg	85
013	SB-SA-7-0-1	Solid	Calcium	6010C	470	J	mg/kg	85
013	SB-SA-7-0-1	Solid	Chromium	6010C	87		mg/kg	85
013	SB-SA-7-0-1	Solid	Cobalt	6010C	44		mg/kg	85
013	SB-SA-7-0-1	Solid	Copper	6010C	86		mg/kg	85
013	SB-SA-7-0-1	Solid	Iron	6010C	100000		mg/kg	85
013	SB-SA-7-0-1	Solid	Lead	6010C	31		mg/kg	85
013	SB-SA-7-0-1	Solid	Magnesium	6010C	1400	J	mg/kg	85
013	SB-SA-7-0-1	Solid	Manganese	6010C	1600		mg/kg	85
013	SB-SA-7-0-1	Solid	Mercury	7471B	0.023	J	mg/kg	85
013	SB-SA-7-0-1	Solid	Nickel	6010C	27		mg/kg	85
013	SB-SA-7-0-1	Solid	Potassium	6010C	1500	J	mg/kg	85
013	SB-SA-7-0-1	Solid	Vanadium	6010C	170		mg/kg	85
013	SB-SA-7-0-1	Solid	Zinc	6010C	74		mg/kg	85
014	SB-SA-7-0-1-a	Solid	Unknown Aldol Condensate	8270D	10000		ug/kg	89
014	SB-SA-7-0-1-a	Solid	Aluminum	6010C	44000		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Antimony	6010C	330		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Barium	6010C	26		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Beryllium	6010C	0.49	J	mg/kg	92
014	SB-SA-7-0-1-a	Solid	Cadmium	6010C	140		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Calcium	6010C	300	J	mg/kg	92
014	SB-SA-7-0-1-a	Solid	Chromium	6010C	68		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Cobalt	6010C	44		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Copper	6010C	62		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Iron	6010C	89000		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Magnesium	6010C	730	J	mg/kg	92
014	SB-SA-7-0-1-a	Solid	Manganese	6010C	530		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Mercury	7471B	0.019	J	mg/kg	92
014	SB-SA-7-0-1-a	Solid	Nickel	6010C	25		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Potassium	6010C	610	J	mg/kg	92
014	SB-SA-7-0-1-a	Solid	Selenium	6010C	390		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Thallium	6010C	640		mg/kg	92
014	SB-SA-7-0-1-a	Solid	Vanadium	6010C	130		mg/kg	92

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
014	SB-SA-7-0-1-a	Solid	Zinc	6010C	44		mg/kg	92
015	SB-SA-8-0-1	Solid	Unknown	8270D	14000		ug/kg	96
015	SB-SA-8-0-1	Solid	Aluminum	6010C	41000		mg/kg	99
015	SB-SA-8-0-1	Solid	Antimony	6010C	3.1	J	mg/kg	99
015	SB-SA-8-0-1	Solid	Arsenic	6010C	6.5		mg/kg	99
015	SB-SA-8-0-1	Solid	Barium	6010C	86		mg/kg	99
015	SB-SA-8-0-1	Solid	Cadmium	6010C	0.73	J	mg/kg	99
015	SB-SA-8-0-1	Solid	Calcium	6010C	21000		mg/kg	99
015	SB-SA-8-0-1	Solid	Chromium	6010C	60		mg/kg	99
015	SB-SA-8-0-1	Solid	Cobalt	6010C	10	J	mg/kg	99
015	SB-SA-8-0-1	Solid	Copper	6010C	34		mg/kg	99
015	SB-SA-8-0-1	Solid	Iron	6010C	53000		mg/kg	99
015	SB-SA-8-0-1	Solid	Lead	6010C	29		mg/kg	99
015	SB-SA-8-0-1	Solid	Magnesium	6010C	11000		mg/kg	99
015	SB-SA-8-0-1	Solid	Manganese	6010C	350		mg/kg	99
015	SB-SA-8-0-1	Solid	Mercury	7471B	0.026	J	mg/kg	99
015	SB-SA-8-0-1	Solid	Nickel	6010C	22		mg/kg	99
015	SB-SA-8-0-1	Solid	Potassium	6010C	4400		mg/kg	99
015	SB-SA-8-0-1	Solid	Vanadium	6010C	91		mg/kg	99
015	SB-SA-8-0-1	Solid	Zinc	6010C	100		mg/kg	99
016	SB-SA-9-0-1	Solid	Unknown	8270D	18000		ug/kg	103
016	SB-SA-9-0-1	Solid	Aluminum	6010C	61000		mg/kg	106
016	SB-SA-9-0-1	Solid	Antimony	6010C	3.5	J	mg/kg	106
016	SB-SA-9-0-1	Solid	Arsenic	6010C	7.6		mg/kg	106
016	SB-SA-9-0-1	Solid	Barium	6010C	55		mg/kg	106
016	SB-SA-9-0-1	Solid	Cadmium	6010C	0.46	J	mg/kg	106
016	SB-SA-9-0-1	Solid	Calcium	6010C	930	J	mg/kg	106
016	SB-SA-9-0-1	Solid	Chromium	6010C	76		mg/kg	106
016	SB-SA-9-0-1	Solid	Cobalt	6010C	11	J	mg/kg	106
016	SB-SA-9-0-1	Solid	Copper	6010C	140		mg/kg	106
016	SB-SA-9-0-1	Solid	Iron	6010C	140000		mg/kg	106
016	SB-SA-9-0-1	Solid	Lead	6010C	50		mg/kg	106
016	SB-SA-9-0-1	Solid	Magnesium	6010C	5400		mg/kg	106
016	SB-SA-9-0-1	Solid	Manganese	6010C	360		mg/kg	106
016	SB-SA-9-0-1	Solid	Mercury	7471B	0.016	J	mg/kg	106
016	SB-SA-9-0-1	Solid	Nickel	6010C	32		mg/kg	106
016	SB-SA-9-0-1	Solid	Potassium	6010C	8700		mg/kg	106
016	SB-SA-9-0-1	Solid	Sodium	6010C	300	J	mg/kg	106
016	SB-SA-9-0-1	Solid	Vanadium	6010C	200		mg/kg	106
016	SB-SA-9-0-1	Solid	Zinc	6010C	250		mg/kg	106
017	MW-03-0-1	Solid	Hexavalent Chromium	7196A	1.5		mg/kg	107
017	MW-03-0-1	Solid	Acetone	8260B	12	J	ug/kg	108
017	MW-03-0-1	Solid	Methylene chloride	8260B	9.6		ug/kg	108
017	MW-03-0-1	Solid	Unknown	8260B	12		ug/kg	110
017	MW-03-0-1	Solid	Cyclopentane	8260B	25		ug/kg	110
017	MW-03-0-1	Solid	Pentane, 3-methyl-	8260B	2.4		ug/kg	110
017	MW-03-0-1	Solid	Unknown	8260B	5.7		ug/kg	110
017	MW-03-0-1	Solid	Cyclotrisiloxane, hexamethyl-	8260B	0.65		ug/kg	110

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
017	MW-03-0-1	Solid	Unknown	8260B	5.6		ug/kg	110
017	MW-03-0-1	Solid	Unknown	8270D	18000		ug/kg	111
017	MW-03-0-1	Solid	Aluminum	6010C	65000		mg/kg	114
017	MW-03-0-1	Solid	Arsenic	6010C	29		mg/kg	114
017	MW-03-0-1	Solid	Barium	6010C	15		mg/kg	114
017	MW-03-0-1	Solid	Beryllium	6010C	0.65	J	mg/kg	114
017	MW-03-0-1	Solid	Cadmium	6010C	2.0		mg/kg	114
017	MW-03-0-1	Solid	Calcium	6010C	530	J	mg/kg	114
017	MW-03-0-1	Solid	Chromium	6010C	78		mg/kg	114
017	MW-03-0-1	Solid	Cobalt	6010C	1.4	J	mg/kg	114
017	MW-03-0-1	Solid	Copper	6010C	33		mg/kg	114
017	MW-03-0-1	Solid	Iron	6010C	81000		mg/kg	114
017	MW-03-0-1	Solid	Lead	6010C	24		mg/kg	114
017	MW-03-0-1	Solid	Magnesium	6010C	260	J	mg/kg	114
017	MW-03-0-1	Solid	Manganese	6010C	82		mg/kg	114
017	MW-03-0-1	Solid	Mercury	7471B	0.022	J	mg/kg	114
017	MW-03-0-1	Solid	Nickel	6010C	6.7	J	mg/kg	114
017	MW-03-0-1	Solid	Potassium	6010C	650	J	mg/kg	114
017	MW-03-0-1	Solid	Vanadium	6010C	150		mg/kg	114
017	MW-03-0-1	Solid	Zinc	6010C	35		mg/kg	114
018	BG-1-1	Solid	Aluminum	6010C	25000		mg/kg	115
018	BG-1-1	Solid	Arsenic	6010C	1.1	J	mg/kg	115
018	BG-1-1	Solid	Barium	6010C	14		mg/kg	115
018	BG-1-1	Solid	Cadmium	6010C	0.19	J	mg/kg	115
018	BG-1-1	Solid	Calcium	6010C	550	J	mg/kg	115
018	BG-1-1	Solid	Chromium	6010C	15		mg/kg	115
018	BG-1-1	Solid	Cobalt	6010C	1.1	J	mg/kg	115
018	BG-1-1	Solid	Copper	6010C	21		mg/kg	115
018	BG-1-1	Solid	Iron	6010C	31000		mg/kg	115
018	BG-1-1	Solid	Lead	6010C	9.2		mg/kg	115
018	BG-1-1	Solid	Magnesium	6010C	220	J	mg/kg	115
018	BG-1-1	Solid	Manganese	6010C	27		mg/kg	115
018	BG-1-1	Solid	Mercury	7471B	0.039	J	mg/kg	115
018	BG-1-1	Solid	Nickel	6010C	4.4	J	mg/kg	115
018	BG-1-1	Solid	Potassium	6010C	440	J	mg/kg	115
018	BG-1-1	Solid	Vanadium	6010C	66		mg/kg	115
018	BG-1-1	Solid	Zinc	6010C	15		mg/kg	115
019	BG-2-1	Solid	Aluminum	6010C	43000		mg/kg	116
019	BG-2-1	Solid	Arsenic	6010C	3.8		mg/kg	116
019	BG-2-1	Solid	Barium	6010C	19		mg/kg	116
019	BG-2-1	Solid	Cadmium	6010C	0.35		mg/kg	116
019	BG-2-1	Solid	Calcium	6010C	370	J	mg/kg	116
019	BG-2-1	Solid	Chromium	6010C	16		mg/kg	116
019	BG-2-1	Solid	Cobalt	6010C	0.83	J	mg/kg	116
019	BG-2-1	Solid	Copper	6010C	18		mg/kg	116
019	BG-2-1	Solid	Iron	6010C	23000		mg/kg	116
019	BG-2-1	Solid	Lead	6010C	40		mg/kg	116
019	BG-2-1	Solid	Magnesium	6010C	1000		mg/kg	116

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
019	BG-2-1	Solid	Manganese	6010C	40		mg/kg	116
019	BG-2-1	Solid	Nickel	6010C	5.0		mg/kg	116
019	BG-2-1	Solid	Potassium	6010C	1600		mg/kg	116
019	BG-2-1	Solid	Selenium	6010C	1.9		mg/kg	116
019	BG-2-1	Solid	Silver	6010C	0.60	J	mg/kg	116
019	BG-2-1	Solid	Sodium	6010C	62	J	mg/kg	116
019	BG-2-1	Solid	Vanadium	6010C	33		mg/kg	116
019	BG-2-1	Solid	Zinc	6010C	24		mg/kg	116
020	BG-3-1	Solid	Aluminum	6010C	24000		mg/kg	117
020	BG-3-1	Solid	Antimony	6010C	1.3	J	mg/kg	117
020	BG-3-1	Solid	Arsenic	6010C	7.0		mg/kg	117
020	BG-3-1	Solid	Barium	6010C	25		mg/kg	117
020	BG-3-1	Solid	Beryllium	6010C	0.45	J	mg/kg	117
020	BG-3-1	Solid	Cadmium	6010C	0.66		mg/kg	117
020	BG-3-1	Solid	Calcium	6010C	570	J	mg/kg	117
020	BG-3-1	Solid	Chromium	6010C	56		mg/kg	117
020	BG-3-1	Solid	Cobalt	6010C	2.9	J	mg/kg	117
020	BG-3-1	Solid	Copper	6010C	23		mg/kg	117
020	BG-3-1	Solid	Iron	6010C	53000		mg/kg	117
020	BG-3-1	Solid	Lead	6010C	20		mg/kg	117
020	BG-3-1	Solid	Magnesium	6010C	420	J	mg/kg	117
020	BG-3-1	Solid	Manganese	6010C	84		mg/kg	117
020	BG-3-1	Solid	Mercury	7471B	0.031	J	mg/kg	117
020	BG-3-1	Solid	Nickel	6010C	6.2	J	mg/kg	117
020	BG-3-1	Solid	Potassium	6010C	770	J	mg/kg	117
020	BG-3-1	Solid	Vanadium	6010C	74		mg/kg	117
020	BG-3-1	Solid	Zinc	6010C	42		mg/kg	117
021	SB-SA-7-d	Aqueous	Butanoic acid	8270D	42		ug/L	122
021	SB-SA-7-d	Aqueous	3-Penten-2-one, 4-methyl-	8270D	58		ug/L	122

(314 detections)

Inorganic non-metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-001
Description: SB-SA-2-0-1	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 72.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3060A	(Hexavalent C) 7196A	1	02/01/2012 1537	LAS	02/01/2012 1015	76884

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexavalent Chromium	18540-29-9	7196A	ND		1.4	0.35	mg/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-001
Description: SB-SA-2-0-1
Matrix: Solid
Date Sampled: 01/09/2012 1204
% Solids: 72.6 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0118	JJG		75969	5.75

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		24	8.0	ug/kg	1
Benzene	71-43-2	8260B	ND		6.0	1.3	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		6.0	2.0	ug/kg	1
Bromoform	75-25-2	8260B	ND		6.0	0.84	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		6.0	2.2	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		12	2.9	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		6.0	1.6	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		6.0	2.2	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		6.0	2.0	ug/kg	1
Chloroethane	75-00-3	8260B	ND		6.0	1.6	ug/kg	1
Chloroform	67-66-3	8260B	ND		6.0	0.99	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		6.0	1.2	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		6.0	0.81	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		6.0	1.8	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		6.0	2.0	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		6.0	1.0	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		6.0	2.0	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		6.0	2.0	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		6.0	2.0	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		6.0	1.9	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		6.0	0.87	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		6.0	1.2	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		6.0	2.0	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		6.0	0.91	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		6.0	1.8	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		6.0	1.1	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		6.0	0.81	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		6.0	0.98	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		300	99	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.0	2.0	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		12	1.6	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		6.0	0.28	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		6.0	1.2	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		6.0	0.48	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		12	1.8	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		6.0	0.49	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		6.0	3.1	ug/kg	1
Styrene	100-42-5	8260B	ND		6.0	1.3	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		6.0	0.56	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		6.0	0.60	ug/kg	1
Toluene	108-88-3	8260B	ND		6.0	2.0	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		6.0	0.75	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		6.0	2.0	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		6.0	1.0	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-001
Description: SB-SA-2-0-1	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 72.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0118	JJG		75969	5.75

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		6.0	0.95	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		6.0	2.3	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		6.0	1.8	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		6.0	1.0	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.0	3.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		91	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-001
Description:	SB-SA-2-0-1	Matrix:	Solid
Date Sampled:	01/09/2012 1204	% Solids:	72.6 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-001
Description:	SB-SA-2-0-1	Matrix:	Solid
Date Sampled:	01/09/2012 1204	% Solids:	72.6 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1308	JCG		76556

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8270D	16000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-001
Description: SB-SA-2-0-1
Matrix: Solid
Date Sampled: 01/09/2012 1204
% Solids: 72.6 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1308	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		450	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		450	18	ug/kg	1
Acetophenone	98-86-2	8270D	ND		450	27	ug/kg	1
Anthracene	120-12-7	8270D	ND		450	20	ug/kg	1
Atrazine	1912-24-9	8270D	ND		450	140	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		1100	36	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		450	15	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		450	33	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		450	31	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		450	31	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		450	37	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		450	42	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		450	19	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		450	150	ug/kg	1
Caprolactam	105-60-2	8270D	ND		1100	33	ug/kg	1
Carbazole	86-74-8	8270D	ND		450	13	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		450	25	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		450	23	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		450	20	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		450	19	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		450	17	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		450	22	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		450	19	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		450	18	ug/kg	1
Chrysene	218-01-9	8270D	ND		450	14	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		450	150	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		450	150	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		450	30	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		450	18	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		1100	78	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		450	18	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		450	150	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		450	150	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		450	24	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		1100	52	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		1100	9.0	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		450	33	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		450	39	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		450	150	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		450	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		450	17	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		450	18	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		450	18	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		1100	88	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-001
Description: SB-SA-2-0-1
Matrix: Solid
Date Sampled: 01/09/2012 1204
% Solids: 72.6 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1308	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		450	22	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		450	41	ug/kg	1
Isophorone	78-59-1	8270D	ND		450	21	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		450	16	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		450	25	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		920	43	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		450	23	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		450	15	ug/kg	1
Naphthalene	91-20-3	8270D	ND		450	19	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		450	32	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		450	33	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		450	27	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		450	21	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		450	49	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		1100	190	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		1100	48	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		450	18	ug/kg	1
Phenol	108-95-2	8270D	ND		450	22	ug/kg	1
Pyrene	129-00-0	8270D	ND		450	20	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		450	23	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		450	25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		48	30-117
2-Fluorobiphenyl		38	33-102
2-Fluorophenol		41	28-104
Nitrobenzene-d5		34	22-109
Phenol-d5		42	27-103
Terphenyl-d14		54	41-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-001
Description: SB-SA-2-0-1	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 72.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0347	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2112	COH	01/19/2012 1939	76059
2	3050B	6010C	5	01/19/2012 1836	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	74000		68	8.6	mg/kg	2
Antimony	7440-36-0	6010C	ND		3.4	1.2	mg/kg	2
Arsenic	7440-38-2	6010C	18		3.4	1.3	mg/kg	2
Barium	7440-39-3	6010C	38		1.8	0.12	mg/kg	1
Beryllium	7440-41-7	6010C	0.43	J	1.4	0.19	mg/kg	2
Cadmium	7440-43-9	6010C	0.27	J	0.68	0.071	mg/kg	2
Calcium	7440-70-2	6010C	9500		1700	120	mg/kg	2
Chromium	7440-47-3	6010C	100		1.7	0.34	mg/kg	2
Cobalt	7440-48-4	6010C	4.6	J	8.8	0.62	mg/kg	2
Copper	7440-50-8	6010C	28		1.7	0.33	mg/kg	2
Iron	7439-89-6	6010C	96000		34	11	mg/kg	2
Lead	7439-92-1	6010C	27		3.4	0.63	mg/kg	2
Magnesium	7439-95-4	6010C	6800		1700	120	mg/kg	2
Manganese	7439-96-5	6010C	130		5.1	0.39	mg/kg	2
Mercury	7439-97-6	7471B	0.10	J	0.11	0.0077	mg/kg	1
Nickel	7440-02-0	6010C	19		14	1.0	mg/kg	2
Potassium	7440-09-7	6010C	1400	J	1700	74	mg/kg	2
Selenium	7782-49-2	6010C	ND		3.4	1.2	mg/kg	2
Silver	7440-22-4	6010C	ND		1.7	0.28	mg/kg	2
Sodium	7440-23-5	6010C	140	J	1700	120	mg/kg	2
Thallium	7440-28-0	6010C	ND		17	1.7	mg/kg	2
Vanadium	7440-62-2	6010C	180		17	1.0	mg/kg	2
Zinc	7440-66-6	6010C	42		17	2.3	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
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H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-002
Description: SB-SA-2-0-1-a
Matrix: Solid
Date Sampled: 01/09/2012 1204
% Solids: 53.0 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0142	JJG		75969	5.96

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		32	11	ug/kg	1
Benzene	71-43-2	8260B	ND		7.9	1.7	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		7.9	2.7	ug/kg	1
Bromoform	75-25-2	8260B	ND		7.9	1.1	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		7.9	2.8	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		16	3.8	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		7.9	2.1	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		7.9	2.8	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		7.9	2.7	ug/kg	1
Chloroethane	75-00-3	8260B	ND		7.9	2.1	ug/kg	1
Chloroform	67-66-3	8260B	ND		7.9	1.3	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		7.9	1.6	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		7.9	1.1	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		7.9	2.4	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		7.9	2.7	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		7.9	1.3	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		7.9	2.7	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		7.9	2.7	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		7.9	2.7	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		7.9	2.5	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		7.9	1.2	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		7.9	1.6	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		7.9	2.7	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		7.9	1.2	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		7.9	2.4	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		7.9	1.4	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		7.9	1.1	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		7.9	1.3	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		400	130	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.9	2.7	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		16	2.1	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		7.9	0.36	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		7.9	1.6	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		7.9	0.63	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		16	2.4	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		7.9	0.65	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		7.9	4.1	ug/kg	1
Styrene	100-42-5	8260B	ND		7.9	1.7	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		7.9	0.74	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		7.9	0.79	ug/kg	1
Toluene	108-88-3	8260B	ND		7.9	2.7	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		7.9	1.0	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		7.9	2.7	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		7.9	1.3	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-002
Description: SB-SA-2-0-1-a	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 53.0 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0142	JJG		75969	5.96

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		7.9	1.2	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		7.9	3.0	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		7.9	2.4	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		7.9	1.4	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.9	4.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		108	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-002
Description: SB-SA-2-0-1-a	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 53.0 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1	01/19/2012 0142	DLB		76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8260B	8.9		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-002
Description: SB-SA-2-0-1-a	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 53.0 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1333	JCG		76556

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8270D	24000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
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P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-002
Description: SB-SA-2-0-1-a
Matrix: Solid
Date Sampled: 01/09/2012 1204
% Solids: 53.0 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1333	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		610	19	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		610	24	ug/kg	1
Acetophenone	98-86-2	8270D	ND		610	36	ug/kg	1
Anthracene	120-12-7	8270D	ND		610	27	ug/kg	1
Atrazine	1912-24-9	8270D	ND		610	190	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		1500	49	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		610	20	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		610	45	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		610	41	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		610	42	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		610	51	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		610	57	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		610	26	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		610	200	ug/kg	1
Caprolactam	105-60-2	8270D	ND		1500	45	ug/kg	1
Carbazole	86-74-8	8270D	ND		610	18	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		610	34	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		610	32	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		610	27	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		610	26	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		610	23	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		610	29	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		610	26	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		610	24	ug/kg	1
Chrysene	218-01-9	8270D	ND		610	19	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		610	200	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		610	200	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		610	41	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		610	24	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		1500	110	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		610	25	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		610	200	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		610	200	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		610	32	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		1500	71	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		1500	12	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		610	45	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		610	53	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		610	200	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		610	19	ug/kg	1
Fluorene	86-73-7	8270D	ND		610	24	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		610	25	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		610	25	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		1500	120	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-002
Description: SB-SA-2-0-1-a	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 53.0 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1333	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		610	30	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		610	55	ug/kg	1
Isophorone	78-59-1	8270D	ND		610	29	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		610	22	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		610	35	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		1200	58	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		610	31	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		610	21	ug/kg	1
Naphthalene	91-20-3	8270D	ND		610	26	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		610	43	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		610	44	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		610	36	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		610	28	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		610	66	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		1500	260	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		1500	65	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		610	25	ug/kg	1
Phenol	108-95-2	8270D	ND		610	29	ug/kg	1
Pyrene	129-00-0	8270D	ND		610	27	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		610	32	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		610	34	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		54	30-117
2-Fluorobiphenyl		56	33-102
2-Fluorophenol		63	28-104
Nitrobenzene-d5		56	22-109
Phenol-d5		59	27-103
Terphenyl-d14		63	41-120

PQL = Practical quantitation limit
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H = Out of holding time
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J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-002
Description: SB-SA-2-0-1-a	Matrix: Solid
Date Sampled: 01/09/2012 1204	% Solids: 53.0 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0353	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2114	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1840	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	110000		180	23	mg/kg	2
Antimony	7440-36-0	6010C	ND		9.2	3.3	mg/kg	2
Arsenic	7440-38-2	6010C	9.8		9.2	3.4	mg/kg	2
Barium	7440-39-3	6010C	35		2.4	0.17	mg/kg	1
Beryllium	7440-41-7	6010C	0.57	J	3.7	0.52	mg/kg	2
Cadmium	7440-43-9	6010C	0.25	J	1.8	0.19	mg/kg	2
Calcium	7440-70-2	6010C	1100	J	4600	330	mg/kg	2
Chromium	7440-47-3	6010C	120		4.6	0.93	mg/kg	2
Cobalt	7440-48-4	6010C	4.3	J	24	1.7	mg/kg	2
Copper	7440-50-8	6010C	36		4.6	0.89	mg/kg	2
Iron	7439-89-6	6010C	140000		92	30	mg/kg	2
Lead	7439-92-1	6010C	35		9.2	1.7	mg/kg	2
Magnesium	7439-95-4	6010C	790	J	4600	340	mg/kg	2
Manganese	7439-96-5	6010C	97		14	1.1	mg/kg	2
Mercury	7439-97-6	7471B	0.17		0.14	0.0098	mg/kg	1
Nickel	7440-02-0	6010C	14	J	37	2.8	mg/kg	2
Potassium	7440-09-7	6010C	990	J	4600	200	mg/kg	2
Selenium	7782-49-2	6010C	3.7	J	9.2	3.2	mg/kg	2
Silver	7440-22-4	6010C	ND		4.6	0.77	mg/kg	2
Sodium	7440-23-5	6010C	ND		4600	320	mg/kg	2
Thallium	7440-28-0	6010C	ND		46	4.7	mg/kg	2
Vanadium	7440-62-2	6010C	280		46	2.8	mg/kg	2
Zinc	7440-66-6	6010C	49		46	6.2	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-003
Description: SB-SA-2-5-6
Matrix: Solid
Date Sampled: 01/09/2012 1345
% Solids: 63.1 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0206	JJG		75969	4.17

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		38	13	ug/kg	1
Benzene	71-43-2	8260B	ND		9.5	2.1	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		9.5	3.2	ug/kg	1
Bromoform	75-25-2	8260B	ND		9.5	1.3	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		9.5	3.4	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		19	4.6	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		9.5	2.5	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		9.5	3.4	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		9.5	3.2	ug/kg	1
Chloroethane	75-00-3	8260B	ND		9.5	2.5	ug/kg	1
Chloroform	67-66-3	8260B	ND		9.5	1.6	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		9.5	1.9	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		9.5	1.3	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		9.5	2.9	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		9.5	3.2	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		9.5	1.6	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		9.5	3.2	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		9.5	3.2	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		9.5	3.2	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		9.5	3.0	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		9.5	1.4	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		9.5	1.9	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		9.5	3.2	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		9.5	1.4	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		9.5	2.9	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		9.5	1.7	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		9.5	1.3	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		9.5	1.6	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		480	160	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		9.5	3.2	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		19	2.5	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		9.5	0.44	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		9.5	1.9	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		9.5	0.76	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		19	2.9	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		9.5	0.78	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		9.5	4.9	ug/kg	1
Styrene	100-42-5	8260B	ND		9.5	2.1	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		9.5	0.89	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		9.5	0.95	ug/kg	1
Toluene	108-88-3	8260B	ND		9.5	3.2	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		9.5	1.2	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		9.5	3.2	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		9.5	1.6	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-003
Description: SB-SA-2-5-6	Matrix: Solid
Date Sampled: 01/09/2012 1345	% Solids: 63.1 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0206	JJG		75969	4.17

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		9.5	1.5	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		9.5	3.6	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		9.5	2.9	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		9.5	1.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		9.5	5.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		106	47-138
Toluene-d8		90	68-124

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-003
Description:	SB-SA-2-5-6	Matrix:	Solid
Date Sampled:	01/09/2012 1345	% Solids:	63.1 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Description: SB-SA-2--10-11
Date Sampled: 01/09/2012 1352
Date Received: 01/18/2012

Laboratory ID: NA18016-004
Matrix: Solid
% Solids: 81.4 01/18/2012 2252

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0229	JJG		75969	5.69

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		22	7.2	ug/kg	1
Benzene	71-43-2	8260B	ND		5.4	1.2	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5.4	1.8	ug/kg	1
Bromoform	75-25-2	8260B	ND		5.4	0.76	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.4	1.9	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		11	2.6	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5.4	1.4	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5.4	1.9	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5.4	1.8	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5.4	1.4	ug/kg	1
Chloroform	67-66-3	8260B	ND		5.4	0.90	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.4	1.1	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5.4	0.73	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.4	1.6	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5.4	1.8	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.4	0.92	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.4	1.8	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.4	1.8	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.4	1.8	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.4	1.7	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.4	0.79	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.4	1.1	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	5.7		5.4	1.8	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.4	0.82	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.4	1.6	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.4	0.98	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.4	0.73	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.4	0.89	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		270	90	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.4	1.8	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		11	1.4	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		5.4	0.25	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5.4	1.1	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.4	0.43	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		11	1.6	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5.4	0.44	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5.4	2.8	ug/kg	1
Styrene	100-42-5	8260B	ND		5.4	1.2	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.4	0.51	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5.4	0.54	ug/kg	1
Toluene	108-88-3	8260B	ND		5.4	1.8	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.4	0.68	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.4	1.8	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.4	0.92	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-004
Description: SB-SA-2--10-11	Matrix: Solid
Date Sampled: 01/09/2012 1352	% Solids: 81.4 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0229	JJG		75969	5.69

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.4	0.85	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		5.4	2.1	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.4	1.6	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5.4	0.93	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.4	3.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	53-142
Bromofluorobenzene		108	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-004
Description:	SB-SA-2--10-11	Matrix:	Solid
Date Sampled:	01/09/2012 1352	% Solids:	81.4 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-005
Description: SB-SA-2-15-16
Matrix: Solid
Date Sampled: 01/09/2012 1405
% Solids: 66.8 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0253	JJG		75969	5.15

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		29	9.7	ug/kg	1
Benzene	71-43-2	8260B	ND		7.3	1.6	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		7.3	2.5	ug/kg	1
Bromoform	75-25-2	8260B	ND		7.3	1.0	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		7.3	2.6	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		15	3.5	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		7.3	1.9	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		7.3	2.6	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		7.3	2.5	ug/kg	1
Chloroethane	75-00-3	8260B	ND		7.3	1.9	ug/kg	1
Chloroform	67-66-3	8260B	ND		7.3	1.2	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		7.3	1.5	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		7.3	0.98	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		7.3	2.2	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		7.3	2.5	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		7.3	1.2	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		7.3	2.5	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		7.3	2.5	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		7.3	2.5	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		7.3	2.3	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		7.3	1.1	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		7.3	1.5	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		7.3	2.5	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		7.3	1.1	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		7.3	2.2	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		7.3	1.3	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		7.3	0.99	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		7.3	1.2	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		360	120	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.3	2.5	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		15	1.9	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		7.3	0.33	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		7.3	1.4	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		7.3	0.58	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		15	2.2	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		7.3	0.60	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		7.3	3.8	ug/kg	1
Styrene	100-42-5	8260B	ND		7.3	1.6	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		7.3	0.68	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		7.3	0.73	ug/kg	1
Toluene	108-88-3	8260B	ND		7.3	2.5	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		7.3	0.92	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		7.3	2.5	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		7.3	1.2	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-005
Description: SB-SA-2-15-16	Matrix: Solid
Date Sampled: 01/09/2012 1405	% Solids: 66.8 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0253	JJG		75969	5.15

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		7.3	1.1	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		7.3	2.8	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		7.3	2.2	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		7.3	1.3	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.3	4.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	53-142
Bromofluorobenzene		100	47-138
Toluene-d8		86	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-005
Description: SB-SA-2-15-16	Matrix: Solid
Date Sampled: 01/09/2012 1405	% Solids: 66.8 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-006
Description: SB-SA-2-20-21
Matrix: Solid
Date Sampled: 01/09/2012 1420
% Solids: 66.6 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/20/2012 1152	DLB		76108	5.71

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		26	8.8	ug/kg	1
Benzene	71-43-2	8260B	ND		6.6	1.4	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		6.6	2.2	ug/kg	1
Bromoform	75-25-2	8260B	ND		6.6	0.92	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		6.6	2.4	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		13	3.2	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		6.6	1.7	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		6.6	2.4	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		6.6	2.2	ug/kg	1
Chloroethane	75-00-3	8260B	ND		6.6	1.7	ug/kg	1
Chloroform	67-66-3	8260B	ND		6.6	1.1	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		6.6	1.3	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		6.6	0.89	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		6.6	2.0	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		6.6	2.2	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		6.6	1.1	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		6.6	2.2	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		6.6	2.2	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		6.6	2.2	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		6.6	2.1	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		6.6	0.96	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		6.6	1.3	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	25		6.6	2.2	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		6.6	1.0	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		6.6	2.0	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		6.6	1.2	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		6.6	0.89	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		6.6	1.1	ug/kg	1
1,4-Dioxane	123-91-1	8260B	150	J	330	110	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.6	2.2	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		13	1.7	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		6.6	0.30	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		6.6	1.3	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		6.6	0.53	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		13	2.0	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		6.6	0.54	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		6.6	3.4	ug/kg	1
Styrene	100-42-5	8260B	ND		6.6	1.4	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		6.6	0.62	ug/kg	1
Tetrachloroethene	127-18-4	8260B	2.5	J	6.6	0.66	ug/kg	1
Toluene	108-88-3	8260B	ND		6.6	2.2	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		6.6	0.83	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		6.6	2.2	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		6.6	1.1	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-006
Description: SB-SA-2-20-21	Matrix: Solid
Date Sampled: 01/09/2012 1420	% Solids: 66.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/20/2012 1152	DLB		76108	5.71

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		6.6	1.0	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		6.6	2.5	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		6.6	2.0	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		6.6	1.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.6	3.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	53-142
Bromofluorobenzene		98	47-138
Toluene-d8		94	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-006
Description: SB-SA-2-20-21	Matrix: Solid
Date Sampled: 01/09/2012 1420	% Solids: 66.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76109

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Inorganic non-metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-007
Description: SB-SA-3-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1030	% Solids: 86.8 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3060A	(Hexavalent C) 7196A	1	02/01/2012 1537	LAS	02/01/2012 1015	76884

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexavalent Chromium	18540-29-9	7196A	ND		1.2	0.29	mg/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-007
Description: SB-SA-3-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1030
% Solids: 86.8 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 2013	BM		76060	6.14

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		19	6.3	ug/kg	1
Benzene	71-43-2	8260B	ND		4.7	1.0	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		4.7	1.6	ug/kg	1
Bromoform	75-25-2	8260B	ND		4.7	0.66	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		4.7	1.7	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		9.4	2.3	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		4.7	1.2	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		4.7	1.7	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		4.7	1.6	ug/kg	1
Chloroethane	75-00-3	8260B	ND		4.7	1.2	ug/kg	1
Chloroform	67-66-3	8260B	ND		4.7	0.78	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		4.7	0.94	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		4.7	0.63	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		4.7	1.4	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		4.7	1.6	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		4.7	0.80	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		4.7	1.6	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		4.7	1.6	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		4.7	1.6	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		4.7	1.5	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		4.7	0.68	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		4.7	0.94	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		4.7	1.6	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		4.7	0.71	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		4.7	1.4	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		4.7	0.85	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		4.7	0.64	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		4.7	0.77	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		230	78	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.7	1.6	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		9.4	1.2	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		4.7	0.22	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		4.7	0.92	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		4.7	0.38	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		9.4	1.4	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		4.7	0.38	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		4.7	2.4	ug/kg	1
Styrene	100-42-5	8260B	ND		4.7	1.0	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		4.7	0.44	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		4.7	0.47	ug/kg	1
Toluene	108-88-3	8260B	24		4.7	1.6	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		4.7	0.59	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		4.7	1.6	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		4.7	0.80	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-007
Description: SB-SA-3-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1030	% Solids: 86.8 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 2013	BM		76060	6.14

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		4.7	0.74	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		4.7	1.8	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		4.7	1.4	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		4.7	0.81	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.7	2.7	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		105	53-142
Bromofluorobenzene		95	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-007
Description: SB-SA-3-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1030	% Solids: 86.8 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1	01/19/2012 2013	DLB		76098

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Methane, dibromofluoro-		8260B	21		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-007
Description:	SB-SA-3-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1030	% Solids:	86.8 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/30/2012 1600	SJA		76710

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown Aldol Condensate		8270D	14000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-007
Description: SB-SA-3-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1030
% Solids: 86.8 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/30/2012 1600	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		1900	58	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		1900	75	ug/kg	1
Acetophenone	98-86-2	8270D	ND		1900	110	ug/kg	1
Anthracene	120-12-7	8270D	ND		1900	84	ug/kg	1
Atrazine	1912-24-9	8270D	ND		1900	580	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		4800	150	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	110	J	1900	63	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		1900	140	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		1900	130	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		1900	130	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		1900	160	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		1900	180	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		1900	81	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		1900	630	ug/kg	1
Caprolactam	105-60-2	8270D	ND		4800	140	ug/kg	1
Carbazole	86-74-8	8270D	ND		1900	56	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		1900	110	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		1900	98	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		1900	84	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		1900	80	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		1900	73	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		1900	91	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		1900	80	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		1900	75	ug/kg	1
Chrysene	218-01-9	8270D	ND		1900	59	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		1900	630	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		1900	630	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		1900	130	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		1900	75	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		4800	330	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		1900	77	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		1900	630	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		1900	630	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		1900	99	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		4800	220	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		4800	38	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		1900	140	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		1900	170	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		1900	630	ug/kg	1
Fluoranthene	206-44-0	8270D	88	J	1900	60	ug/kg	1
Fluorene	86-73-7	8270D	ND		1900	73	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		1900	77	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		1900	78	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		4800	370	ug/kg	1

PQL = Practical quantitation limit
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ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-007
Description: SB-SA-3-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1030
% Solids: 86.8 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/30/2012 1600	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		1900	94	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		1900	170	ug/kg	1
Isophorone	78-59-1	8270D	ND		1900	90	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		1900	69	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		1900	110	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		3900	180	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		1900	97	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		1900	64	ug/kg	1
Naphthalene	91-20-3	8270D	ND		1900	80	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		1900	130	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		1900	140	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		1900	110	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		1900	88	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		1900	200	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		4800	820	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		4800	200	ug/kg	1
Phenanthrene	85-01-8	8270D	160	J	1900	77	ug/kg	1
Phenol	108-95-2	8270D	ND		1900	91	ug/kg	1
Pyrene	129-00-0	8270D	ND		1900	82	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		1900	98	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		1900	100	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		62	30-117
2-Fluorobiphenyl		58	33-102
2-Fluorophenol		55	28-104
Nitrobenzene-d5		49	22-109
Phenol-d5		57	27-103
Terphenyl-d14		71	41-120

PQL = Practical quantitation limit
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ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NA18016-007
Description: SB-SA-3-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1030
% Solids: 86.8 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0359	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2130	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1844	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	42000		110	14	mg/kg	2
Antimony	7440-36-0	6010C	ND		5.5	1.9	mg/kg	2
Arsenic	7440-38-2	6010C	ND		5.5	2.1	mg/kg	2
Barium	7440-39-3	6010C	48		1.4	0.099	mg/kg	1
Beryllium	7440-41-7	6010C	ND		2.2	0.31	mg/kg	2
Cadmium	7440-43-9	6010C	0.37	J	1.1	0.11	mg/kg	2
Calcium	7440-70-2	6010C	780	J	2700	190	mg/kg	2
Chromium	7440-47-3	6010C	120		2.7	0.55	mg/kg	2
Cobalt	7440-48-4	6010C	7.2	J	14	1.0	mg/kg	2
Copper	7440-50-8	6010C	20		2.7	0.53	mg/kg	2
Iron	7439-89-6	6010C	68000		55	18	mg/kg	2
Lead	7439-92-1	6010C	22		5.5	1.0	mg/kg	2
Magnesium	7439-95-4	6010C	2100	J	2700	200	mg/kg	2
Manganese	7439-96-5	6010C	260		8.2	0.63	mg/kg	2
Mercury	7439-97-6	7471B	ND		0.084	0.0060	mg/kg	1
Nickel	7440-02-0	6010C	17	J	22	1.6	mg/kg	2
Potassium	7440-09-7	6010C	2600	J	2700	120	mg/kg	2
Selenium	7782-49-2	6010C	ND		5.5	1.9	mg/kg	2
Silver	7440-22-4	6010C	ND		2.7	0.46	mg/kg	2
Sodium	7440-23-5	6010C	ND		2700	190	mg/kg	2
Thallium	7440-28-0	6010C	ND		27	2.8	mg/kg	2
Vanadium	7440-62-2	6010C	110		27	1.6	mg/kg	2
Zinc	7440-66-6	6010C	57		27	3.7	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Inorganic non-metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-008
Description: SB-SA-1-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1115	% Solids: 74.9 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3060A	(Hexavalent C) 7196A	1	02/01/2012 1537	LAS	02/01/2012 1015	76884

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexavalent Chromium	18540-29-9	7196A	2.7		1.3	0.34	mg/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-008
Description: SB-SA-1-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1115
% Solids: 74.9 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0316	JJG		75969	6.56

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.8	ug/kg	1
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5.1	1.7	ug/kg	1
Bromoform	75-25-2	8260B	ND		5.1	0.71	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.1	1.8	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.4	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5.1	1.3	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5.1	1.8	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5.1	1.7	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5.1	1.3	ug/kg	1
Chloroform	67-66-3	8260B	ND		5.1	0.84	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.1	1.0	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5.1	0.69	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.1	1.5	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5.1	1.7	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.1	0.86	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.1	1.7	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.1	1.7	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.1	1.7	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.1	1.6	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.1	0.74	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.1	1.0	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.1	1.7	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.1	0.77	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.1	1.5	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.1	0.93	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.1	0.69	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.1	0.83	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		250	84	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.7	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		10	1.3	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		5.1	0.23	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5.1	1.0	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.1	0.41	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	1.5	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5.1	0.42	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5.1	2.6	ug/kg	1
Styrene	100-42-5	8260B	ND		5.1	1.1	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.1	0.48	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5.1	0.51	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.7	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.1	0.64	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.1	1.7	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.1	0.86	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-008
Description: SB-SA-1-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1115
% Solids: 74.9 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0316	JJG		75969	6.56

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.1	0.80	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		5.1	1.9	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.1	1.5	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5.1	0.88	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		87	68-124

PQL = Practical quantitation limit
B = Detected in the method blank
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Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-008
Description:	SB-SA-1-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1115	% Solids:	74.9 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-008
Description: SB-SA-1-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1115	% Solids: 74.9 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1821	SJA		76710

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown Aldol Condensate		8270D	16000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-008
Description: SB-SA-1-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1115
% Solids: 74.9 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1821	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		2100	64	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		2100	84	ug/kg	1
Acetophenone	98-86-2	8270D	ND		2100	120	ug/kg	1
Anthracene	120-12-7	8270D	ND		2100	93	ug/kg	1
Atrazine	1912-24-9	8270D	ND		2100	640	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		5300	170	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		2100	70	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		2100	150	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		2100	140	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		2100	140	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		2100	170	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		2100	190	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		2100	89	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		2100	700	ug/kg	1
Caprolactam	105-60-2	8270D	ND		5300	160	ug/kg	1
Carbazole	86-74-8	8270D	ND		2100	62	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		2100	120	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		2100	110	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		2100	93	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		2100	89	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		2100	80	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		2100	100	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		2100	89	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		2100	84	ug/kg	1
Chrysene	218-01-9	8270D	ND		2100	66	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		2100	700	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		2100	700	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		2100	140	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		2100	83	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		5300	360	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		2100	85	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		2100	700	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		2100	700	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		2100	110	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		5300	240	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		5300	42	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		2100	150	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		2100	180	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		2100	700	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		2100	66	ug/kg	1
Fluorene	86-73-7	8270D	ND		2100	81	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		2100	85	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		2100	86	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		5300	410	ug/kg	1

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P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-008
Description: SB-SA-1-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1115
% Solids: 74.9 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1821	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		2100	100	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		2100	190	ug/kg	1
Isophorone	78-59-1	8270D	ND		2100	99	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		2100	76	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		2100	120	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		4300	200	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		2100	110	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		2100	71	ug/kg	1
Naphthalene	91-20-3	8270D	ND		2100	89	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		2100	150	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		2100	150	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		2100	120	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		2100	97	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		2100	230	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		5300	910	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		5300	220	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		2100	85	ug/kg	1
Phenol	108-95-2	8270D	ND		2100	100	ug/kg	1
Pyrene	129-00-0	8270D	ND		2100	91	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		2100	110	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		2100	120	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		68	30-117
2-Fluorobiphenyl		65	33-102
2-Fluorophenol		67	28-104
Nitrobenzene-d5		57	22-109
Phenol-d5		57	27-103
Terphenyl-d14		76	41-120

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TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-008
Description: SB-SA-1-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1115	% Solids: 74.9 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0434	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2138	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1907	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	61000		130	17	mg/kg	2
Antimony	7440-36-0	6010C	ND		6.6	2.3	mg/kg	2
Arsenic	7440-38-2	6010C	13		6.6	2.5	mg/kg	2
Barium	7440-39-3	6010C	12		1.7	0.12	mg/kg	1
Beryllium	7440-41-7	6010C	0.99	J	2.6	0.37	mg/kg	2
Cadmium	7440-43-9	6010C	1.2	J	1.3	0.14	mg/kg	2
Calcium	7440-70-2	6010C	570	J	3300	230	mg/kg	2
Chromium	7440-47-3	6010C	76		3.3	0.67	mg/kg	2
Cobalt	7440-48-4	6010C	4.2	J	17	1.2	mg/kg	2
Copper	7440-50-8	6010C	22		3.3	0.64	mg/kg	2
Iron	7439-89-6	6010C	100000		66	22	mg/kg	2
Lead	7439-92-1	6010C	29		6.6	1.2	mg/kg	2
Magnesium	7439-95-4	6010C	350	J	3300	240	mg/kg	2
Manganese	7439-96-5	6010C	71		9.9	0.76	mg/kg	2
Mercury	7439-97-6	7471B	0.018	J	0.11	0.0076	mg/kg	1
Nickel	7440-02-0	6010C	8.7	J	26	2.0	mg/kg	2
Potassium	7440-09-7	6010C	700	J	3300	140	mg/kg	2
Selenium	7782-49-2	6010C	ND		6.6	2.3	mg/kg	2
Silver	7440-22-4	6010C	ND		3.3	0.55	mg/kg	2
Sodium	7440-23-5	6010C	ND		3300	230	mg/kg	2
Thallium	7440-28-0	6010C	ND		33	3.4	mg/kg	2
Vanadium	7440-62-2	6010C	140		33	2.0	mg/kg	2
Zinc	7440-66-6	6010C	47		33	4.5	mg/kg	2

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P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
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Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-009
Description: SB-SA-4-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1150
% Solids: 77.3 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0340	JJG		75969	5.49

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		24	7.9	ug/kg	1
Benzene	71-43-2	8260B	ND		5.9	1.3	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5.9	2.0	ug/kg	1
Bromoform	75-25-2	8260B	ND		5.9	0.82	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.9	2.1	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		12	2.8	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5.9	1.5	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5.9	2.1	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5.9	2.0	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5.9	1.5	ug/kg	1
Chloroform	67-66-3	8260B	ND		5.9	0.98	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.9	1.2	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5.9	0.79	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.9	1.8	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5.9	2.0	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.9	1.0	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.9	2.0	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.9	2.0	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.9	2.0	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.9	1.9	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.9	0.86	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.9	1.2	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.9	2.0	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.9	0.90	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.9	1.8	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.9	1.1	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.9	0.80	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.9	0.97	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		290	98	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.9	2.0	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		12	1.5	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		5.9	0.27	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5.9	1.2	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.9	0.47	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		12	1.8	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5.9	0.48	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5.9	3.1	ug/kg	1
Styrene	100-42-5	8260B	ND		5.9	1.3	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.9	0.55	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5.9	0.59	ug/kg	1
Toluene	108-88-3	8260B	ND		5.9	2.0	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.9	0.74	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.9	2.0	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.9	1.0	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
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ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-009
Description: SB-SA-4-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1150	% Solids: 77.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0340	JJG		75969	5.49

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.9	0.93	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		5.9	2.2	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.9	1.8	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5.9	1.0	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.9	3.4	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		90	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-009
Description:	SB-SA-4-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1150	% Solids:	77.3 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
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* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-009
Description: SB-SA-4-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1150	% Solids: 77.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1846	SJA		76710

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown Aldol Condensate		8270D	21000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-009
Description: SB-SA-4-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1150
% Solids: 77.3 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1846	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		2100	65	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		2100	84	ug/kg	1
Acetophenone	98-86-2	8270D	ND		2100	130	ug/kg	1
Anthracene	120-12-7	8270D	ND		2100	94	ug/kg	1
Atrazine	1912-24-9	8270D	ND		2100	640	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		5300	170	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		2100	70	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		2100	150	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		2100	140	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		2100	140	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		2100	170	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		2100	200	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		2100	90	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		2100	710	ug/kg	1
Caprolactam	105-60-2	8270D	ND		5300	160	ug/kg	1
Carbazole	86-74-8	8270D	ND		2100	63	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		2100	120	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		2100	110	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		2100	94	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		2100	89	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		2100	81	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		2100	100	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		2100	89	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		2100	84	ug/kg	1
Chrysene	218-01-9	8270D	ND		2100	66	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		2100	710	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		2100	710	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		2100	140	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		2100	84	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		5300	360	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		2100	86	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		2100	710	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		2100	710	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		2100	110	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		5300	250	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		5300	42	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		2100	160	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		2100	180	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		2100	710	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		2100	67	ug/kg	1
Fluorene	86-73-7	8270D	ND		2100	82	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		2100	85	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		2100	87	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		5300	410	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
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J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-009
Description: SB-SA-4-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1150
% Solids: 77.3 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1846	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		2100	100	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		2100	190	ug/kg	1
Isophorone	78-59-1	8270D	ND		2100	100	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		2100	76	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		2100	120	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		4300	200	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		2100	110	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		2100	71	ug/kg	1
Naphthalene	91-20-3	8270D	ND		2100	89	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		2100	150	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		2100	150	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		2100	130	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		2100	98	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		2100	230	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		5300	910	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		5300	220	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		2100	86	ug/kg	1
Phenol	108-95-2	8270D	ND		2100	100	ug/kg	1
Pyrene	129-00-0	8270D	ND		2100	92	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		2100	110	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		2100	120	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		85	30-117
2-Fluorobiphenyl		76	33-102
2-Fluorophenol		71	28-104
Nitrobenzene-d5		66	22-109
Phenol-d5		67	27-103
Terphenyl-d14		81	41-120

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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
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TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-009
Description: SB-SA-4-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1150	% Solids: 77.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0446	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2146	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1915	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	53000		120	16	mg/kg	2
Antimony	7440-36-0	6010C	ND		6.1	2.2	mg/kg	2
Arsenic	7440-38-2	6010C	8.9		6.1	2.3	mg/kg	2
Barium	7440-39-3	6010C	31		1.6	0.11	mg/kg	1
Beryllium	7440-41-7	6010C	0.48	J	2.4	0.34	mg/kg	2
Cadmium	7440-43-9	6010C	0.48	J	1.2	0.13	mg/kg	2
Calcium	7440-70-2	6010C	980	J	3100	220	mg/kg	2
Chromium	7440-47-3	6010C	47		3.1	0.62	mg/kg	2
Cobalt	7440-48-4	6010C	3.7	J	16	1.1	mg/kg	2
Copper	7440-50-8	6010C	30		3.1	0.59	mg/kg	2
Iron	7439-89-6	6010C	66000		61	20	mg/kg	2
Lead	7439-92-1	6010C	24		6.1	1.1	mg/kg	2
Magnesium	7439-95-4	6010C	580	J	3100	230	mg/kg	2
Manganese	7439-96-5	6010C	110		9.2	0.71	mg/kg	2
Mercury	7439-97-6	7471B	0.047	J	0.10	0.0072	mg/kg	1
Nickel	7440-02-0	6010C	7.2	J	24	1.8	mg/kg	2
Potassium	7440-09-7	6010C	660	J	3100	130	mg/kg	2
Selenium	7782-49-2	6010C	ND		6.1	2.1	mg/kg	2
Silver	7440-22-4	6010C	ND		3.1	0.51	mg/kg	2
Sodium	7440-23-5	6010C	ND		3100	210	mg/kg	2
Thallium	7440-28-0	6010C	ND		31	3.1	mg/kg	2
Vanadium	7440-62-2	6010C	120		31	1.8	mg/kg	2
Zinc	7440-66-6	6010C	32		31	4.2	mg/kg	2

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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
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Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-010
Description: SB-SA-5-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1330
% Solids: 74.7 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0404	JJG		75969	6.02

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		22	7.5	ug/kg	1
Benzene	71-43-2	8260B	ND		5.6	1.2	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5.6	1.9	ug/kg	1
Bromoform	75-25-2	8260B	ND		5.6	0.78	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.6	2.0	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		11	2.7	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5.6	1.4	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5.6	2.0	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5.6	1.9	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5.6	1.4	ug/kg	1
Chloroform	67-66-3	8260B	ND		5.6	0.92	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.6	1.1	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5.6	0.75	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.6	1.7	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5.6	1.9	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.6	0.95	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.6	1.9	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.6	1.9	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.6	1.9	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.6	1.8	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.6	0.81	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.6	1.1	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	4.0	J	5.6	1.9	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.6	0.85	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.6	1.7	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.6	1.0	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.6	0.76	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.6	0.91	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		280	92	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.6	1.9	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		11	1.4	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		5.6	0.26	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5.6	1.1	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.6	0.44	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		11	1.7	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5.6	0.46	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5.6	2.9	ug/kg	1
Styrene	100-42-5	8260B	ND		5.6	1.2	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.6	0.52	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5.6	0.56	ug/kg	1
Toluene	108-88-3	8260B	ND		5.6	1.9	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.6	0.70	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.6	1.9	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.6	0.95	ug/kg	1

PQL = Practical quantitation limit
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P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-010
Description: SB-SA-5-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1330	% Solids: 74.7 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0404	JJG		75969	6.02

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.6	0.88	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		5.6	2.1	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.6	1.7	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5.6	0.96	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.6	3.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	53-142
Bromofluorobenzene		100	47-138
Toluene-d8		89	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-010
Description: SB-SA-5-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1330	% Solids: 74.7 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
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Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-010
Description: SB-SA-5-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1330	% Solids: 74.7 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1911	SJA		76710

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown Aldol Condensate		8270D	17000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
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Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-010
Description: SB-SA-5-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1330
% Solids: 74.7 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1911	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		2200	67	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		2200	87	ug/kg	1
Acetophenone	98-86-2	8270D	ND		2200	130	ug/kg	1
Anthracene	120-12-7	8270D	ND		2200	97	ug/kg	1
Atrazine	1912-24-9	8270D	ND		2200	670	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		5500	180	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		2200	73	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		2200	160	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		2200	150	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		2200	150	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		2200	180	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		2200	200	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		2200	93	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		2200	730	ug/kg	1
Caprolactam	105-60-2	8270D	ND		5500	160	ug/kg	1
Carbazole	86-74-8	8270D	ND		2200	65	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		2200	120	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		2200	110	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		2200	97	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		2200	93	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		2200	84	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		2200	110	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		2200	93	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		2200	87	ug/kg	1
Chrysene	218-01-9	8270D	ND		2200	69	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		2200	730	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		2200	730	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		2200	150	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		2200	87	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		5500	380	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		2200	89	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		2200	730	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		2200	730	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		2200	110	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		5500	260	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		5500	44	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		2200	160	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		2200	190	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		2200	730	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		2200	69	ug/kg	1
Fluorene	86-73-7	8270D	ND		2200	85	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		2200	89	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		2200	90	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		5500	430	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Description: SB-SA-5-0-1
Date Sampled: 01/16/2012 1330
Date Received: 01/18/2012

Laboratory ID: NA18016-010
Matrix: Solid
% Solids: 74.7 01/18/2012 2252

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/27/2012 1911	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		2200	110	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		2200	200	ug/kg	1
Isophorone	78-59-1	8270D	ND		2200	100	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		2200	79	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		2200	120	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		4500	210	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		2200	110	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		2200	74	ug/kg	1
Naphthalene	91-20-3	8270D	ND		2200	93	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		2200	160	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		2200	160	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		2200	130	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		2200	100	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		2200	240	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		5500	950	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		5500	230	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		2200	89	ug/kg	1
Phenol	108-95-2	8270D	ND		2200	110	ug/kg	1
Pyrene	129-00-0	8270D	ND		2200	95	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		2200	110	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		2200	120	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		72	30-117
2-Fluorobiphenyl		69	33-102
2-Fluorophenol		66	28-104
Nitrobenzene-d5		60	22-109
Phenol-d5		57	27-103
Terphenyl-d14		75	41-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-010
Description: SB-SA-5-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1330	% Solids: 74.7 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0452	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2149	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1918	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	77000		130	17	mg/kg	2
Antimony	7440-36-0	6010C	3.1	J	6.5	2.3	mg/kg	2
Arsenic	7440-38-2	6010C	11		6.5	2.4	mg/kg	2
Barium	7440-39-3	6010C	29		1.7	0.12	mg/kg	1
Beryllium	7440-41-7	6010C	0.44	J	2.6	0.36	mg/kg	2
Cadmium	7440-43-9	6010C	1.3		1.3	0.14	mg/kg	2
Calcium	7440-70-2	6010C	1400	J	3200	230	mg/kg	2
Chromium	7440-47-3	6010C	68		3.2	0.66	mg/kg	2
Cobalt	7440-48-4	6010C	5.1	J	17	1.2	mg/kg	2
Copper	7440-50-8	6010C	26		3.2	0.63	mg/kg	2
Iron	7439-89-6	6010C	85000		65	21	mg/kg	2
Lead	7439-92-1	6010C	21		6.5	1.2	mg/kg	2
Magnesium	7439-95-4	6010C	860	J	3200	240	mg/kg	2
Manganese	7439-96-5	6010C	80		9.7	0.75	mg/kg	2
Mercury	7439-97-6	7471B	0.15		0.10	0.0072	mg/kg	1
Nickel	7440-02-0	6010C	13	J	26	1.9	mg/kg	2
Potassium	7440-09-7	6010C	850	J	3200	140	mg/kg	2
Selenium	7782-49-2	6010C	ND		6.5	2.2	mg/kg	2
Silver	7440-22-4	6010C	ND		3.2	0.54	mg/kg	2
Sodium	7440-23-5	6010C	290	J	3200	220	mg/kg	2
Thallium	7440-28-0	6010C	ND		32	3.3	mg/kg	2
Vanadium	7440-62-2	6010C	150		32	1.9	mg/kg	2
Zinc	7440-66-6	6010C	37		32	4.4	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-011
Description: SB-SA-5-1D
Matrix: Solid
Date Sampled: 01/16/2012 1410
% Solids: 82.4 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0427	JJG		75969	5.31

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		23	7.7	ug/kg	1
Benzene	71-43-2	8260B	ND		5.7	1.3	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5.7	1.9	ug/kg	1
Bromoform	75-25-2	8260B	ND		5.7	0.80	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.7	2.1	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		11	2.7	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5.7	1.5	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5.7	2.1	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5.7	1.9	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5.7	1.5	ug/kg	1
Chloroform	67-66-3	8260B	ND		5.7	0.95	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.7	1.1	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5.7	0.77	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.7	1.7	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5.7	1.9	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.7	0.97	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.7	1.9	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.7	1.9	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.7	1.9	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.7	1.8	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.7	0.83	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.7	1.1	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.7	1.9	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.7	0.87	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.7	1.7	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.7	1.0	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.7	0.78	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.7	0.94	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		290	95	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.7	1.9	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		11	1.5	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		5.7	0.26	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5.7	1.1	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.7	0.46	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		11	1.7	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5.7	0.47	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5.7	3.0	ug/kg	1
Styrene	100-42-5	8260B	ND		5.7	1.3	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.7	0.54	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5.7	0.57	ug/kg	1
Toluene	108-88-3	8260B	ND		5.7	1.9	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.7	0.72	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.7	1.9	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.7	0.97	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-011
Description: SB-SA-5-1D	Matrix: Solid
Date Sampled: 01/16/2012 1410	% Solids: 82.4 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0427	JJG		75969	5.31

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.7	0.90	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		5.7	2.2	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.7	1.7	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5.7	0.98	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.7	3.3	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	53-142
Bromofluorobenzene		99	47-138
Toluene-d8		82	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-011
Description:	SB-SA-5-1D	Matrix:	Solid
Date Sampled:	01/16/2012 1410	% Solids:	82.4 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-012
Description: SB-SA-6-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1420
% Solids: 79.1 01/19/2012 2126
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0451	JJG		75969	6.34

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/kg	1
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/kg	1
Bromoform	75-25-2	8260B	ND		5.0	0.70	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	1.8	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.4	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5.0	1.3	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	1.8	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5.0	1.3	ug/kg	1
Chloroform	67-66-3	8260B	ND		5.0	0.83	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	1.0	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.67	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	1.5	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.85	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	1.6	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.73	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	1.0	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	1.7	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.76	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	1.5	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.91	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.68	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.82	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		10	1.3	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	0.23	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.98	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	1.5	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.41	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5.0	2.6	ug/kg	1
Styrene	100-42-5	8260B	ND		5.0	1.1	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.47	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.50	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.63	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.85	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-012
Description: SB-SA-6-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1420	% Solids: 79.1 01/19/2012 2126
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0451	JJG		75969	6.34

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.79	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		5.0	1.9	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	1.5	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5.0	0.86	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		94	47-138
Toluene-d8		83	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-012
Description:	SB-SA-6-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1420	% Solids:	79.1 01/19/2012 2126
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-012
Description:	SB-SA-6-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1420	% Solids:	79.1 01/19/2012 2126
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/30/2012 1650	SJA		76710

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown Aldol Condensate		8270D	19000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-012
Description: SB-SA-6-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1420
% Solids: 79.1 01/19/2012 2126
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/30/2012 1650	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		2100	63	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		2100	81	ug/kg	1
Acetophenone	98-86-2	8270D	ND		2100	120	ug/kg	1
Anthracene	120-12-7	8270D	ND		2100	91	ug/kg	1
Atrazine	1912-24-9	8270D	ND		2100	620	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		5200	160	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	130	J	2100	68	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		2100	150	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		2100	140	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		2100	140	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		2100	170	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		2100	190	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		2100	87	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		2100	680	ug/kg	1
Caprolactam	105-60-2	8270D	ND		5200	150	ug/kg	1
Carbazole	86-74-8	8270D	ND		2100	61	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		2100	110	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		2100	110	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		2100	91	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		2100	86	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		2100	78	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		2100	98	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		2100	86	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		2100	81	ug/kg	1
Chrysene	218-01-9	8270D	ND		2100	64	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		2100	680	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		2100	680	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		2100	140	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		2100	81	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		5200	350	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		2100	83	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		2100	680	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		2100	680	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		2100	110	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		5200	240	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		5200	41	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		2100	150	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		2100	180	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		2100	680	ug/kg	1
Fluoranthene	206-44-0	8270D	120	J	2100	65	ug/kg	1
Fluorene	86-73-7	8270D	ND		2100	79	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		2100	83	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		2100	84	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		5200	400	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-012
Description: SB-SA-6-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1420
% Solids: 79.1 01/19/2012 2126
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	01/30/2012 1650	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		2100	100	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		2100	190	ug/kg	1
Isophorone	78-59-1	8270D	ND		2100	97	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		2100	74	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		2100	120	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		4200	190	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		2100	110	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		2100	69	ug/kg	1
Naphthalene	91-20-3	8270D	ND		2100	86	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		2100	140	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		2100	150	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		2100	120	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		2100	94	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		2100	220	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		5200	880	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		5200	220	ug/kg	1
Phenanthrene	85-01-8	8270D	84	J	2100	83	ug/kg	1
Phenol	108-95-2	8270D	ND		2100	98	ug/kg	1
Pyrene	129-00-0	8270D	96	J	2100	89	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		2100	110	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		2100	110	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		52	30-117
2-Fluorobiphenyl		62	33-102
2-Fluorophenol		70	28-104
Nitrobenzene-d5		65	22-109
Phenol-d5		58	27-103
Terphenyl-d14		61	41-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-012
Description: SB-SA-6-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1420	% Solids: 79.1 01/19/2012 2126
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0458	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2151	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1922	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	44000		120	15	mg/kg	2
Antimony	7440-36-0	6010C	3.2	J	5.9	2.1	mg/kg	2
Arsenic	7440-38-2	6010C	5.7	J	5.9	2.2	mg/kg	2
Barium	7440-39-3	6010C	36		1.5	0.11	mg/kg	1
Beryllium	7440-41-7	6010C	0.66	J	2.4	0.33	mg/kg	2
Cadmium	7440-43-9	6010C	0.76	J	1.2	0.12	mg/kg	2
Calcium	7440-70-2	6010C	750	J	2900	210	mg/kg	2
Chromium	7440-47-3	6010C	49		2.9	0.60	mg/kg	2
Cobalt	7440-48-4	6010C	4.4	J	15	1.1	mg/kg	2
Copper	7440-50-8	6010C	39		2.9	0.57	mg/kg	2
Iron	7439-89-6	6010C	66000		59	19	mg/kg	2
Lead	7439-92-1	6010C	20		5.9	1.1	mg/kg	2
Magnesium	7439-95-4	6010C	830	J	2900	220	mg/kg	2
Manganese	7439-96-5	6010C	100		8.8	0.68	mg/kg	2
Mercury	7439-97-6	7471B	0.010	J	0.082	0.0058	mg/kg	1
Nickel	7440-02-0	6010C	14	J	24	1.8	mg/kg	2
Potassium	7440-09-7	6010C	1200	J	2900	130	mg/kg	2
Selenium	7782-49-2	6010C	ND		5.9	2.0	mg/kg	2
Silver	7440-22-4	6010C	ND		2.9	0.49	mg/kg	2
Sodium	7440-23-5	6010C	ND		2900	200	mg/kg	2
Thallium	7440-28-0	6010C	ND		29	3.0	mg/kg	2
Vanadium	7440-62-2	6010C	140		29	1.8	mg/kg	2
Zinc	7440-66-6	6010C	31		29	4.0	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Inorganic non-metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-013
Description: SB-SA-7-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 75.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3060A	(Hexavalent C) 7196A	1	02/01/2012 1537	LAS	02/01/2012 1015	76884

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexavalent Chromium	18540-29-9	7196A	ND		1.3	0.33	mg/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-013
Description: SB-SA-7-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1600
% Solids: 75.3 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0515	JJG		75969	7.13

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		19	6.2	ug/kg	1
Benzene	71-43-2	8260B	ND		4.7	1.0	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		4.7	1.6	ug/kg	1
Bromoform	75-25-2	8260B	ND		4.7	0.65	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		4.7	1.7	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		9.3	2.2	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		4.7	1.2	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		4.7	1.7	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		4.7	1.6	ug/kg	1
Chloroethane	75-00-3	8260B	ND		4.7	1.2	ug/kg	1
Chloroform	67-66-3	8260B	ND		4.7	0.77	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		4.7	0.93	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		4.7	0.63	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		4.7	1.4	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		4.7	1.6	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		4.7	0.79	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		4.7	1.6	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		4.7	1.6	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		4.7	1.6	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		4.7	1.5	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		4.7	0.68	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		4.7	0.93	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		4.7	1.6	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		4.7	0.71	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		4.7	1.4	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		4.7	0.85	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		4.7	0.63	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		4.7	0.76	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		230	77	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.7	1.6	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		9.3	1.2	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		4.7	0.21	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		4.7	0.91	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		4.7	0.37	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		9.3	1.4	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		4.7	0.38	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		4.7	2.4	ug/kg	1
Styrene	100-42-5	8260B	ND		4.7	1.0	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		4.7	0.44	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		4.7	0.47	ug/kg	1
Toluene	108-88-3	8260B	ND		4.7	1.6	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		4.7	0.59	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		4.7	1.6	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		4.7	0.79	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-013
Description: SB-SA-7-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 75.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0515	JJG		75969	7.13

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		4.7	0.74	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		4.7	1.8	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		4.7	1.4	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		4.7	0.80	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.7	2.7	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		88	53-142
Bromofluorobenzene		102	47-138
Toluene-d8		88	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-013
Description: SB-SA-7-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 75.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-013
Description:	SB-SA-7-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1600	% Solids:	75.3 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1407	JCG		76556

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8270D	17000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-013
Description: SB-SA-7-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1600
% Solids: 75.3 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1407	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		440	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		440	17	ug/kg	1
Acetophenone	98-86-2	8270D	ND		440	26	ug/kg	1
Anthracene	120-12-7	8270D	ND		440	19	ug/kg	1
Atrazine	1912-24-9	8270D	ND		440	130	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		1100	35	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		440	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		440	32	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		440	29	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		440	30	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		440	36	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		440	40	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		440	18	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		440	150	ug/kg	1
Caprolactam	105-60-2	8270D	ND		1100	32	ug/kg	1
Carbazole	86-74-8	8270D	ND		440	13	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		440	24	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		440	23	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		440	19	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		440	18	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		440	17	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		440	21	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		440	18	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		440	17	ug/kg	1
Chrysene	218-01-9	8270D	ND		440	14	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		440	150	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		440	150	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		440	29	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		440	17	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		1100	75	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		440	18	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		440	150	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		440	150	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		440	23	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		1100	51	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		1100	8.7	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		440	32	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		440	38	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		440	150	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		440	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		440	17	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		440	18	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		440	18	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		1100	85	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-013
Description: SB-SA-7-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 75.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1407	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		440	21	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		440	39	ug/kg	1
Isophorone	78-59-1	8270D	ND		440	21	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		440	16	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		440	25	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		880	41	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		440	22	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		440	15	ug/kg	1
Naphthalene	91-20-3	8270D	ND		440	18	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		440	31	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		440	31	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		440	26	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		440	20	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		440	47	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		1100	190	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		1100	46	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		440	18	ug/kg	1
Phenol	108-95-2	8270D	ND		440	21	ug/kg	1
Pyrene	129-00-0	8270D	ND		440	19	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		440	22	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		440	24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		57	30-117
2-Fluorobiphenyl		60	33-102
2-Fluorophenol		65	28-104
Nitrobenzene-d5		61	22-109
Phenol-d5		65	27-103
Terphenyl-d14		62	41-120

PQL = Practical quantitation limit
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ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-013
Description: SB-SA-7-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 75.3 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0504	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2153	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1926	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	51000		130	17	mg/kg	2
Antimony	7440-36-0	6010C	ND		6.5	2.3	mg/kg	2
Arsenic	7440-38-2	6010C	5.8	J	6.5	2.4	mg/kg	2
Barium	7440-39-3	6010C	43		1.7	0.12	mg/kg	1
Beryllium	7440-41-7	6010C	0.59	J	2.6	0.36	mg/kg	2
Cadmium	7440-43-9	6010C	0.97	J	1.3	0.14	mg/kg	2
Calcium	7440-70-2	6010C	470	J	3200	230	mg/kg	2
Chromium	7440-47-3	6010C	87		3.2	0.66	mg/kg	2
Cobalt	7440-48-4	6010C	44		17	1.2	mg/kg	2
Copper	7440-50-8	6010C	86		3.2	0.63	mg/kg	2
Iron	7439-89-6	6010C	100000		65	21	mg/kg	2
Lead	7439-92-1	6010C	31		6.5	1.2	mg/kg	2
Magnesium	7439-95-4	6010C	1400	J	3200	240	mg/kg	2
Manganese	7439-96-5	6010C	1600		9.7	0.75	mg/kg	2
Mercury	7439-97-6	7471B	0.023	J	0.10	0.0072	mg/kg	1
Nickel	7440-02-0	6010C	27		26	1.9	mg/kg	2
Potassium	7440-09-7	6010C	1500	J	3200	140	mg/kg	2
Selenium	7782-49-2	6010C	ND		6.5	2.2	mg/kg	2
Silver	7440-22-4	6010C	ND		3.2	0.54	mg/kg	2
Sodium	7440-23-5	6010C	ND		3200	220	mg/kg	2
Thallium	7440-28-0	6010C	ND		32	3.3	mg/kg	2
Vanadium	7440-62-2	6010C	170		32	1.9	mg/kg	2
Zinc	7440-66-6	6010C	74		32	4.4	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-014
Description: SB-SA-7-0-1-a	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 85.4 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0538	JJG		75969	5.93

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.6	ug/kg	1
Benzene	71-43-2	8260B	ND		4.9	1.1	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		4.9	1.7	ug/kg	1
Bromoform	75-25-2	8260B	ND		4.9	0.69	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		4.9	1.8	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		9.9	2.4	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		4.9	1.3	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		4.9	1.8	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		4.9	1.7	ug/kg	1
Chloroethane	75-00-3	8260B	ND		4.9	1.3	ug/kg	1
Chloroform	67-66-3	8260B	ND		4.9	0.82	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		4.9	0.99	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		4.9	0.67	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		4.9	1.5	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		4.9	1.7	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		4.9	0.84	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		4.9	1.7	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		4.9	1.7	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		4.9	1.7	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		4.9	1.6	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		4.9	0.72	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		4.9	0.99	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		4.9	1.7	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		4.9	0.75	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		4.9	1.5	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		4.9	0.90	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		4.9	0.67	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		4.9	0.81	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		250	82	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.9	1.7	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		9.9	1.3	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		4.9	0.23	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		4.9	0.97	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		4.9	0.39	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		9.9	1.5	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		4.9	0.40	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		4.9	2.6	ug/kg	1
Styrene	100-42-5	8260B	ND		4.9	1.1	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		4.9	0.46	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		4.9	0.49	ug/kg	1
Toluene	108-88-3	8260B	ND		4.9	1.7	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		4.9	0.62	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		4.9	1.7	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		4.9	0.84	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-014
Description: SB-SA-7-0-1-a	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 85.4 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0538	JJG		75969	5.93

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		4.9	0.78	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		4.9	1.9	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		4.9	1.5	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		4.9	0.85	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.9	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	53-142
Bromofluorobenzene		107	47-138
Toluene-d8		86	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-014
Description:	SB-SA-7-0-1-a	Matrix:	Solid
Date Sampled:	01/16/2012 1600	% Solids:	85.4 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-014
Description: SB-SA-7-0-1-a	Matrix: Solid
Date Sampled: 01/16/2012 1600	% Solids: 85.4 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/27/2012 1706	SJA		76710

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown Aldol Condensate		8270D	10000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
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Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-014
Description: SB-SA-7-0-1-a
Matrix: Solid
Date Sampled: 01/16/2012 1600
% Solids: 85.4 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/27/2012 1706	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		360	14	ug/kg	1
Acetophenone	98-86-2	8270D	ND		360	22	ug/kg	1
Anthracene	120-12-7	8270D	ND		360	16	ug/kg	1
Atrazine	1912-24-9	8270D	ND		360	110	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		910	29	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		360	26	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		360	24	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		360	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		360	30	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		360	33	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		360	15	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		360	120	ug/kg	1
Caprolactam	105-60-2	8270D	ND		910	27	ug/kg	1
Carbazole	86-74-8	8270D	ND		360	11	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		360	20	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		360	19	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		360	16	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		360	15	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		360	14	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		360	17	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		360	15	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		360	14	ug/kg	1
Chrysene	218-01-9	8270D	ND		360	11	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		360	120	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		360	120	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		360	14	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		910	62	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		360	15	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		360	120	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		360	120	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		360	19	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		910	42	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		910	7.2	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		360	27	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		360	32	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		360	120	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		360	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		360	14	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		360	15	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		360	15	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		910	70	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-014
Description: SB-SA-7-0-1-a
Matrix: Solid
Date Sampled: 01/16/2012 1600
% Solids: 85.4 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/27/2012 1706	SJA	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		360	18	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		360	33	ug/kg	1
Isophorone	78-59-1	8270D	ND		360	17	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		360	13	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		360	20	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		740	34	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		360	19	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		360	12	ug/kg	1
Naphthalene	91-20-3	8270D	ND		360	15	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		360	26	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		360	26	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		360	22	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		360	17	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		360	39	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		910	160	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		910	38	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		360	15	ug/kg	1
Phenol	108-95-2	8270D	ND		360	17	ug/kg	1
Pyrene	129-00-0	8270D	ND		360	16	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		360	19	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		360	20	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		62	30-117
2-Fluorobiphenyl		57	33-102
2-Fluorophenol		58	28-104
Nitrobenzene-d5		51	22-109
Phenol-d5		52	27-103
Terphenyl-d14		62	41-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NA18016-014
Description: SB-SA-7-0-1-a
Matrix: Solid
Date Sampled: 01/16/2012 1600
% Solids: 85.4 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0510	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2155	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1930	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	44000		110	14	mg/kg	2
Antimony	7440-36-0	6010C	330		5.5	2.0	mg/kg	2
Arsenic	7440-38-2	6010C	ND		5.5	2.1	mg/kg	2
Barium	7440-39-3	6010C	26		1.4	0.10	mg/kg	1
Beryllium	7440-41-7	6010C	0.49	J	2.2	0.31	mg/kg	2
Cadmium	7440-43-9	6010C	140		1.1	0.12	mg/kg	2
Calcium	7440-70-2	6010C	300	J	2800	200	mg/kg	2
Chromium	7440-47-3	6010C	68		2.8	0.56	mg/kg	2
Cobalt	7440-48-4	6010C	44		14	1.0	mg/kg	2
Copper	7440-50-8	6010C	62		2.8	0.54	mg/kg	2
Iron	7439-89-6	6010C	89000		55	18	mg/kg	2
Lead	7439-92-1	6010C	ND		5.5	1.0	mg/kg	2
Magnesium	7439-95-4	6010C	730	J	2800	200	mg/kg	2
Manganese	7439-96-5	6010C	530		8.3	0.64	mg/kg	2
Mercury	7439-97-6	7471B	0.019	J	0.074	0.0053	mg/kg	1
Nickel	7440-02-0	6010C	25		22	1.7	mg/kg	2
Potassium	7440-09-7	6010C	610	J	2800	120	mg/kg	2
Selenium	7782-49-2	6010C	390		5.5	1.9	mg/kg	2
Silver	7440-22-4	6010C	ND		2.8	0.46	mg/kg	2
Sodium	7440-23-5	6010C	ND		2800	190	mg/kg	2
Thallium	7440-28-0	6010C	640		28	2.8	mg/kg	2
Vanadium	7440-62-2	6010C	130		28	1.7	mg/kg	2
Zinc	7440-66-6	6010C	44		28	3.8	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-015
Description: SB-SA-8-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1640
% Solids: 86.6 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	01/19/2012 2036	BM		76060	6.43

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		18	6.0	ug/kg	2
Benzene	71-43-2	8260B	ND		4.5	0.99	ug/kg	2
Bromodichloromethane	75-27-4	8260B	ND		4.5	1.5	ug/kg	2
Bromoform	75-25-2	8260B	ND		4.5	0.63	ug/kg	2
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		4.5	1.6	ug/kg	2
2-Butanone (MEK)	78-93-3	8260B	ND		9.0	2.2	ug/kg	2
Carbon disulfide	75-15-0	8260B	ND		4.5	1.2	ug/kg	2
Carbon tetrachloride	56-23-5	8260B	ND		4.5	1.6	ug/kg	2
Chlorobenzene	108-90-7	8260B	ND		4.5	1.5	ug/kg	2
Chloroethane	75-00-3	8260B	ND		4.5	1.2	ug/kg	2
Chloroform	67-66-3	8260B	ND		4.5	0.75	ug/kg	2
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		4.5	0.90	ug/kg	2
Cyclohexane	110-82-7	8260B	ND		4.5	0.61	ug/kg	2
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		4.5	1.3	ug/kg	2
Dibromochloromethane	124-48-1	8260B	ND		4.5	1.5	ug/kg	2
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		4.5	0.76	ug/kg	2
1,2-Dichlorobenzene	95-50-1	8260B	ND		4.5	1.5	ug/kg	2
1,3-Dichlorobenzene	541-73-1	8260B	ND		4.5	1.5	ug/kg	2
1,4-Dichlorobenzene	106-46-7	8260B	ND		4.5	1.5	ug/kg	2
Dichlorodifluoromethane	75-71-8	8260B	ND		4.5	1.4	ug/kg	2
1,1-Dichloroethane	75-34-3	8260B	ND		4.5	0.66	ug/kg	2
1,2-Dichloroethane	107-06-2	8260B	ND		4.5	0.90	ug/kg	2
1,1-Dichloroethene	75-35-4	8260B	ND		4.5	1.5	ug/kg	2
cis-1,2-Dichloroethene	156-59-2	8260B	ND		4.5	0.68	ug/kg	2
trans-1,2-Dichloroethene	156-60-5	8260B	ND		4.5	1.3	ug/kg	2
1,2-Dichloropropane	78-87-5	8260B	ND		4.5	0.82	ug/kg	2
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		4.5	0.61	ug/kg	2
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		4.5	0.74	ug/kg	2
1,4-Dioxane	123-91-1	8260B	ND		220	75	ug/kg	2
Ethylbenzene	100-41-4	8260B	ND		4.5	1.5	ug/kg	2
2-Hexanone	591-78-6	8260B	ND		9.0	1.2	ug/kg	2
Isopropylbenzene	98-82-8	8260B	ND		4.5	0.21	ug/kg	2
Methyl acetate	79-20-9	8260B	ND		4.5	0.88	ug/kg	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		4.5	0.36	ug/kg	2
4-Methyl-2-pentanone	108-10-1	8260B	ND		9.0	1.3	ug/kg	2
Methylcyclohexane	108-87-2	8260B	ND		4.5	0.37	ug/kg	2
Methylene chloride	75-09-2	8260B	ND		4.5	2.3	ug/kg	2
Styrene	100-42-5	8260B	ND		4.5	0.99	ug/kg	2
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		4.5	0.42	ug/kg	2
Tetrachloroethene	127-18-4	8260B	ND		4.5	0.45	ug/kg	2
Toluene	108-88-3	8260B	ND		4.5	1.5	ug/kg	2
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		4.5	0.57	ug/kg	2
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		4.5	1.5	ug/kg	2
1,1,1-Trichloroethane	71-55-6	8260B	ND		4.5	0.76	ug/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-015
Description: SB-SA-8-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1640	% Solids: 86.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	01/19/2012 2036	BM		76060	6.43

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		4.5	0.71	ug/kg	2
Trichloroethene	79-01-6	8260B	ND		4.5	1.7	ug/kg	2
Trichlorofluoromethane	75-69-4	8260B	ND		4.5	1.3	ug/kg	2
Vinyl chloride	75-01-4	8260B	ND		4.5	0.77	ug/kg	2
Xylenes (total)	1330-20-7	8260B	ND		4.5	2.6	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	53-142
Bromofluorobenzene		101	47-138
Toluene-d8		101	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-015
Description: SB-SA-8-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1640	% Solids: 86.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-015
Description:	SB-SA-8-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1640	% Solids:	86.6 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1456	JCG		76556

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8270D	14000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-015
Description: SB-SA-8-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1640
% Solids: 86.6 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1456	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		380	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		380	15	ug/kg	1
Acetophenone	98-86-2	8270D	ND		380	22	ug/kg	1
Anthracene	120-12-7	8270D	ND		380	17	ug/kg	1
Atrazine	1912-24-9	8270D	ND		380	110	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		950	30	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		380	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		380	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		380	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		380	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		380	31	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		380	35	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		380	16	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		380	130	ug/kg	1
Caprolactam	105-60-2	8270D	ND		950	28	ug/kg	1
Carbazole	86-74-8	8270D	ND		380	11	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		380	21	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		380	20	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		380	17	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		380	16	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		380	14	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		380	18	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		380	16	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		380	15	ug/kg	1
Chrysene	218-01-9	8270D	ND		380	12	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		380	130	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		380	130	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		380	25	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		380	15	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		950	65	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		380	15	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		380	130	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		380	130	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		380	20	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		950	44	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		950	7.6	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		380	28	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		380	33	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		380	130	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		380	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		380	15	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		380	15	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		380	15	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		950	74	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-015
Description: SB-SA-8-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1640
% Solids: 86.6 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1456	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		380	19	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		380	34	ug/kg	1
Isophorone	78-59-1	8270D	ND		380	18	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		380	14	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		380	21	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		770	36	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		380	19	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		380	13	ug/kg	1
Naphthalene	91-20-3	8270D	ND		380	16	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		380	27	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		380	27	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		380	22	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		380	17	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		380	41	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		950	160	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		950	40	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		380	15	ug/kg	1
Phenol	108-95-2	8270D	ND		380	18	ug/kg	1
Pyrene	129-00-0	8270D	ND		380	16	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		380	20	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		380	21	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		53	30-117
2-Fluorobiphenyl		53	33-102
2-Fluorophenol		59	28-104
Nitrobenzene-d5		54	22-109
Phenol-d5		59	27-103
Terphenyl-d14		55	41-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-015
Description: SB-SA-8-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1640	% Solids: 86.6 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0516	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2157	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1933	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	41000		110	14	mg/kg	2
Antimony	7440-36-0	6010C	3.1	J	5.4	1.9	mg/kg	2
Arsenic	7440-38-2	6010C	6.5		5.4	2.0	mg/kg	2
Barium	7440-39-3	6010C	86		1.4	0.098	mg/kg	1
Beryllium	7440-41-7	6010C	ND		2.2	0.30	mg/kg	2
Cadmium	7440-43-9	6010C	0.73	J	1.1	0.11	mg/kg	2
Calcium	7440-70-2	6010C	21000		2700	190	mg/kg	2
Chromium	7440-47-3	6010C	60		2.7	0.55	mg/kg	2
Cobalt	7440-48-4	6010C	10	J	14	0.99	mg/kg	2
Copper	7440-50-8	6010C	34		2.7	0.52	mg/kg	2
Iron	7439-89-6	6010C	53000		54	18	mg/kg	2
Lead	7439-92-1	6010C	29		5.4	1.0	mg/kg	2
Magnesium	7439-95-4	6010C	11000		2700	200	mg/kg	2
Manganese	7439-96-5	6010C	350		8.1	0.62	mg/kg	2
Mercury	7439-97-6	7471B	0.026	J	0.081	0.0057	mg/kg	1
Nickel	7440-02-0	6010C	22		22	1.6	mg/kg	2
Potassium	7440-09-7	6010C	4400		2700	120	mg/kg	2
Selenium	7782-49-2	6010C	ND		5.4	1.9	mg/kg	2
Silver	7440-22-4	6010C	ND		2.7	0.45	mg/kg	2
Sodium	7440-23-5	6010C	ND		2700	180	mg/kg	2
Thallium	7440-28-0	6010C	ND		27	2.7	mg/kg	2
Vanadium	7440-62-2	6010C	91		27	1.6	mg/kg	2
Zinc	7440-66-6	6010C	100		27	3.7	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-016
Description: SB-SA-9-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1540
% Solids: 74.2 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0625	JJG		75969	6.56

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		21	6.9	ug/kg	1
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5.1	1.7	ug/kg	1
Bromoform	75-25-2	8260B	ND		5.1	0.72	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.1	1.8	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.5	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5.1	1.3	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5.1	1.8	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5.1	1.7	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5.1	1.3	ug/kg	1
Chloroform	67-66-3	8260B	ND		5.1	0.85	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.1	1.0	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5.1	0.69	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.1	1.5	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5.1	1.7	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.1	0.87	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.1	1.7	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.1	1.7	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.1	1.7	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.1	1.6	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.1	0.75	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.1	1.0	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.1	1.7	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.1	0.78	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.1	1.5	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.1	0.93	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.1	0.70	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.1	0.84	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		260	85	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.7	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		10	1.3	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		5.1	0.24	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5.1	1.0	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.1	0.41	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	1.5	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5.1	0.42	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5.1	2.7	ug/kg	1
Styrene	100-42-5	8260B	ND		5.1	1.1	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.1	0.48	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5.1	0.51	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.7	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.1	0.65	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.1	1.7	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.1	0.87	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-016
Description: SB-SA-9-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1540	% Solids: 74.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0625	JJG		75969	6.56

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.1	0.81	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		5.1	2.0	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.1	1.5	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5.1	0.88	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	53-142
Bromofluorobenzene		103	47-138
Toluene-d8		87	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-016
Description: SB-SA-9-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1540	% Solids: 74.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1				76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-016
Description:	SB-SA-9-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1540	% Solids:	74.2 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1521	JCG		76556

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8270D	18000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-016
Description: SB-SA-9-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1540
% Solids: 74.2 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1521	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		440	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		440	18	ug/kg	1
Acetophenone	98-86-2	8270D	ND		440	26	ug/kg	1
Anthracene	120-12-7	8270D	ND		440	20	ug/kg	1
Atrazine	1912-24-9	8270D	ND		440	130	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		1100	35	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		440	15	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		440	32	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		440	30	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		440	30	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		440	37	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		440	41	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		440	19	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		440	150	ug/kg	1
Caprolactam	105-60-2	8270D	ND		1100	33	ug/kg	1
Carbazole	86-74-8	8270D	ND		440	13	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		440	25	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		440	23	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		440	20	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		440	19	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		440	17	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		440	21	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		440	19	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		440	18	ug/kg	1
Chrysene	218-01-9	8270D	ND		440	14	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		440	150	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		440	150	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		440	29	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		440	17	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		1100	76	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		440	18	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		440	150	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		440	150	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		440	23	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		1100	51	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		1100	8.9	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		440	33	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		440	39	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		440	150	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		440	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		440	17	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		440	18	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		440	18	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		1100	86	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-016
Description: SB-SA-9-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1540
% Solids: 74.2 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1521	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		440	22	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		440	40	ug/kg	1
Isophorone	78-59-1	8270D	ND		440	21	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		440	16	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		440	25	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		900	42	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		440	23	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		440	15	ug/kg	1
Naphthalene	91-20-3	8270D	ND		440	19	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		440	31	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		440	32	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		440	26	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		440	20	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		440	48	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		1100	190	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		1100	47	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		440	18	ug/kg	1
Phenol	108-95-2	8270D	ND		440	21	ug/kg	1
Pyrene	129-00-0	8270D	ND		440	19	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		440	23	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		440	24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		52	30-117
2-Fluorobiphenyl		54	33-102
2-Fluorophenol		63	28-104
Nitrobenzene-d5		59	22-109
Phenol-d5		64	27-103
Terphenyl-d14		58	41-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-016
Description: SB-SA-9-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1540	% Solids: 74.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0522	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2200	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1937	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	61000		130	17	mg/kg	2
Antimony	7440-36-0	6010C	3.5	J	6.6	2.3	mg/kg	2
Arsenic	7440-38-2	6010C	7.6		6.6	2.5	mg/kg	2
Barium	7440-39-3	6010C	55		1.7	0.12	mg/kg	1
Beryllium	7440-41-7	6010C	ND		2.6	0.37	mg/kg	2
Cadmium	7440-43-9	6010C	0.46	J	1.3	0.14	mg/kg	2
Calcium	7440-70-2	6010C	930	J	3300	230	mg/kg	2
Chromium	7440-47-3	6010C	76		3.3	0.67	mg/kg	2
Cobalt	7440-48-4	6010C	11	J	17	1.2	mg/kg	2
Copper	7440-50-8	6010C	140		3.3	0.64	mg/kg	2
Iron	7439-89-6	6010C	140000		66	22	mg/kg	2
Lead	7439-92-1	6010C	50		6.6	1.2	mg/kg	2
Magnesium	7439-95-4	6010C	5400		3300	240	mg/kg	2
Manganese	7439-96-5	6010C	360		9.9	0.76	mg/kg	2
Mercury	7439-97-6	7471B	0.016	J	0.077	0.0054	mg/kg	1
Nickel	7440-02-0	6010C	32		26	2.0	mg/kg	2
Potassium	7440-09-7	6010C	8700		3300	140	mg/kg	2
Selenium	7782-49-2	6010C	ND		6.6	2.3	mg/kg	2
Silver	7440-22-4	6010C	ND		3.3	0.55	mg/kg	2
Sodium	7440-23-5	6010C	300	J	3300	230	mg/kg	2
Thallium	7440-28-0	6010C	ND		33	3.4	mg/kg	2
Vanadium	7440-62-2	6010C	200		33	2.0	mg/kg	2
Zinc	7440-66-6	6010C	250		33	4.5	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Inorganic non-metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-017
Description: MW-03-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1500	% Solids: 75.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3060A	(Hexavalent C) 7196A	1	02/01/2012 1537	LAS	02/01/2012 1015	76884

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexavalent Chromium	18540-29-9	7196A	1.5		1.3	0.33	mg/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-017
Description: MW-03-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1500
% Solids: 75.2 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0649	JJG		75969	4.60

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	12	J	29	9.7	ug/kg	1
Benzene	71-43-2	8260B	ND		7.2	1.6	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		7.2	2.5	ug/kg	1
Bromoform	75-25-2	8260B	ND		7.2	1.0	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		7.2	2.6	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		14	3.5	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		7.2	1.9	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		7.2	2.6	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		7.2	2.5	ug/kg	1
Chloroethane	75-00-3	8260B	ND		7.2	1.9	ug/kg	1
Chloroform	67-66-3	8260B	ND		7.2	1.2	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		7.2	1.4	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		7.2	0.97	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		7.2	2.2	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		7.2	2.5	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		7.2	1.2	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		7.2	2.5	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		7.2	2.5	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		7.2	2.5	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		7.2	2.3	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		7.2	1.1	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		7.2	1.4	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		7.2	2.5	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		7.2	1.1	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		7.2	2.2	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		7.2	1.3	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		7.2	0.98	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		7.2	1.2	ug/kg	1
1,4-Dioxane	123-91-1	8260B	ND		360	120	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.2	2.5	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		14	1.9	ug/kg	1
Isopropylbenzene	98-82-8	8260B	ND		7.2	0.33	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		7.2	1.4	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		7.2	0.58	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		14	2.2	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		7.2	0.59	ug/kg	1
Methylene chloride	75-09-2	8260B	9.6		7.2	3.8	ug/kg	1
Styrene	100-42-5	8260B	ND		7.2	1.6	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		7.2	0.68	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		7.2	0.72	ug/kg	1
Toluene	108-88-3	8260B	ND		7.2	2.5	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		7.2	0.91	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		7.2	2.5	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		7.2	1.2	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-017
Description: MW-03-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1500	% Solids: 75.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/19/2012 0649	JJG		75969	4.60

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		7.2	1.1	ug/kg	1
Trichloroethene	79-01-6	8260B	ND		7.2	2.7	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		7.2	2.2	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		7.2	1.2	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.2	4.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		87	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Library Search

Client: Earth Tech / AECOM	Laboratory ID: NA18016-017
Description: MW-03-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1500	% Solids: 75.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5035	8260B	1	01/19/2012 0649	DLB		76035

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8260B	12		0.00	0.00	ug/kg	1
Cyclopentane		8260B	25		0.00	0.00	ug/kg	1
Pentane, 3-methyl-		8260B	2.4		0.00	0.00	ug/kg	1
Unknown		8260B	5.7		0.00	0.00	ug/kg	1
Cyclotrisiloxane, hexamethyl-		8260B	0.65		0.00	0.00	ug/kg	1
Unknown		8260B	5.6		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client:	Earth Tech / AECOM	Laboratory ID:	NA18016-017
Description:	MW-03-0-1	Matrix:	Solid
Date Sampled:	01/16/2012 1500	% Solids:	75.2 01/18/2012 2252
Date Received:	01/18/2012		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1546	JCG		76556

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8270D	18000		0.00	0.00	ug/kg	1

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	H = Out of holding time
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%	N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		* = Reportable result (only when report all runs)	

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-017
Description: MW-03-0-1
Matrix: Solid
Date Sampled: 01/16/2012 1500
% Solids: 75.2 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1546	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		440	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		440	17	ug/kg	1
Acetophenone	98-86-2	8270D	ND		440	26	ug/kg	1
Anthracene	120-12-7	8270D	ND		440	19	ug/kg	1
Atrazine	1912-24-9	8270D	ND		440	130	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		1100	35	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		440	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		440	32	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		440	30	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		440	30	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		440	36	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	ND		440	40	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		440	19	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		440	150	ug/kg	1
Caprolactam	105-60-2	8270D	ND		1100	32	ug/kg	1
Carbazole	86-74-8	8270D	ND		440	13	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		440	24	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		440	23	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		440	19	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		440	18	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		440	17	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		440	21	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		440	18	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		440	17	ug/kg	1
Chrysene	218-01-9	8270D	ND		440	14	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		440	150	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		440	150	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		440	29	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		440	17	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		1100	75	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		440	18	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		440	150	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		440	150	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		440	23	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		1100	51	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		1100	8.8	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		440	32	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		440	38	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		440	150	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		440	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		440	17	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		440	18	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		440	18	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		1100	85	ug/kg	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM	Laboratory ID: NA18016-017
Description: MW-03-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1500	% Solids: 75.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/26/2012 1546	JCG	01/23/2012 2023	76228

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		440	22	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		440	40	ug/kg	1
Isophorone	78-59-1	8270D	ND		440	21	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	ND		440	16	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		440	25	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		890	41	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		440	22	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		440	15	ug/kg	1
Naphthalene	91-20-3	8270D	ND		440	18	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		440	31	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		440	32	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		440	26	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		440	20	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		440	47	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		1100	190	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		1100	46	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		440	18	ug/kg	1
Phenol	108-95-2	8270D	ND		440	21	ug/kg	1
Pyrene	129-00-0	8270D	ND		440	19	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		440	23	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		440	24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		64	30-117
2-Fluorobiphenyl		58	33-102
2-Fluorophenol		67	28-104
Nitrobenzene-d5		63	22-109
Phenol-d5		67	27-103
Terphenyl-d14		63	41-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-017
Description: MW-03-0-1	Matrix: Solid
Date Sampled: 01/16/2012 1500	% Solids: 75.2 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0528	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2202	COH	01/19/2012 1939	76059
2	3050B	6010C	10	01/19/2012 1941	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	65000		130	16	mg/kg	2
Antimony	7440-36-0	6010C	ND		6.3	2.2	mg/kg	2
Arsenic	7440-38-2	6010C	29		6.3	2.4	mg/kg	2
Barium	7440-39-3	6010C	15		1.6	0.11	mg/kg	1
Beryllium	7440-41-7	6010C	0.65	J	2.5	0.35	mg/kg	2
Cadmium	7440-43-9	6010C	2.0		1.3	0.13	mg/kg	2
Calcium	7440-70-2	6010C	530	J	3200	220	mg/kg	2
Chromium	7440-47-3	6010C	78		3.2	0.64	mg/kg	2
Cobalt	7440-48-4	6010C	1.4	J	16	1.2	mg/kg	2
Copper	7440-50-8	6010C	33		3.2	0.61	mg/kg	2
Iron	7439-89-6	6010C	81000		63	21	mg/kg	2
Lead	7439-92-1	6010C	24		6.3	1.2	mg/kg	2
Magnesium	7439-95-4	6010C	260	J	3200	230	mg/kg	2
Manganese	7439-96-5	6010C	82		9.5	0.73	mg/kg	2
Mercury	7439-97-6	7471B	0.022	J	0.082	0.0059	mg/kg	1
Nickel	7440-02-0	6010C	6.7	J	25	1.9	mg/kg	2
Potassium	7440-09-7	6010C	650	J	3200	140	mg/kg	2
Selenium	7782-49-2	6010C	ND		6.3	2.2	mg/kg	2
Silver	7440-22-4	6010C	ND		3.2	0.53	mg/kg	2
Sodium	7440-23-5	6010C	ND		3200	220	mg/kg	2
Thallium	7440-28-0	6010C	ND		32	3.2	mg/kg	2
Vanadium	7440-62-2	6010C	150		32	1.9	mg/kg	2
Zinc	7440-66-6	6010C	35		32	4.3	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NA18016-018
Description: BG-1-1
Matrix: Solid
Date Sampled: 01/16/2012 1710
% Solids: 82.5 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0546	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2204	COH	01/19/2012 1939	76059
2	3050B	6010C	5	01/19/2012 1952	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	25000		56	7.1	mg/kg	2
Antimony	7440-36-0	6010C	ND		2.8	1.0	mg/kg	2
Arsenic	7440-38-2	6010C	1.1	J	2.8	1.0	mg/kg	2
Barium	7440-39-3	6010C	14		1.5	0.10	mg/kg	1
Beryllium	7440-41-7	6010C	ND		1.1	0.16	mg/kg	2
Cadmium	7440-43-9	6010C	0.19	J	0.56	0.059	mg/kg	2
Calcium	7440-70-2	6010C	550	J	1400	99	mg/kg	2
Chromium	7440-47-3	6010C	15		1.4	0.28	mg/kg	2
Cobalt	7440-48-4	6010C	1.1	J	7.3	0.51	mg/kg	2
Copper	7440-50-8	6010C	21		1.4	0.27	mg/kg	2
Iron	7439-89-6	6010C	31000		28	9.2	mg/kg	2
Lead	7439-92-1	6010C	9.2		2.8	0.52	mg/kg	2
Magnesium	7439-95-4	6010C	220	J	1400	100	mg/kg	2
Manganese	7439-96-5	6010C	27		4.2	0.32	mg/kg	2
Mercury	7439-97-6	7471B	0.039	J	0.071	0.0051	mg/kg	1
Nickel	7440-02-0	6010C	4.4	J	11	0.84	mg/kg	2
Potassium	7440-09-7	6010C	440	J	1400	61	mg/kg	2
Selenium	7782-49-2	6010C	ND		2.8	0.97	mg/kg	2
Silver	7440-22-4	6010C	ND		1.4	0.23	mg/kg	2
Sodium	7440-23-5	6010C	ND		1400	96	mg/kg	2
Thallium	7440-28-0	6010C	ND		14	1.4	mg/kg	2
Vanadium	7440-62-2	6010C	66		14	0.84	mg/kg	2
Zinc	7440-66-6	6010C	15		14	1.9	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM	Laboratory ID: NA18016-019
Description: BG-2-1	Matrix: Solid
Date Sampled: 01/16/2012 1715	% Solids: 80.7 01/18/2012 2252
Date Received: 01/18/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0552	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2211	COH	01/19/2012 1939	76059
2	3050B	6010C	2	01/19/2012 1956	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	43000		24	3.1	mg/kg	2
Antimony	7440-36-0	6010C	ND		1.2	0.43	mg/kg	2
Arsenic	7440-38-2	6010C	3.8		1.2	0.46	mg/kg	2
Barium	7440-39-3	6010C	19		1.6	0.11	mg/kg	1
Beryllium	7440-41-7	6010C	ND		0.49	0.068	mg/kg	2
Cadmium	7440-43-9	6010C	0.35		0.24	0.026	mg/kg	2
Calcium	7440-70-2	6010C	370	J	610	43	mg/kg	2
Chromium	7440-47-3	6010C	16		0.61	0.12	mg/kg	2
Cobalt	7440-48-4	6010C	0.83	J	3.2	0.22	mg/kg	2
Copper	7440-50-8	6010C	18		0.61	0.12	mg/kg	2
Iron	7439-89-6	6010C	23000		12	4.0	mg/kg	2
Lead	7439-92-1	6010C	40		1.2	0.23	mg/kg	2
Magnesium	7439-95-4	6010C	1000		610	45	mg/kg	2
Manganese	7439-96-5	6010C	40		1.8	0.14	mg/kg	2
Mercury	7439-97-6	7471B	ND		0.080	0.0057	mg/kg	1
Nickel	7440-02-0	6010C	5.0		4.9	0.37	mg/kg	2
Potassium	7440-09-7	6010C	1600		610	27	mg/kg	2
Selenium	7782-49-2	6010C	1.9		1.2	0.42	mg/kg	2
Silver	7440-22-4	6010C	0.60	J	0.61	0.10	mg/kg	2
Sodium	7440-23-5	6010C	62	J	610	42	mg/kg	2
Thallium	7440-28-0	6010C	ND		6.1	0.62	mg/kg	2
Vanadium	7440-62-2	6010C	33		6.1	0.37	mg/kg	2
Zinc	7440-66-6	6010C	24		6.1	0.83	mg/kg	2

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NA18016-020
Description: BG-3-1
Matrix: Solid
Date Sampled: 01/16/2012 1720
% Solids: 84.3 01/18/2012 2252
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3050B	6010C	1	01/19/2012 0558	KJC	01/18/2012 1619	75910
1	7471B	7471B	1	01/19/2012 2213	COH	01/19/2012 1939	76059
2	3050B	6010C	5	01/19/2012 2000	CDF	01/18/2012 1619	75910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	24000		55	7.0	mg/kg	2
Antimony	7440-36-0	6010C	1.3	J	2.7	0.97	mg/kg	2
Arsenic	7440-38-2	6010C	7.0		2.7	1.0	mg/kg	2
Barium	7440-39-3	6010C	25		1.4	0.099	mg/kg	1
Beryllium	7440-41-7	6010C	0.45	J	1.1	0.15	mg/kg	2
Cadmium	7440-43-9	6010C	0.66		0.55	0.057	mg/kg	2
Calcium	7440-70-2	6010C	570	J	1400	97	mg/kg	2
Chromium	7440-47-3	6010C	56		1.4	0.28	mg/kg	2
Cobalt	7440-48-4	6010C	2.9	J	7.1	0.50	mg/kg	2
Copper	7440-50-8	6010C	23		1.4	0.26	mg/kg	2
Iron	7439-89-6	6010C	53000		27	9.0	mg/kg	2
Lead	7439-92-1	6010C	20		2.7	0.51	mg/kg	2
Magnesium	7439-95-4	6010C	420	J	1400	100	mg/kg	2
Manganese	7439-96-5	6010C	84		4.1	0.31	mg/kg	2
Mercury	7439-97-6	7471B	0.031	J	0.081	0.0058	mg/kg	1
Nickel	7440-02-0	6010C	6.2	J	11	0.82	mg/kg	2
Potassium	7440-09-7	6010C	770	J	1400	60	mg/kg	2
Selenium	7782-49-2	6010C	ND		2.7	0.95	mg/kg	2
Silver	7440-22-4	6010C	ND		1.4	0.23	mg/kg	2
Sodium	7440-23-5	6010C	ND		1400	93	mg/kg	2
Thallium	7440-28-0	6010C	ND		14	1.4	mg/kg	2
Vanadium	7440-62-2	6010C	74		14	0.82	mg/kg	2
Zinc	7440-66-6	6010C	42		14	1.9	mg/kg	2

PQL = Practical quantitation limit
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H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Inorganic non-metals

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Hexavalent C) SM	1	01/18/2012 1352	HGP		75897

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexavalent Chromium	18540-29-9	SM 3500-Cr D	ND		0.010	0.0046	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	01/20/2012 1357	BM		76128

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
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H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	01/20/2012 1357	BM		76128

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		97	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				76572

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	01/23/2012 1611	JCG		76557

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Butanoic acid		8270D	42		0.00	0.00	ug/L	1
3-Penten-2-one, 4-methyl-		8270D	58		0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	01/23/2012 1611	JCG	01/20/2012 1924	76147

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		5.7	1.4	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		5.7	1.4	ug/L	1
Acetophenone	98-86-2	8270D	ND		5.7	1.0	ug/L	1
Anthracene	120-12-7	8270D	ND		5.7	1.3	ug/L	1
Atrazine	1912-24-9	8270D	ND		5.7	4.8	ug/L	1
Benzaldehyde	100-52-7	8270D	ND		28	3.4	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		5.7	0.68	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		5.7	0.57	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		5.7	0.68	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		5.7	0.91	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		5.7	1.1	ug/L	1
1,1'-Biphenyl	92-52-4	8270D	ND		5.7	1.5	ug/L	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		5.7	1.4	ug/L	1
Butyl benzyl phthalate	85-68-7	8270D	ND		11	3.8	ug/L	1
Caprolactam	105-60-2	8270D	ND		28	1.4	ug/L	1
Carbazole	86-74-8	8270D	ND		5.7	1.9	ug/L	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		5.7	1.8	ug/L	1
4-Chloroaniline	106-47-8	8270D	ND		5.7	0.92	ug/L	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		5.7	1.7	ug/L	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		5.7	1.4	ug/L	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		5.7	1.5	ug/L	1
2-Chloronaphthalene	91-58-7	8270D	ND		5.7	1.5	ug/L	1
2-Chlorophenol	95-57-8	8270D	ND		5.7	1.6	ug/L	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		5.7	1.8	ug/L	1
Chrysene	218-01-9	8270D	ND		5.7	0.80	ug/L	1
Di-n-butyl phthalate	84-74-2	8270D	ND		5.7	1.9	ug/L	1
Di-n-octylphthalate	117-84-0	8270D	ND		5.7	1.9	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		5.7	1.5	ug/L	1
Dibenzofuran	132-64-9	8270D	ND		5.7	1.4	ug/L	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		28	3.0	ug/L	1
2,4-Dichlorophenol	120-83-2	8270D	ND		5.7	1.4	ug/L	1
Diethylphthalate	84-66-2	8270D	ND		5.7	2.2	ug/L	1
Dimethyl phthalate	131-11-3	8270D	ND		5.7	1.9	ug/L	1
2,4-Dimethylphenol	105-67-9	8270D	ND		5.7	1.6	ug/L	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		28	9.2	ug/L	1
2,4-Dinitrophenol	51-28-5	8270D	ND		28	5.5	ug/L	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		11	4.3	ug/L	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		11	3.9	ug/L	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		5.7	1.9	ug/L	1
Fluoranthene	206-44-0	8270D	ND		5.7	1.6	ug/L	1
Fluorene	86-73-7	8270D	ND		5.7	1.6	ug/L	1
Hexachlorobenzene	118-74-1	8270D	ND		5.7	1.4	ug/L	1
Hexachlorobutadiene	87-68-3	8270D	ND		5.7	1.6	ug/L	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		28	4.5	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	01/23/2012 1611	JCG	01/20/2012 1924	76147

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		5.7	1.4	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		5.7	2.6	ug/L	1
Isophorone	78-59-1	8270D	ND		5.7	1.6	ug/L	1
2-Methylnaphthalene	91-57-6	8270D	ND		5.7	1.7	ug/L	1
2-Methylphenol	95-48-7	8270D	ND		5.7	1.3	ug/L	1
3 & 4-Methylphenol	106-44-5	8270D	ND		11	3.1	ug/L	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		5.7	1.6	ug/L	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		5.7	1.1	ug/L	1
Naphthalene	91-20-3	8270D	ND		5.7	1.5	ug/L	1
2-Nitroaniline	88-74-4	8270D	ND		11	2.4	ug/L	1
3-Nitroaniline	99-09-2	8270D	ND		11	3.4	ug/L	1
4-Nitroaniline	100-01-6	8270D	ND		11	4.8	ug/L	1
Nitrobenzene	98-95-3	8270D	ND		5.7	1.8	ug/L	1
2-Nitrophenol	88-75-5	8270D	ND		11	3.3	ug/L	1
4-Nitrophenol	100-02-7	8270D	ND		28	10	ug/L	1
Pentachlorophenol	87-86-5	8270D	ND		28	5.8	ug/L	1
Phenanthrene	85-01-8	8270D	ND		5.7	1.4	ug/L	1
Phenol	108-95-2	8270D	ND		5.7	1.4	ug/L	1
Pyrene	129-00-0	8270D	ND		5.7	3.5	ug/L	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		5.7	1.4	ug/L	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		5.7	1.5	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		104	41-144
2-Fluorobiphenyl		102	37-129
2-Fluorophenol		102	24-127
Nitrobenzene-d5		105	38-127
Phenol-d5		106	28-128
Terphenyl-d14		91	10-148

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NA18016-021
Description: SB-SA-7-d
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	01/24/2012 2054	COH	01/24/2012 1716	76329
1	3005A	6010C	1	01/19/2012 0049	KJC	01/18/2012 1949	75949
2	3005A	6010C	1	01/19/2012 2015	CDF	01/18/2012 1949	75949

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	ND		0.20	0.044	mg/L	1
Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Arsenic	7440-38-2	6010C	ND		0.010	0.0040	mg/L	1
Barium	7440-39-3	6010C	ND		0.025	0.0075	mg/L	1
Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Calcium	7440-70-2	6010C	ND		5.0	1.0	mg/L	1
Chromium	7440-47-3	6010C	ND		0.0050	0.0021	mg/L	2
Cobalt	7440-48-4	6010C	ND		0.025	0.0062	mg/L	1
Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Iron	7439-89-6	6010C	ND		0.10	0.023	mg/L	1
Lead	7439-92-1	6010C	ND		0.010	0.0019	mg/L	1
Magnesium	7439-95-4	6010C	ND		5.0	1.2	mg/L	1
Manganese	7439-96-5	6010C	ND		0.015	0.0049	mg/L	1
Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1
Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Potassium	7440-09-7	6010C	ND		5.0	1.1	mg/L	1
Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Sodium	7440-23-5	6010C	ND		5.0	1.2	mg/L	1
Thallium	7440-28-0	6010C	ND		0.050	0.0045	mg/L	1
Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Zinc	7440-66-6	6010C	ND		0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-022
Description: Trip Blank
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	01/20/2012 1418	BM		76128

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NA18016-022
Description: Trip Blank
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	01/20/2012 1418	BM		76128

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		124	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		98	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NA18016-022
Description: Trip Blank
Matrix: Aqueous
Date Sampled: 01/17/2012 1600
Date Received: 01/18/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				76572

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

QC Summary

Inorganic non-metals - MB

Sample ID: NQ75897-001
Batch: 75897
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Hexavalent Chromium	ND		1	0.010	0.0046	mg/L	01/18/2012 1352

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCS

Sample ID: NQ75897-002
Batch: 75897
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Hexavalent Chromium	0.10	0.10		1	101	90-110	01/18/2012 1352

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCSD

Sample ID: NQ75897-003
Batch: 75897
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Hexavalent Chromium	0.10	0.10		1	101	0.30	90-110	20	01/18/2012 1352

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MS

Sample ID: NA18016-021MS
Batch: 75897
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Hexavalent Chromium	ND	0.10	0.10		1	100	70-130	01/18/2012 1352

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MSD

Sample ID: NA18016-021MD
Batch: 75897
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Hexavalent Chromium	ND	0.10	0.10		1	100	0.040	70-130	20	01/18/2012 1352

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MB

Sample ID: NQ76884-001
Batch: 76884
Analytical Method: 7196A

Matrix: Solid
Prep Method: 3060A
Prep Date: 02/01/2012 1015

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Hexavalent Chromium	ND		1	1.0	0.25	mg/kg	02/01/2012 1537

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCS

Sample ID: NQ76884-002
Batch: 76884
Analytical Method: 7196A

Matrix: Solid
Prep Method: 3060A
Prep Date: 02/01/2012 1015

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Hexavalent Chromium	4.0	4.0		1	100	90-110	02/01/2012 1537

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCSD

Sample ID: NQ76884-003
Batch: 76884
Analytical Method: 7196A

Matrix: Solid
Prep Method: 3060A
Prep Date: 02/01/2012 1015

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Hexavalent Chromium	4.0	4.1		1	102	2.0	90-110	20	02/01/2012 1537

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ75969-001
Batch: 75969
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/kg	01/18/2012 2150
Benzene	ND		1	5.0	1.1	ug/kg	01/18/2012 2150
Bromodichloromethane	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
Bromoform	ND		1	5.0	0.70	ug/kg	01/18/2012 2150
Bromomethane (Methyl bromide)	ND		1	5.0	1.8	ug/kg	01/18/2012 2150
2-Butanone (MEK)	ND		1	10	2.4	ug/kg	01/18/2012 2150
Carbon disulfide	ND		1	5.0	1.3	ug/kg	01/18/2012 2150
Carbon tetrachloride	ND		1	5.0	1.8	ug/kg	01/18/2012 2150
Chlorobenzene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
Chloroethane	ND		1	5.0	1.3	ug/kg	01/18/2012 2150
Chloroform	ND		1	5.0	0.83	ug/kg	01/18/2012 2150
Chloromethane (Methyl chloride)	ND		1	5.0	1.0	ug/kg	01/18/2012 2150
Cyclohexane	ND		1	5.0	0.67	ug/kg	01/18/2012 2150
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	1.5	ug/kg	01/18/2012 2150
Dibromochloromethane	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
1,2-Dibromoethane (EDB)	ND		1	5.0	0.85	ug/kg	01/18/2012 2150
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
Dichlorodifluoromethane	ND		1	5.0	1.6	ug/kg	01/18/2012 2150
1,2-Dichloroethane	ND		1	5.0	1.0	ug/kg	01/18/2012 2150
1,1-Dichloroethane	ND		1	5.0	0.73	ug/kg	01/18/2012 2150
trans-1,2-Dichloroethene	ND		1	5.0	1.5	ug/kg	01/18/2012 2150
cis-1,2-Dichloroethene	ND		1	5.0	0.76	ug/kg	01/18/2012 2150
1,1-Dichloroethene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
1,2-Dichloropropane	ND		1	5.0	0.91	ug/kg	01/18/2012 2150
trans-1,3-Dichloropropene	ND		1	5.0	0.82	ug/kg	01/18/2012 2150
cis-1,3-Dichloropropene	ND		1	5.0	0.68	ug/kg	01/18/2012 2150
1,4-Dioxane	ND		1	250	83	ug/kg	01/18/2012 2150
Ethylbenzene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
2-Hexanone	ND		1	10	1.3	ug/kg	01/18/2012 2150
Isopropylbenzene	ND		1	5.0	0.23	ug/kg	01/18/2012 2150
Methyl acetate	ND		1	5.0	0.98	ug/kg	01/18/2012 2150
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/kg	01/18/2012 2150
4-Methyl-2-pentanone	ND		1	10	1.5	ug/kg	01/18/2012 2150
Methylcyclohexane	ND		1	5.0	0.41	ug/kg	01/18/2012 2150
Methylene chloride	ND		1	5.0	2.6	ug/kg	01/18/2012 2150
Styrene	ND		1	5.0	1.1	ug/kg	01/18/2012 2150
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.47	ug/kg	01/18/2012 2150
Tetrachloroethene	ND		1	5.0	0.50	ug/kg	01/18/2012 2150
Toluene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.63	ug/kg	01/18/2012 2150
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/kg	01/18/2012 2150
1,1,2-Trichloroethane	ND		1	5.0	0.79	ug/kg	01/18/2012 2150

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ75969-001
Batch: 75969
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1,1-Trichloroethane	ND		1	5.0	0.85	ug/kg	01/18/2012 2150
Trichloroethene	ND		1	5.0	1.9	ug/kg	01/18/2012 2150
Trichlorofluoromethane	ND		1	5.0	1.5	ug/kg	01/18/2012 2150
Vinyl chloride	ND		1	5.0	0.86	ug/kg	01/18/2012 2150
Xylenes (total)	ND		1	5.0	2.9	ug/kg	01/18/2012 2150

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	47-138
1,2-Dichloroethane-d4		94	53-142
Toluene-d8		90	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ75969-002
Batch: 75969
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	95		1	95	42-149	01/19/2012 0736
Benzene	50	50		1	100	69-123	01/19/2012 0736
Bromodichloromethane	50	50		1	101	69-121	01/19/2012 0736
Bromoform	50	53		1	105	61-119	01/19/2012 0736
Bromomethane (Methyl bromide)	50	55		1	111	35-144	01/19/2012 0736
2-Butanone (MEK)	100	90		1	90	57-148	01/19/2012 0736
Carbon disulfide	50	48		1	95	58-122	01/19/2012 0736
Carbon tetrachloride	50	52		1	104	58-136	01/19/2012 0736
Chlorobenzene	50	48		1	96	59-129	01/19/2012 0736
Chloroethane	50	53		1	106	42-163	01/19/2012 0736
Chloroform	50	50		1	99	71-125	01/19/2012 0736
Chloromethane (Methyl chloride)	50	56		1	112	34-134	01/19/2012 0736
Cyclohexane	50	51		1	101	53-139	01/19/2012 0736
1,2-Dibromo-3-chloropropane (DBCP)	50	45		1	90	55-125	01/19/2012 0736
Dibromochloromethane	50	50		1	100	66-119	01/19/2012 0736
1,2-Dibromoethane (EDB)	50	48		1	97	74-124	01/19/2012 0736
1,4-Dichlorobenzene	50	45		1	91	52-133	01/19/2012 0736
1,3-Dichlorobenzene	50	47		1	95	51-134	01/19/2012 0736
1,2-Dichlorobenzene	50	48		1	96	57-131	01/19/2012 0736
Dichlorodifluoromethane	50	43		1	85	10-157	01/19/2012 0736
1,2-Dichloroethane	50	50		1	101	67-129	01/19/2012 0736
1,1-Dichloroethane	50	47		1	95	71-127	01/19/2012 0736
trans-1,2-Dichloroethene	50	51		1	101	68-131	01/19/2012 0736
cis-1,2-Dichloroethene	50	49		1	99	70-122	01/19/2012 0736
1,1-Dichloroethene	50	52		1	105	69-138	01/19/2012 0736
1,2-Dichloropropane	50	50		1	99	72-124	01/19/2012 0736
trans-1,3-Dichloropropene	50	46		1	92	70-124	01/19/2012 0736
cis-1,3-Dichloropropene	50	47		1	94	70-126	01/19/2012 0736
1,4-Dioxane	500	400		1	80	41-151	01/19/2012 0736
Ethylbenzene	50	49		1	97	59-128	01/19/2012 0736
2-Hexanone	100	96		1	96	54-137	01/19/2012 0736
Isopropylbenzene	50	48		1	95	50-136	01/19/2012 0736
Methyl acetate	50	47		1	93	59-137	01/19/2012 0736
Methyl tertiary butyl ether (MTBE)	50	48		1	96	72-122	01/19/2012 0736
4-Methyl-2-pentanone	100	100		1	101	60-134	01/19/2012 0736
Methylcyclohexane	50	52		1	105	41-144	01/19/2012 0736
Methylene chloride	50	51		1	102	77-129	01/19/2012 0736
Styrene	50	48		1	95	54-136	01/19/2012 0736
1,1,2,2-Tetrachloroethane	50	47		1	94	69-132	01/19/2012 0736
Tetrachloroethene	50	51		1	101	45-150	01/19/2012 0736
Toluene	50	49		1	98	61-129	01/19/2012 0736
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	55		1	109	49-136	01/19/2012 0736
1,2,4-Trichlorobenzene	50	44		1	88	34-145	01/19/2012 0736
1,1,2-Trichloroethane	50	47		1	94	55-128	01/19/2012 0736

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ75969-002
Batch: 75969
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,1,1-Trichloroethane	50	51		1	103	63-128	01/19/2012 0736
Trichloroethene	50	52		1	104	62-126	01/19/2012 0736
Trichlorofluoromethane	50	53		1	106	45-138	01/19/2012 0736
Vinyl chloride	50	55		1	109	42-132	01/19/2012 0736
Xylenes (total)	100	97		1	97	58-128	01/19/2012 0736

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	47-138
1,2-Dichloroethane-d4		89	53-142
Toluene-d8		89	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ75969-003
Batch: 75969
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	110		1	105	9.5	42-149	20	01/19/2012 0759
Benzene	50	49		1	98	1.5	69-123	20	01/19/2012 0759
Bromodichloromethane	50	48		1	96	5.0	69-121	20	01/19/2012 0759
Bromoform	50	53		1	105	0.14	61-119	20	01/19/2012 0759
Bromomethane (Methyl bromide)	50	55		1	110	0.72	35-144	20	01/19/2012 0759
2-Butanone (MEK)	100	95		1	95	5.6	57-148	20	01/19/2012 0759
Carbon disulfide	50	49		1	97	1.9	58-122	20	01/19/2012 0759
Carbon tetrachloride	50	52		1	104	0.71	58-136	20	01/19/2012 0759
Chlorobenzene	50	47		1	93	3.0	59-129	20	01/19/2012 0759
Chloroethane	50	54		1	108	1.9	42-163	20	01/19/2012 0759
Chloroform	50	49		1	98	1.4	71-125	20	01/19/2012 0759
Chloromethane (Methyl chloride)	50	59		1	118	5.8	34-134	20	01/19/2012 0759
Cyclohexane	50	51		1	101	0.026	53-139	20	01/19/2012 0759
1,2-Dibromo-3-chloropropane (DBCP)	50	49		1	98	8.2	55-125	20	01/19/2012 0759
Dibromochloromethane	50	48		1	96	3.3	66-119	20	01/19/2012 0759
1,2-Dibromoethane (EDB)	50	49		1	97	0.66	74-124	20	01/19/2012 0759
1,4-Dichlorobenzene	50	43		1	86	4.7	52-133	20	01/19/2012 0759
1,3-Dichlorobenzene	50	45		1	89	5.9	51-134	20	01/19/2012 0759
1,2-Dichlorobenzene	50	45		1	91	5.5	57-131	20	01/19/2012 0759
Dichlorodifluoromethane	50	43		1	86	1.5	10-157	20	01/19/2012 0759
1,2-Dichloroethane	50	50		1	99	1.2	67-129	20	01/19/2012 0759
1,1-Dichloroethane	50	48		1	96	1.8	71-127	20	01/19/2012 0759
trans-1,2-Dichloroethene	50	51		1	103	1.7	68-131	20	01/19/2012 0759
cis-1,2-Dichloroethene	50	50		1	99	0.35	70-122	20	01/19/2012 0759
1,1-Dichloroethene	50	53		1	106	1.2	69-138	20	01/19/2012 0759
1,2-Dichloropropane	50	49		1	97	2.4	72-124	20	01/19/2012 0759
trans-1,3-Dichloropropene	50	45		1	91	1.6	70-124	20	01/19/2012 0759
cis-1,3-Dichloropropene	50	47		1	93	1.4	70-126	20	01/19/2012 0759
1,4-Dioxane	500	410		1	83	3.7	41-151	20	01/19/2012 0759
Ethylbenzene	50	47		1	95	2.6	59-128	20	01/19/2012 0759
2-Hexanone	100	99		1	99	2.7	54-137	20	01/19/2012 0759
Isopropylbenzene	50	46		1	92	3.6	50-136	20	01/19/2012 0759
Methyl acetate	50	49		1	98	5.0	59-137	20	01/19/2012 0759
Methyl tertiary butyl ether (MTBE)	50	50		1	100	3.3	72-122	20	01/19/2012 0759
4-Methyl-2-pentanone	100	100		1	104	2.9	60-134	20	01/19/2012 0759
Methylcyclohexane	50	51		1	101	3.3	41-144	20	01/19/2012 0759
Methylene chloride	50	52		1	103	0.82	77-129	20	01/19/2012 0759
Styrene	50	46		1	91	4.2	54-136	20	01/19/2012 0759
1,1,2,2-Tetrachloroethane	50	47		1	95	0.89	69-132	20	01/19/2012 0759
Tetrachloroethene	50	48		1	96	5.2	45-150	20	01/19/2012 0759
Toluene	50	48		1	96	2.1	61-129	20	01/19/2012 0759
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	56		1	112	1.9	49-136	20	01/19/2012 0759
1,2,4-Trichlorobenzene	50	43		1	87	1.1	34-145	20	01/19/2012 0759
1,1,2-Trichloroethane	50	46		1	92	1.4	55-128	20	01/19/2012 0759

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N - Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ75969-003
Batch: 75969
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,1,1-Trichloroethane	50	52		1	103	0.35	63-128	20	01/19/2012 0759
Trichloroethene	50	51		1	102	1.7	62-126	20	01/19/2012 0759
Trichlorofluoromethane	50	53		1	106	0.26	45-138	20	01/19/2012 0759
Vinyl chloride	50	56		1	113	3.1	42-132	20	01/19/2012 0759
Xylenes (total)	100	95		1	95	2.8	58-128	20	01/19/2012 0759

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	47-138
1,2-Dichloroethane-d4		91	53-142
Toluene-d8		89	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ76060-001
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/kg	01/19/2012 1336
Benzene	ND		1	5.0	1.1	ug/kg	01/19/2012 1336
Bromodichloromethane	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
Bromoform	ND		1	5.0	0.70	ug/kg	01/19/2012 1336
Bromomethane (Methyl bromide)	ND		1	5.0	1.8	ug/kg	01/19/2012 1336
2-Butanone (MEK)	ND		1	10	2.4	ug/kg	01/19/2012 1336
Carbon disulfide	ND		1	5.0	1.3	ug/kg	01/19/2012 1336
Carbon tetrachloride	ND		1	5.0	1.8	ug/kg	01/19/2012 1336
Chlorobenzene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
Chloroethane	ND		1	5.0	1.3	ug/kg	01/19/2012 1336
Chloroform	ND		1	5.0	0.83	ug/kg	01/19/2012 1336
Chloromethane (Methyl chloride)	ND		1	5.0	1.0	ug/kg	01/19/2012 1336
Cyclohexane	ND		1	5.0	0.67	ug/kg	01/19/2012 1336
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	1.5	ug/kg	01/19/2012 1336
Dibromochloromethane	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
1,2-Dibromoethane (EDB)	ND		1	5.0	0.85	ug/kg	01/19/2012 1336
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
Dichlorodifluoromethane	ND		1	5.0	1.6	ug/kg	01/19/2012 1336
1,2-Dichloroethane	ND		1	5.0	1.0	ug/kg	01/19/2012 1336
1,1-Dichloroethane	ND		1	5.0	0.73	ug/kg	01/19/2012 1336
1,1-Dichloroethene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
cis-1,2-Dichloroethene	ND		1	5.0	0.76	ug/kg	01/19/2012 1336
trans-1,2-Dichloroethene	ND		1	5.0	1.5	ug/kg	01/19/2012 1336
1,2-Dichloropropane	ND		1	5.0	0.91	ug/kg	01/19/2012 1336
trans-1,3-Dichloropropene	ND		1	5.0	0.82	ug/kg	01/19/2012 1336
cis-1,3-Dichloropropene	ND		1	5.0	0.68	ug/kg	01/19/2012 1336
1,4-Dioxane	ND		1	250	83	ug/kg	01/19/2012 1336
Ethylbenzene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
2-Hexanone	ND		1	10	1.3	ug/kg	01/19/2012 1336
Isopropylbenzene	ND		1	5.0	0.23	ug/kg	01/19/2012 1336
Methyl acetate	ND		1	5.0	0.98	ug/kg	01/19/2012 1336
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/kg	01/19/2012 1336
4-Methyl-2-pentanone	ND		1	10	1.5	ug/kg	01/19/2012 1336
Methylcyclohexane	ND		1	5.0	0.41	ug/kg	01/19/2012 1336
Methylene chloride	ND		1	5.0	2.6	ug/kg	01/19/2012 1336
Styrene	ND		1	5.0	1.1	ug/kg	01/19/2012 1336
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.47	ug/kg	01/19/2012 1336
Tetrachloroethene	ND		1	5.0	0.50	ug/kg	01/19/2012 1336
Toluene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.63	ug/kg	01/19/2012 1336
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/kg	01/19/2012 1336
1,1,1-Trichloroethane	ND		1	5.0	0.85	ug/kg	01/19/2012 1336

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ76060-001
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1,2-Trichloroethane	ND		1	5.0	0.79	ug/kg	01/19/2012 1336
Trichloroethene	ND		1	5.0	1.9	ug/kg	01/19/2012 1336
Trichlorofluoromethane	ND		1	5.0	1.5	ug/kg	01/19/2012 1336
Vinyl chloride	ND		1	5.0	0.86	ug/kg	01/19/2012 1336
Xylenes (total)	ND		1	5.0	2.9	ug/kg	01/19/2012 1336

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		93	47-138
1,2-Dichloroethane-d4		100	53-142
Toluene-d8		101	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76060-002
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	97		1	97	42-149	01/19/2012 1206
Benzene	50	49		1	98	69-123	01/19/2012 1206
Bromodichloromethane	50	48		1	97	69-121	01/19/2012 1206
Bromoform	50	50		1	101	61-119	01/19/2012 1206
Bromomethane (Methyl bromide)	50	54		1	107	35-144	01/19/2012 1206
2-Butanone (MEK)	100	97		1	97	57-148	01/19/2012 1206
Carbon disulfide	50	55		1	110	58-122	01/19/2012 1206
Carbon tetrachloride	50	50		1	100	58-136	01/19/2012 1206
Chlorobenzene	50	50		1	100	59-129	01/19/2012 1206
Chloroethane	50	56		1	113	42-163	01/19/2012 1206
Chloroform	50	49		1	98	71-125	01/19/2012 1206
Chloromethane (Methyl chloride)	50	45		1	90	34-134	01/19/2012 1206
Cyclohexane	50	51		1	103	53-139	01/19/2012 1206
1,2-Dibromo-3-chloropropane (DBCP)	50	45		1	89	55-125	01/19/2012 1206
Dibromochloromethane	50	50		1	100	66-119	01/19/2012 1206
1,2-Dibromoethane (EDB)	50	49		1	98	74-124	01/19/2012 1206
1,2-Dichlorobenzene	50	48		1	96	57-131	01/19/2012 1206
1,4-Dichlorobenzene	50	50		1	99	52-133	01/19/2012 1206
1,3-Dichlorobenzene	50	50		1	101	51-134	01/19/2012 1206
Dichlorodifluoromethane	50	35		1	70	10-157	01/19/2012 1206
1,2-Dichloroethane	50	47		1	94	67-129	01/19/2012 1206
1,1-Dichloroethane	50	48		1	95	71-127	01/19/2012 1206
1,1-Dichloroethene	50	51		1	102	69-138	01/19/2012 1206
cis-1,2-Dichloroethene	50	50		1	101	70-122	01/19/2012 1206
trans-1,2-Dichloroethene	50	50		1	100	68-131	01/19/2012 1206
1,2-Dichloropropane	50	49		1	99	72-124	01/19/2012 1206
trans-1,3-Dichloropropene	50	49		1	98	70-124	01/19/2012 1206
cis-1,3-Dichloropropene	50	50		1	101	70-126	01/19/2012 1206
1,4-Dioxane	500	440		1	87	41-151	01/19/2012 1206
Ethylbenzene	50	50		1	101	59-128	01/19/2012 1206
2-Hexanone	100	98		1	98	54-137	01/19/2012 1206
Isopropylbenzene	50	52		1	103	50-136	01/19/2012 1206
Methyl acetate	50	45		1	91	59-137	01/19/2012 1206
Methyl tertiary butyl ether (MTBE)	50	48		1	96	72-122	01/19/2012 1206
4-Methyl-2-pentanone	100	97		1	97	60-134	01/19/2012 1206
Methylcyclohexane	50	55		1	109	41-144	01/19/2012 1206
Methylene chloride	50	46		1	93	77-129	01/19/2012 1206
Styrene	50	51		1	103	54-136	01/19/2012 1206
1,1,2,2-Tetrachloroethane	50	48		1	95	69-132	01/19/2012 1206
Tetrachloroethene	50	52		1	105	45-150	01/19/2012 1206
Toluene	50	49		1	98	61-129	01/19/2012 1206
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	64		1	129	49-136	01/19/2012 1206
1,2,4-Trichlorobenzene	50	50		1	99	34-145	01/19/2012 1206
1,1,1-Trichloroethane	50	49		1	98	63-128	01/19/2012 1206

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76060-002
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,1,2-Trichloroethane	50	49		1	98	55-128	01/19/2012 1206
Trichloroethene	50	50		1	100	62-126	01/19/2012 1206
Trichlorofluoromethane	50	52		1	103	45-138	01/19/2012 1206
Vinyl chloride	50	50		1	100	42-132	01/19/2012 1206
Xylenes (total)	100	100		1	101	58-128	01/19/2012 1206

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	47-138
1,2-Dichloroethane-d4		97	53-142
Toluene-d8		100	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76060-003
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	97		1	97	0.021	42-149	20	01/19/2012 1228
Benzene	50	46		1	91	6.9	69-123	20	01/19/2012 1228
Bromodichloromethane	50	46		1	93	4.3	69-121	20	01/19/2012 1228
Bromoform	50	48		1	96	5.1	61-119	20	01/19/2012 1228
Bromomethane (Methyl bromide)	50	47		1	94	13	35-144	20	01/19/2012 1228
2-Butanone (MEK)	100	100		1	100	3.2	57-148	20	01/19/2012 1228
Carbon disulfide	50	48		1	96	14	58-122	20	01/19/2012 1228
Carbon tetrachloride	50	44		1	88	13	58-136	20	01/19/2012 1228
Chlorobenzene	50	47		1	93	6.4	59-129	20	01/19/2012 1228
Chloroethane	50	50		1	100	12	42-163	20	01/19/2012 1228
Chloroform	50	44		1	89	9.5	71-125	20	01/19/2012 1228
Chloromethane (Methyl chloride)	50	38		1	77	16	34-134	20	01/19/2012 1228
Cyclohexane	50	44		1	88	15	53-139	20	01/19/2012 1228
1,2-Dibromo-3-chloropropane (DBCP)	50	46		1	91	2.3	55-125	20	01/19/2012 1228
Dibromochloromethane	50	47		1	95	5.4	66-119	20	01/19/2012 1228
1,2-Dibromoethane (EDB)	50	48		1	95	3.2	74-124	20	01/19/2012 1228
1,2-Dichlorobenzene	50	47		1	95	1.8	57-131	20	01/19/2012 1228
1,4-Dichlorobenzene	50	48		1	96	3.7	52-133	20	01/19/2012 1228
1,3-Dichlorobenzene	50	48		1	96	4.7	51-134	20	01/19/2012 1228
Dichlorodifluoromethane	50	30		1	60	16	10-157	20	01/19/2012 1228
1,2-Dichloroethane	50	44		1	88	6.4	67-129	20	01/19/2012 1228
1,1-Dichloroethane	50	43		1	86	11	71-127	20	01/19/2012 1228
1,1-Dichloroethene	50	44		1	89	13	69-138	20	01/19/2012 1228
cis-1,2-Dichloroethene	50	45		1	90	11	70-122	20	01/19/2012 1228
trans-1,2-Dichloroethene	50	44		1	88	12	68-131	20	01/19/2012 1228
1,2-Dichloropropane	50	47		1	94	5.6	72-124	20	01/19/2012 1228
trans-1,3-Dichloropropene	50	47		1	94	4.1	70-124	20	01/19/2012 1228
cis-1,3-Dichloropropene	50	48		1	96	4.4	70-126	20	01/19/2012 1228
1,4-Dioxane	500	420		1	84	3.8	41-151	20	01/19/2012 1228
Ethylbenzene	50	47		1	94	7.3	59-128	20	01/19/2012 1228
2-Hexanone	100	100		1	101	3.1	54-137	20	01/19/2012 1228
Isopropylbenzene	50	50		1	101	2.7	50-136	20	01/19/2012 1228
Methyl acetate	50	45		1	89	2.1	59-137	20	01/19/2012 1228
Methyl tertiary butyl ether (MTBE)	50	45		1	89	7.3	72-122	20	01/19/2012 1228
4-Methyl-2-pentanone	100	99		1	99	2.2	60-134	20	01/19/2012 1228
Methylcyclohexane	50	48		1	96	14	41-144	20	01/19/2012 1228
Methylene chloride	50	43		1	85	8.9	77-129	20	01/19/2012 1228
Styrene	50	48		1	96	6.6	54-136	20	01/19/2012 1228
1,1,2,2-Tetrachloroethane	50	49		1	98	3.1	69-132	20	01/19/2012 1228
Tetrachloroethene	50	47		1	94	11	45-150	20	01/19/2012 1228
Toluene	50	46		1	92	6.4	61-129	20	01/19/2012 1228
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	55		1	110	16	49-136	20	01/19/2012 1228
1,2,4-Trichlorobenzene	50	49		1	98	1.4	34-145	20	01/19/2012 1228
1,1,1-Trichloroethane	50	43		1	87	12	63-128	20	01/19/2012 1228

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76060-003
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,1,2-Trichloroethane	50	48		1	96	2.3	55-128	20	01/19/2012 1228
Trichloroethene	50	46		1	91	8.8	62-126	20	01/19/2012 1228
Trichlorofluoromethane	50	44		1	87	17	45-138	20	01/19/2012 1228
Vinyl chloride	50	43		1	85	16	42-132	20	01/19/2012 1228
Xylenes (total)	100	93		1	93	8.5	58-128	20	01/19/2012 1228

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	47-138
1,2-Dichloroethane-d4		94	53-142
Toluene-d8		99	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: NA18016-007MS
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	ND	90	81		1	90	42-149	01/19/2012 2058
Benzene	ND	45	34		1	76	69-123	01/19/2012 2058
Bromodichloromethane	ND	45	36		1	80	69-121	01/19/2012 2058
Bromoform	ND	45	35		1	77	61-119	01/19/2012 2058
Bromomethane (Methyl bromide)	ND	45	37		1	83	35-144	01/19/2012 2058
2-Butanone (MEK)	ND	90	81		1	90	57-148	01/19/2012 2058
Carbon disulfide	ND	45	38		1	84	58-122	01/19/2012 2058
Carbon tetrachloride	ND	45	36		1	80	58-136	01/19/2012 2058
Chlorobenzene	ND	45	30		1	67	59-129	01/19/2012 2058
Chloroethane	ND	45	35		1	78	50-132	01/19/2012 2058
Chloroform	ND	45	36		1	79	71-125	01/19/2012 2058
Chloromethane (Methyl chloride)	ND	45	36		1	79	34-134	01/19/2012 2058
Cyclohexane	ND	45	36		1	79	53-139	01/19/2012 2058
1,2-Dibromo-3-chloropropane (DBCP)	ND	45	33		1	72	55-125	01/19/2012 2058
Dibromochloromethane	ND	45	35		1	78	66-119	01/19/2012 2058
1,2-Dibromoethane (EDB)	ND	45	35		1	78	74-124	01/19/2012 2058
1,2-Dichlorobenzene	ND	45	24	N	1	53	57-131	01/19/2012 2058
1,4-Dichlorobenzene	ND	45	23	N	1	51	52-133	01/19/2012 2058
1,3-Dichlorobenzene	ND	45	24		1	53	51-134	01/19/2012 2058
Dichlorodifluoromethane	ND	45	27		1	61	10-157	01/19/2012 2058
1,2-Dichloroethane	ND	45	37		1	83	67-129	01/19/2012 2058
1,1-Dichloroethane	ND	45	36		1	79	71-127	01/19/2012 2058
1,1-Dichloroethene	ND	45	37		1	83	69-138	01/19/2012 2058
cis-1,2-Dichloroethene	ND	45	35		1	78	70-122	01/19/2012 2058
trans-1,2-Dichloroethene	ND	45	35		1	78	68-131	01/19/2012 2058
1,2-Dichloropropane	ND	45	35		1	78	72-124	01/19/2012 2058
trans-1,3-Dichloropropene	ND	45	33		1	72	70-124	01/19/2012 2058
cis-1,3-Dichloropropene	ND	45	34		1	76	70-126	01/19/2012 2058
1,4-Dioxane	ND	450	360		1	80	41-151	01/19/2012 2058
Ethylbenzene	ND	45	30		1	67	59-128	01/19/2012 2058
2-Hexanone	ND	90	81		1	89	54-137	01/19/2012 2058
Isopropylbenzene	ND	45	29		1	65	50-136	01/19/2012 2058
Methyl acetate	ND	45	42		1	94	59-137	01/19/2012 2058
Methyl tertiary butyl ether (MTBE)	ND	45	37		1	82	72-122	01/19/2012 2058
4-Methyl-2-pentanone	ND	90	84		1	93	60-134	01/19/2012 2058
Methylcyclohexane	ND	45	34		1	76	41-144	01/19/2012 2058
Methylene chloride	ND	45	33	N	1	73	77-129	01/19/2012 2058
Styrene	ND	45	30		1	67	54-136	01/19/2012 2058
1,1,2,2-Tetrachloroethane	ND	45	34		1	76	69-132	01/19/2012 2058
Tetrachloroethene	ND	45	31	N	1	69	70-130	01/19/2012 2058
Toluene	24	45	39	N	1	33	61-129	01/19/2012 2058
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	45	47		1	104	49-136	01/19/2012 2058
1,2,4-Trichlorobenzene	ND	45	15	N	1	33	34-145	01/19/2012 2058
1,1,1-Trichloroethane	ND	45	37		1	81	63-128	01/19/2012 2058

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: NA18016-007MS
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,1,2-Trichloroethane	ND	45	34		1	75	55-128	01/19/2012 2058
Trichloroethene	ND	45	34		1	75	62-126	01/19/2012 2058
Trichlorofluoromethane	ND	45	40		1	89	45-138	01/19/2012 2058
Vinyl chloride	ND	45	37		1	83	42-132	01/19/2012 2058
Xylenes (total)	ND	90	59		1	66	58-128	01/19/2012 2058

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	47-138
1,2-Dichloroethane-d4		110	53-142
Toluene-d8		98	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: NA18016-007MD
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	99	86		1	87	6.3	42-149	20	01/19/2012 2120
Benzene	ND	49	36		1	73	5.2	69-123	20	01/19/2012 2120
Bromodichloromethane	ND	49	38		1	77	5.2	69-121	20	01/19/2012 2120
Bromoform	ND	49	37		1	76	7.3	61-119	20	01/19/2012 2120
Bromomethane (Methyl bromide)	ND	49	37		1	75	0.53	35-144	20	01/19/2012 2120
2-Butanone (MEK)	ND	99	86		1	87	5.5	57-148	20	01/19/2012 2120
Carbon disulfide	ND	49	39		1	79	2.9	58-122	20	01/19/2012 2120
Carbon tetrachloride	ND	49	39		1	79	6.6	58-136	20	01/19/2012 2120
Chlorobenzene	ND	49	35		1	72	16	59-129	20	01/19/2012 2120
Chloroethane	ND	49	40		1	82	14	50-132	20	01/19/2012 2120
Chloroform	ND	49	36		1	74	1.7	71-125	20	01/19/2012 2120
Chloromethane (Methyl chloride)	ND	49	34		1	69	5.5	34-134	20	01/19/2012 2120
Cyclohexane	ND	49	39		1	79	7.9	53-139	20	01/19/2012 2120
1,2-Dibromo-3-chloropropane (DBCP)	ND	49	39		1	79	17	55-125	20	01/19/2012 2120
Dibromochloromethane	ND	49	38		1	76	6.2	66-119	20	01/19/2012 2120
1,2-Dibromoethane (EDB)	ND	49	37		1	75	5.3	74-124	20	01/19/2012 2120
1,2-Dichlorobenzene	ND	49	34	+	1	68	34	57-131	20	01/19/2012 2120
1,4-Dichlorobenzene	ND	49	33	+	1	66	34	52-133	20	01/19/2012 2120
1,3-Dichlorobenzene	ND	49	34	+	1	70	36	51-134	20	01/19/2012 2120
Dichlorodifluoromethane	ND	49	26		1	53	4.8	10-157	20	01/19/2012 2120
1,2-Dichloroethane	ND	49	38		1	77	1.8	67-129	20	01/19/2012 2120
1,1-Dichloroethane	ND	49	36		1	73	0.98	71-127	20	01/19/2012 2120
1,1-Dichloroethene	ND	49	37		1	76	0.22	69-138	20	01/19/2012 2120
cis-1,2-Dichloroethene	ND	49	35		1	71	1.3	70-122	20	01/19/2012 2120
trans-1,2-Dichloroethene	ND	49	36		1	73	1.7	68-131	20	01/19/2012 2120
1,2-Dichloropropane	ND	49	37		1	74	3.7	72-124	20	01/19/2012 2120
trans-1,3-Dichloropropene	ND	49	36		1	73	10	70-124	20	01/19/2012 2120
cis-1,3-Dichloropropene	ND	49	37		1	75	7.3	70-126	20	01/19/2012 2120
1,4-Dioxane	ND	490	400		1	80	9.1	41-151	20	01/19/2012 2120
Ethylbenzene	ND	49	36		1	73	18	59-128	20	01/19/2012 2120
2-Hexanone	ND	99	85		1	86	4.8	54-137	20	01/19/2012 2120
Isopropylbenzene	ND	49	39	+	1	80	29	50-136	20	01/19/2012 2120
Methyl acetate	ND	49	45		1	91	5.8	59-137	20	01/19/2012 2120
Methyl tertiary butyl ether (MTBE)	ND	49	35		1	72	4.4	72-122	20	01/19/2012 2120
4-Methyl-2-pentanone	ND	99	87		1	88	3.5	60-134	20	01/19/2012 2120
Methylcyclohexane	ND	49	40		1	82	16	41-144	20	01/19/2012 2120
Methylene chloride	ND	49	32	N	1	66	2.3	77-129	20	01/19/2012 2120
Styrene	ND	49	35		1	72	15	54-136	20	01/19/2012 2120
1,1,2,2-Tetrachloroethane	ND	49	39		1	79	13	69-132	20	01/19/2012 2120
Tetrachloroethene	ND	49	37		1	76	19	70-130	20	01/19/2012 2120
Toluene	24	49	36	N	1	25	7.8	61-129	20	01/19/2012 2120
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	49	48		1	98	3.1	49-136	20	01/19/2012 2120
1,2,4-Trichlorobenzene	ND	49	30	+	1	61	67	34-145	20	01/19/2012 2120
1,1,1-Trichloroethane	ND	49	37		1	76	2.6	63-128	20	01/19/2012 2120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: NA18016-007MD
Batch: 76060
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,1,2-Trichloroethane	ND	49	37		1	75	8.7	55-128	20	01/19/2012 2120
Trichloroethene	ND	49	37		1	74	8.1	62-126	20	01/19/2012 2120
Trichlorofluoromethane	ND	49	40		1	81	0.57	45-138	20	01/19/2012 2120
Vinyl chloride	ND	49	37		1	75	1.8	42-132	20	01/19/2012 2120
Xylenes (total)	ND	99	71		1	72	18	58-128	20	01/19/2012 2120

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	47-138
1,2-Dichloroethane-d4		108	53-142
Toluene-d8		98	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ76108-001
Batch: 76108
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/kg	01/20/2012 0954
Benzene	ND		1	5.0	1.1	ug/kg	01/20/2012 0954
Bromodichloromethane	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
Bromoform	ND		1	5.0	0.70	ug/kg	01/20/2012 0954
Bromomethane (Methyl bromide)	ND		1	5.0	1.8	ug/kg	01/20/2012 0954
2-Butanone (MEK)	ND		1	10	2.4	ug/kg	01/20/2012 0954
Carbon disulfide	ND		1	5.0	1.3	ug/kg	01/20/2012 0954
Carbon tetrachloride	ND		1	5.0	1.8	ug/kg	01/20/2012 0954
Chlorobenzene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
Chloroethane	ND		1	5.0	1.3	ug/kg	01/20/2012 0954
Chloroform	ND		1	5.0	0.83	ug/kg	01/20/2012 0954
Chloromethane (Methyl chloride)	ND		1	5.0	1.0	ug/kg	01/20/2012 0954
Cyclohexane	ND		1	5.0	0.67	ug/kg	01/20/2012 0954
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	1.5	ug/kg	01/20/2012 0954
Dibromochloromethane	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
1,2-Dibromoethane (EDB)	ND		1	5.0	0.85	ug/kg	01/20/2012 0954
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
Dichlorodifluoromethane	ND		1	5.0	1.6	ug/kg	01/20/2012 0954
1,2-Dichloroethane	ND		1	5.0	1.0	ug/kg	01/20/2012 0954
1,1-Dichloroethane	ND		1	5.0	0.73	ug/kg	01/20/2012 0954
trans-1,2-Dichloroethene	ND		1	5.0	1.5	ug/kg	01/20/2012 0954
cis-1,2-Dichloroethene	ND		1	5.0	0.76	ug/kg	01/20/2012 0954
1,1-Dichloroethene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
1,2-Dichloropropane	ND		1	5.0	0.91	ug/kg	01/20/2012 0954
trans-1,3-Dichloropropene	ND		1	5.0	0.82	ug/kg	01/20/2012 0954
cis-1,3-Dichloropropene	ND		1	5.0	0.68	ug/kg	01/20/2012 0954
1,4-Dioxane	ND		1	250	83	ug/kg	01/20/2012 0954
Ethylbenzene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
2-Hexanone	ND		1	10	1.3	ug/kg	01/20/2012 0954
Isopropylbenzene	ND		1	5.0	0.23	ug/kg	01/20/2012 0954
Methyl acetate	ND		1	5.0	0.98	ug/kg	01/20/2012 0954
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/kg	01/20/2012 0954
4-Methyl-2-pentanone	ND		1	10	1.5	ug/kg	01/20/2012 0954
Methylcyclohexane	ND		1	5.0	0.41	ug/kg	01/20/2012 0954
Methylene chloride	ND		1	5.0	2.6	ug/kg	01/20/2012 0954
Styrene	ND		1	5.0	1.1	ug/kg	01/20/2012 0954
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.47	ug/kg	01/20/2012 0954
Tetrachloroethene	ND		1	5.0	0.50	ug/kg	01/20/2012 0954
Toluene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.63	ug/kg	01/20/2012 0954
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/kg	01/20/2012 0954
1,1,2-Trichloroethane	ND		1	5.0	0.79	ug/kg	01/20/2012 0954

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ76108-001
Batch: 76108
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1,1-Trichloroethane	ND		1	5.0	0.85	ug/kg	01/20/2012 0954
Trichloroethene	ND		1	5.0	1.9	ug/kg	01/20/2012 0954
Trichlorofluoromethane	ND		1	5.0	1.5	ug/kg	01/20/2012 0954
Vinyl chloride	ND		1	5.0	0.86	ug/kg	01/20/2012 0954
Xylenes (total)	ND		1	5.0	2.9	ug/kg	01/20/2012 0954

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	47-138
1,2-Dichloroethane-d4		107	53-142
Toluene-d8		101	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76108-002
Batch: 76108
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	120		1	118	42-149	01/20/2012 0825
Benzene	50	46		1	93	69-123	01/20/2012 0825
Bromodichloromethane	50	52		1	105	69-121	01/20/2012 0825
Bromoform	50	58		1	115	61-119	01/20/2012 0825
Bromomethane (Methyl bromide)	50	46		1	92	35-144	01/20/2012 0825
2-Butanone (MEK)	100	120		1	122	57-148	01/20/2012 0825
Carbon disulfide	50	43		1	86	58-122	01/20/2012 0825
Carbon tetrachloride	50	48		1	95	58-136	01/20/2012 0825
Chlorobenzene	50	50		1	100	59-129	01/20/2012 0825
Chloroethane	50	42		1	83	42-163	01/20/2012 0825
Chloroform	50	49		1	97	71-125	01/20/2012 0825
Chloromethane (Methyl chloride)	50	46		1	92	34-134	01/20/2012 0825
Cyclohexane	50	46		1	92	53-139	01/20/2012 0825
1,2-Dibromo-3-chloropropane (DBCP)	50	60		1	120	55-125	01/20/2012 0825
Dibromochloromethane	50	57		1	113	66-119	01/20/2012 0825
1,2-Dibromoethane (EDB)	50	56		1	112	74-124	01/20/2012 0825
1,4-Dichlorobenzene	50	54		1	108	52-133	01/20/2012 0825
1,3-Dichlorobenzene	50	54		1	108	51-134	01/20/2012 0825
1,2-Dichlorobenzene	50	56		1	111	57-131	01/20/2012 0825
Dichlorodifluoromethane	50	46		1	92	10-157	01/20/2012 0825
1,2-Dichloroethane	50	54		1	107	67-129	01/20/2012 0825
1,1-Dichloroethane	50	47		1	94	71-127	01/20/2012 0825
trans-1,2-Dichloroethene	50	46		1	91	68-131	01/20/2012 0825
cis-1,2-Dichloroethene	50	49		1	97	70-122	01/20/2012 0825
1,1-Dichloroethene	50	45		1	91	69-138	01/20/2012 0825
1,2-Dichloropropane	50	51		1	102	72-124	01/20/2012 0825
trans-1,3-Dichloropropene	50	55		1	110	70-124	01/20/2012 0825
cis-1,3-Dichloropropene	50	52		1	104	70-126	01/20/2012 0825
1,4-Dioxane	500	500		1	101	41-151	01/20/2012 0825
Ethylbenzene	50	49		1	98	59-128	01/20/2012 0825
2-Hexanone	100	120		1	125	54-137	01/20/2012 0825
Isopropylbenzene	50	52		1	105	50-136	01/20/2012 0825
Methyl acetate	50	58		1	117	59-137	01/20/2012 0825
Methyl tertiary butyl ether (MTBE)	50	52		1	104	72-122	01/20/2012 0825
4-Methyl-2-pentanone	100	120		1	122	60-134	01/20/2012 0825
Methylcyclohexane	50	47		1	94	41-144	01/20/2012 0825
Methylene chloride	50	45		1	89	77-129	01/20/2012 0825
Styrene	50	52		1	104	54-136	01/20/2012 0825
1,1,2,2-Tetrachloroethane	50	57		1	115	69-132	01/20/2012 0825
Tetrachloroethene	50	50		1	100	45-150	01/20/2012 0825
Toluene	50	47		1	94	61-129	01/20/2012 0825
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	57		1	115	49-136	01/20/2012 0825
1,2,4-Trichlorobenzene	50	60		1	120	34-145	01/20/2012 0825
1,1,2-Trichloroethane	50	54		1	108	55-128	01/20/2012 0825

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76108-002
Batch: 76108
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,1,1-Trichloroethane	50	46		1	92	63-128	01/20/2012 0825
Trichloroethene	50	47		1	95	62-126	01/20/2012 0825
Trichlorofluoromethane	50	46		1	93	45-138	01/20/2012 0825
Vinyl chloride	50	46		1	91	42-132	01/20/2012 0825
Xylenes (total)	100	99		1	99	58-128	01/20/2012 0825

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	47-138
1,2-Dichloroethane-d4		106	53-142
Toluene-d8		101	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76108-003
Batch: 76108
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	130		1	128	7.9	42-149	20	01/20/2012 0847
Benzene	50	46		1	93	0.11	69-123	20	01/20/2012 0847
Bromodichloromethane	50	53		1	105	0.52	69-121	20	01/20/2012 0847
Bromoform	50	58		1	117	1.7	61-119	20	01/20/2012 0847
Bromomethane (Methyl bromide)	50	51		1	101	9.8	35-144	20	01/20/2012 0847
2-Butanone (MEK)	100	130		1	129	5.9	57-148	20	01/20/2012 0847
Carbon disulfide	50	44		1	87	0.66	58-122	20	01/20/2012 0847
Carbon tetrachloride	50	46		1	93	2.5	58-136	20	01/20/2012 0847
Chlorobenzene	50	49		1	98	1.9	59-129	20	01/20/2012 0847
Chloroethane	50	43		1	85	2.1	42-163	20	01/20/2012 0847
Chloroform	50	50		1	99	1.8	71-125	20	01/20/2012 0847
Chloromethane (Methyl chloride)	50	48		1	96	5.0	34-134	20	01/20/2012 0847
Cyclohexane	50	45		1	90	2.7	53-139	20	01/20/2012 0847
1,2-Dibromo-3-chloropropane (DBCP)	50	61		1	121	0.49	55-125	20	01/20/2012 0847
Dibromochloromethane	50	56		1	112	1.4	66-119	20	01/20/2012 0847
1,2-Dibromoethane (EDB)	50	55		1	110	1.6	74-124	20	01/20/2012 0847
1,4-Dichlorobenzene	50	48		1	97	10	52-133	20	01/20/2012 0847
1,3-Dichlorobenzene	50	49		1	98	10	51-134	20	01/20/2012 0847
1,2-Dichlorobenzene	50	51		1	101	9.4	57-131	20	01/20/2012 0847
Dichlorodifluoromethane	50	45		1	90	2.2	10-157	20	01/20/2012 0847
1,2-Dichloroethane	50	54		1	109	1.3	67-129	20	01/20/2012 0847
1,1-Dichloroethane	50	48		1	96	2.1	71-127	20	01/20/2012 0847
trans-1,2-Dichloroethene	50	46		1	92	1.2	68-131	20	01/20/2012 0847
cis-1,2-Dichloroethene	50	49		1	98	0.81	70-122	20	01/20/2012 0847
1,1-Dichloroethene	50	45		1	90	0.45	69-138	20	01/20/2012 0847
1,2-Dichloropropane	50	50		1	101	1.3	72-124	20	01/20/2012 0847
trans-1,3-Dichloropropene	50	53		1	106	3.4	70-124	20	01/20/2012 0847
cis-1,3-Dichloropropene	50	53		1	106	1.3	70-126	20	01/20/2012 0847
1,4-Dioxane	500	540		1	108	6.7	41-151	20	01/20/2012 0847
Ethylbenzene	50	47		1	94	4.8	59-128	20	01/20/2012 0847
2-Hexanone	100	130		1	128	2.6	54-137	20	01/20/2012 0847
Isopropylbenzene	50	47		1	94	11	50-136	20	01/20/2012 0847
Methyl acetate	50	61		1	123	5.2	59-137	20	01/20/2012 0847
Methyl tertiary butyl ether (MTBE)	50	57		1	113	8.8	72-122	20	01/20/2012 0847
4-Methyl-2-pentanone	100	130		1	130	6.2	60-134	20	01/20/2012 0847
Methylcyclohexane	50	47		1	93	0.93	41-144	20	01/20/2012 0847
Methylene chloride	50	47		1	95	5.7	77-129	20	01/20/2012 0847
Styrene	50	51		1	103	1.0	54-136	20	01/20/2012 0847
1,1,2,2-Tetrachloroethane	50	55		1	110	4.0	69-132	20	01/20/2012 0847
Tetrachloroethene	50	46		1	92	7.9	45-150	20	01/20/2012 0847
Toluene	50	46		1	93	1.7	61-129	20	01/20/2012 0847
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	57		1	114	0.67	49-136	20	01/20/2012 0847
1,2,4-Trichlorobenzene	50	55		1	110	9.0	34-145	20	01/20/2012 0847
1,1,2-Trichloroethane	50	54		1	108	0.050	55-128	20	01/20/2012 0847

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76108-003
Batch: 76108
Analytical Method: 8260B

Matrix: Solid
Prep Method: 5035

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,1,1-Trichloroethane	50	46		1	93	0.85	63-128	20	01/20/2012 0847
Trichloroethene	50	46		1	92	2.9	62-126	20	01/20/2012 0847
Trichlorofluoromethane	50	46		1	92	0.55	45-138	20	01/20/2012 0847
Vinyl chloride	50	47		1	94	2.7	42-132	20	01/20/2012 0847
Xylenes (total)	100	95		1	95	3.4	58-128	20	01/20/2012 0847

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	47-138
1,2-Dichloroethane-d4		106	53-142
Toluene-d8		102	68-124

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ76128-001
Batch: 76128
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/L	01/20/2012 0938
Benzene	ND		1	5.0	0.20	ug/L	01/20/2012 0938
Bromodichloromethane	ND		1	5.0	1.7	ug/L	01/20/2012 0938
Bromoform	ND		1	5.0	0.40	ug/L	01/20/2012 0938
Bromomethane (Methyl bromide)	ND		1	5.0	0.80	ug/L	01/20/2012 0938
2-Butanone (MEK)	ND		1	10	1.8	ug/L	01/20/2012 0938
Carbon disulfide	ND		1	5.0	0.30	ug/L	01/20/2012 0938
Carbon tetrachloride	ND		1	5.0	0.40	ug/L	01/20/2012 0938
Chlorobenzene	ND		1	5.0	1.7	ug/L	01/20/2012 0938
Chloroethane	ND		1	5.0	0.50	ug/L	01/20/2012 0938
Chloroform	ND		1	5.0	1.7	ug/L	01/20/2012 0938
Chloromethane (Methyl chloride)	ND		1	5.0	0.30	ug/L	01/20/2012 0938
Cyclohexane	ND		1	5.0	0.98	ug/L	01/20/2012 0938
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	0.60	ug/L	01/20/2012 0938
Dibromochloromethane	ND		1	5.0	1.7	ug/L	01/20/2012 0938
1,2-Dibromoethane (EDB)	ND		1	5.0	0.30	ug/L	01/20/2012 0938
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/L	01/20/2012 0938
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/L	01/20/2012 0938
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/L	01/20/2012 0938
Dichlorodifluoromethane	ND		1	5.0	0.20	ug/L	01/20/2012 0938
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	01/20/2012 0938
1,1-Dichloroethane	ND		1	5.0	0.30	ug/L	01/20/2012 0938
trans-1,2-Dichloroethene	ND		1	5.0	0.40	ug/L	01/20/2012 0938
cis-1,2-Dichloroethene	ND		1	5.0	0.20	ug/L	01/20/2012 0938
1,1-Dichloroethene	ND		1	5.0	0.50	ug/L	01/20/2012 0938
1,2-Dichloropropane	ND		1	5.0	0.30	ug/L	01/20/2012 0938
trans-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	01/20/2012 0938
cis-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	01/20/2012 0938
1,4-Dioxane	ND		1	250	83	ug/L	01/20/2012 0938
Ethylbenzene	ND		1	5.0	1.7	ug/L	01/20/2012 0938
2-Hexanone	ND		1	10	1.0	ug/L	01/20/2012 0938
Isopropylbenzene	ND		1	5.0	1.0	ug/L	01/20/2012 0938
Methyl acetate	ND		1	5.0	0.72	ug/L	01/20/2012 0938
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	01/20/2012 0938
4-Methyl-2-pentanone	ND		1	10	0.80	ug/L	01/20/2012 0938
Methylcyclohexane	ND		1	5.0	0.95	ug/L	01/20/2012 0938
Methylene chloride	ND		1	5.0	1.7	ug/L	01/20/2012 0938
Styrene	ND		1	5.0	0.10	ug/L	01/20/2012 0938
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.40	ug/L	01/20/2012 0938
Tetrachloroethene	ND		1	5.0	0.40	ug/L	01/20/2012 0938
Toluene	ND		1	5.0	1.7	ug/L	01/20/2012 0938
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.30	ug/L	01/20/2012 0938
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/L	01/20/2012 0938
1,1,2-Trichloroethane	ND		1	5.0	0.30	ug/L	01/20/2012 0938

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ76128-001
Batch: 76128
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1,1-Trichloroethane	ND		1	5.0	0.20	ug/L	01/20/2012 0938
Trichloroethene	ND		1	5.0	0.30	ug/L	01/20/2012 0938
Trichlorofluoromethane	ND		1	5.0	0.30	ug/L	01/20/2012 0938
Vinyl chloride	ND		1	2.0	0.10	ug/L	01/20/2012 0938
Xylenes (total)	ND		1	5.0	1.7	ug/L	01/20/2012 0938

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		94	70-130
1,2-Dichloroethane-d4		104	70-130
Toluene-d8		97	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76128-002
Batch: 76128
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	78		1	78	70-130	01/20/2012 0815
Benzene	50	47		1	94	70-130	01/20/2012 0815
Bromodichloromethane	50	57		1	114	70-130	01/20/2012 0815
Bromoform	50	46		1	93	70-130	01/20/2012 0815
Bromomethane (Methyl bromide)	50	42		1	84	60-140	01/20/2012 0815
2-Butanone (MEK)	100	80		1	80	60-140	01/20/2012 0815
Carbon disulfide	50	45		1	90	60-140	01/20/2012 0815
Carbon tetrachloride	50	56		1	112	70-130	01/20/2012 0815
Chlorobenzene	50	48		1	96	70-130	01/20/2012 0815
Chloroethane	50	52		1	104	42-163	01/20/2012 0815
Chloroform	50	53		1	106	70-130	01/20/2012 0815
Chloromethane (Methyl chloride)	50	42		1	84	70-130	01/20/2012 0815
Cyclohexane	50	51		1	102	70-130	01/20/2012 0815
1,2-Dibromo-3-chloropropane (DBCP)	50	44		1	88	70-130	01/20/2012 0815
Dibromochloromethane	50	50		1	101	70-130	01/20/2012 0815
1,2-Dibromoethane (EDB)	50	50		1	101	70-130	01/20/2012 0815
1,4-Dichlorobenzene	50	50		1	101	70-130	01/20/2012 0815
1,3-Dichlorobenzene	50	52		1	104	70-130	01/20/2012 0815
1,2-Dichlorobenzene	50	51		1	101	70-130	01/20/2012 0815
Dichlorodifluoromethane	50	60		1	121	60-140	01/20/2012 0815
1,2-Dichloroethane	50	50		1	100	70-130	01/20/2012 0815
1,1-Dichloroethane	50	50		1	99	70-130	01/20/2012 0815
trans-1,2-Dichloroethene	50	52		1	104	70-130	01/20/2012 0815
cis-1,2-Dichloroethene	50	49		1	97	70-130	01/20/2012 0815
1,1-Dichloroethene	50	50		1	101	70-130	01/20/2012 0815
1,2-Dichloropropane	50	49		1	98	70-130	01/20/2012 0815
trans-1,3-Dichloropropene	50	55		1	110	70-130	01/20/2012 0815
cis-1,3-Dichloropropene	50	54		1	108	70-130	01/20/2012 0815
1,4-Dioxane	500	460		1	93	43-173	01/20/2012 0815
Ethylbenzene	50	51		1	102	70-130	01/20/2012 0815
2-Hexanone	100	88		1	88	60-140	01/20/2012 0815
Isopropylbenzene	50	56		1	112	70-130	01/20/2012 0815
Methyl acetate	50	40		1	80	70-130	01/20/2012 0815
Methyl tertiary butyl ether (MTBE)	50	50		1	101	70-130	01/20/2012 0815
4-Methyl-2-pentanone	100	87		1	87	60-140	01/20/2012 0815
Methylcyclohexane	50	54		1	108	70-130	01/20/2012 0815
Methylene chloride	50	50		1	100	70-130	01/20/2012 0815
Styrene	50	53		1	105	70-130	01/20/2012 0815
1,1,2,2-Tetrachloroethane	50	50		1	100	70-130	01/20/2012 0815
Tetrachloroethene	50	53		1	105	70-130	01/20/2012 0815
Toluene	50	49		1	98	70-130	01/20/2012 0815
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	57		1	114	70-130	01/20/2012 0815
1,2,4-Trichlorobenzene	50	56		1	112	70-130	01/20/2012 0815
1,1,2-Trichloroethane	50	49		1	97	70-130	01/20/2012 0815

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76128-002
Batch: 76128
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,1,1-Trichloroethane	50	55		1	110	70-130	01/20/2012 0815
Trichloroethene	50	48		1	95	70-130	01/20/2012 0815
Trichlorofluoromethane	50	53		1	105	70-130	01/20/2012 0815
Vinyl chloride	50	55		1	111	70-130	01/20/2012 0815
Xylenes (total)	100	100		1	100	70-130	01/20/2012 0815

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		93	70-130
1,2-Dichloroethane-d4		102	70-130
Toluene-d8		97	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76128-003
Batch: 76128
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	76		1	76	2.2	70-130	20	01/20/2012 0835
Benzene	50	48		1	96	1.9	70-130	20	01/20/2012 0835
Bromodichloromethane	50	56		1	112	1.9	70-130	20	01/20/2012 0835
Bromoform	50	48		1	95	2.7	70-130	20	01/20/2012 0835
Bromomethane (Methyl bromide)	50	47		1	95	12	60-140	20	01/20/2012 0835
2-Butanone (MEK)	100	78		1	78	2.7	60-140	20	01/20/2012 0835
Carbon disulfide	50	50		1	99	10	60-140	20	01/20/2012 0835
Carbon tetrachloride	50	55		1	110	1.4	70-130	20	01/20/2012 0835
Chlorobenzene	50	49		1	98	1.8	70-130	20	01/20/2012 0835
Chloroethane	50	56		1	112	6.8	42-163	20	01/20/2012 0835
Chloroform	50	52		1	103	2.6	70-130	20	01/20/2012 0835
Chloromethane (Methyl chloride)	50	45		1	90	7.1	70-130	20	01/20/2012 0835
Cyclohexane	50	51		1	102	0.20	70-130	20	01/20/2012 0835
1,2-Dibromo-3-chloropropane (DBCP)	50	43		1	86	2.7	70-130	20	01/20/2012 0835
Dibromochloromethane	50	50		1	100	1.1	70-130	20	01/20/2012 0835
1,2-Dibromoethane (EDB)	50	51		1	102	0.99	70-130	20	01/20/2012 0835
1,4-Dichlorobenzene	50	49		1	99	1.7	70-130	20	01/20/2012 0835
1,3-Dichlorobenzene	50	51		1	103	1.6	70-130	20	01/20/2012 0835
1,2-Dichlorobenzene	50	50		1	101	0.68	70-130	20	01/20/2012 0835
Dichlorodifluoromethane	50	62		1	125	3.5	60-140	20	01/20/2012 0835
1,2-Dichloroethane	50	50		1	100	0.32	70-130	20	01/20/2012 0835
1,1-Dichloroethane	50	49		1	98	1.7	70-130	20	01/20/2012 0835
trans-1,2-Dichloroethene	50	52		1	104	0.45	70-130	20	01/20/2012 0835
cis-1,2-Dichloroethene	50	49		1	99	1.3	70-130	20	01/20/2012 0835
1,1-Dichloroethene	50	51		1	102	0.94	70-130	20	01/20/2012 0835
1,2-Dichloropropane	50	50		1	100	1.9	70-130	20	01/20/2012 0835
trans-1,3-Dichloropropene	50	54		1	107	2.2	70-130	20	01/20/2012 0835
cis-1,3-Dichloropropene	50	54		1	109	0.95	70-130	20	01/20/2012 0835
1,4-Dioxane	500	500		1	99	7.0	43-173	20	01/20/2012 0835
Ethylbenzene	50	50		1	100	1.3	70-130	20	01/20/2012 0835
2-Hexanone	100	85		1	85	2.7	60-140	20	01/20/2012 0835
Isopropylbenzene	50	55		1	109	2.7	70-130	20	01/20/2012 0835
Methyl acetate	50	40		1	79	0.55	70-130	20	01/20/2012 0835
Methyl tertiary butyl ether (MTBE)	50	50		1	100	0.36	70-130	20	01/20/2012 0835
4-Methyl-2-pentanone	100	88		1	88	0.92	60-140	20	01/20/2012 0835
Methylcyclohexane	50	55		1	110	1.6	70-130	20	01/20/2012 0835
Methylene chloride	50	53		1	106	5.6	70-130	20	01/20/2012 0835
Styrene	50	53		1	105	0.34	70-130	20	01/20/2012 0835
1,1,2,2-Tetrachloroethane	50	49		1	99	1.0	70-130	20	01/20/2012 0835
Tetrachloroethene	50	50		1	100	4.7	70-130	20	01/20/2012 0835
Toluene	50	49		1	99	0.51	70-130	20	01/20/2012 0835
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	59		1	119	4.1	70-130	20	01/20/2012 0835
1,2,4-Trichlorobenzene	50	55		1	111	1.0	70-130	20	01/20/2012 0835
1,1,2-Trichloroethane	50	49		1	98	0.064	70-130	20	01/20/2012 0835

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76128-003
Batch: 76128
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,1,1-Trichloroethane	50	56		1	112	1.6	70-130	20	01/20/2012 0835
Trichloroethene	50	48		1	97	1.9	70-130	20	01/20/2012 0835
Trichlorofluoromethane	50	56		1	112	6.0	70-130	20	01/20/2012 0835
Vinyl chloride	50	57		1	115	3.8	70-130	20	01/20/2012 0835
Xylenes (total)	100	100		1	101	0.82	70-130	20	01/20/2012 0835

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		97	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ76147-001
Batch: 76147
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 01/20/2012 1924

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1'-Biphenyl	ND		1	5.0	1.3	ug/L	01/23/2012 1342
2,4,5-Trichlorophenol	ND		1	5.0	1.2	ug/L	01/23/2012 1342
2,4,6-Trichlorophenol	ND		1	5.0	1.3	ug/L	01/23/2012 1342
2,4-Dichlorophenol	ND		1	5.0	1.2	ug/L	01/23/2012 1342
2,4-Dimethylphenol	ND		1	5.0	1.4	ug/L	01/23/2012 1342
2,4-Dinitrophenol	ND		1	25	4.8	ug/L	01/23/2012 1342
2,4-Dinitrotoluene	ND		1	10	3.8	ug/L	01/23/2012 1342
2,6-Dinitrotoluene	ND		1	10	3.4	ug/L	01/23/2012 1342
2-Chloronaphthalene	ND		1	5.0	1.3	ug/L	01/23/2012 1342
2-Chlorophenol	ND		1	5.0	1.4	ug/L	01/23/2012 1342
2-Methylnaphthalene	ND		1	5.0	1.5	ug/L	01/23/2012 1342
2-Methylphenol	ND		1	5.0	1.1	ug/L	01/23/2012 1342
2-Nitroaniline	ND		1	10	2.1	ug/L	01/23/2012 1342
2-Nitrophenol	ND		1	10	2.9	ug/L	01/23/2012 1342
3 & 4-Methylphenol	ND		1	10	2.7	ug/L	01/23/2012 1342
3,3'-Dichlorobenzidine	ND		1	25	2.6	ug/L	01/23/2012 1342
3-Nitroaniline	ND		1	10	3.0	ug/L	01/23/2012 1342
4,6-Dinitro-2-methylphenol	ND		1	25	8.1	ug/L	01/23/2012 1342
4-Bromophenyl phenyl ether	ND		1	5.0	1.2	ug/L	01/23/2012 1342
4-Chloro-3-methyl phenol	ND		1	5.0	1.6	ug/L	01/23/2012 1342
4-Chloroaniline	ND		1	5.0	0.81	ug/L	01/23/2012 1342
4-Chlorophenyl phenyl ether	ND		1	5.0	1.6	ug/L	01/23/2012 1342
4-Nitroaniline	ND		1	10	4.2	ug/L	01/23/2012 1342
4-Nitrophenol	ND		1	25	9.0	ug/L	01/23/2012 1342
Acenaphthene	ND		1	5.0	1.2	ug/L	01/23/2012 1342
Acenaphthylene	ND		1	5.0	1.2	ug/L	01/23/2012 1342
Acetophenone	ND		1	5.0	0.90	ug/L	01/23/2012 1342
Anthracene	ND		1	5.0	1.1	ug/L	01/23/2012 1342
Atrazine	ND		1	5.0	4.2	ug/L	01/23/2012 1342
Benzaldehyde	ND		1	25	3.0	ug/L	01/23/2012 1342
Benzo(a)anthracene	ND		1	5.0	0.60	ug/L	01/23/2012 1342
Benzo(a)pyrene	ND		1	5.0	0.50	ug/L	01/23/2012 1342
Benzo(b)fluoranthene	ND		1	5.0	0.60	ug/L	01/23/2012 1342
Benzo(g,h,i)perylene	ND		1	5.0	0.80	ug/L	01/23/2012 1342
Benzo(k)fluoranthene	ND		1	5.0	1.0	ug/L	01/23/2012 1342
bis(2-Chloroethoxy)methane	ND		1	5.0	1.5	ug/L	01/23/2012 1342
bis(2-Chloroethyl)ether	ND		1	5.0	1.2	ug/L	01/23/2012 1342
bis(2-Chloroisopropyl)ether	ND		1	5.0	1.3	ug/L	01/23/2012 1342
bis(2-Ethylhexyl)phthalate	ND		1	5.0	1.7	ug/L	01/23/2012 1342
Butyl benzyl phthalate	ND		1	10	3.3	ug/L	01/23/2012 1342
Caprolactam	ND		1	25	1.2	ug/L	01/23/2012 1342
Carbazole	ND		1	5.0	1.7	ug/L	01/23/2012 1342
Chrysene	ND		1	5.0	0.70	ug/L	01/23/2012 1342
Di-n-butyl phthalate	ND		1	5.0	1.7	ug/L	01/23/2012 1342

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ76147-001
Batch: 76147
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 01/20/2012 1924

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Di-n-octylphthalate	ND		1	5.0	1.7	ug/L	01/23/2012 1342
Dibenzo(a,h)anthracene	ND		1	5.0	1.3	ug/L	01/23/2012 1342
Dibenzofuran	ND		1	5.0	1.2	ug/L	01/23/2012 1342
Diethylphthalate	ND		1	5.0	1.9	ug/L	01/23/2012 1342
Dimethyl phthalate	ND		1	5.0	1.7	ug/L	01/23/2012 1342
Fluoranthene	ND		1	5.0	1.4	ug/L	01/23/2012 1342
Fluorene	ND		1	5.0	1.4	ug/L	01/23/2012 1342
Hexachlorobenzene	ND		1	5.0	1.2	ug/L	01/23/2012 1342
Hexachlorobutadiene	ND		1	5.0	1.4	ug/L	01/23/2012 1342
Hexachlorocyclopentadiene	ND		1	25	4.0	ug/L	01/23/2012 1342
Hexachloroethane	ND		1	5.0	1.2	ug/L	01/23/2012 1342
Indeno(1,2,3-c,d)pyrene	ND		1	5.0	2.3	ug/L	01/23/2012 1342
Isophorone	ND		1	5.0	1.4	ug/L	01/23/2012 1342
N-Nitrosodi-n-propylamine	ND		1	5.0	1.4	ug/L	01/23/2012 1342
N-Nitrosodiphenylamine (Diphenylamine)	ND		1	5.0	1.0	ug/L	01/23/2012 1342
Naphthalene	ND		1	5.0	1.3	ug/L	01/23/2012 1342
Nitrobenzene	ND		1	5.0	1.6	ug/L	01/23/2012 1342
Pentachlorophenol	ND		1	25	5.1	ug/L	01/23/2012 1342
Phenanthrene	ND		1	5.0	1.2	ug/L	01/23/2012 1342
Phenol	ND		1	5.0	1.2	ug/L	01/23/2012 1342
Pyrene	ND		1	5.0	3.1	ug/L	01/23/2012 1342

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		101	41-144
2-Fluorobiphenyl		109	37-129
2-Fluorophenol		109	24-127
Nitrobenzene-d5		114	38-127
Phenol-d5		116	28-128
Terphenyl-d14		97	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76147-002
Batch: 76147
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 01/20/2012 1924

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
2,4,5-Trichlorophenol	100	100		1	104	30-130	01/23/2012 1407
2,4,6-Trichlorophenol	100	96		1	96	30-130	01/23/2012 1407
2,4-Dichlorophenol	100	98		1	98	30-130	01/23/2012 1407
2,4-Dimethylphenol	100	130		1	126	30-130	01/23/2012 1407
2,4-Dinitrophenol	500	510		1	102	30-130	01/23/2012 1407
2,4-Dinitrotoluene	200	200		1	102	30-130	01/23/2012 1407
2,6-Dinitrotoluene	200	210		1	105	30-130	01/23/2012 1407
2-Chloronaphthalene	100	85		1	85	30-130	01/23/2012 1407
2-Chlorophenol	100	98		1	98	30-130	01/23/2012 1407
2-Methylnaphthalene	100	100		1	102	30-130	01/23/2012 1407
2-Methylphenol	100	110		1	115	30-130	01/23/2012 1407
2-Nitroaniline	200	200		1	98	30-130	01/23/2012 1407
2-Nitrophenol	200	200		1	98	30-130	01/23/2012 1407
3 & 4-Methylphenol	200	230		1	113	30-130	01/23/2012 1407
3-Nitroaniline	200	230		1	113	30-130	01/23/2012 1407
4,6-Dinitro-2-methylphenol	500	510		1	102	30-130	01/23/2012 1407
4-Bromophenyl phenyl ether	100	94		1	94	30-130	01/23/2012 1407
4-Chloro-3-methyl phenol	100	100		1	104	30-130	01/23/2012 1407
4-Chloroaniline	100	24		1	24	10-130	01/23/2012 1407
4-Chlorophenyl phenyl ether	100	97		1	97	30-130	01/23/2012 1407
4-Nitroaniline	200	250		1	127	30-130	01/23/2012 1407
4-Nitrophenol	500	530		1	107	30-130	01/23/2012 1407
Acenaphthene	100	100		1	101	30-130	01/23/2012 1407
Acenaphthylene	100	120		1	116	30-130	01/23/2012 1407
Anthracene	100	99		1	99	30-130	01/23/2012 1407
Benzo(a)anthracene	100	100		1	101	30-130	01/23/2012 1407
Benzo(a)pyrene	100	110		1	105	30-130	01/23/2012 1407
Benzo(b)fluoranthene	100	100		1	101	30-130	01/23/2012 1407
Benzo(g,h,i)perylene	100	94		1	94	30-130	01/23/2012 1407
Benzo(k)fluoranthene	100	98		1	98	30-130	01/23/2012 1407
bis(2-Chloroethoxy)methane	100	97		1	97	30-130	01/23/2012 1407
bis(2-Chloroethyl)ether	100	100		1	103	30-130	01/23/2012 1407
bis(2-Chloroisopropyl)ether	100	73		1	73	30-130	01/23/2012 1407
bis(2-Ethylhexyl)phthalate	100	110		1	107	30-130	01/23/2012 1407
Butyl benzyl phthalate	100	110		1	107	30-130	01/23/2012 1407
Carbazole	100	110		1	106	30-130	01/23/2012 1407
Chrysene	100	95		1	95	30-130	01/23/2012 1407
Di-n-butyl phthalate	100	110		1	106	30-130	01/23/2012 1407
Di-n-octylphthalate	100	110		1	114	30-130	01/23/2012 1407
Dibenzo(a,h)anthracene	100	98		1	98	30-130	01/23/2012 1407
Dibenzofuran	100	99		1	99	30-130	01/23/2012 1407
Diethylphthalate	100	100		1	103	30-130	01/23/2012 1407
Dimethyl phthalate	100	99		1	99	30-130	01/23/2012 1407
Fluoranthene	100	96		1	96	30-130	01/23/2012 1407

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76147-002
Batch: 76147
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 01/20/2012 1924

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Fluorene	100	98		1	98	30-130	01/23/2012 1407
Hexachlorobenzene	100	93		1	93	30-130	01/23/2012 1407
Hexachlorobutadiene	100	96		1	96	30-130	01/23/2012 1407
Hexachlorocyclopentadiene	500	510		1	102	30-130	01/23/2012 1407
Hexachloroethane	100	100		1	102	30-130	01/23/2012 1407
Indeno(1,2,3-c,d)pyrene	100	96		1	96	30-130	01/23/2012 1407
Isophorone	100	100		1	104	30-130	01/23/2012 1407
N-Nitrosodi-n-propylamine	100	120		1	116	30-130	01/23/2012 1407
N-Nitrosodiphenylamine (Diphenylamine)	22	15		1	68	18-180	01/23/2012 1407
Naphthalene	100	96		1	96	30-130	01/23/2012 1407
Nitrobenzene	100	110		1	107	30-130	01/23/2012 1407
Pentachlorophenol	500	500		1	100	30-130	01/23/2012 1407
Phenanthrene	100	97		1	97	30-130	01/23/2012 1407
Phenol	100	100		1	102	30-130	01/23/2012 1407
Pyrene	100	110		1	107	30-130	01/23/2012 1407

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		100	41-144
2-Fluorobiphenyl		102	37-129
2-Fluorophenol		100	24-127
Nitrobenzene-d5		107	38-127
Phenol-d5		109	28-128
Terphenyl-d14		91	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76147-003
Batch: 76147
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 01/20/2012 1924

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
2,4,5-Trichlorophenol	100	110		1	108	3.7	30-130	40	01/23/2012 1431
2,4,6-Trichlorophenol	100	98		1	98	2.1	30-130	40	01/23/2012 1431
2,4-Dichlorophenol	100	110		1	108	9.1	30-130	40	01/23/2012 1431
2,4-Dimethylphenol	100	140	N	1	135	6.7	30-130	40	01/23/2012 1431
2,4-Dinitrophenol	500	530		1	106	3.6	30-130	40	01/23/2012 1431
2,4-Dinitrotoluene	200	200		1	102	0.16	30-130	40	01/23/2012 1431
2,6-Dinitrotoluene	200	210		1	106	0.28	30-130	40	01/23/2012 1431
2-Chloronaphthalene	100	82		1	82	3.6	30-130	40	01/23/2012 1431
2-Chlorophenol	100	96		1	96	1.6	30-130	40	01/23/2012 1431
2-Methylnaphthalene	100	110		1	110	7.5	30-130	40	01/23/2012 1431
2-Methylphenol	100	110		1	111	3.3	30-130	40	01/23/2012 1431
2-Nitroaniline	200	200		1	98	0.84	30-130	40	01/23/2012 1431
2-Nitrophenol	200	210		1	107	8.7	30-130	40	01/23/2012 1431
3 & 4-Methylphenol	200	210		1	107	4.6	30-130	40	01/23/2012 1431
3-Nitroaniline	200	230		1	113	0.53	30-130	40	01/23/2012 1431
4,6-Dinitro-2-methylphenol	500	530		1	105	3.2	30-130	40	01/23/2012 1431
4-Bromophenyl phenyl ether	100	95		1	95	1.8	30-130	40	01/23/2012 1431
4-Chloro-3-methyl phenol	100	110		1	113	8.8	30-130	40	01/23/2012 1431
4-Chloroaniline	100	29		1	29	19	10-130	40	01/23/2012 1431
4-Chlorophenyl phenyl ether	100	95		1	95	1.4	30-130	40	01/23/2012 1431
4-Nitroaniline	200	250		1	125	1.5	30-130	40	01/23/2012 1431
4-Nitrophenol	500	540		1	108	1.3	30-130	40	01/23/2012 1431
Acenaphthene	100	99		1	99	1.0	30-130	40	01/23/2012 1431
Acenaphthylene	100	110		1	115	0.73	30-130	40	01/23/2012 1431
Anthracene	100	97		1	97	1.8	30-130	40	01/23/2012 1431
Benzo(a)anthracene	100	100		1	100	0.69	30-130	40	01/23/2012 1431
Benzo(a)pyrene	100	110		1	105	0.079	30-130	40	01/23/2012 1431
Benzo(b)fluoranthene	100	96		1	96	5.9	30-130	40	01/23/2012 1431
Benzo(g,h,i)perylene	100	94		1	94	0.25	30-130	40	01/23/2012 1431
Benzo(k)fluoranthene	100	100		1	102	3.7	30-130	40	01/23/2012 1431
bis(2-Chloroethoxy)methane	100	100		1	104	7.2	30-130	40	01/23/2012 1431
bis(2-Chloroethyl)ether	100	100		1	102	1.3	30-130	40	01/23/2012 1431
bis(2-Chloroisopropyl)ether	100	92		1	92	23	30-130	40	01/23/2012 1431
bis(2-Ethylhexyl)phthalate	100	100		1	100	6.3	30-130	40	01/23/2012 1431
Butyl benzyl phthalate	100	110		1	106	1.6	30-130	40	01/23/2012 1431
Carbazole	100	110		1	105	0.44	30-130	40	01/23/2012 1431
Chrysene	100	95		1	95	0.69	30-130	40	01/23/2012 1431
Di-n-butyl phthalate	100	100		1	104	1.1	30-130	40	01/23/2012 1431
Di-n-octylphthalate	100	110		1	111	2.5	30-130	40	01/23/2012 1431
Dibenzo(a,h)anthracene	100	96		1	96	2.2	30-130	40	01/23/2012 1431
Dibenzofuran	100	98		1	98	1.1	30-130	40	01/23/2012 1431
Diethylphthalate	100	100		1	103	0.026	30-130	40	01/23/2012 1431
Dimethyl phthalate	100	98		1	98	0.10	30-130	40	01/23/2012 1431
Fluoranthene	100	96		1	96	0.027	30-130	40	01/23/2012 1431

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N - Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ76147-003
Batch: 76147
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 01/20/2012 1924

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Fluorene	100	97		1	97	1.1	30-130	40	01/23/2012 1431
Hexachlorobenzene	100	94		1	94	0.61	30-130	40	01/23/2012 1431
Hexachlorobutadiene	100	100		1	102	6.7	30-130	40	01/23/2012 1431
Hexachlorocyclopentadiene	500	510		1	103	1.2	30-130	40	01/23/2012 1431
Hexachloroethane	100	100		1	100	1.1	30-130	40	01/23/2012 1431
Indeno(1,2,3-c,d)pyrene	100	95		1	95	1.4	30-130	40	01/23/2012 1431
Isophorone	100	110		1	112	7.4	30-130	40	01/23/2012 1431
N-Nitrosodi-n-propylamine	100	110		1	110	5.2	30-130	40	01/23/2012 1431
N-Nitrosodiphenylamine (Diphenylamine)	22	15		1	67	1.2	18-180	40	01/23/2012 1431
Naphthalene	100	100		1	104	7.3	30-130	40	01/23/2012 1431
Nitrobenzene	100	110		1	106	0.98	30-130	40	01/23/2012 1431
Pentachlorophenol	500	530		1	105	4.9	30-130	40	01/23/2012 1431
Phenanthrene	100	96		1	96	1.4	30-130	40	01/23/2012 1431
Phenol	100	100		1	103	0.80	30-130	40	01/23/2012 1431
Pyrene	100	110		1	106	0.64	30-130	40	01/23/2012 1431

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		98	41-144
2-Fluorobiphenyl		100	37-129
2-Fluorophenol		100	24-127
Nitrobenzene-d5		107	38-127
Phenol-d5		106	28-128
Terphenyl-d14		91	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ76228-001
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1'-Biphenyl	ND		1	330	31	ug/kg	01/26/2012 1219
2,4,5-Trichlorophenol	ND		1	330	17	ug/kg	01/26/2012 1219
2,4,6-Trichlorophenol	ND		1	330	18	ug/kg	01/26/2012 1219
2,4-Dichlorophenol	ND		1	330	13	ug/kg	01/26/2012 1219
2,4-Dimethylphenol	ND		1	330	17	ug/kg	01/26/2012 1219
2,4-Dinitrophenol	ND		1	830	6.6	ug/kg	01/26/2012 1219
2,4-Dinitrotoluene	ND		1	330	24	ug/kg	01/26/2012 1219
2,6-Dinitrotoluene	ND		1	330	29	ug/kg	01/26/2012 1219
2-Chloronaphthalene	ND		1	330	16	ug/kg	01/26/2012 1219
2-Chlorophenol	ND		1	330	14	ug/kg	01/26/2012 1219
2-Methylnaphthalene	ND		1	330	12	ug/kg	01/26/2012 1219
2-Methylphenol	ND		1	330	19	ug/kg	01/26/2012 1219
2-Nitroaniline	ND		1	330	23	ug/kg	01/26/2012 1219
2-Nitrophenol	ND		1	330	36	ug/kg	01/26/2012 1219
3 & 4-Methylphenol	ND		1	670	31	ug/kg	01/26/2012 1219
3,3'-Dichlorobenzidine	ND		1	830	57	ug/kg	01/26/2012 1219
3-Nitroaniline	ND		1	330	24	ug/kg	01/26/2012 1219
4,6-Dinitro-2-methylphenol	ND		1	830	38	ug/kg	01/26/2012 1219
4-Bromophenyl phenyl ether	ND		1	330	14	ug/kg	01/26/2012 1219
4-Chloro-3-methyl phenol	ND		1	330	18	ug/kg	01/26/2012 1219
4-Chloroaniline	ND		1	330	17	ug/kg	01/26/2012 1219
4-Chlorophenyl phenyl ether	ND		1	330	13	ug/kg	01/26/2012 1219
4-Nitroaniline	ND		1	330	20	ug/kg	01/26/2012 1219
4-Nitrophenol	ND		1	830	140	ug/kg	01/26/2012 1219
Acenaphthene	ND		1	330	10	ug/kg	01/26/2012 1219
Acenaphthylene	ND		1	330	13	ug/kg	01/26/2012 1219
Acetophenone	ND		1	330	20	ug/kg	01/26/2012 1219
Anthracene	ND		1	330	15	ug/kg	01/26/2012 1219
Atrazine	ND		1	330	100	ug/kg	01/26/2012 1219
Benzaldehyde	ND		1	830	26	ug/kg	01/26/2012 1219
Benzo(a)anthracene	ND		1	330	11	ug/kg	01/26/2012 1219
Benzo(a)pyrene	ND		1	330	24	ug/kg	01/26/2012 1219
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	01/26/2012 1219
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	01/26/2012 1219
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	01/26/2012 1219
bis(2-Chloroethoxy)methane	ND		1	330	15	ug/kg	01/26/2012 1219
bis(2-Chloroethyl)ether	ND		1	330	14	ug/kg	01/26/2012 1219
bis(2-Chloroisopropyl)ether	ND		1	330	13	ug/kg	01/26/2012 1219
bis(2-Ethylhexyl)phthalate	ND		1	330	110	ug/kg	01/26/2012 1219
Butyl benzyl phthalate	ND		1	330	110	ug/kg	01/26/2012 1219
Caprolactam	ND		1	830	24	ug/kg	01/26/2012 1219
Carbazole	ND		1	330	9.8	ug/kg	01/26/2012 1219
Chrysene	ND		1	330	10	ug/kg	01/26/2012 1219
Di-n-butyl phthalate	ND		1	330	110	ug/kg	01/26/2012 1219

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ76228-001
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Di-n-octylphthalate	ND		1	330	110	ug/kg	01/26/2012 1219
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	01/26/2012 1219
Dibenzofuran	ND		1	330	13	ug/kg	01/26/2012 1219
Diethylphthalate	ND		1	330	110	ug/kg	01/26/2012 1219
Dimethyl phthalate	ND		1	330	110	ug/kg	01/26/2012 1219
Fluoranthene	ND		1	330	10	ug/kg	01/26/2012 1219
Fluorene	ND		1	330	13	ug/kg	01/26/2012 1219
Hexachlorobenzene	ND		1	330	13	ug/kg	01/26/2012 1219
Hexachlorobutadiene	ND		1	330	14	ug/kg	01/26/2012 1219
Hexachlorocyclopentadiene	ND		1	830	64	ug/kg	01/26/2012 1219
Hexachloroethane	ND		1	330	16	ug/kg	01/26/2012 1219
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	01/26/2012 1219
Isophorone	ND		1	330	16	ug/kg	01/26/2012 1219
N-Nitrosodi-n-propylamine	ND		1	330	17	ug/kg	01/26/2012 1219
N-Nitrosodiphenylamine (Diphenylamine)	ND		1	330	11	ug/kg	01/26/2012 1219
Naphthalene	ND		1	330	14	ug/kg	01/26/2012 1219
Nitrobenzene	ND		1	330	15	ug/kg	01/26/2012 1219
Pentachlorophenol	ND		1	830	35	ug/kg	01/26/2012 1219
Phenanthrene	ND		1	330	13	ug/kg	01/26/2012 1219
Phenol	ND		1	330	16	ug/kg	01/26/2012 1219
Pyrene	ND		1	330	14	ug/kg	01/26/2012 1219

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		66	30-117
2-Fluorobiphenyl		69	33-102
2-Fluorophenol		76	28-104
Nitrobenzene-d5		69	22-109
Phenol-d5		74	27-103
Terphenyl-d14		70	41-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76228-002
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
2,4,5-Trichlorophenol	3300	2300		1	70	46-122	01/26/2012 1244
2,4,6-Trichlorophenol	3300	2300		1	69	38-115	01/26/2012 1244
2,4-Dichlorophenol	3300	2200		1	66	41-113	01/26/2012 1244
2,4-Dimethylphenol	3300	3200		1	96	33-123	01/26/2012 1244
2,4-Dinitrophenol	17000	11000		1	67	30-130	01/26/2012 1244
2,4-Dinitrotoluene	6700	5100		1	77	48-124	01/26/2012 1244
2,6-Dinitrotoluene	6700	5000		1	74	47-125	01/26/2012 1244
2-Chloronaphthalene	3300	2000		1	61	31-127	01/26/2012 1244
2-Chlorophenol	3300	2400		1	71	37-106	01/26/2012 1244
2-Methylnaphthalene	3300	2300		1	70	40-106	01/26/2012 1244
2-Methylphenol	3300	2600		1	77	32-107	01/26/2012 1244
2-Nitroaniline	6700	4800		1	72	45-123	01/26/2012 1244
2-Nitrophenol	6700	4500		1	67	35-108	01/26/2012 1244
3 & 4-Methylphenol	6700	5400		1	82	39-108	01/26/2012 1244
3-Nitroaniline	6700	5000		1	75	24-127	01/26/2012 1244
4,6-Dinitro-2-methylphenol	17000	12000		1	71	40-130	01/26/2012 1244
4-Bromophenyl phenyl ether	3300	2300		1	68	46-118	01/26/2012 1244
4-Chloro-3-methyl phenol	3300	2400		1	73	49-118	01/26/2012 1244
4-Chloroaniline	3300	640		1	19	14-64	01/26/2012 1244
4-Chlorophenyl phenyl ether	3300	2400		1	73	47-116	01/26/2012 1244
4-Nitroaniline	6700	5300		1	79	48-127	01/26/2012 1244
4-Nitrophenol	17000	13000		1	75	18-154	01/26/2012 1244
Acenaphthene	3300	2500		1	74	46-114	01/26/2012 1244
Acenaphthylene	3300	2800		1	85	44-122	01/26/2012 1244
Anthracene	3300	2500		1	75	50-119	01/26/2012 1244
Benzaldehyde	3300	2300		1	70	30-130	01/26/2012 1244
Benzo(a)anthracene	3300	2600		1	77	47-121	01/26/2012 1244
Benzo(a)pyrene	3300	2700		1	81	55-134	01/26/2012 1244
Benzo(b)fluoranthene	3300	2500		1	75	28-139	01/26/2012 1244
Benzo(g,h,i)perylene	3300	2400		1	72	36-125	01/26/2012 1244
Benzo(k)fluoranthene	3300	2500		1	76	47-130	01/26/2012 1244
bis(2-Chloroethoxy)methane	3300	2200		1	66	39-108	01/26/2012 1244
bis(2-Chloroethyl)ether	3300	2400		1	71	32-105	01/26/2012 1244
bis(2-Chloroisopropyl)ether	3300	1600		1	49	31-102	01/26/2012 1244
bis(2-Ethylhexyl)phthalate	3300	2700		1	80	45-128	01/26/2012 1244
Butyl benzyl phthalate	3300	2500		1	76	46-128	01/26/2012 1244
Carbazole	3300	2600		1	79	47-128	01/26/2012 1244
Chrysene	3300	2400		1	72	45-126	01/26/2012 1244
Di-n-butyl phthalate	3300	2600		1	79	51-129	01/26/2012 1244
Di-n-octylphthalate	3300	2700		1	82	49-142	01/26/2012 1244
Dibenzo(a,h)anthracene	3300	2500		1	75	45-122	01/26/2012 1244
Dibenzofuran	3300	2500		1	74	45-112	01/26/2012 1244
Diethylphthalate	3300	2600		1	78	49-123	01/26/2012 1244
Dimethyl phthalate	3300	2500		1	74	48-120	01/26/2012 1244

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76228-002
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Fluoranthene	3300	2500		1	75	50-123	01/26/2012 1244
Fluorene	3300	2500		1	75	48-117	01/26/2012 1244
Hexachlorobenzene	3300	2400		1	71	44-122	01/26/2012 1244
Hexachlorobutadiene	3300	2000		1	61	33-103	01/26/2012 1244
Hexachlorocyclopentadiene	17000	12000		1	72	18-121	01/26/2012 1244
Hexachloroethane	3300	2100		1	64	30-96	01/26/2012 1244
Indeno(1,2,3-c,d)pyrene	3300	2500		1	74	45-123	01/26/2012 1244
Isophorone	3300	2300		1	70	41-113	01/26/2012 1244
N-Nitrosodi-n-propylamine	3300	2700		1	82	32-115	01/26/2012 1244
N-Nitrosodiphenylamine (Diphenylamine)	720	350	N	1	48	53-150	01/26/2012 1244
Naphthalene	3300	2100		1	64	36-110	01/26/2012 1244
Nitrobenzene	3300	2400		1	72	33-114	01/26/2012 1244
Pentachlorophenol	17000	11000		1	67	27-138	01/26/2012 1244
Phenanthrene	3300	2500		1	74	49-117	01/26/2012 1244
Phenol	3300	2500		1	74	36-108	01/26/2012 1244
Pyrene	3300	2600		1	77	47-119	01/26/2012 1244

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		73	30-117
2-Fluorobiphenyl		72	33-102
2-Fluorophenol		73	28-104
Nitrobenzene-d5		71	22-109
Phenol-d5		77	27-103
Terphenyl-d14		69	41-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MS

Sample ID: NA18016-007MS
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	ND	3800	2600		5	70	30-130	01/27/2012 1731
Acenaphthylene	ND	3800	2700		5	72	30-130	01/27/2012 1731
Anthracene	ND	3800	2600		5	69	30-130	01/27/2012 1731
Benzaldehyde	ND	3800	1500		5	39	30-130	01/27/2012 1731
Benzo(a)anthracene	110	3800	2800		5	74	30-130	01/27/2012 1731
Benzo(a)pyrene	ND	3800	2700		5	72	30-130	01/27/2012 1731
Benzo(b)fluoranthene	ND	3800	2700		5	72	30-130	01/27/2012 1731
Benzo(g,h,i)perylene	ND	3800	2400		5	65	30-130	01/27/2012 1731
Benzo(k)fluoranthene	ND	3800	2600		5	69	30-130	01/27/2012 1731
4-Bromophenyl phenyl ether	ND	3800	2700		5	73	30-130	01/27/2012 1731
Butyl benzyl phthalate	ND	3800	2700		5	73	30-130	01/27/2012 1731
Carbazole	ND	3800	2600		5	69	30-130	01/27/2012 1731
4-Chloro-3-methyl phenol	ND	3800	2300		5	61	30-130	01/27/2012 1731
4-Chloroaniline	ND	3800	420		5	11	10-130	01/27/2012 1731
bis(2-Chloroethoxy)methane	ND	3800	1600		5	44	30-130	01/27/2012 1731
bis(2-Chloroethyl)ether	ND	3800	1300		5	34	30-130	01/27/2012 1731
bis(2-Chloroisopropyl)ether	ND	3800	1100	N	5	29	30-130	01/27/2012 1731
2-Chloronaphthalene	ND	3800	2000		5	52	30-130	01/27/2012 1731
2-Chlorophenol	ND	3800	1800		5	47	30-130	01/27/2012 1731
4-Chlorophenyl phenyl ether	ND	3800	2800		5	75	30-130	01/27/2012 1731
Chrysene	ND	3800	2600		5	68	30-130	01/27/2012 1731
Di-n-butyl phthalate	ND	3800	2700		5	72	30-130	01/27/2012 1731
Di-n-octylphthalate	ND	3800	2800		5	74	30-130	01/27/2012 1731
Dibenzo(a,h)anthracene	ND	3800	2500		5	66	30-130	01/27/2012 1731
Dibenzofuran	ND	3800	2700		5	72	30-130	01/27/2012 1731
2,4-Dichlorophenol	ND	3800	2200		5	59	30-130	01/27/2012 1731
Diethylphthalate	ND	3800	2800		5	76	30-130	01/27/2012 1731
Dimethyl phthalate	ND	3800	2500		5	67	30-130	01/27/2012 1731
2,4-Dimethylphenol	ND	3800	3000		5	81	30-130	01/27/2012 1731
4,6-Dinitro-2-methylphenol	ND	19000	12000		5	62	30-130	01/27/2012 1731
2,4-Dinitrophenol	ND	19000	8300		5	44	30-130	01/27/2012 1731
2,4-Dinitrotoluene	ND	7500	5600		5	75	30-130	01/27/2012 1731
2,6-Dinitrotoluene	ND	7500	5100		5	68	30-130	01/27/2012 1731
bis(2-Ethylhexyl)phthalate	ND	3800	2700		5	72	30-130	01/27/2012 1731
Fluoranthene	88	3800	2700		5	72	30-130	01/27/2012 1731
Fluorene	ND	3800	2800		5	74	30-130	01/27/2012 1731
Hexachlorobenzene	ND	3800	2700		5	73	30-130	01/27/2012 1731
Hexachlorobutadiene	ND	3800	1800		5	48	30-130	01/27/2012 1731
Hexachlorocyclopentadiene	ND	19000	10000		5	53	30-130	01/27/2012 1731
Hexachloroethane	ND	3800	1300		5	34	30-130	01/27/2012 1731
Indeno(1,2,3-c,d)pyrene	ND	3800	2400		5	64	30-130	01/27/2012 1731
Isophorone	ND	3800	1800		5	47	30-130	01/27/2012 1731
2-Methylnaphthalene	ND	3800	2100		5	55	30-130	01/27/2012 1731
2-Methylphenol	ND	3800	1900		5	51	30-130	01/27/2012 1731

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MS

Sample ID: NA18016-007MS
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
3 & 4-Methylphenol	ND	7500	3900		5	52	30-130	01/27/2012 1731
N-Nitrosodi-n-propylamine	ND	3800	1600		5	44	30-130	01/27/2012 1731
N-Nitrosodiphenylamine (Diphenylamine)	ND	810	380		5	47	30-130	01/27/2012 1731
Naphthalene	ND	3800	1600		5	44	30-130	01/27/2012 1731
2-Nitroaniline	ND	7500	4600		5	61	30-130	01/27/2012 1731
3-Nitroaniline	ND	7500	4600		5	61	30-130	01/27/2012 1731
4-Nitroaniline	ND	7500	5000		5	67	30-130	01/27/2012 1731
Nitrobenzene	ND	3800	1500		5	41	30-130	01/27/2012 1731
2-Nitrophenol	ND	7500	3200		5	42	30-130	01/27/2012 1731
4-Nitrophenol	ND	19000	13000		5	69	30-130	01/27/2012 1731
Pentachlorophenol	ND	19000	12000		5	62	30-130	01/27/2012 1731
Phenanthrene	160	3800	2800		5	75	30-130	01/27/2012 1731
Phenol	ND	3800	1800		5	49	30-130	01/27/2012 1731
Pyrene	ND	3800	2900		5	77	30-130	01/27/2012 1731
2,4,5-Trichlorophenol	ND	3800	2500		5	66	30-130	01/27/2012 1731
2,4,6-Trichlorophenol	ND	3800	2500		5	68	30-130	01/27/2012 1731

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		83	30-117
2-Fluorobiphenyl		56	33-102
2-Fluorophenol		37	28-104
Nitrobenzene-d5		40	22-109
Phenol-d5		48	27-103
Terphenyl-d14		69	41-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: NA18016-007MD
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acenaphthene	ND	3800	3000		5	80	15	30-130	40	01/30/2012 1625
Acenaphthylene	ND	3800	3300		5	86	20	30-130	40	01/30/2012 1625
Anthracene	ND	3800	2900		5	77	13	30-130	40	01/30/2012 1625
Benzaldehyde	ND	3800	2700	+	5	70	58	30-130	20	01/30/2012 1625
Benzo(a)anthracene	110	3800	3300		5	83	17	30-130	40	01/30/2012 1625
Benzo(a)pyrene	ND	3800	3300		5	86	20	30-130	40	01/30/2012 1625
Benzo(b)fluoranthene	ND	3800	3200		5	84	18	30-130	40	01/30/2012 1625
Benzo(g,h,i)perylene	ND	3800	3000		5	80	22	30-130	40	01/30/2012 1625
Benzo(k)fluoranthene	ND	3800	3000		5	79	16	30-130	40	01/30/2012 1625
4-Bromophenyl phenyl ether	ND	3800	2600		5	67	5.6	30-130	40	01/30/2012 1625
Butyl benzyl phthalate	ND	3800	3500		5	91	24	30-130	40	01/30/2012 1625
Carbazole	ND	3800	3200		5	83	20	30-130	40	01/30/2012 1625
4-Chloro-3-methyl phenol	ND	3800	2800		5	72	19	30-130	40	01/30/2012 1625
4-Chloroaniline	ND	3800	800	+	5	21	62	10-130	40	01/30/2012 1625
bis(2-Chloroethoxy)methane	ND	3800	2500	+	5	65	42	30-130	40	01/30/2012 1625
bis(2-Chloroethyl)ether	ND	3800	2800	+	5	73	74	30-130	40	01/30/2012 1625
bis(2-Chloroisopropyl)ether	ND	3800	1900	+	5	50	55	30-130	40	01/30/2012 1625
2-Chloronaphthalene	ND	3800	2400		5	64	21	30-130	40	01/30/2012 1625
2-Chlorophenol	ND	3800	2600		5	69	39	30-130	40	01/30/2012 1625
4-Chlorophenyl phenyl ether	ND	3800	3000		5	78	6.1	30-130	40	01/30/2012 1625
Chrysene	ND	3800	3000		5	79	16	30-130	40	01/30/2012 1625
Di-n-butyl phthalate	ND	3800	3200		5	84	18	30-130	40	01/30/2012 1625
Di-n-octylphthalate	ND	3800	3500		5	92	23	30-130	40	01/30/2012 1625
Dibenzo(a,h)anthracene	ND	3800	3100		5	80	22	30-130	40	01/30/2012 1625
Dibenzofuran	ND	3800	3000		5	78	9.4	30-130	40	01/30/2012 1625
2,4-Dichlorophenol	ND	3800	2400		5	63	9.1	30-130	40	01/30/2012 1625
Diethylphthalate	ND	3800	3200		5	85	13	30-130	40	01/30/2012 1625
Dimethyl phthalate	ND	3800	2900		5	77	15	30-130	40	01/30/2012 1625
2,4-Dimethylphenol	ND	3800	3700		5	96	19	30-130	40	01/30/2012 1625
4,6-Dinitro-2-methylphenol	ND	19000	13000		5	66	7.7	30-130	40	01/30/2012 1625
2,4-Dinitrophenol	ND	19000	10000		5	54	22	30-130	40	01/30/2012 1625
2,4-Dinitrotoluene	ND	7700	6000		5	78	6.3	30-130	40	01/30/2012 1625
2,6-Dinitrotoluene	ND	7700	5800		5	76	13	30-130	40	01/30/2012 1625
bis(2-Ethylhexyl)phthalate	ND	3800	3300		5	87	21	30-130	40	01/30/2012 1625
Fluoranthene	88	3800	3200		5	82	18	30-130	40	01/30/2012 1625
Fluorene	ND	3800	3100		5	80	10	30-130	40	01/30/2012 1625
Hexachlorobenzene	ND	3800	2700		5	70	1.8	30-130	40	01/30/2012 1625
Hexachlorobutadiene	ND	3800	2200		5	56	17	30-130	40	01/30/2012 1625
Hexachlorocyclopentadiene	ND	19000	9400		5	49	6.2	30-130	40	01/30/2012 1625
Hexachloroethane	ND	3800	2400	+	5	62	59	30-130	40	01/30/2012 1625
Indeno(1,2,3-c,d)pyrene	ND	3800	3100		5	81	25	30-130	40	01/30/2012 1625
Isophorone	ND	3800	2700	+	5	70	41	30-130	40	01/30/2012 1625
2-Methylnaphthalene	ND	3800	2700		5	71	26	30-130	40	01/30/2012 1625
2-Methylphenol	ND	3800	2900	+	5	77	43	30-130	40	01/30/2012 1625

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: NA18016-007MD
Batch: 76228
Analytical Method: 8270D

Matrix: Solid
Prep Method: 3550C
Prep Date: 01/23/2012 2023

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
3 & 4-Methylphenol	ND	7700	5600		5	73	36	30-130	40	01/30/2012 1625
N-Nitrosodi-n-propylamine	ND	3800	3300	+	5	86	67	30-130	40	01/30/2012 1625
N-Nitrosodiphenylamine (Diphenylamine)	ND	830	420		5	51	8.6	30-130	40	01/30/2012 1625
Naphthalene	ND	3800	2500		5	65	40	30-130	40	01/30/2012 1625
2-Nitroaniline	ND	7700	5500		5	72	18	30-130	40	01/30/2012 1625
3-Nitroaniline	ND	7700	6200		5	81	29	30-130	40	01/30/2012 1625
4-Nitroaniline	ND	7700	6500		5	85	26	30-130	40	01/30/2012 1625
Nitrobenzene	ND	3800	2800	+	5	73	57	30-130	40	01/30/2012 1625
2-Nitrophenol	ND	7700	4700		5	62	40	30-130	40	01/30/2012 1625
4-Nitrophenol	ND	19000	16000		5	82	19	30-130	40	01/30/2012 1625
Pentachlorophenol	ND	19000	12000		5	65	5.6	30-130	40	01/30/2012 1625
Phenanthrene	160	3800	3100		5	78	12	30-130	40	01/30/2012 1625
Phenol	ND	3800	2800		5	73	40	30-130	40	01/30/2012 1625
Pyrene	ND	3800	3400		5	88	15	30-130	40	01/30/2012 1625
2,4,5-Trichlorophenol	ND	3800	2500		5	65	0.89	30-130	40	01/30/2012 1625
2,4,6-Trichlorophenol	ND	3800	2600		5	67	1.0	30-130	40	01/30/2012 1625

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		74	30-117
2-Fluorobiphenyl		72	33-102
2-Fluorophenol		65	28-104
Nitrobenzene-d5		71	22-109
Phenol-d5		77	27-103
Terphenyl-d14		71	41-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MB

Sample ID: NQ75910-001
Batch: 75910
Analytical Method: 6010C

Matrix: Solid
Prep Method: 3050B
Prep Date: 01/18/2012 1619

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Barium	ND		1	1.3	0.091	mg/kg	01/19/2012 0323

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCS

Sample ID: NQ75910-002
Batch: 75910
Analytical Method: 6010C

Matrix: Solid
Prep Method: 3050B
Prep Date: 01/18/2012 1619

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Barium	500	450		1	90	80-120	01/19/2012 0329

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCSD

Sample ID: NQ75910-003
Batch: 75910
Analytical Method: 6010C

Matrix: Solid
Prep Method: 3050B
Prep Date: 01/18/2012 1619

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Barium	500	450		1	90	0.28	80-120	20	01/19/2012 0335

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MS

Sample ID: NA18016-007MS
Batch: 75910
Analytical Method: 6010C

Matrix: Solid
Prep Method: 3050B
Prep Date: 01/18/2012 1619

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Aluminum	42000	1100	65000	N	10	2100	75-125	01/19/2012 1848
Antimony	ND	56	18	N	10	32	75-125	01/19/2012 1848
Arsenic	ND	280	310		10	110	75-125	01/19/2012 1848
Barium	48	560	590		1	97	75-125	01/19/2012 0405
Beryllium	ND	110	130		10	116	75-125	01/19/2012 1848
Cadmium	0.37	56	83	N	10	148	75-125	01/19/2012 1848
Calcium	780	2200	3600		10	125	75-125	01/19/2012 1848
Chromium	120	280	370		10	89	75-125	01/19/2012 1848
Cobalt	7.2	110	140		10	116	75-125	01/19/2012 1848
Copper	20	110	150		10	118	75-125	01/19/2012 1848
Iron	68000	1100	42000	N	10	-2370	75-125	01/19/2012 1848
Lead	22	280	330		10	110	75-125	01/19/2012 1848
Magnesium	2100	2200	6800	N	10	212	75-125	01/19/2012 1848
Manganese	260	110	1000	N	10	687	75-125	01/19/2012 1848
Nickel	17	110	150		10	123	75-125	01/19/2012 1848
Potassium	2600	2200	7900	N	10	236	75-125	01/19/2012 1848
Selenium	ND	56	62		10	111	75-125	01/19/2012 1848
Silver	ND	280	310		10	111	75-125	01/19/2012 1848
Sodium	ND	2200	3000	N	10	135	75-125	01/19/2012 1848
Thallium	ND	45	46		10	102	75-125	01/19/2012 1848
Vanadium	110	110	220		10	101	75-125	01/19/2012 1848
Zinc	57	110	190		10	120	75-125	01/19/2012 1848

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MSD

Sample ID: NA18016-007MD
Batch: 75910
Analytical Method: 6010C

Matrix: Solid
Prep Method: 3050B
Prep Date: 01/18/2012 1619

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Aluminum	42000	1100	52000	N,+	10	898	23	75-125	20	01/19/2012 1852
Antimony	ND	56	16	N	10	29	12	75-125	20	01/19/2012 1852
Arsenic	ND	280	270		10	95	14	75-125	20	01/19/2012 1852
Barium	48	560	560		1	91	5.3	75-125	20	01/19/2012 0411
Beryllium	ND	110	110		10	97	18	75-125	20	01/19/2012 1852
Cadmium	0.37	56	69		10	121	19	75-125	20	01/19/2012 1852
Calcium	780	2300	3200		10	107	12	75-125	20	01/19/2012 1852
Chromium	120	280	310	N	10	69	17	75-125	20	01/19/2012 1852
Cobalt	7.2	110	110		10	95	18	75-125	20	01/19/2012 1852
Copper	20	110	130		10	99	15	75-125	20	01/19/2012 1852
Iron	68000	1100	36000	N	10	-2860	16	75-125	20	01/19/2012 1852
Lead	22	280	280		10	92	16	75-125	20	01/19/2012 1852
Magnesium	2100	2300	5200	N,+	10	138	28	75-125	20	01/19/2012 1852
Manganese	260	110	360	+	10	86	97	75-125	20	01/19/2012 1852
Nickel	17	110	130		10	100	18	75-125	20	01/19/2012 1852
Potassium	2600	2300	5700	N,+	10	137	32	75-125	20	01/19/2012 1852
Selenium	ND	56	52		10	93	17	75-125	20	01/19/2012 1852
Silver	ND	280	260		10	92	18	75-125	20	01/19/2012 1852
Sodium	ND	2300	2600		10	113	17	75-125	20	01/19/2012 1852
Thallium	ND	45	39		10	86	17	75-125	20	01/19/2012 1852
Vanadium	110	110	190	N	10	72	16	75-125	20	01/19/2012 1852
Zinc	57	110	150	+	10	82	25	75-125	20	01/19/2012 1852

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MS

Sample ID: NA18016-008MS
Batch: 75910
Analytical Method: 6010C

Matrix: Solid
Prep Method: 3050B
Prep Date: 01/18/2012 1619

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Aluminum	61000	1300	89000	N	10	2220	75-125	01/19/2012 1911
Antimony	ND	64	29	N	10	46	75-125	01/19/2012 1911
Arsenic	13	320	360		10	108	75-125	01/19/2012 1911
Barium	12	640	630		1	97	75-125	01/19/2012 0440
Beryllium	0.99	130	150		10	114	75-125	01/19/2012 1911
Cadmium	1.2	64	92	N	10	143	75-125	01/19/2012 1911
Calcium	570	2600	3300		10	108	75-125	01/19/2012 1911
Chromium	76	320	440		10	114	75-125	01/19/2012 1911
Cobalt	4.2	130	140		10	109	75-125	01/19/2012 1911
Copper	22	130	180		10	122	75-125	01/19/2012 1911
Iron	100000	1300	90000	N	10	-754	75-125	01/19/2012 1911
Lead	29	320	370		10	106	75-125	01/19/2012 1911
Magnesium	350	2600	3500		10	123	75-125	01/19/2012 1911
Manganese	71	130	210		10	107	75-125	01/19/2012 1911
Nickel	8.7	130	160		10	118	75-125	01/19/2012 1911
Potassium	700	2600	3800		10	121	75-125	01/19/2012 1911
Selenium	ND	64	68		10	106	75-125	01/19/2012 1911
Silver	ND	320	350		10	110	75-125	01/19/2012 1911
Sodium	ND	2600	3300	N	10	129	75-125	01/19/2012 1911
Thallium	ND	51	45		10	89	75-125	01/19/2012 1911
Vanadium	140	130	280		10	107	75-125	01/19/2012 1911
Zinc	47	130	190		10	110	75-125	01/19/2012 1911

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MB

Sample ID: NQ75949-001
Batch: 75949
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 01/18/2012 1949

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Aluminum	ND		1	0.20	0.044	mg/L	01/19/2012 0025
Antimony	ND		1	0.010	0.0028	mg/L	01/19/2012 0025
Arsenic	ND		1	0.010	0.0040	mg/L	01/19/2012 0025
Barium	ND		1	0.025	0.0075	mg/L	01/19/2012 0025
Beryllium	ND		1	0.0040	0.0012	mg/L	01/19/2012 0025
Cadmium	ND		1	0.0020	0.00060	mg/L	01/19/2012 0025
Calcium	ND		1	5.0	1.0	mg/L	01/19/2012 0025
Chromium	ND		1	0.0050	0.0021	mg/L	01/19/2012 2004
Cobalt	ND		1	0.025	0.0062	mg/L	01/19/2012 0025
Copper	ND		1	0.0050	0.0015	mg/L	01/19/2012 0025
Iron	ND		1	0.10	0.023	mg/L	01/19/2012 0025
Lead	ND		1	0.010	0.0019	mg/L	01/19/2012 0025
Magnesium	ND		1	5.0	1.2	mg/L	01/19/2012 0025
Manganese	ND		1	0.015	0.0049	mg/L	01/19/2012 0025
Nickel	ND		1	0.040	0.010	mg/L	01/19/2012 0025
Potassium	ND		1	5.0	1.1	mg/L	01/19/2012 0025
Selenium	ND		1	0.010	0.0026	mg/L	01/19/2012 0025
Silver	0.00048	J	1	0.0050	0.00040	mg/L	01/19/2012 0025
Sodium	ND		1	5.0	1.2	mg/L	01/19/2012 0025
Thallium	0.0064	J	1	0.050	0.0045	mg/L	01/19/2012 0025
Vanadium	ND		1	0.050	0.013	mg/L	01/19/2012 0025
Zinc	ND		1	0.020	0.0045	mg/L	01/19/2012 0025

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCS

Sample ID: NQ75949-002
Batch: 75949
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 01/18/2012 1949

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Aluminum	20	20		1	100	80-120	01/19/2012 0031
Antimony	0.40	0.40		1	101	80-120	01/19/2012 0031
Arsenic	0.40	0.40		1	101	80-120	01/19/2012 0031
Barium	2.0	2.0		1	102	80-120	01/19/2012 0031
Beryllium	2.0	2.0		1	101	80-120	01/19/2012 0031
Cadmium	0.40	0.41		1	104	80-120	01/19/2012 0031
Calcium	40	39		1	98	80-120	01/19/2012 0031
Chromium	2.0	2.0		1	101	80-120	01/19/2012 2007
Cobalt	2.0	2.0		1	100	80-120	01/19/2012 0031
Copper	2.0	2.0		1	98	80-120	01/19/2012 0031
Iron	20	21		1	103	80-120	01/19/2012 0031
Lead	0.40	0.42		1	106	80-120	01/19/2012 0031
Magnesium	40	40		1	99	80-120	01/19/2012 0031
Manganese	2.0	2.0		1	101	80-120	01/19/2012 0031
Nickel	2.0	2.0		1	99	80-120	01/19/2012 0031
Potassium	40	40		1	100	80-120	01/19/2012 0031
Selenium	0.40	0.45		1	113	80-120	01/19/2012 0031
Silver	0.40	0.40		1	100	80-120	01/19/2012 0031
Sodium	40	38		1	95	80-120	01/19/2012 0031
Thallium	0.80	0.81		1	101	80-120	01/19/2012 0031
Vanadium	2.0	2.0		1	101	80-120	01/19/2012 0031
Zinc	2.0	2.0		1	100	80-120	01/19/2012 0031

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCSD

Sample ID: NQ75949-003
Batch: 75949
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 01/18/2012 1949

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Aluminum	20	20		1	102	1.8	80-120	20	01/19/2012 0037
Antimony	0.40	0.41		1	102	1.1	80-120	20	01/19/2012 0037
Arsenic	0.40	0.41		1	103	1.4	80-120	20	01/19/2012 0037
Barium	2.0	2.1		1	103	1.9	80-120	20	01/19/2012 0037
Beryllium	2.0	2.0		1	102	1.0	80-120	20	01/19/2012 0037
Cadmium	0.40	0.41		1	103	0.49	80-120	20	01/19/2012 0037
Calcium	40	39		1	98	0.20	80-120	20	01/19/2012 0037
Chromium	2.0	2.0		1	102	1.0	80-120	20	01/19/2012 2011
Cobalt	2.0	2.0		1	100	0.023	80-120	20	01/19/2012 0037
Copper	2.0	2.0		1	100	2.1	80-120	20	01/19/2012 0037
Iron	20	21		1	103	0.38	80-120	20	01/19/2012 0037
Lead	0.40	0.43		1	107	1.1	80-120	20	01/19/2012 0037
Magnesium	40	40		1	99	0.37	80-120	20	01/19/2012 0037
Manganese	2.0	2.0		1	101	0.46	80-120	20	01/19/2012 0037
Nickel	2.0	2.0		1	99	0.085	80-120	20	01/19/2012 0037
Potassium	40	41		1	102	2.1	80-120	20	01/19/2012 0037
Selenium	0.40	0.46		1	115	1.8	80-120	20	01/19/2012 0037
Silver	0.40	0.41		1	102	1.5	80-120	20	01/19/2012 0037
Sodium	40	38		1	96	0.80	80-120	20	01/19/2012 0037
Thallium	0.80	0.81		1	101	0.20	80-120	20	01/19/2012 0037
Vanadium	2.0	2.0		1	101	0.70	80-120	20	01/19/2012 0037
Zinc	2.0	2.0		1	98	1.1	80-120	20	01/19/2012 0037

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MB

Sample ID: NQ76059-001
Batch: 76059
Analytical Method: 7471B

Matrix: Solid
Prep Method: 7471B
Prep Date: 01/19/2012 1939

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Mercury	ND		1	0.083	0.0059	mg/kg	01/19/2012 2105

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCS

Sample ID: NQ76059-002
Batch: 76059
Analytical Method: 7471B

Matrix: Solid
Prep Method: 7471B
Prep Date: 01/19/2012 1939

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Mercury	0.83	0.81		1	98	85-115	01/19/2012 2107

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCSD

Sample ID: NQ76059-003
Batch: 76059
Analytical Method: 7471B

Matrix: Solid
Prep Method: 7471B
Prep Date: 01/19/2012 1939

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Mercury	0.83	0.83		1	100	2.6	85-115	20	01/19/2012 2109

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MS

Sample ID: NA18016-007MS
Batch: 76059
Analytical Method: 7471B

Matrix: Solid
Prep Method: 7471B
Prep Date: 01/19/2012 1939

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Mercury	ND	0.78	0.93	N	1	119	85-115	01/19/2012 2132

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MSD

Sample ID: NA18016-007MD
Batch: 76059
Analytical Method: 7471B

Matrix: Solid
Prep Method: 7471B
Prep Date: 01/19/2012 1939

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Mercury	ND	0.92	1.0		1	109	0.00	85-115	20	01/19/2012 2134

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MS

Sample ID: NA18016-008MS
Batch: 76059
Analytical Method: 7471B

Matrix: Solid
Prep Method: 7471B
Prep Date: 01/19/2012 1939

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Mercury	0.018	1.0	1.1		1	110	85-115	01/19/2012 2144

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MB

Sample ID: NQ76329-001
Batch: 76329
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 01/24/2012 1716

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Mercury	ND		1	0.00010	0.000053	mg/L	01/24/2012 2047

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCS

Sample ID: NQ76329-002
Batch: 76329
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 01/24/2012 1716

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Mercury	0.0020	0.0021		1	107	85-115	01/24/2012 2049

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCSD

Sample ID: NQ76329-003
Batch: 76329
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 01/24/2012 1716

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Mercury	0.0020	0.0022		1	109	1.9	85-115	20	01/24/2012 2051

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record** Number 11484

Client: AECOM	Report to Contact: Dave Oliphant	Sampler (Printed Name): McIver Law	Quote No.
Address: 10 Patewood Dr. BLDG IV Suite 500	Telephone No. / Fax No. / Email: (864) 234-3000	Waybill No.	Page 1 of 3
City: Greenville; State: SC; Zip Code: 29615	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: Ardee/Translite			
Project Number: 60241001	P.O Number		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix GW	DW	WW	S	Other	Analysis: 1,4 Dioxane VOC+TICS	SVOC+TICS	Total Metals	Hex CR ⊛	Remarks / Cooler ID
Number of Containers									4	1	1	1	
Bottle (See Instructions on back)									A	M	L	L	
Preservative									Soilkit	1	1	1	
Lot No. NA18016													
SB-SA-2-0-1	1/9/12	1204	G				X		X	X	X	X	⊛ Hold Hex CR pending total Metals analysis
SB-SA-2-0-1-a	1/9/12	1204	G				X		X	X	X		
SB-SA-2-5-6	1/9/12	1345	G				X		X				
SB-SA-2-10-11	1/9/12	1352	G				X		X				
SB-SA-2-15-16	1/9/12	1405	G				X		X				
SB-SA-2-20-21	1/9/12	1420	G				X		X				
SB-SA-3-0-1	1/16/12	1030	G				X		X	X	X	X	⊛ Hold Hex CR pending total Metals analysis
SB-SA-3-0-1-MS	1/16/12	1030	G				X		X	X	X		
SB-SA-3-0-1-MSD	1/16/12	1030	G				X		X	X	X		
SB-SA-4-0-1	1/16/12	1115	G				X		X	X	X	X	⊛ Hold Hex CR pending total Metals analysis

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

QC Requirements (Specify):

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler	1/17/12	1700	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by FEDEX	1-18-12	0900	4. Laboratory Received by	1-18-12	0900

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack
Receipt Temp. 3-1 °C
Temp. Blank ☐ Y / ☐ N

3.6

SHEALY

Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 11485

Client: AECOM	Report to Contact: Dave Oliphant	Sampler (Printed Name): McIver Law	Quote No.
Address: 10 Patewood Dr. Bldg IV Suite 500	Telephone No. / Fax No. / Email: 864-234-3000	Waybill No.	Page 2 of 3
City: Greenville; State: SC; Zip Code: 29615	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: Ardex/Translite			
Project Number: 60241001	P.O Number		

Matrix: G=Grab C=Composite; GW, DW, WW, S, Other

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	GW	DW	WW	S	Other	1,4 Dioxane VOC + TICS	SVOC + TICS	Total Metals	Hex Cr ⊛	Remarks / Cooler ID
Number of Containers									4	1	1	1	
Bottle (See Instructions on back)									A	M	L	L	
Preservative									Spl/Ice	1	1	1	
Lot No.									NA18016				
SB-SA-4-0-1	1/16/12	1150	G				X		X	X	X	X	⊛ Hold Hex Cr pending
SB-SA-5-0-1	1/16/12	1330	G				X		X	X	X	X	⊛ Total metals analysis
SB-SA-5-10	1/16/12	1410	G				X		X				
SB-SA-6-0-1	1/16/12	1420	G				X		X	X	X	X	⊛ Hold Hex Cr pending Total metals analysis
SB-SA-7-0-1	1/16/12	1600	G				X		X	X	X	X	⊛ Hold Hex Cr pending Total metals analysis
SB-SA-7-0-1-a	1/16/12	1600	G				X		X	X	X		
SB-SA-8-0-1	1/16/12	1640	G				X		X	X	X	X	⊛ Hold Hex Cr pending total metals
SB-SA-9-0-1	1/16/12	1540	G				X		X	X	X	X	⊛ Hold Hex Cr pending Total metals
MW-03-0-1	1/16/12	1500	G				X		X	X	X	X	⊛ Hold Hex Cr pending total metals
BG-1-1	1/16/12	1710	G				X				X	X	⊛ Hold Hex Cr pending total metals

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

QC Requirements (Specify):

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler	1/17/12	1700	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by	1-18-12	0900	4. Laboratory Received by	1-18-12	0900

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack; Receipt Temp. ____ °C; Temp. Blank ☐ Y / ☐ N

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record** Number 11486

Client: AECOM	Report to Contact: Dave Oliphant	Sampler (Printed Name): McIver Law	Quote No.
Address: 10 Patewood Dr. Bldg VI Suite 500	Telephone No. / Fax No. / Email: 864-234-3000	Waybill No.	Page 3 of 3
City: Greenville; State: SC; Zip Code: 29615	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: Ardee / Translite			
Project Number: 60241001	P.O Number		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix GW	DW	WW	S	Other	Total Metals	Hex CR (*)	1,4 Dioxane VOC & TICs	SVOC & TICs	Total metals	Hex CR	Remarks / Cooler ID
Number of Containers									1	1	1	2	1	1	
Bottle (See Instructions on back)									L	L	A	I	D	D	
Preservative									1	1	5	1	4	1	
Lot No.											N/A	N/A	N/A	N/A	
BG-2-1	1/16/12	1715	G				X		X	X					(*) Hold Hex Cr pending Total metals analysis
BG-3-1	1/16/12	1720	G				X		X	X					(*) Hold Hex Cr pending Total metals analysis
SB-SA-7-d	1/17/12	1600	G					X			X	X	X	X	
Trip Blank	1/17/12	1600	G					X			X				

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify):

Possible Hazard Identification: ☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: [signature]	1/17/12	1700	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FEDEX	1-18-12	0900	4. Laboratory Received by: [signature]	1-18-12	0900

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check): ☒ Yes ☐ No ☐ Ice Pack
Receipt Temp. 3.1 °C
Temp. Blank ☐ Y / ☐ N

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 9

Page 1 of 1
Replaces Date: 05/06/11
Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

Client: AECom Cooler Inspected by/date: EC 1/18/12 Lot #: NA180/L

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other

Yes ☑	No ☐		1. Were custody seals present on the cooler?
Yes ☐	No ☐		2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 3.1 °C 3.6 °C / °C / °C
Method: ☐ Temperature Blank ☑ Against Bottles
Method of coolant: ☐ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other:_____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☑	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☑	NA ☐	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed?
Yes ☑	No ☐		7. Was collection date & time listed?
Yes ☑	No ☐		8. Were tests to be performed listed on the COC?
Yes ☑	No ☐		9. Did all samples arrive in the proper containers for each test?
EC 1/18/12 Yes ☑	No ☑		10. Did all container label information (ID, date, time) agree with COC?
Yes ☐	No ☑		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		12. Was adequate sample volume available?
Yes ☐	No ☑		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		14. Were any samples containers missing?
Yes ☐	No ☑		15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☑	No ☐	NA ☐	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4,HNO_3,HCl,NaOH) with the SR # (number)

Sample(s) _____ were received with bubbles >6 mm in diameter.

Sample(s) _____ TKN/cyanide/BNA/pest/PCB/herb.

Corrective Action taken, if necessary:
Was client notified: Yes ☐ No ☐
SESI employee: _____
Comments:
100 L labelled on vials as SB-SA-2-WT ; 1 VOA vial received broken. EC 1/18/12

This portion can be removed for recipient's records.
Date 1/17/12 FedEx Tracking Number 873129918061
Shipper's Name John Law Phone 864 234-3000
Company AECOM TECHNICAL SERVICES
Address 10 PATEWOOD DR BLDG 6
Dept./Floor/Suite/Room
City GREENVILLE State SC ZIP 29615-6317
Your Internal Billing Reference 50291001.2

Report of Analysis

Earth Tech / AECOM
10 Patewood Drive
Building 6, Suite 500
Greenville, SC 29615
Attention: Doria Cullom

Project Name: Ardee Translite

Project Number: 60241001

Lot Number: NB03008

Date Completed: 02/21/2012

Nisreen Saikaly
Project Manager

This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* N B 0 3 0 0 8 *

Case Narrative
Earth Tech / AECOM
Lot Number: NB03008

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Semivolatile Organic Compounds

The LCS recovery for 4-Nitroaniline and Carbazole exceeded method control limits in batch 77182; however, all other QA/QC criteria for the LCS/LCSD were within acceptance criteria and method control limits. The associated sample results were non-detect, therefore the results were reported and no corrective action was required.

Sample Summary
Earth Tech / AECOM
Lot Number: NB03008

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-06	Aqueous	02/02/2012 1020	02/03/2012
002	MW-06-c	Aqueous	02/02/2012 1020	02/03/2012
003	MW-07D	Aqueous	02/02/2012 1055	02/03/2012
004	MW-07	Aqueous	02/02/2012 1135	02/03/2012
005	MW-05	Aqueous	02/02/2012 1230	02/03/2012
006	MW-03	Aqueous	02/02/2012 1310	02/03/2012
007	MW-04	Aqueous	02/02/2012 1430	02/03/2012
008	MW-04-d	Aqueous	02/02/2012 1430	02/03/2012
009	MW-02D	Aqueous	02/02/2012 1545	02/03/2012
010	MW-02	Aqueous	02/02/2012 1620	02/03/2012
011	MW-02-a	Aqueous	02/02/2012 1620	02/03/2012
012	MW-01	Aqueous	02/02/2012 1715	02/03/2012
013	MW-04-C	Aqueous	02/02/2012 1430	02/03/2012

(13 samples)

Executive Summary
Earth Tech / AECOM
Lot Number: NB03008

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
003	MW-07D	Aqueous	Tetrachloroethene	8260B	0.70	J	ug/L	14
004	MW-07	Aqueous	Tetrachloroethene	8260B	12		ug/L	17
004	MW-07	Aqueous	Dissolved Aluminum	6010C	0.15	BJ	mg/L	23
004	MW-07	Aqueous	Dissolved Arsenic	6010C	0.0065	J	mg/L	23
004	MW-07	Aqueous	Dissolved Barium	6010C	0.13		mg/L	23
004	MW-07	Aqueous	Dissolved Calcium	6010C	1.1	J	mg/L	23
004	MW-07	Aqueous	Dissolved Chromium	6010C	0.0055		mg/L	23
004	MW-07	Aqueous	Dissolved Cobalt	6010C	0.0065	J	mg/L	23
004	MW-07	Aqueous	Dissolved Lead	6010C	0.0033	J	mg/L	23
004	MW-07	Aqueous	Dissolved Magnesium	6010C	1.4	J	mg/L	23
004	MW-07	Aqueous	Dissolved Manganese	6010C	0.56		mg/L	23
004	MW-07	Aqueous	Dissolved Potassium	6010C	4.7	J	mg/L	23
004	MW-07	Aqueous	Dissolved Sodium	6010C	6.7		mg/L	23
004	MW-07	Aqueous	Dissolved Thallium	6010C	0.0050	J	mg/L	23
004	MW-07	Aqueous	Dissolved Zinc	6010C	0.012	J	mg/L	23
004	MW-07	Aqueous	Aluminum	6010C	0.22	B	mg/L	25
004	MW-07	Aqueous	Arsenic	6010C	0.0075	J	mg/L	25
004	MW-07	Aqueous	Barium	6010C	0.14		mg/L	25
004	MW-07	Aqueous	Calcium	6010C	1.2	J	mg/L	25
004	MW-07	Aqueous	Chromium	6010C	0.0073		mg/L	25
004	MW-07	Aqueous	Cobalt	6010C	0.0072	J	mg/L	25
004	MW-07	Aqueous	Iron	6010C	0.083	J	mg/L	25
004	MW-07	Aqueous	Lead	6010C	0.0019	J	mg/L	25
004	MW-07	Aqueous	Magnesium	6010C	1.5	J	mg/L	25
004	MW-07	Aqueous	Manganese	6010C	0.60		mg/L	25
004	MW-07	Aqueous	Potassium	6010C	4.7	J	mg/L	25
004	MW-07	Aqueous	Sodium	6010C	6.7		mg/L	25
004	MW-07	Aqueous	Zinc	6010C	0.014	J	mg/L	25
005	MW-05	Aqueous	Tetrachloroethene	8260B	7.2		ug/L	26
006	MW-03	Aqueous	Acetone	8260B	9.0	J	ug/L	29
006	MW-03	Aqueous	Benzene	8260B	0.34	J	ug/L	29
006	MW-03	Aqueous	Carbon disulfide	8260B	0.45	J	ug/L	29
006	MW-03	Aqueous	Dissolved Aluminum	6010C	0.17	BJ	mg/L	33
006	MW-03	Aqueous	Dissolved Arsenic	6010C	0.0077	J	mg/L	33
006	MW-03	Aqueous	Dissolved Barium	6010C	0.018	J	mg/L	33
006	MW-03	Aqueous	Dissolved Cadmium	6010C	0.00063	J	mg/L	33
006	MW-03	Aqueous	Dissolved Calcium	6010C	32		mg/L	33
006	MW-03	Aqueous	Dissolved Chromium	6010C	0.0047	J	mg/L	33
006	MW-03	Aqueous	Dissolved Cobalt	6010C	0.016	J	mg/L	33
006	MW-03	Aqueous	Dissolved Copper	6010C	0.0068		mg/L	33
006	MW-03	Aqueous	Dissolved Iron	6010C	0.091	J	mg/L	33
006	MW-03	Aqueous	Dissolved Lead	6010C	0.0063	J	mg/L	33
006	MW-03	Aqueous	Dissolved Magnesium	6010C	3.5	J	mg/L	33
006	MW-03	Aqueous	Dissolved Manganese	6010C	0.10		mg/L	33
006	MW-03	Aqueous	Dissolved Nickel	6010C	0.020	J	mg/L	33

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
006	MW-03	Aqueous	Dissolved Potassium	6010C	9.6		mg/L	33
006	MW-03	Aqueous	Dissolved Sodium	6010C	5.1		mg/L	33
006	MW-03	Aqueous	Dissolved Vanadium	6010C	0.024	J	mg/L	33
006	MW-03	Aqueous	Dissolved Zinc	6010C	0.010	J	mg/L	33
006	MW-03	Aqueous	Dissolved Mercury	7470A	0.000087	J	mg/L	34
006	MW-03	Aqueous	Aluminum	6010C	1.1	B	mg/L	35
006	MW-03	Aqueous	Barium	6010C	0.022	J	mg/L	35
006	MW-03	Aqueous	Calcium	6010C	36		mg/L	35
006	MW-03	Aqueous	Chromium	6010C	0.013		mg/L	35
006	MW-03	Aqueous	Cobalt	6010C	0.0099	J	mg/L	35
006	MW-03	Aqueous	Copper	6010C	0.018		mg/L	35
006	MW-03	Aqueous	Iron	6010C	1.2		mg/L	35
006	MW-03	Aqueous	Lead	6010C	0.0080	J	mg/L	35
006	MW-03	Aqueous	Magnesium	6010C	2.7	J	mg/L	35
006	MW-03	Aqueous	Manganese	6010C	0.090		mg/L	35
006	MW-03	Aqueous	Nickel	6010C	0.036	J	mg/L	35
006	MW-03	Aqueous	Potassium	6010C	8.0		mg/L	35
006	MW-03	Aqueous	Sodium	6010C	4.8	J	mg/L	35
006	MW-03	Aqueous	Vanadium	6010C	0.028	J	mg/L	35
006	MW-03	Aqueous	Zinc	6010C	0.096		mg/L	35
007	MW-04	Aqueous	1,1-Dichloroethene	8260B	18		ug/L	36
007	MW-04	Aqueous	Trichloroethene	8260B	25		ug/L	37
007	MW-04	Aqueous	Dissolved Aluminum	6010C	0.16	BJ	mg/L	40
007	MW-04	Aqueous	Dissolved Arsenic	6010C	0.0070	J	mg/L	40
007	MW-04	Aqueous	Dissolved Barium	6010C	0.074		mg/L	40
007	MW-04	Aqueous	Dissolved Calcium	6010C	16		mg/L	40
007	MW-04	Aqueous	Dissolved Magnesium	6010C	1.8	J	mg/L	40
007	MW-04	Aqueous	Dissolved Manganese	6010C	0.35		mg/L	40
007	MW-04	Aqueous	Dissolved Potassium	6010C	3.8	J	mg/L	40
007	MW-04	Aqueous	Dissolved Sodium	6010C	5.8		mg/L	40
007	MW-04	Aqueous	Dissolved Thallium	6010C	0.0047	J	mg/L	40
007	MW-04	Aqueous	Dissolved Zinc	6010C	0.0085	J	mg/L	40
007	MW-04	Aqueous	Aluminum	6010C	0.16	BJ	mg/L	42
007	MW-04	Aqueous	Arsenic	6010C	0.0054	J	mg/L	42
007	MW-04	Aqueous	Barium	6010C	0.073		mg/L	42
007	MW-04	Aqueous	Calcium	6010C	16		mg/L	42
007	MW-04	Aqueous	Lead	6010C	0.0031	J	mg/L	42
007	MW-04	Aqueous	Magnesium	6010C	1.6	J	mg/L	42
007	MW-04	Aqueous	Manganese	6010C	0.34		mg/L	42
007	MW-04	Aqueous	Potassium	6010C	3.7	J	mg/L	42
007	MW-04	Aqueous	Sodium	6010C	5.6		mg/L	42
007	MW-04	Aqueous	Thallium	6010C	0.0049	J	mg/L	42
007	MW-04	Aqueous	Zinc	6010C	0.0081	J	mg/L	42
008	MW-04-d	Aqueous	Aluminum	6010C	0.14	BJ	mg/L	47
008	MW-04-d	Aqueous	Arsenic	6010C	0.0047	J	mg/L	47
008	MW-04-d	Aqueous	Lead	6010C	0.0020	J	mg/L	47
008	MW-04-d	Aqueous	Thallium	6010C	0.0058	J	mg/L	47
009	MW-02D	Aqueous	Chloroform	8260B	10		ug/L	48

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
009	MW-02D	Aqueous	1,1-Dichloroethene	8260B	0.55	J	ug/L	48
010	MW-02	Aqueous	Hexavalent Chromium	SM 3500-Cr D	0.042		mg/L	51
010	MW-02	Aqueous	Chloroform	8260B	9.5		ug/L	52
010	MW-02	Aqueous	1,1-Dichloroethane	8260B	0.57	J	ug/L	52
010	MW-02	Aqueous	1,1-Dichloroethene	8260B	13		ug/L	52
010	MW-02	Aqueous	Tetrachloroethene	8260B	0.45	J	ug/L	52
010	MW-02	Aqueous	Trichloroethene	8260B	0.80	J	ug/L	53
010	MW-02	Aqueous	Unknown	8270D	210		ug/L	55
010	MW-02	Aqueous	Unknown	8270D	23		ug/L	55
010	MW-02	Aqueous	Dissolved Aluminum	6010C	0.14	BJ	mg/L	58
010	MW-02	Aqueous	Dissolved Antimony	6010C	0.0034	BJ	mg/L	58
010	MW-02	Aqueous	Dissolved Barium	6010C	0.074		mg/L	58
010	MW-02	Aqueous	Dissolved Calcium	6010C	1.3	J	mg/L	58
010	MW-02	Aqueous	Dissolved Chromium	6010C	0.044		mg/L	58
010	MW-02	Aqueous	Dissolved Lead	6010C	0.0041	J	mg/L	58
010	MW-02	Aqueous	Dissolved Magnesium	6010C	1.4	J	mg/L	58
010	MW-02	Aqueous	Dissolved Manganese	6010C	0.041		mg/L	58
010	MW-02	Aqueous	Dissolved Potassium	6010C	9.5		mg/L	58
010	MW-02	Aqueous	Dissolved Sodium	6010C	8.9		mg/L	58
010	MW-02	Aqueous	Dissolved Zinc	6010C	0.011	J	mg/L	58
010	MW-02	Aqueous	Aluminum	6010C	0.20	B	mg/L	60
010	MW-02	Aqueous	Antimony	6010C	0.0055	BJ	mg/L	60
010	MW-02	Aqueous	Arsenic	6010C	0.0065	J	mg/L	60
010	MW-02	Aqueous	Barium	6010C	0.080		mg/L	60
010	MW-02	Aqueous	Calcium	6010C	1.5	J	mg/L	60
010	MW-02	Aqueous	Chromium	6010C	0.043		mg/L	60
010	MW-02	Aqueous	Iron	6010C	0.14		mg/L	60
010	MW-02	Aqueous	Lead	6010C	0.0041	J	mg/L	60
010	MW-02	Aqueous	Magnesium	6010C	1.5	J	mg/L	60
010	MW-02	Aqueous	Manganese	6010C	0.046		mg/L	60
010	MW-02	Aqueous	Potassium	6010C	11		mg/L	60
010	MW-02	Aqueous	Sodium	6010C	9.6		mg/L	60
010	MW-02	Aqueous	Thallium	6010C	0.0059	J	mg/L	60
010	MW-02	Aqueous	Zinc	6010C	0.010	J	mg/L	60
011	MW-02-a	Aqueous	Chloroform	8260B	9.4		ug/L	61
011	MW-02-a	Aqueous	1,1-Dichloroethane	8260B	0.51	J	ug/L	61
011	MW-02-a	Aqueous	1,1-Dichloroethene	8260B	13		ug/L	61
011	MW-02-a	Aqueous	Tetrachloroethene	8260B	0.48	J	ug/L	61
011	MW-02-a	Aqueous	Trichloroethene	8260B	0.75	J	ug/L	62
011	MW-02-a	Aqueous	Aluminum	6010C	0.17	BJ	mg/L	64
011	MW-02-a	Aqueous	Antimony	6010C	0.0028	BJ	mg/L	64
011	MW-02-a	Aqueous	Arsenic	6010C	0.0042	J	mg/L	64
011	MW-02-a	Aqueous	Barium	6010C	0.078		mg/L	64
011	MW-02-a	Aqueous	Calcium	6010C	1.6	J	mg/L	64
011	MW-02-a	Aqueous	Chromium	6010C	0.047		mg/L	64
011	MW-02-a	Aqueous	Iron	6010C	0.15		mg/L	64
011	MW-02-a	Aqueous	Lead	6010C	0.0038	J	mg/L	64
011	MW-02-a	Aqueous	Magnesium	6010C	1.5	J	mg/L	64

Executive Summary (Continued)

Lot Number: NB03008

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
011	MW-02-a	Aqueous	Manganese	6010C	0.047		mg/L	64
011	MW-02-a	Aqueous	Mercury	7470A	0.000087	J	mg/L	64
011	MW-02-a	Aqueous	Potassium	6010C	9.7		mg/L	64
011	MW-02-a	Aqueous	Sodium	6010C	9.0		mg/L	64
011	MW-02-a	Aqueous	Zinc	6010C	0.010	J	mg/L	64
012	MW-01	Aqueous	Chloroform	8260B	11		ug/L	65
012	MW-01	Aqueous	1,1-Dichloroethene	8260B	3.6	J	ug/L	65

(148 detections)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-001
Description: MW-06
Matrix: Aqueous
Date Sampled: 02/02/2012 1020
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1015	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-001
Description: MW-06
Matrix: Aqueous
Date Sampled: 02/02/2012 1020
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1015	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		115	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-001
Description: MW-06
Matrix: Aqueous
Date Sampled: 02/02/2012 1020
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-002
Description: MW-06-c
Matrix: Aqueous
Date Sampled: 02/02/2012 1020
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1036	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-002
Description: MW-06-c
Matrix: Aqueous
Date Sampled: 02/02/2012 1020
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1036	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-002
Description: MW-06-c
Matrix: Aqueous
Date Sampled: 02/02/2012 1020
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
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N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-003
Description: MW-07D
Matrix: Aqueous
Date Sampled: 02/02/2012 1055
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1057	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	0.70	J	5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-003
Description: MW-07D
Matrix: Aqueous
Date Sampled: 02/02/2012 1055
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1057	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	70-130
Bromofluorobenzene		108	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-003
Description: MW-07D
Matrix: Aqueous
Date Sampled: 02/02/2012 1055
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1118	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	12		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1118	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		116	70-130
Bromofluorobenzene		110	70-130
Toluene-d8		103	70-130

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Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

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Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1				77963

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8270D			0.00	0.00	ug/L	1

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Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/15/2012 1144	JCG	02/07/2012 1115	77182

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		5.2	1.3	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		5.2	1.3	ug/L	1
Acetophenone	98-86-2	8270D	ND		5.2	0.94	ug/L	1
Anthracene	120-12-7	8270D	ND		5.2	1.1	ug/L	1
Atrazine	1912-24-9	8270D	ND		5.2	4.4	ug/L	1
Benzaldehyde	100-52-7	8270D	ND		26	3.1	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		5.2	0.63	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		5.2	0.52	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		5.2	0.63	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		5.2	0.83	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		5.2	1.0	ug/L	1
1,1'-Biphenyl	92-52-4	8270D	ND		5.2	1.3	ug/L	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		5.2	1.3	ug/L	1
Butyl benzyl phthalate	85-68-7	8270D	ND		10	3.4	ug/L	1
Caprolactam	105-60-2	8270D	ND		26	1.3	ug/L	1
Carbazole	86-74-8	8270D	ND		5.2	1.8	ug/L	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		5.2	1.7	ug/L	1
4-Chloroaniline	106-47-8	8270D	ND		5.2	0.84	ug/L	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		5.2	1.6	ug/L	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		5.2	1.3	ug/L	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		5.2	1.4	ug/L	1
2-Chloronaphthalene	91-58-7	8270D	ND		5.2	1.4	ug/L	1
2-Chlorophenol	95-57-8	8270D	ND		5.2	1.5	ug/L	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		5.2	1.7	ug/L	1
Chrysene	218-01-9	8270D	ND		5.2	0.73	ug/L	1
Di-n-butyl phthalate	84-74-2	8270D	ND		5.2	1.8	ug/L	1
Di-n-octylphthalate	117-84-0	8270D	ND		5.2	1.8	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		5.2	1.4	ug/L	1
Dibenzofuran	132-64-9	8270D	ND		5.2	1.3	ug/L	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		26	2.7	ug/L	1
2,4-Dichlorophenol	120-83-2	8270D	ND		5.2	1.3	ug/L	1
Diethylphthalate	84-66-2	8270D	ND		5.2	2.0	ug/L	1
Dimethyl phthalate	131-11-3	8270D	ND		5.2	1.8	ug/L	1
2,4-Dimethylphenol	105-67-9	8270D	ND		5.2	1.5	ug/L	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		26	8.4	ug/L	1
2,4-Dinitrophenol	51-28-5	8270D	ND		26	5.0	ug/L	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		10	4.0	ug/L	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		10	3.5	ug/L	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		5.2	1.8	ug/L	1
Fluoranthene	206-44-0	8270D	ND		5.2	1.5	ug/L	1
Fluorene	86-73-7	8270D	ND		5.2	1.5	ug/L	1
Hexachlorobenzene	118-74-1	8270D	ND		5.2	1.3	ug/L	1
Hexachlorobutadiene	87-68-3	8270D	ND		5.2	1.5	ug/L	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		26	4.2	ug/L	1

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Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/15/2012 1144	JCG	02/07/2012 1115	77182

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		5.2	1.3	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		5.2	2.4	ug/L	1
Isophorone	78-59-1	8270D	ND		5.2	1.5	ug/L	1
2-Methylnaphthalene	91-57-6	8270D	ND		5.2	1.6	ug/L	1
2-Methylphenol	95-48-7	8270D	ND		5.2	1.1	ug/L	1
3 & 4-Methylphenol	106-44-5	8270D	ND		10	2.8	ug/L	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		5.2	1.5	ug/L	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		5.2	1.0	ug/L	1
Naphthalene	91-20-3	8270D	ND		5.2	1.4	ug/L	1
2-Nitroaniline	88-74-4	8270D	ND		10	2.2	ug/L	1
3-Nitroaniline	99-09-2	8270D	ND		10	3.1	ug/L	1
4-Nitroaniline	100-01-6	8270D	ND		10	4.4	ug/L	1
Nitrobenzene	98-95-3	8270D	ND		5.2	1.7	ug/L	1
2-Nitrophenol	88-75-5	8270D	ND		10	3.0	ug/L	1
4-Nitrophenol	100-02-7	8270D	ND		26	9.4	ug/L	1
Pentachlorophenol	87-86-5	8270D	ND		26	5.3	ug/L	1
Phenanthrene	85-01-8	8270D	ND		5.2	1.3	ug/L	1
Phenol	108-95-2	8270D	ND		5.2	1.3	ug/L	1
Pyrene	129-00-0	8270D	ND		5.2	3.2	ug/L	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		5.2	1.3	ug/L	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		5.2	1.4	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		93	41-144
2-Fluorobiphenyl		108	37-129
2-Fluorophenol		94	24-127
Nitrobenzene-d5		97	38-127
Phenol-d5		95	28-128
Terphenyl-d14		94	10-148

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ICP-AES

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010C	1	02/08/2012 0231	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Aluminum	7429-90-5	6010C	0.15	BJ	0.20	0.044	mg/L	1
Dissolved Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Dissolved Arsenic	7440-38-2	6010C	0.0065	J	0.010	0.0040	mg/L	1
Dissolved Barium	7440-39-3	6010C	0.13		0.025	0.0075	mg/L	1
Dissolved Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Dissolved Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Dissolved Calcium	7440-70-2	6010C	1.1	J	5.0	1.0	mg/L	1
Dissolved Chromium	7440-47-3	6010C	0.0055		0.0050	0.0021	mg/L	1
Dissolved Cobalt	7440-48-4	6010C	0.0065	J	0.025	0.0062	mg/L	1
Dissolved Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Dissolved Iron	7439-89-6	6010C	ND		0.10	0.023	mg/L	1
Dissolved Lead	7439-92-1	6010C	0.0033	J	0.010	0.0019	mg/L	1
Dissolved Magnesium	7439-95-4	6010C	1.4	J	5.0	1.2	mg/L	1
Dissolved Manganese	7439-96-5	6010C	0.56		0.015	0.0049	mg/L	1
Dissolved Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Dissolved Potassium	7440-09-7	6010C	4.7	J	5.0	1.1	mg/L	1
Dissolved Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Dissolved Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Dissolved Sodium	7440-23-5	6010C	6.7		5.0	1.2	mg/L	1
Dissolved Thallium	7440-28-0	6010C	0.0050	J	0.050	0.0045	mg/L	1
Dissolved Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Dissolved Zinc	7440-66-6	6010C	0.012	J	0.020	0.0045	mg/L	1

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CVAA

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/09/2012 0943	COH	02/08/2012 1739	77314

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1

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TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NB03008-004
Description: MW-07
Matrix: Aqueous
Date Sampled: 02/02/2012 1135
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/07/2012 0116	COH	02/06/2012 2023	77143
1	3005A	6010C	1	02/08/2012 0227	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	0.22	B	0.20	0.044	mg/L	1
Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Arsenic	7440-38-2	6010C	0.0075	J	0.010	0.0040	mg/L	1
Barium	7440-39-3	6010C	0.14		0.025	0.0075	mg/L	1
Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Calcium	7440-70-2	6010C	1.2	J	5.0	1.0	mg/L	1
Chromium	7440-47-3	6010C	0.0073		0.0050	0.0021	mg/L	1
Cobalt	7440-48-4	6010C	0.0072	J	0.025	0.0062	mg/L	1
Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Iron	7439-89-6	6010C	0.083	J	0.10	0.023	mg/L	1
Lead	7439-92-1	6010C	0.0019	J	0.010	0.0019	mg/L	1
Magnesium	7439-95-4	6010C	1.5	J	5.0	1.2	mg/L	1
Manganese	7439-96-5	6010C	0.60		0.015	0.0049	mg/L	1
Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1
Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Potassium	7440-09-7	6010C	4.7	J	5.0	1.1	mg/L	1
Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Sodium	7440-23-5	6010C	6.7		5.0	1.2	mg/L	1
Thallium	7440-28-0	6010C	ND		0.050	0.0045	mg/L	1
Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Zinc	7440-66-6	6010C	0.014	J	0.020	0.0045	mg/L	1

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N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-005
Description: MW-05
Matrix: Aqueous
Date Sampled: 02/02/2012 1230
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1139	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	7.2		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-005
Description: MW-05
Matrix: Aqueous
Date Sampled: 02/02/2012 1230
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1139	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		117	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-005
Description: MW-05
Matrix: Aqueous
Date Sampled: 02/02/2012 1230
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-006
Description: MW-03
Matrix: Aqueous
Date Sampled: 02/02/2012 1310
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1201	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	9.0	J	20	6.7	ug/L	1
Benzene	71-43-2	8260B	0.34	J	5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	0.45	J	5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-006
Description: MW-03
Matrix: Aqueous
Date Sampled: 02/02/2012 1310
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1201	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		118	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-006
Description: MW-03
Matrix: Aqueous
Date Sampled: 02/02/2012 1310
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-006
Description: MW-03
Matrix: Aqueous
Date Sampled: 02/02/2012 1310
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/09/2012 1704	TAF	02/07/2012 1115	77181

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		5.2	1.3	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		5.2	1.3	ug/L	1
Anthracene	120-12-7	8270D	ND		5.2	1.1	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		5.2	0.63	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		5.2	0.52	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		5.2	0.63	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		5.2	0.83	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		5.2	1.0	ug/L	1
Chrysene	218-01-9	8270D	ND		5.2	0.73	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		5.2	1.4	ug/L	1
Fluoranthene	206-44-0	8270D	ND		5.2	1.5	ug/L	1
Fluorene	86-73-7	8270D	ND		5.2	1.5	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		5.2	2.4	ug/L	1
Naphthalene	91-20-3	8270D	ND		5.2	1.4	ug/L	1
Phenanthrene	85-01-8	8270D	ND		5.2	1.3	ug/L	1
Pyrene	129-00-0	8270D	ND		5.2	3.2	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		73	37-129
Nitrobenzene-d5		82	38-127
Terphenyl-d14		61	10-148

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

ICP-AES

Client: Earth Tech / AECOM
Laboratory ID: NB03008-006
Description: MW-03
Matrix: Aqueous
Date Sampled: 02/02/2012 1310
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010C	1	02/08/2012 0239	CDF	02/07/2012 1330	77202
2	3005A	6010C	1	02/09/2012 0118	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Aluminum	7429-90-5	6010C	0.17	BJ	0.20	0.044	mg/L	1
Dissolved Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Dissolved Arsenic	7440-38-2	6010C	0.0077	J	0.010	0.0040	mg/L	2
Dissolved Barium	7440-39-3	6010C	0.018	J	0.025	0.0075	mg/L	1
Dissolved Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Dissolved Cadmium	7440-43-9	6010C	0.00063	J	0.0020	0.00060	mg/L	1
Dissolved Calcium	7440-70-2	6010C	32		5.0	1.0	mg/L	1
Dissolved Chromium	7440-47-3	6010C	0.0047	J	0.0050	0.0021	mg/L	1
Dissolved Cobalt	7440-48-4	6010C	0.016	J	0.025	0.0062	mg/L	1
Dissolved Copper	7440-50-8	6010C	0.0068		0.0050	0.0015	mg/L	1
Dissolved Iron	7439-89-6	6010C	0.091	J	0.10	0.023	mg/L	1
Dissolved Lead	7439-92-1	6010C	0.0063	J	0.010	0.0019	mg/L	1
Dissolved Magnesium	7439-95-4	6010C	3.5	J	5.0	1.2	mg/L	1
Dissolved Manganese	7439-96-5	6010C	0.10		0.015	0.0049	mg/L	1
Dissolved Nickel	7440-02-0	6010C	0.020	J	0.040	0.010	mg/L	1
Dissolved Potassium	7440-09-7	6010C	9.6		5.0	1.1	mg/L	1
Dissolved Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Dissolved Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Dissolved Sodium	7440-23-5	6010C	5.1		5.0	1.2	mg/L	1
Dissolved Thallium	7440-28-0	6010C	ND		0.050	0.0045	mg/L	1
Dissolved Vanadium	7440-62-2	6010C	0.024	J	0.050	0.013	mg/L	1
Dissolved Zinc	7440-66-6	6010C	0.010	J	0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

CVAA

Client: Earth Tech / AECOM
Laboratory ID: NB03008-006
Description: MW-03
Matrix: Aqueous
Date Sampled: 02/02/2012 1310
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/09/2012 0950	COH	02/08/2012 1739	77314

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Mercury	7439-97-6	7470A	0.000087	J	0.00010	0.000053	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NB03008-006
Description: MW-03
Matrix: Aqueous
Date Sampled: 02/02/2012 1310
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/07/2012 0123	COH	02/06/2012 2023	77143
1	3005A	6010C	1	02/08/2012 0235	CDF	02/07/2012 1330	77202
2	3005A	6010C	1	02/08/2012 1659	CDF	02/07/2012 1330	77202
3	3005A	6010C	1	02/09/2012 0114	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	1.1	B	0.20	0.044	mg/L	1
Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Arsenic	7440-38-2	6010C	ND		0.010	0.0040	mg/L	3
Barium	7440-39-3	6010C	0.022	J	0.025	0.0075	mg/L	1
Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Calcium	7440-70-2	6010C	36		5.0	1.0	mg/L	1
Chromium	7440-47-3	6010C	0.013		0.0050	0.0021	mg/L	1
Cobalt	7440-48-4	6010C	0.0099	J	0.025	0.0062	mg/L	1
Copper	7440-50-8	6010C	0.018		0.0050	0.0015	mg/L	1
Iron	7439-89-6	6010C	1.2		0.10	0.023	mg/L	1
Lead	7439-92-1	6010C	0.0080	J	0.010	0.0019	mg/L	2
Magnesium	7439-95-4	6010C	2.7	J	5.0	1.2	mg/L	1
Manganese	7439-96-5	6010C	0.090		0.015	0.0049	mg/L	1
Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1
Nickel	7440-02-0	6010C	0.036	J	0.040	0.010	mg/L	1
Potassium	7440-09-7	6010C	8.0		5.0	1.1	mg/L	1
Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Sodium	7440-23-5	6010C	4.8	J	5.0	1.2	mg/L	1
Thallium	7440-28-0	6010C	ND		0.050	0.0045	mg/L	1
Vanadium	7440-62-2	6010C	0.028	J	0.050	0.013	mg/L	1
Zinc	7440-66-6	6010C	0.096		0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-007
Description: MW-04
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1222	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	18		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-007
Description: MW-04
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1222	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	25		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		118	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-007
Description: MW-04
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-007
Description: MW-04
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/09/2012 1729	TAF	02/07/2012 1115	77181

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		5.2	1.3	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		5.2	1.3	ug/L	1
Anthracene	120-12-7	8270D	ND		5.2	1.1	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		5.2	0.63	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		5.2	0.52	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		5.2	0.63	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		5.2	0.83	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		5.2	1.0	ug/L	1
Chrysene	218-01-9	8270D	ND		5.2	0.73	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		5.2	1.4	ug/L	1
Fluoranthene	206-44-0	8270D	ND		5.2	1.5	ug/L	1
Fluorene	86-73-7	8270D	ND		5.2	1.5	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		5.2	2.4	ug/L	1
Naphthalene	91-20-3	8270D	ND		5.2	1.4	ug/L	1
Phenanthrene	85-01-8	8270D	ND		5.2	1.3	ug/L	1
Pyrene	129-00-0	8270D	ND		5.2	3.2	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		77	37-129
Nitrobenzene-d5		85	38-127
Terphenyl-d14		70	10-148

PQL = Practical quantitation limit
B = Detected in the method blank
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J = Estimated result < PQL and ≥ MDL
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

ICP-AES

Client: Earth Tech / AECOM
Laboratory ID: NB03008-007
Description: MW-04
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010C	1	02/08/2012 0258	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Aluminum	7429-90-5	6010C	0.16	BJ	0.20	0.044	mg/L	1
Dissolved Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Dissolved Arsenic	7440-38-2	6010C	0.0070	J	0.010	0.0040	mg/L	1
Dissolved Barium	7440-39-3	6010C	0.074		0.025	0.0075	mg/L	1
Dissolved Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Dissolved Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Dissolved Calcium	7440-70-2	6010C	16		5.0	1.0	mg/L	1
Dissolved Chromium	7440-47-3	6010C	ND		0.0050	0.0021	mg/L	1
Dissolved Cobalt	7440-48-4	6010C	ND		0.025	0.0062	mg/L	1
Dissolved Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Dissolved Iron	7439-89-6	6010C	ND		0.10	0.023	mg/L	1
Dissolved Lead	7439-92-1	6010C	ND		0.010	0.0019	mg/L	1
Dissolved Magnesium	7439-95-4	6010C	1.8	J	5.0	1.2	mg/L	1
Dissolved Manganese	7439-96-5	6010C	0.35		0.015	0.0049	mg/L	1
Dissolved Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Dissolved Potassium	7440-09-7	6010C	3.8	J	5.0	1.1	mg/L	1
Dissolved Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Dissolved Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Dissolved Sodium	7440-23-5	6010C	5.8		5.0	1.2	mg/L	1
Dissolved Thallium	7440-28-0	6010C	0.0047	J	0.050	0.0045	mg/L	1
Dissolved Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Dissolved Zinc	7440-66-6	6010C	0.0085	J	0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

CVAA

Client: Earth Tech / AECOM
Laboratory ID: NB03008-007
Description: MW-04
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/09/2012 0954	COH	02/08/2012 1739	77314

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NB03008-007
Description: MW-04
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/07/2012 0126	COH	02/06/2012 2023	77143
1	3005A	6010C	1	02/08/2012 0243	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	0.16	BJ	0.20	0.044	mg/L	1
Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Arsenic	7440-38-2	6010C	0.0054	J	0.010	0.0040	mg/L	1
Barium	7440-39-3	6010C	0.073		0.025	0.0075	mg/L	1
Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Calcium	7440-70-2	6010C	16		5.0	1.0	mg/L	1
Chromium	7440-47-3	6010C	ND		0.0050	0.0021	mg/L	1
Cobalt	7440-48-4	6010C	ND		0.025	0.0062	mg/L	1
Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Iron	7439-89-6	6010C	ND		0.10	0.023	mg/L	1
Lead	7439-92-1	6010C	0.0031	J	0.010	0.0019	mg/L	1
Magnesium	7439-95-4	6010C	1.6	J	5.0	1.2	mg/L	1
Manganese	7439-96-5	6010C	0.34		0.015	0.0049	mg/L	1
Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1
Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Potassium	7440-09-7	6010C	3.7	J	5.0	1.1	mg/L	1
Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Sodium	7440-23-5	6010C	5.6		5.0	1.2	mg/L	1
Thallium	7440-28-0	6010C	0.0049	J	0.050	0.0045	mg/L	1
Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Zinc	7440-66-6	6010C	0.0081	J	0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-008
Description: MW-04-d
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1243	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-008
Description: MW-04-d
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1243	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		120	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-008
Description: MW-04-d
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-008
Description: MW-04-d
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/09/2012 1844	TAF	02/07/2012 1115	77181

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		5.2	1.2	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		5.2	1.2	ug/L	1
Anthracene	120-12-7	8270D	ND		5.2	1.1	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		5.2	0.62	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		5.2	0.52	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		5.2	0.62	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		5.2	0.82	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		5.2	1.0	ug/L	1
Chrysene	218-01-9	8270D	ND		5.2	0.72	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		5.2	1.3	ug/L	1
Fluoranthene	206-44-0	8270D	ND		5.2	1.4	ug/L	1
Fluorene	86-73-7	8270D	ND		5.2	1.4	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		5.2	2.4	ug/L	1
Naphthalene	91-20-3	8270D	ND		5.2	1.3	ug/L	1
Phenanthrene	85-01-8	8270D	ND		5.2	1.2	ug/L	1
Pyrene	129-00-0	8270D	ND		5.2	3.2	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		98	37-129
Nitrobenzene-d5		112	38-127
Terphenyl-d14		91	10-148

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NB03008-008
Description: MW-04-d
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/07/2012 0137	COH	02/06/2012 2023	77143
1	3005A	6010C	1	02/08/2012 0302	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	0.14	BJ	0.20	0.044	mg/L	1
Antimony	7440-36-0	6010C	ND		0.010	0.0028	mg/L	1
Arsenic	7440-38-2	6010C	0.0047	J	0.010	0.0040	mg/L	1
Barium	7440-39-3	6010C	ND		0.025	0.0075	mg/L	1
Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Calcium	7440-70-2	6010C	ND		5.0	1.0	mg/L	1
Chromium	7440-47-3	6010C	ND		0.0050	0.0021	mg/L	1
Cobalt	7440-48-4	6010C	ND		0.025	0.0062	mg/L	1
Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Iron	7439-89-6	6010C	ND		0.10	0.023	mg/L	1
Lead	7439-92-1	6010C	0.0020	J	0.010	0.0019	mg/L	1
Magnesium	7439-95-4	6010C	ND		5.0	1.2	mg/L	1
Manganese	7439-96-5	6010C	ND		0.015	0.0049	mg/L	1
Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1
Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Potassium	7440-09-7	6010C	ND		5.0	1.1	mg/L	1
Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Sodium	7440-23-5	6010C	ND		5.0	1.2	mg/L	1
Thallium	7440-28-0	6010C	0.0058	J	0.050	0.0045	mg/L	1
Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Zinc	7440-66-6	6010C	ND		0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
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H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-009
Description: MW-02D
Matrix: Aqueous
Date Sampled: 02/02/2012 1545
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1304	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	10		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	0.55	J	5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-009
Description: MW-02D
Matrix: Aqueous
Date Sampled: 02/02/2012 1545
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1304	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-009
Description: MW-02D
Matrix: Aqueous
Date Sampled: 02/02/2012 1545
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Inorganic non-metals

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Hexavalent C) SM	1	02/03/2012 1239	HGP		77020

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexavalent Chromium	18540-29-9	SM 3500-Cr D	0.042		0.010	0.0046	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1325	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	9.5		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	0.57	J	5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	13		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	0.45	J	5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1325	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	0.80	J	5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/15/2012 1528	JCG		77963

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Unknown		8270D	210		0.00	0.00	ug/L	1
Unknown		8270D	23		0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/15/2012 1528	JCG	02/07/2012 1115	77182

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		5.2	1.3	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		5.2	1.3	ug/L	1
Acetophenone	98-86-2	8270D	ND		5.2	0.94	ug/L	1
Anthracene	120-12-7	8270D	ND		5.2	1.1	ug/L	1
Atrazine	1912-24-9	8270D	ND		5.2	4.4	ug/L	1
Benzaldehyde	100-52-7	8270D	ND		26	3.1	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		5.2	0.63	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		5.2	0.52	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		5.2	0.63	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		5.2	0.83	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		5.2	1.0	ug/L	1
1,1'-Biphenyl	92-52-4	8270D	ND		5.2	1.3	ug/L	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		5.2	1.3	ug/L	1
Butyl benzyl phthalate	85-68-7	8270D	ND		10	3.4	ug/L	1
Caprolactam	105-60-2	8270D	ND		26	1.3	ug/L	1
Carbazole	86-74-8	8270D	ND		5.2	1.8	ug/L	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		5.2	1.7	ug/L	1
4-Chloroaniline	106-47-8	8270D	ND		5.2	0.84	ug/L	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		5.2	1.6	ug/L	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		5.2	1.3	ug/L	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		5.2	1.4	ug/L	1
2-Chloronaphthalene	91-58-7	8270D	ND		5.2	1.4	ug/L	1
2-Chlorophenol	95-57-8	8270D	ND		5.2	1.5	ug/L	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		5.2	1.7	ug/L	1
Chrysene	218-01-9	8270D	ND		5.2	0.73	ug/L	1
Di-n-butyl phthalate	84-74-2	8270D	ND		5.2	1.8	ug/L	1
Di-n-octylphthalate	117-84-0	8270D	ND		5.2	1.8	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		5.2	1.4	ug/L	1
Dibenzofuran	132-64-9	8270D	ND		5.2	1.3	ug/L	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		26	2.7	ug/L	1
2,4-Dichlorophenol	120-83-2	8270D	ND		5.2	1.3	ug/L	1
Diethylphthalate	84-66-2	8270D	ND		5.2	2.0	ug/L	1
Dimethyl phthalate	131-11-3	8270D	ND		5.2	1.8	ug/L	1
2,4-Dimethylphenol	105-67-9	8270D	ND		5.2	1.5	ug/L	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		26	8.4	ug/L	1
2,4-Dinitrophenol	51-28-5	8270D	ND		26	5.0	ug/L	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		10	4.0	ug/L	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		10	3.5	ug/L	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		5.2	1.8	ug/L	1
Fluoranthene	206-44-0	8270D	ND		5.2	1.5	ug/L	1
Fluorene	86-73-7	8270D	ND		5.2	1.5	ug/L	1
Hexachlorobenzene	118-74-1	8270D	ND		5.2	1.3	ug/L	1
Hexachlorobutadiene	87-68-3	8270D	ND		5.2	1.5	ug/L	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		26	4.2	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	02/15/2012 1528	JCG	02/07/2012 1115	77182

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		5.2	1.3	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		5.2	2.4	ug/L	1
Isophorone	78-59-1	8270D	ND		5.2	1.5	ug/L	1
2-Methylnaphthalene	91-57-6	8270D	ND		5.2	1.6	ug/L	1
2-Methylphenol	95-48-7	8270D	ND		5.2	1.1	ug/L	1
3 & 4-Methylphenol	106-44-5	8270D	ND		10	2.8	ug/L	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		5.2	1.5	ug/L	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		5.2	1.0	ug/L	1
Naphthalene	91-20-3	8270D	ND		5.2	1.4	ug/L	1
2-Nitroaniline	88-74-4	8270D	ND		10	2.2	ug/L	1
3-Nitroaniline	99-09-2	8270D	ND		10	3.1	ug/L	1
4-Nitroaniline	100-01-6	8270D	ND		10	4.4	ug/L	1
Nitrobenzene	98-95-3	8270D	ND		5.2	1.7	ug/L	1
2-Nitrophenol	88-75-5	8270D	ND		10	3.0	ug/L	1
4-Nitrophenol	100-02-7	8270D	ND		26	9.4	ug/L	1
Pentachlorophenol	87-86-5	8270D	ND		26	5.3	ug/L	1
Phenanthrene	85-01-8	8270D	ND		5.2	1.3	ug/L	1
Phenol	108-95-2	8270D	ND		5.2	1.3	ug/L	1
Pyrene	129-00-0	8270D	ND		5.2	3.2	ug/L	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		5.2	1.3	ug/L	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		5.2	1.4	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		90	41-144
2-Fluorobiphenyl		96	37-129
2-Fluorophenol		87	24-127
Nitrobenzene-d5		91	38-127
Phenol-d5		93	28-128
Terphenyl-d14		90	10-148

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

ICP-AES

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010C	1	02/08/2012 0321	CDF	02/07/2012 1330	77202
2	3005A	6010C	1	02/09/2012 0122	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Aluminum	7429-90-5	6010C	0.14	BJ	0.20	0.044	mg/L	1
Dissolved Antimony	7440-36-0	6010C	0.0034	BJ	0.010	0.0028	mg/L	1
Dissolved Arsenic	7440-38-2	6010C	ND		0.010	0.0040	mg/L	2
Dissolved Barium	7440-39-3	6010C	0.074		0.025	0.0075	mg/L	1
Dissolved Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Dissolved Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Dissolved Calcium	7440-70-2	6010C	1.3	J	5.0	1.0	mg/L	1
Dissolved Chromium	7440-47-3	6010C	0.044		0.0050	0.0021	mg/L	1
Dissolved Cobalt	7440-48-4	6010C	ND		0.025	0.0062	mg/L	1
Dissolved Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Dissolved Iron	7439-89-6	6010C	ND		0.10	0.023	mg/L	1
Dissolved Lead	7439-92-1	6010C	0.0041	J	0.010	0.0019	mg/L	1
Dissolved Magnesium	7439-95-4	6010C	1.4	J	5.0	1.2	mg/L	1
Dissolved Manganese	7439-96-5	6010C	0.041		0.015	0.0049	mg/L	1
Dissolved Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Dissolved Potassium	7440-09-7	6010C	9.5		5.0	1.1	mg/L	1
Dissolved Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Dissolved Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Dissolved Sodium	7440-23-5	6010C	8.9		5.0	1.2	mg/L	1
Dissolved Thallium	7440-28-0	6010C	ND		0.050	0.0045	mg/L	1
Dissolved Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Dissolved Zinc	7440-66-6	6010C	0.011	J	0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

CVAA

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/09/2012 0956	COH	02/08/2012 1739	77314

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Dissolved Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NB03008-010
Description: MW-02
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/07/2012 0140	COH	02/06/2012 2023	77143
1	3005A	6010C	1	02/08/2012 0317	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	0.20	B	0.20	0.044	mg/L	1
Antimony	7440-36-0	6010C	0.0055	BJ	0.010	0.0028	mg/L	1
Arsenic	7440-38-2	6010C	0.0065	J	0.010	0.0040	mg/L	1
Barium	7440-39-3	6010C	0.080		0.025	0.0075	mg/L	1
Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Calcium	7440-70-2	6010C	1.5	J	5.0	1.0	mg/L	1
Chromium	7440-47-3	6010C	0.043		0.0050	0.0021	mg/L	1
Cobalt	7440-48-4	6010C	ND		0.025	0.0062	mg/L	1
Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Iron	7439-89-6	6010C	0.14		0.10	0.023	mg/L	1
Lead	7439-92-1	6010C	0.0041	J	0.010	0.0019	mg/L	1
Magnesium	7439-95-4	6010C	1.5	J	5.0	1.2	mg/L	1
Manganese	7439-96-5	6010C	0.046		0.015	0.0049	mg/L	1
Mercury	7439-97-6	7470A	ND		0.00010	0.000053	mg/L	1
Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Potassium	7440-09-7	6010C	11		5.0	1.1	mg/L	1
Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Sodium	7440-23-5	6010C	9.6		5.0	1.2	mg/L	1
Thallium	7440-28-0	6010C	0.0059	J	0.050	0.0045	mg/L	1
Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Zinc	7440-66-6	6010C	0.010	J	0.020	0.0045	mg/L	1

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B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-011
Description: MW-02-a
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1347	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	9.4		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	0.51	J	5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	13		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	0.48	J	5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-011
Description: MW-02-a
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1347	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	0.75	J	5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-011
Description: MW-02-a
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

TAL Metals

Client: Earth Tech / AECOM
Laboratory ID: NB03008-011
Description: MW-02-a
Matrix: Aqueous
Date Sampled: 02/02/2012 1620
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		7470A	1	02/07/2012 0143	COH	02/06/2012 2023	77143
1	3005A	6010C	1	02/08/2012 0325	CDF	02/07/2012 1330	77202

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Aluminum	7429-90-5	6010C	0.17	BJ	0.20	0.044	mg/L	1
Antimony	7440-36-0	6010C	0.0028	BJ	0.010	0.0028	mg/L	1
Arsenic	7440-38-2	6010C	0.0042	J	0.010	0.0040	mg/L	1
Barium	7440-39-3	6010C	0.078		0.025	0.0075	mg/L	1
Beryllium	7440-41-7	6010C	ND		0.0040	0.0012	mg/L	1
Cadmium	7440-43-9	6010C	ND		0.0020	0.00060	mg/L	1
Calcium	7440-70-2	6010C	1.6	J	5.0	1.0	mg/L	1
Chromium	7440-47-3	6010C	0.047		0.0050	0.0021	mg/L	1
Cobalt	7440-48-4	6010C	ND		0.025	0.0062	mg/L	1
Copper	7440-50-8	6010C	ND		0.0050	0.0015	mg/L	1
Iron	7439-89-6	6010C	0.15		0.10	0.023	mg/L	1
Lead	7439-92-1	6010C	0.0038	J	0.010	0.0019	mg/L	1
Magnesium	7439-95-4	6010C	1.5	J	5.0	1.2	mg/L	1
Manganese	7439-96-5	6010C	0.047		0.015	0.0049	mg/L	1
Mercury	7439-97-6	7470A	0.000087	J	0.00010	0.000053	mg/L	1
Nickel	7440-02-0	6010C	ND		0.040	0.010	mg/L	1
Potassium	7440-09-7	6010C	9.7		5.0	1.1	mg/L	1
Selenium	7782-49-2	6010C	ND		0.010	0.0026	mg/L	1
Silver	7440-22-4	6010C	ND		0.0050	0.00040	mg/L	1
Sodium	7440-23-5	6010C	9.0		5.0	1.2	mg/L	1
Thallium	7440-28-0	6010C	ND		0.050	0.0045	mg/L	1
Vanadium	7440-62-2	6010C	ND		0.050	0.013	mg/L	1
Zinc	7440-66-6	6010C	0.010	J	0.020	0.0045	mg/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-012
Description: MW-01
Matrix: Aqueous
Date Sampled: 02/02/2012 1715
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1408	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	11		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	3.6	J	5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-012
Description: MW-01
Matrix: Aqueous
Date Sampled: 02/02/2012 1715
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1408	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-012
Description: MW-01
Matrix: Aqueous
Date Sampled: 02/02/2012 1715
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-013
Description: MW-04-C
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1429	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		5.0	1.7	ug/L	1
Bromoform	75-25-2	8260B	ND		5.0	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	1.8	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		5.0	0.30	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		5.0	0.40	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		5.0	1.7	ug/L	1
Chloroethane	75-00-3	8260B	ND		5.0	0.50	ug/L	1
Chloroform	67-66-3	8260B	ND		5.0	1.7	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5.0	0.30	ug/L	1
Cyclohexane	110-82-7	8260B	ND		5.0	0.98	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5.0	0.60	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		5.0	1.7	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5.0	1.7	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5.0	1.7	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5.0	1.7	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5.0	0.20	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		5.0	0.30	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		5.0	0.50	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5.0	0.20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5.0	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		5.0	0.30	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5.0	0.30	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5.0	0.30	ug/L	1
1,4-Dioxane	123-91-1	8260B	ND		250	83	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	1.0	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		5.0	1.0	ug/L	1
Methyl acetate	79-20-9	8260B	ND		5.0	0.72	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.80	ug/L	1
Methylcyclohexane	108-87-2	8260B	ND		5.0	0.95	ug/L	1
Methylene chloride	75-09-2	8260B	ND		5.0	1.7	ug/L	1
Styrene	100-42-5	8260B	ND		5.0	0.10	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5.0	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		5.0	0.40	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5.0	0.30	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5.0	1.7	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5.0	0.20	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Earth Tech / AECOM
Laboratory ID: NB03008-013
Description: MW-04-C
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	02/14/2012 1429	BM		77720

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260B	ND		5.0	0.30	ug/L	1
Trichloroethene	79-01-6	8260B	ND		5.0	0.30	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		5.0	0.30	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		2.0	0.10	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		121	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Library Search

Client: Earth Tech / AECOM
Laboratory ID: NB03008-013
Description: MW-04-C
Matrix: Aqueous
Date Sampled: 02/02/2012 1430
Date Received: 02/03/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1				78270

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
None Detected		8260B			0.00	0.00	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

QC Summary

Inorganic non-metals - MB

Sample ID: NQ77020-001
Batch: 77020
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Hexavalent Chromium	ND		1	0.010	0.0046	mg/L	02/03/2012 1239

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCS

Sample ID: NQ77020-002
Batch: 77020
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Hexavalent Chromium	0.10	0.096		1	96	90-110	02/03/2012 1239

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCSD

Sample ID: NQ77020-003
Batch: 77020
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Hexavalent Chromium	0.10	0.10		1	101	5.5	90-110	20	02/03/2012 1239

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MS

Sample ID: NB03008-010MS
Batch: 77020
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Hexavalent Chromium	0.042	0.10	0.13		1	93	70-130	02/03/2012 1239

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MSD

Sample ID: NB03008-010MD
Batch: 77020
Analytical Method: SM 3500-Cr D

Matrix: Aqueous

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Hexavalent Chromium	0.042	0.10	0.13		1	90	1.8	70-130	20	02/03/2012 1239

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ77720-001
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/L	02/14/2012 0925
Benzene	ND		1	5.0	0.20	ug/L	02/14/2012 0925
Bromodichloromethane	ND		1	5.0	1.7	ug/L	02/14/2012 0925
Bromoform	ND		1	5.0	0.40	ug/L	02/14/2012 0925
Bromomethane (Methyl bromide)	ND		1	5.0	0.80	ug/L	02/14/2012 0925
2-Butanone (MEK)	ND		1	10	1.8	ug/L	02/14/2012 0925
Carbon disulfide	ND		1	5.0	0.30	ug/L	02/14/2012 0925
Carbon tetrachloride	ND		1	5.0	0.40	ug/L	02/14/2012 0925
Chlorobenzene	ND		1	5.0	1.7	ug/L	02/14/2012 0925
Chloroethane	ND		1	5.0	0.50	ug/L	02/14/2012 0925
Chloroform	ND		1	5.0	1.7	ug/L	02/14/2012 0925
Chloromethane (Methyl chloride)	ND		1	5.0	0.30	ug/L	02/14/2012 0925
Cyclohexane	ND		1	5.0	0.98	ug/L	02/14/2012 0925
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	5.0	0.60	ug/L	02/14/2012 0925
Dibromochloromethane	ND		1	5.0	1.7	ug/L	02/14/2012 0925
1,2-Dibromoethane (EDB)	ND		1	5.0	0.30	ug/L	02/14/2012 0925
1,4-Dichlorobenzene	ND		1	5.0	1.7	ug/L	02/14/2012 0925
1,3-Dichlorobenzene	ND		1	5.0	1.7	ug/L	02/14/2012 0925
1,2-Dichlorobenzene	ND		1	5.0	1.7	ug/L	02/14/2012 0925
Dichlorodifluoromethane	ND		1	5.0	0.20	ug/L	02/14/2012 0925
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	02/14/2012 0925
1,1-Dichloroethane	ND		1	5.0	0.30	ug/L	02/14/2012 0925
trans-1,2-Dichloroethene	ND		1	5.0	0.40	ug/L	02/14/2012 0925
cis-1,2-Dichloroethene	ND		1	5.0	0.20	ug/L	02/14/2012 0925
1,1-Dichloroethene	ND		1	5.0	0.50	ug/L	02/14/2012 0925
1,2-Dichloropropane	ND		1	5.0	0.30	ug/L	02/14/2012 0925
trans-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	02/14/2012 0925
cis-1,3-Dichloropropene	ND		1	5.0	0.30	ug/L	02/14/2012 0925
1,4-Dioxane	ND		1	250	83	ug/L	02/14/2012 0925
Ethylbenzene	ND		1	5.0	1.7	ug/L	02/14/2012 0925
2-Hexanone	ND		1	10	1.0	ug/L	02/14/2012 0925
Isopropylbenzene	ND		1	5.0	1.0	ug/L	02/14/2012 0925
Methyl acetate	ND		1	5.0	0.72	ug/L	02/14/2012 0925
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	02/14/2012 0925
4-Methyl-2-pentanone	ND		1	10	0.80	ug/L	02/14/2012 0925
Methylcyclohexane	ND		1	5.0	0.95	ug/L	02/14/2012 0925
Methylene chloride	ND		1	5.0	1.7	ug/L	02/14/2012 0925
Styrene	ND		1	5.0	0.10	ug/L	02/14/2012 0925
1,1,2,2-Tetrachloroethane	ND		1	5.0	0.40	ug/L	02/14/2012 0925
Tetrachloroethene	ND		1	5.0	0.40	ug/L	02/14/2012 0925
Toluene	ND		1	5.0	1.7	ug/L	02/14/2012 0925
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	5.0	0.30	ug/L	02/14/2012 0925
1,2,4-Trichlorobenzene	ND		1	5.0	1.7	ug/L	02/14/2012 0925
1,1,2-Trichloroethane	ND		1	5.0	0.30	ug/L	02/14/2012 0925

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ77720-001
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1,1-Trichloroethane	ND		1	5.0	0.20	ug/L	02/14/2012 0925
Trichloroethene	ND		1	5.0	0.30	ug/L	02/14/2012 0925
Trichlorofluoromethane	ND		1	5.0	0.30	ug/L	02/14/2012 0925
Vinyl chloride	ND		1	2.0	0.10	ug/L	02/14/2012 0925
Xylenes (total)	ND		1	5.0	1.7	ug/L	02/14/2012 0925

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		115	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ77720-002
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	110		1	112	70-130	02/14/2012 0800
Benzene	50	48		1	96	70-130	02/14/2012 0800
Bromodichloromethane	50	55		1	110	70-130	02/14/2012 0800
Bromoform	50	60		1	119	70-130	02/14/2012 0800
Bromomethane (Methyl bromide)	50	59		1	118	60-140	02/14/2012 0800
2-Butanone (MEK)	100	91		1	91	60-140	02/14/2012 0800
Carbon disulfide	50	48		1	95	60-140	02/14/2012 0800
Carbon tetrachloride	50	58		1	115	70-130	02/14/2012 0800
Chlorobenzene	50	51		1	102	70-130	02/14/2012 0800
Chloroethane	50	50		1	101	42-163	02/14/2012 0800
Chloroform	50	52		1	104	70-130	02/14/2012 0800
Chloromethane (Methyl chloride)	50	49		1	97	70-130	02/14/2012 0800
Cyclohexane	50	49		1	99	70-130	02/14/2012 0800
1,2-Dibromo-3-chloropropane (DBCP)	50	54		1	108	70-130	02/14/2012 0800
Dibromochloromethane	50	55		1	111	70-130	02/14/2012 0800
1,2-Dibromoethane (EDB)	50	52		1	103	70-130	02/14/2012 0800
1,4-Dichlorobenzene	50	50		1	100	70-130	02/14/2012 0800
1,3-Dichlorobenzene	50	51		1	101	70-130	02/14/2012 0800
1,2-Dichlorobenzene	50	51		1	102	70-130	02/14/2012 0800
Dichlorodifluoromethane	50	58		1	116	60-140	02/14/2012 0800
1,2-Dichloroethane	50	54		1	108	70-130	02/14/2012 0800
1,1-Dichloroethane	50	48		1	97	70-130	02/14/2012 0800
trans-1,2-Dichloroethene	50	48		1	96	70-130	02/14/2012 0800
cis-1,2-Dichloroethene	50	49		1	98	70-130	02/14/2012 0800
1,1-Dichloroethene	50	48		1	96	70-130	02/14/2012 0800
1,2-Dichloropropane	50	50		1	100	70-130	02/14/2012 0800
trans-1,3-Dichloropropene	50	57		1	113	70-130	02/14/2012 0800
cis-1,3-Dichloropropene	50	55		1	110	70-130	02/14/2012 0800
1,4-Dioxane	500	530		1	106	43-173	02/14/2012 0800
Ethylbenzene	50	52		1	104	70-130	02/14/2012 0800
2-Hexanone	100	110		1	107	60-140	02/14/2012 0800
Isopropylbenzene	50	53		1	105	70-130	02/14/2012 0800
Methyl acetate	50	45		1	91	70-130	02/14/2012 0800
Methyl tertiary butyl ether (MTBE)	50	53		1	105	70-130	02/14/2012 0800
4-Methyl-2-pentanone	100	110		1	110	60-140	02/14/2012 0800
Methylcyclohexane	50	53		1	105	70-130	02/14/2012 0800
Methylene chloride	50	45		1	90	70-130	02/14/2012 0800
Styrene	50	55		1	110	70-130	02/14/2012 0800
1,1,2,2-Tetrachloroethane	50	48		1	97	70-130	02/14/2012 0800
Tetrachloroethene	50	54		1	109	70-130	02/14/2012 0800
Toluene	50	51		1	101	70-130	02/14/2012 0800
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	57		1	115	70-130	02/14/2012 0800
1,2,4-Trichlorobenzene	50	51		1	102	70-130	02/14/2012 0800
1,1,2-Trichloroethane	50	47		1	95	70-130	02/14/2012 0800

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ77720-002
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,1,1-Trichloroethane	50	57		1	113	70-130	02/14/2012 0800
Trichloroethene	50	49		1	98	70-130	02/14/2012 0800
Trichlorofluoromethane	50	56		1	112	70-130	02/14/2012 0800
Vinyl chloride	50	52		1	104	70-130	02/14/2012 0800
Xylenes (total)	100	110		1	106	70-130	02/14/2012 0800

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		113	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ77720-003
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	110		1	105	6.6	70-130	20	02/14/2012 0822
Benzene	50	46		1	93	3.0	70-130	20	02/14/2012 0822
Bromodichloromethane	50	53		1	106	3.8	70-130	20	02/14/2012 0822
Bromoform	50	57		1	114	4.1	70-130	20	02/14/2012 0822
Bromomethane (Methyl bromide)	50	50		1	101	16	60-140	20	02/14/2012 0822
2-Butanone (MEK)	100	87		1	87	4.3	60-140	20	02/14/2012 0822
Carbon disulfide	50	45		1	90	5.9	60-140	20	02/14/2012 0822
Carbon tetrachloride	50	54		1	108	6.5	70-130	20	02/14/2012 0822
Chlorobenzene	50	50		1	101	1.4	70-130	20	02/14/2012 0822
Chloroethane	50	50		1	99	1.3	42-163	20	02/14/2012 0822
Chloroform	50	50		1	99	4.3	70-130	20	02/14/2012 0822
Chloromethane (Methyl chloride)	50	46		1	93	4.4	70-130	20	02/14/2012 0822
Cyclohexane	50	47		1	93	5.8	70-130	20	02/14/2012 0822
1,2-Dibromo-3-chloropropane (DBCP)	50	53		1	106	1.2	70-130	20	02/14/2012 0822
Dibromochloromethane	50	54		1	109	1.7	70-130	20	02/14/2012 0822
1,2-Dibromoethane (EDB)	50	51		1	102	0.92	70-130	20	02/14/2012 0822
1,4-Dichlorobenzene	50	49		1	97	3.0	70-130	20	02/14/2012 0822
1,3-Dichlorobenzene	50	50		1	100	1.2	70-130	20	02/14/2012 0822
1,2-Dichlorobenzene	50	51		1	101	1.2	70-130	20	02/14/2012 0822
Dichlorodifluoromethane	50	56		1	111	4.0	60-140	20	02/14/2012 0822
1,2-Dichloroethane	50	53		1	107	1.7	70-130	20	02/14/2012 0822
1,1-Dichloroethane	50	47		1	94	3.0	70-130	20	02/14/2012 0822
trans-1,2-Dichloroethene	50	46		1	92	4.5	70-130	20	02/14/2012 0822
cis-1,2-Dichloroethene	50	47		1	93	4.4	70-130	20	02/14/2012 0822
1,1-Dichloroethene	50	47		1	93	3.1	70-130	20	02/14/2012 0822
1,2-Dichloropropane	50	48		1	97	3.1	70-130	20	02/14/2012 0822
trans-1,3-Dichloropropene	50	57		1	114	1.2	70-130	20	02/14/2012 0822
cis-1,3-Dichloropropene	50	53		1	107	2.5	70-130	20	02/14/2012 0822
1,4-Dioxane	500	680	+	1	135	25	43-173	20	02/14/2012 0822
Ethylbenzene	50	51		1	101	3.0	70-130	20	02/14/2012 0822
2-Hexanone	100	100		1	100	6.1	60-140	20	02/14/2012 0822
Isopropylbenzene	50	51		1	102	3.4	70-130	20	02/14/2012 0822
Methyl acetate	50	44		1	88	2.9	70-130	20	02/14/2012 0822
Methyl tertiary butyl ether (MTBE)	50	50		1	101	4.5	70-130	20	02/14/2012 0822
4-Methyl-2-pentanone	100	100		1	100	8.8	60-140	20	02/14/2012 0822
Methylcyclohexane	50	49		1	97	7.9	70-130	20	02/14/2012 0822
Methylene chloride	50	44		1	88	2.1	70-130	20	02/14/2012 0822
Styrene	50	55		1	109	0.37	70-130	20	02/14/2012 0822
1,1,2,2-Tetrachloroethane	50	47		1	94	3.1	70-130	20	02/14/2012 0822
Tetrachloroethene	50	53		1	106	2.0	70-130	20	02/14/2012 0822
Toluene	50	49		1	97	4.2	70-130	20	02/14/2012 0822
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	56		1	111	3.1	70-130	20	02/14/2012 0822
1,2,4-Trichlorobenzene	50	56		1	111	8.7	70-130	20	02/14/2012 0822
1,1,2-Trichloroethane	50	48		1	96	1.1	70-130	20	02/14/2012 0822

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ77720-003
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,1,1-Trichloroethane	50	52		1	104	8.2	70-130	20	02/14/2012 0822
Trichloroethene	50	47		1	94	3.9	70-130	20	02/14/2012 0822
Trichlorofluoromethane	50	52		1	104	7.3	70-130	20	02/14/2012 0822
Vinyl chloride	50	50		1	101	3.2	70-130	20	02/14/2012 0822
Xylenes (total)	100	100		1	103	2.7	70-130	20	02/14/2012 0822

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		119	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: NB03008-007MS
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	ND	100	100		1	100	60-140	02/14/2012 1857
Benzene	ND	50	44		1	89	70-130	02/14/2012 1857
Bromodichloromethane	ND	50	53		1	105	71-143	02/14/2012 1857
Bromoform	ND	50	54		1	108	65-131	02/14/2012 1857
Bromomethane (Methyl bromide)	ND	50	53		1	105	36-168	02/14/2012 1857
2-Butanone (MEK)	ND	100	76		1	76	60-140	02/14/2012 1857
Carbon disulfide	ND	50	44		1	88	60-140	02/14/2012 1857
Carbon tetrachloride	ND	50	58		1	116	37-166	02/14/2012 1857
Chlorobenzene	ND	50	47		1	93	78-129	02/14/2012 1857
Chloroethane	ND	50	46		1	92	60-140	02/14/2012 1857
Chloroform	ND	50	51		1	102	63-123	02/14/2012 1857
Chloromethane (Methyl chloride)	ND	50	44		1	87	20-158	02/14/2012 1857
Cyclohexane	ND	50	46		1	91	70-130	02/14/2012 1857
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	46		1	93	70-130	02/14/2012 1857
Dibromochloromethane	ND	50	51		1	102	74-134	02/14/2012 1857
1,2-Dibromoethane (EDB)	ND	50	47		1	93	70-130	02/14/2012 1857
1,4-Dichlorobenzene	ND	50	46		1	91	70-130	02/14/2012 1857
1,3-Dichlorobenzene	ND	50	47		1	93	70-130	02/14/2012 1857
1,2-Dichlorobenzene	ND	50	47		1	94	70-130	02/14/2012 1857
Dichlorodifluoromethane	ND	50	54		1	107	10-158	02/14/2012 1857
1,2-Dichloroethane	ND	50	53		1	106	70-130	02/14/2012 1857
1,1-Dichloroethane	ND	50	45		1	90	69-132	02/14/2012 1857
trans-1,2-Dichloroethene	ND	50	45		1	91	70-130	02/14/2012 1857
cis-1,2-Dichloroethene	ND	50	45		1	91	70-130	02/14/2012 1857
1,1-Dichloroethene	18	50	61		1	86	50-132	02/14/2012 1857
1,2-Dichloropropane	ND	50	45		1	90	71-126	02/14/2012 1857
trans-1,3-Dichloropropene	ND	50	51		1	102	73-131	02/14/2012 1857
cis-1,3-Dichloropropene	ND	50	49		1	97	69-130	02/14/2012 1857
1,4-Dioxane	ND	500	450		1	89	43-173	02/14/2012 1857
Ethylbenzene	ND	50	49		1	97	70-130	02/14/2012 1857
2-Hexanone	ND	100	90		1	90	60-140	02/14/2012 1857
Isopropylbenzene	ND	50	48		1	95	70-130	02/14/2012 1857
Methyl acetate	ND	50	39		1	78	15-128	02/14/2012 1857
Methyl tertiary butyl ether (MTBE)	ND	50	47		1	94	70-130	02/14/2012 1857
4-Methyl-2-pentanone	ND	100	94		1	94	60-140	02/14/2012 1857
Methylcyclohexane	ND	50	49		1	98	70-130	02/14/2012 1857
Methylene chloride	ND	50	41		1	82	69-129	02/14/2012 1857
Styrene	ND	50	52		1	105	70-130	02/14/2012 1857
1,1,2,2-Tetrachloroethane	ND	50	42		1	84	60-155	02/14/2012 1857
Tetrachloroethene	ND	50	51		1	103	70-130	02/14/2012 1857
Toluene	ND	50	47		1	94	70-130	02/14/2012 1857
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	54		1	109	70-130	02/14/2012 1857
1,2,4-Trichlorobenzene	ND	50	46		1	92	70-130	02/14/2012 1857
1,1,2-Trichloroethane	ND	50	42		1	85	77-132	02/14/2012 1857

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: NB03008-007MS
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,1,1-Trichloroethane	ND	50	55		1	110	77-132	02/14/2012 1857
Trichloroethene	25	50	71		1	91	73-124	02/14/2012 1857
Trichlorofluoromethane	ND	50	56		1	111	60-140	02/14/2012 1857
Vinyl chloride	ND	50	48		1	95	29-159	02/14/2012 1857
Xylenes (total)	ND	100	98		1	98	70-130	02/14/2012 1857

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		128	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: NB03008-007MD
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	100	100		1	102	2.2	60-140	20	02/14/2012 1918
Benzene	ND	50	49		1	99	10	70-130	20	02/14/2012 1918
Bromodichloromethane	ND	50	56		1	112	6.4	71-143	20	02/14/2012 1918
Bromoform	ND	50	57		1	115	6.2	65-131	20	02/14/2012 1918
Bromomethane (Methyl bromide)	ND	50	58		1	117	10	36-168	20	02/14/2012 1918
2-Butanone (MEK)	ND	100	82		1	82	7.6	60-140	20	02/14/2012 1918
Carbon disulfide	ND	50	44		1	89	1.2	60-140	20	02/14/2012 1918
Carbon tetrachloride	ND	50	60		1	121	4.1	37-166	20	02/14/2012 1918
Chlorobenzene	ND	50	51		1	102	9.1	78-129	20	02/14/2012 1918
Chloroethane	ND	50	50		1	100	8.6	60-140	20	02/14/2012 1918
Chloroform	ND	50	56		1	111	8.9	63-123	20	02/14/2012 1918
Chloromethane (Methyl chloride)	ND	50	48		1	97	10	20-158	20	02/14/2012 1918
Cyclohexane	ND	50	51		1	102	11	70-130	20	02/14/2012 1918
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	48		1	95	2.5	70-130	20	02/14/2012 1918
Dibromochloromethane	ND	50	55		1	110	8.2	74-134	20	02/14/2012 1918
1,2-Dibromoethane (EDB)	ND	50	51		1	102	8.8	70-130	20	02/14/2012 1918
1,4-Dichlorobenzene	ND	50	50		1	101	10	70-130	20	02/14/2012 1918
1,3-Dichlorobenzene	ND	50	52		1	104	10	70-130	20	02/14/2012 1918
1,2-Dichlorobenzene	ND	50	51		1	103	9.5	70-130	20	02/14/2012 1918
Dichlorodifluoromethane	ND	50	58		1	116	8.0	10-158	20	02/14/2012 1918
1,2-Dichloroethane	ND	50	56		1	113	6.0	70-130	20	02/14/2012 1918
1,1-Dichloroethane	ND	50	50		1	100	11	69-132	20	02/14/2012 1918
trans-1,2-Dichloroethene	ND	50	50		1	100	9.7	70-130	20	02/14/2012 1918
cis-1,2-Dichloroethene	ND	50	49		1	99	8.5	70-130	20	02/14/2012 1918
1,1-Dichloroethene	18	50	67		1	98	8.9	50-132	20	02/14/2012 1918
1,2-Dichloropropane	ND	50	49		1	99	9.5	71-126	20	02/14/2012 1918
trans-1,3-Dichloropropene	ND	50	55		1	110	8.2	73-131	20	02/14/2012 1918
cis-1,3-Dichloropropene	ND	50	53		1	106	8.6	69-130	20	02/14/2012 1918
1,4-Dioxane	ND	500	390		1	77	14	43-173	20	02/14/2012 1918
Ethylbenzene	ND	50	54		1	108	10	70-130	20	02/14/2012 1918
2-Hexanone	ND	100	100		1	101	12	60-140	20	02/14/2012 1918
Isopropylbenzene	ND	50	54		1	108	12	70-130	20	02/14/2012 1918
Methyl acetate	ND	50	43		1	85	8.5	15-128	20	02/14/2012 1918
Methyl tertiary butyl ether (MTBE)	ND	50	52		1	104	9.4	70-130	20	02/14/2012 1918
4-Methyl-2-pentanone	ND	100	100		1	103	8.8	60-140	20	02/14/2012 1918
Methylcyclohexane	ND	50	53		1	107	8.7	70-130	20	02/14/2012 1918
Methylene chloride	ND	50	45		1	91	10	69-129	20	02/14/2012 1918
Styrene	ND	50	55		1	110	5.3	70-130	20	02/14/2012 1918
1,1,2,2-Tetrachloroethane	ND	50	45		1	91	8.1	60-155	20	02/14/2012 1918
Tetrachloroethene	ND	50	54		1	108	5.3	70-130	20	02/14/2012 1918
Toluene	ND	50	51		1	102	8.0	70-130	20	02/14/2012 1918
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	59		1	118	8.1	70-130	20	02/14/2012 1918
1,2,4-Trichlorobenzene	ND	50	45		1	91	1.3	70-130	20	02/14/2012 1918
1,1,2-Trichloroethane	ND	50	48		1	95	12	77-132	20	02/14/2012 1918

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: NB03008-007MD
Batch: 77720
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,1,1-Trichloroethane	ND	50	60		1	120	8.6	77-132	20	02/14/2012 1918
Trichloroethene	25	50	77		1	104	8.5	73-124	20	02/14/2012 1918
Trichlorofluoromethane	ND	50	60		1	120	7.4	60-140	20	02/14/2012 1918
Vinyl chloride	ND	50	53		1	105	10	29-159	20	02/14/2012 1918
Xylenes (total)	ND	100	110		1	107	8.2	70-130	20	02/14/2012 1918

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		126	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ77181-001
Batch: 77181
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	5.0	1.2	ug/L	02/09/2012 1614
Acenaphthylene	ND		1	5.0	1.2	ug/L	02/09/2012 1614
Anthracene	ND		1	5.0	1.1	ug/L	02/09/2012 1614
Benzo(a)anthracene	ND		1	5.0	0.60	ug/L	02/09/2012 1614
Benzo(a)pyrene	ND		1	5.0	0.50	ug/L	02/09/2012 1614
Benzo(b)fluoranthene	ND		1	5.0	0.60	ug/L	02/09/2012 1614
Benzo(g,h,i)perylene	ND		1	5.0	0.80	ug/L	02/09/2012 1614
Benzo(k)fluoranthene	ND		1	5.0	1.0	ug/L	02/09/2012 1614
Chrysene	ND		1	5.0	0.70	ug/L	02/09/2012 1614
Dibenzo(a,h)anthracene	ND		1	5.0	1.3	ug/L	02/09/2012 1614
Fluoranthene	ND		1	5.0	1.4	ug/L	02/09/2012 1614
Fluorene	ND		1	5.0	1.4	ug/L	02/09/2012 1614
Indeno(1,2,3-c,d)pyrene	ND		1	5.0	2.3	ug/L	02/09/2012 1614
Naphthalene	ND		1	5.0	1.3	ug/L	02/09/2012 1614
Phenanthrene	ND		1	5.0	1.2	ug/L	02/09/2012 1614
Pyrene	ND		1	5.0	3.1	ug/L	02/09/2012 1614

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		77	37-129
Nitrobenzene-d5		89	38-127
Terphenyl-d14		69	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ77181-002
Batch: 77181
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	100	85		1	85	30-130	02/09/2012 1639
Acenaphthylene	100	87		1	87	30-130	02/09/2012 1639
Anthracene	100	78		1	78	30-130	02/09/2012 1639
Benzo(a)anthracene	100	76		1	76	30-130	02/09/2012 1639
Benzo(a)pyrene	100	87		1	87	30-130	02/09/2012 1639
Benzo(b)fluoranthene	100	84		1	84	30-130	02/09/2012 1639
Benzo(g,h,i)perylene	100	78		1	78	30-130	02/09/2012 1639
Benzo(k)fluoranthene	100	80		1	80	30-130	02/09/2012 1639
Chrysene	100	74		1	74	30-130	02/09/2012 1639
Dibenzo(a,h)anthracene	100	81		1	81	30-130	02/09/2012 1639
Fluoranthene	100	75		1	75	30-130	02/09/2012 1639
Fluorene	100	79		1	79	30-130	02/09/2012 1639
Indeno(1,2,3-c,d)pyrene	100	77		1	77	30-130	02/09/2012 1639
Naphthalene	100	78		1	78	30-130	02/09/2012 1639
Phenanthrene	100	77		1	77	30-130	02/09/2012 1639
Pyrene	100	76		1	76	30-130	02/09/2012 1639

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		78	37-129
Nitrobenzene-d5		91	38-127
Terphenyl-d14		68	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MS

Sample ID: NB03008-007MS
Batch: 77181
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	ND	100	110		1	108	30-130	02/09/2012 1754
Acenaphthylene	ND	100	110		1	108	30-130	02/09/2012 1754
Anthracene	ND	100	96		1	92	30-130	02/09/2012 1754
Benzo(a)anthracene	ND	100	100		1	100	30-130	02/09/2012 1754
Benzo(a)pyrene	ND	100	110		1	110	30-130	02/09/2012 1754
Benzo(b)fluoranthene	ND	100	110		1	110	30-130	02/09/2012 1754
Benzo(g,h,i)perylene	ND	100	100		1	99	30-130	02/09/2012 1754
Benzo(k)fluoranthene	ND	100	100		1	101	30-130	02/09/2012 1754
Chrysene	ND	100	100		1	97	30-130	02/09/2012 1754
Dibenzo(a,h)anthracene	ND	100	110		1	103	30-130	02/09/2012 1754
Fluoranthene	ND	100	100		1	96	30-130	02/09/2012 1754
Fluorene	ND	100	100		1	99	30-130	02/09/2012 1754
Indeno(1,2,3-c,d)pyrene	ND	100	100		1	100	30-130	02/09/2012 1754
Naphthalene	ND	100	96		1	92	30-130	02/09/2012 1754
Phenanthrene	ND	100	100		1	98	30-130	02/09/2012 1754
Pyrene	ND	100	100		1	101	30-130	02/09/2012 1754

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		97	37-129
Nitrobenzene-d5		107	38-127
Terphenyl-d14		90	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: NB03008-007MD
Batch: 77181
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acenaphthene	ND	100	110		1	107	0.59	30-130	20	02/09/2012 1819
Acenaphthylene	ND	100	110		1	109	0.40	30-130	20	02/09/2012 1819
Anthracene	ND	100	95		1	91	1.6	30-130	20	02/09/2012 1819
Benzo(a)anthracene	ND	100	100		1	100	0.27	30-130	20	02/09/2012 1819
Benzo(a)pyrene	ND	100	110		1	109	0.80	30-130	20	02/09/2012 1819
Benzo(b)fluoranthene	ND	100	110		1	108	1.6	30-130	20	02/09/2012 1819
Benzo(g,h,i)perylene	ND	100	100		1	99	0.53	30-130	20	02/09/2012 1819
Benzo(k)fluoranthene	ND	100	110		1	101	0.33	30-130	20	02/09/2012 1819
Chrysene	ND	100	100		1	96	0.49	30-130	20	02/09/2012 1819
Dibenzo(a,h)anthracene	ND	100	110		1	103	0.010	30-130	20	02/09/2012 1819
Fluoranthene	ND	100	100		1	97	0.31	30-130	20	02/09/2012 1819
Fluorene	ND	100	100		1	100	1.2	30-130	20	02/09/2012 1819
Indeno(1,2,3-c,d)pyrene	ND	100	100		1	100	0.35	30-130	20	02/09/2012 1819
Naphthalene	ND	100	98		1	94	2.0	30-130	20	02/09/2012 1819
Phenanthrene	ND	100	100		1	98	0.48	30-130	20	02/09/2012 1819
Pyrene	ND	100	100		1	101	0.19	30-130	20	02/09/2012 1819

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		98	37-129
Nitrobenzene-d5		110	38-127
Terphenyl-d14		90	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ77182-001
Batch: 77182
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,1'-Biphenyl	ND		1	5.0	1.3	ug/L	02/15/2012 1055
2,4,5-Trichlorophenol	ND		1	5.0	1.2	ug/L	02/15/2012 1055
2,4,6-Trichlorophenol	ND		1	5.0	1.3	ug/L	02/15/2012 1055
2,4-Dichlorophenol	ND		1	5.0	1.2	ug/L	02/15/2012 1055
2,4-Dimethylphenol	ND		1	5.0	1.4	ug/L	02/15/2012 1055
2,4-Dinitrophenol	ND		1	25	4.8	ug/L	02/15/2012 1055
2,4-Dinitrotoluene	ND		1	10	3.8	ug/L	02/15/2012 1055
2,6-Dinitrotoluene	ND		1	10	3.4	ug/L	02/15/2012 1055
2-Chloronaphthalene	ND		1	5.0	1.3	ug/L	02/15/2012 1055
2-Chlorophenol	ND		1	5.0	1.4	ug/L	02/15/2012 1055
2-Methylnaphthalene	ND		1	5.0	1.5	ug/L	02/15/2012 1055
2-Methylphenol	ND		1	5.0	1.1	ug/L	02/15/2012 1055
2-Nitroaniline	ND		1	10	2.1	ug/L	02/15/2012 1055
2-Nitrophenol	ND		1	10	2.9	ug/L	02/15/2012 1055
3 & 4-Methylphenol	ND		1	10	2.7	ug/L	02/15/2012 1055
3,3'-Dichlorobenzidine	ND		1	25	2.6	ug/L	02/15/2012 1055
3-Nitroaniline	ND		1	10	3.0	ug/L	02/15/2012 1055
4,6-Dinitro-2-methylphenol	ND		1	25	8.1	ug/L	02/15/2012 1055
4-Bromophenyl phenyl ether	ND		1	5.0	1.2	ug/L	02/15/2012 1055
4-Chloro-3-methyl phenol	ND		1	5.0	1.6	ug/L	02/15/2012 1055
4-Chloroaniline	ND		1	5.0	0.81	ug/L	02/15/2012 1055
4-Chlorophenyl phenyl ether	ND		1	5.0	1.6	ug/L	02/15/2012 1055
4-Nitroaniline	ND		1	10	4.2	ug/L	02/15/2012 1055
4-Nitrophenol	ND		1	25	9.0	ug/L	02/15/2012 1055
Acenaphthene	ND		1	5.0	1.2	ug/L	02/15/2012 1055
Acenaphthylene	ND		1	5.0	1.2	ug/L	02/15/2012 1055
Acetophenone	ND		1	5.0	0.90	ug/L	02/15/2012 1055
Anthracene	ND		1	5.0	1.1	ug/L	02/15/2012 1055
Atrazine	ND		1	5.0	4.2	ug/L	02/15/2012 1055
Benzaldehyde	ND		1	25	3.0	ug/L	02/15/2012 1055
Benzo(a)anthracene	ND		1	5.0	0.60	ug/L	02/15/2012 1055
Benzo(a)pyrene	ND		1	5.0	0.50	ug/L	02/15/2012 1055
Benzo(b)fluoranthene	ND		1	5.0	0.60	ug/L	02/15/2012 1055
Benzo(g,h,i)perylene	ND		1	5.0	0.80	ug/L	02/15/2012 1055
Benzo(k)fluoranthene	ND		1	5.0	1.0	ug/L	02/15/2012 1055
bis(2-Chloroethoxy)methane	ND		1	5.0	1.5	ug/L	02/15/2012 1055
bis(2-Chloroethyl)ether	ND		1	5.0	1.2	ug/L	02/15/2012 1055
bis(2-Chloroisopropyl)ether	ND		1	5.0	1.3	ug/L	02/15/2012 1055
bis(2-Ethylhexyl)phthalate	ND		1	5.0	1.7	ug/L	02/15/2012 1055
Butyl benzyl phthalate	ND		1	10	3.3	ug/L	02/15/2012 1055
Caprolactam	ND		1	25	1.2	ug/L	02/15/2012 1055
Carbazole	ND		1	5.0	1.7	ug/L	02/15/2012 1055
Chrysene	ND		1	5.0	0.70	ug/L	02/15/2012 1055
Di-n-butyl phthalate	ND		1	5.0	1.7	ug/L	02/15/2012 1055

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ77182-001
Batch: 77182
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Di-n-octylphthalate	ND		1	5.0	1.7	ug/L	02/15/2012 1055
Dibenzo(a,h)anthracene	ND		1	5.0	1.3	ug/L	02/15/2012 1055
Dibenzofuran	ND		1	5.0	1.2	ug/L	02/15/2012 1055
Diethylphthalate	ND		1	5.0	1.9	ug/L	02/15/2012 1055
Dimethyl phthalate	ND		1	5.0	1.7	ug/L	02/15/2012 1055
Fluoranthene	ND		1	5.0	1.4	ug/L	02/15/2012 1055
Fluorene	ND		1	5.0	1.4	ug/L	02/15/2012 1055
Hexachlorobenzene	ND		1	5.0	1.2	ug/L	02/15/2012 1055
Hexachlorobutadiene	ND		1	5.0	1.4	ug/L	02/15/2012 1055
Hexachlorocyclopentadiene	ND		1	25	4.0	ug/L	02/15/2012 1055
Hexachloroethane	ND		1	5.0	1.2	ug/L	02/15/2012 1055
Indeno(1,2,3-c,d)pyrene	ND		1	5.0	2.3	ug/L	02/15/2012 1055
Isophorone	ND		1	5.0	1.4	ug/L	02/15/2012 1055
N-Nitrosodi-n-propylamine	ND		1	5.0	1.4	ug/L	02/15/2012 1055
N-Nitrosodiphenylamine (Diphenylamine)	ND		1	5.0	1.0	ug/L	02/15/2012 1055
Naphthalene	ND		1	5.0	1.3	ug/L	02/15/2012 1055
Nitrobenzene	ND		1	5.0	1.6	ug/L	02/15/2012 1055
Pentachlorophenol	ND		1	25	5.1	ug/L	02/15/2012 1055
Phenanthrene	ND		1	5.0	1.2	ug/L	02/15/2012 1055
Phenol	ND		1	5.0	1.2	ug/L	02/15/2012 1055
Pyrene	ND		1	5.0	3.1	ug/L	02/15/2012 1055

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		93	41-144
2-Fluorobiphenyl		105	37-129
2-Fluorophenol		94	24-127
Nitrobenzene-d5		100	38-127
Phenol-d5		100	28-128
Terphenyl-d14		96	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ77182-002
Batch: 77182
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
2,4,5-Trichlorophenol	100	100		1	102	30-130	02/15/2012 1553
2,4,6-Trichlorophenol	100	96		1	96	30-130	02/15/2012 1553
2,4-Dichlorophenol	100	98		1	98	30-130	02/15/2012 1553
2,4-Dimethylphenol	100	110		1	113	30-130	02/15/2012 1553
2,4-Dinitrophenol	500	520		1	105	30-130	02/15/2012 1553
2,4-Dinitrotoluene	200	220		1	111	30-130	02/15/2012 1553
2,6-Dinitrotoluene	200	230		1	115	30-130	02/15/2012 1553
2-Chloronaphthalene	100	83		1	83	30-130	02/15/2012 1553
2-Chlorophenol	100	90		1	90	30-130	02/15/2012 1553
2-Methylnaphthalene	100	100		1	100	30-130	02/15/2012 1553
2-Methylphenol	100	100		1	100	30-130	02/15/2012 1553
2-Nitroaniline	200	210		1	104	30-130	02/15/2012 1553
2-Nitrophenol	200	230		1	115	30-130	02/15/2012 1553
3 & 4-Methylphenol	200	190		1	95	30-130	02/15/2012 1553
3-Nitroaniline	200	220		1	112	30-130	02/15/2012 1553
4,6-Dinitro-2-methylphenol	500	520		1	103	30-130	02/15/2012 1553
4-Bromophenyl phenyl ether	100	97		1	97	30-130	02/15/2012 1553
4-Chloro-3-methyl phenol	100	100		1	101	30-130	02/15/2012 1553
4-Chloroaniline	100	18		1	18	10-130	02/15/2012 1553
4-Chlorophenyl phenyl ether	100	100		1	100	30-130	02/15/2012 1553
4-Nitroaniline	200	260	N	1	132	30-130	02/15/2012 1553
4-Nitrophenol	500	460		1	92	30-130	02/15/2012 1553
Acenaphthene	100	98		1	98	30-130	02/15/2012 1553
Acenaphthylene	100	110		1	110	30-130	02/15/2012 1553
Anthracene	100	94		1	94	30-130	02/15/2012 1553
Benzo(a)anthracene	100	98		1	98	30-130	02/15/2012 1553
Benzo(a)pyrene	100	110		1	107	30-130	02/15/2012 1553
Benzo(b)fluoranthene	100	100		1	102	30-130	02/15/2012 1553
Benzo(g,h,i)perylene	100	98		1	98	30-130	02/15/2012 1553
Benzo(k)fluoranthene	100	99		1	99	30-130	02/15/2012 1553
bis(2-Chloroethoxy)methane	100	96		1	96	30-130	02/15/2012 1553
bis(2-Chloroethyl)ether	100	92		1	92	30-130	02/15/2012 1553
bis(2-Chloroisopropyl)ether	100	59		1	59	30-130	02/15/2012 1553
bis(2-Ethylhexyl)phthalate	100	100		1	100	30-130	02/15/2012 1553
Butyl benzyl phthalate	100	100		1	102	30-130	02/15/2012 1553
Carbazole	100	140	N	1	138	30-130	02/15/2012 1553
Chrysene	100	94		1	94	30-130	02/15/2012 1553
Di-n-butyl phthalate	100	99		1	99	30-130	02/15/2012 1553
Di-n-octylphthalate	100	110		1	112	30-130	02/15/2012 1553
Dibenzo(a,h)anthracene	100	100		1	100	30-130	02/15/2012 1553
Dibenzofuran	100	96		1	96	30-130	02/15/2012 1553
Diethylphthalate	100	98		1	98	30-130	02/15/2012 1553
Dimethyl phthalate	100	96		1	96	30-130	02/15/2012 1553
Fluoranthene	100	97		1	97	30-130	02/15/2012 1553

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ77182-002
Batch: 77182
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 02/07/2012 1115

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Fluorene	100	93		1	93	30-130	02/15/2012 1553
Hexachlorobenzene	100	90		1	90	30-130	02/15/2012 1553
Hexachlorobutadiene	100	99		1	99	30-130	02/15/2012 1553
Hexachlorocyclopentadiene	500	430		1	86	30-130	02/15/2012 1553
Hexachloroethane	100	93		1	93	30-130	02/15/2012 1553
Indeno(1,2,3-c,d)pyrene	100	97		1	97	30-130	02/15/2012 1553
Isophorone	100	99		1	99	30-130	02/15/2012 1553
N-Nitrosodi-n-propylamine	100	93		1	93	30-130	02/15/2012 1553
N-Nitrosodiphenylamine (Diphenylamine)	22	14		1	65	18-180	02/15/2012 1553
Naphthalene	100	92		1	92	30-130	02/15/2012 1553
Nitrobenzene	100	96		1	96	30-130	02/15/2012 1553
Pentachlorophenol	500	470		1	94	30-130	02/15/2012 1553
Phenanthrene	100	94		1	94	30-130	02/15/2012 1553
Phenol	100	92		1	92	30-130	02/15/2012 1553
Pyrene	100	100		1	101	30-130	02/15/2012 1553

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		93	41-144
2-Fluorobiphenyl		98	37-129
2-Fluorophenol		91	24-127
Nitrobenzene-d5		92	38-127
Phenol-d5		90	28-128
Terphenyl-d14		90	10-148

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MB

Sample ID: NQ77202-001
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Aluminum	0.072	J	1	0.20	0.044	mg/L	02/08/2012 0142
Antimony	0.0032	J	1	0.010	0.0028	mg/L	02/08/2012 0142
Arsenic	ND		1	0.010	0.0040	mg/L	02/09/2012 0055
Barium	ND		1	0.025	0.0075	mg/L	02/08/2012 0142
Beryllium	ND		1	0.0040	0.0012	mg/L	02/08/2012 0142
Cadmium	ND		1	0.0020	0.00060	mg/L	02/08/2012 0142
Calcium	ND		1	5.0	1.0	mg/L	02/08/2012 0142
Chromium	ND		1	0.0050	0.0021	mg/L	02/08/2012 0142
Cobalt	ND		1	0.025	0.0062	mg/L	02/08/2012 0142
Copper	ND		1	0.0050	0.0015	mg/L	02/08/2012 0142
Iron	ND		1	0.10	0.023	mg/L	02/08/2012 0142
Lead	ND		1	0.010	0.0019	mg/L	02/08/2012 0142
Magnesium	ND		1	5.0	1.2	mg/L	02/08/2012 0142
Manganese	ND		1	0.015	0.0049	mg/L	02/08/2012 0142
Nickel	ND		1	0.040	0.010	mg/L	02/08/2012 0142
Potassium	ND		1	5.0	1.1	mg/L	02/08/2012 0142
Selenium	ND		1	0.010	0.0026	mg/L	02/08/2012 0142
Silver	ND		1	0.0050	0.00040	mg/L	02/08/2012 0142
Sodium	ND		1	5.0	1.2	mg/L	02/08/2012 0142
Thallium	ND		1	0.050	0.0045	mg/L	02/08/2012 0142
Vanadium	ND		1	0.050	0.013	mg/L	02/08/2012 0142
Zinc	ND		1	0.020	0.0045	mg/L	02/08/2012 0142

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCS

Sample ID: NQ77202-002
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Aluminum	20	18		1	88	80-120	02/08/2012 0145
Antimony	0.40	0.39		1	97	80-120	02/08/2012 0145
Arsenic	0.40	0.40		1	100	80-120	02/09/2012 0059
Barium	2.0	1.8		1	92	80-120	02/08/2012 0145
Beryllium	2.0	2.1		1	104	80-120	02/08/2012 0145
Cadmium	0.40	0.44		1	109	80-120	02/08/2012 0145
Calcium	40	41		1	103	80-120	02/08/2012 0145
Chromium	2.0	2.1		1	106	80-120	02/08/2012 0145
Cobalt	2.0	2.0		1	98	80-120	02/08/2012 0145
Copper	2.0	1.8		1	90	80-120	02/08/2012 0145
Iron	20	19		1	94	80-120	02/08/2012 0145
Lead	0.40	0.39		1	98	80-120	02/08/2012 0145
Magnesium	40	36		1	89	80-120	02/08/2012 0145
Manganese	2.0	2.1		1	103	80-120	02/08/2012 0145
Nickel	2.0	2.0		1	99	80-120	02/08/2012 0145
Potassium	40	36		1	90	80-120	02/08/2012 0145
Selenium	0.40	0.38		1	94	80-120	02/08/2012 0145
Silver	0.40	0.43		1	106	80-120	02/08/2012 0145
Sodium	40	36		1	91	80-120	02/08/2012 0145
Thallium	0.80	0.77		1	96	80-120	02/08/2012 0145
Vanadium	2.0	2.1		1	105	80-120	02/08/2012 0145
Zinc	2.0	2.1		1	105	80-120	02/08/2012 0145

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCSD

Sample ID: NQ77202-003
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Aluminum	20	18		1	89	0.99	80-120	20	02/08/2012 0149
Antimony	0.40	0.40		1	100	3.4	80-120	20	02/08/2012 0149
Arsenic	0.40	0.41		1	103	3.5	80-120	20	02/09/2012 0103
Barium	2.0	1.9		1	94	2.5	80-120	20	02/08/2012 0149
Beryllium	2.0	2.1		1	105	0.57	80-120	20	02/08/2012 0149
Cadmium	0.40	0.46		1	114	4.7	80-120	20	02/08/2012 0149
Calcium	40	41		1	104	0.33	80-120	20	02/08/2012 0149
Chromium	2.0	2.1		1	103	3.6	80-120	20	02/08/2012 0149
Cobalt	2.0	2.0		1	99	0.25	80-120	20	02/08/2012 0149
Copper	2.0	1.8		1	91	1.1	80-120	20	02/08/2012 0149
Iron	20	19		1	95	0.090	80-120	20	02/08/2012 0149
Lead	0.40	0.38		1	94	3.8	80-120	20	02/08/2012 0149
Magnesium	40	37		1	92	3.4	80-120	20	02/08/2012 0149
Manganese	2.0	2.1		1	104	1.1	80-120	20	02/08/2012 0149
Nickel	2.0	2.0		1	98	1.3	80-120	20	02/08/2012 0149
Potassium	40	35		1	88	1.5	80-120	20	02/08/2012 0149
Selenium	0.40	0.37		1	94	0.48	80-120	20	02/08/2012 0149
Silver	0.40	0.43		1	107	0.79	80-120	20	02/08/2012 0149
Sodium	40	35		1	89	2.1	80-120	20	02/08/2012 0149
Thallium	0.80	0.73		1	92	4.1	80-120	20	02/08/2012 0149
Vanadium	2.0	2.1		1	106	0.83	80-120	20	02/08/2012 0149
Zinc	2.0	2.1		1	104	0.73	80-120	20	02/08/2012 0149

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MS

Sample ID: NB03008-007MS
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Aluminum	0.16	20	19		1	94	75-125	02/08/2012 0246
Antimony	ND	0.40	0.41		1	104	75-125	02/08/2012 0246
Arsenic	0.0054	0.40	0.40		1	98	75-125	02/08/2012 0246
Barium	0.073	2.0	2.1		1	102	75-125	02/08/2012 0246
Beryllium	ND	2.0	2.1		1	105	75-125	02/08/2012 0246
Cadmium	ND	0.40	0.43		1	107	75-125	02/08/2012 0246
Calcium	16	40	59		1	109	75-125	02/08/2012 0246
Chromium	ND	2.0	2.0		1	100	75-125	02/08/2012 0246
Cobalt	ND	2.0	2.0		1	101	75-125	02/08/2012 0246
Copper	ND	2.0	2.0		1	100	75-125	02/08/2012 0246
Iron	ND	20	19		1	96	75-125	02/08/2012 0246
Lead	0.0031	0.40	0.43		1	107	75-125	02/08/2012 0246
Magnesium	1.6	40	42		1	101	75-125	02/08/2012 0246
Manganese	0.34	2.0	2.4		1	102	75-125	02/08/2012 0246
Nickel	ND	2.0	2.1		1	104	75-125	02/08/2012 0246
Potassium	3.7	40	46		1	105	75-125	02/08/2012 0246
Selenium	ND	0.40	0.41		1	103	75-125	02/08/2012 0246
Silver	ND	0.40	0.40		1	100	75-125	02/08/2012 0246
Sodium	5.6	40	46		1	102	75-125	02/08/2012 0246
Thallium	0.0049	0.80	0.82		1	102	75-125	02/08/2012 0246
Vanadium	ND	2.0	2.1		1	103	75-125	02/08/2012 0246
Zinc	0.0081	2.0	2.1		1	104	75-125	02/08/2012 0246

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MSD

Sample ID: NB03008-007MD
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Aluminum	0.16	20	19		1	94	0.19	75-125	20	02/08/2012 0250
Antimony	ND	0.40	0.43		1	106	2.6	75-125	20	02/08/2012 0250
Arsenic	0.0054	0.40	0.40		1	98	0.49	75-125	20	02/08/2012 0250
Barium	0.073	2.0	2.1		1	103	0.44	75-125	20	02/08/2012 0250
Beryllium	ND	2.0	2.1		1	103	1.5	75-125	20	02/08/2012 0250
Cadmium	ND	0.40	0.43		1	108	0.96	75-125	20	02/08/2012 0250
Calcium	16	40	58		1	106	1.7	75-125	20	02/08/2012 0250
Chromium	ND	2.0	2.0		1	98	2.3	75-125	20	02/08/2012 0250
Cobalt	ND	2.0	2.0		1	100	0.42	75-125	20	02/08/2012 0250
Copper	ND	2.0	2.0		1	99	0.31	75-125	20	02/08/2012 0250
Iron	ND	20	19		1	95	1.1	75-125	20	02/08/2012 0250
Lead	0.0031	0.40	0.43		1	106	1.1	75-125	20	02/08/2012 0250
Magnesium	1.6	40	42		1	101	0.42	75-125	20	02/08/2012 0250
Manganese	0.34	2.0	2.4		1	101	1.1	75-125	20	02/08/2012 0250
Nickel	ND	2.0	2.1		1	103	0.57	75-125	20	02/08/2012 0250
Potassium	3.7	40	45		1	104	1.1	75-125	20	02/08/2012 0250
Selenium	ND	0.40	0.41		1	103	0.13	75-125	20	02/08/2012 0250
Silver	ND	0.40	0.40		1	99	1.5	75-125	20	02/08/2012 0250
Sodium	5.6	40	47		1	102	0.52	75-125	20	02/08/2012 0250
Thallium	0.0049	0.80	0.82		1	102	0.43	75-125	20	02/08/2012 0250
Vanadium	ND	2.0	2.0		1	102	0.96	75-125	20	02/08/2012 0250
Zinc	0.0081	2.0	2.1		1	103	1.1	75-125	20	02/08/2012 0250

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MS

Sample ID: NB03008-008MS
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Aluminum	0.14	20	19		1	93	75-125	02/08/2012 0313
Antimony	ND	0.40	0.41		1	101	75-125	02/08/2012 0313
Arsenic	0.0047	0.40	0.39		1	96	75-125	02/08/2012 0313
Barium	ND	2.0	2.0		1	99	75-125	02/08/2012 0313
Beryllium	ND	2.0	2.0		1	102	75-125	02/08/2012 0313
Cadmium	ND	0.40	0.42		1	105	75-125	02/08/2012 0313
Calcium	ND	40	39		1	98	75-125	02/08/2012 0313
Chromium	ND	2.0	1.9		1	97	75-125	02/08/2012 0313
Cobalt	ND	2.0	2.0		1	99	75-125	02/08/2012 0313
Copper	ND	2.0	2.0		1	98	75-125	02/08/2012 0313
Iron	ND	20	19		1	94	75-125	02/08/2012 0313
Lead	0.0020	0.40	0.43		1	106	75-125	02/08/2012 0313
Magnesium	ND	40	40		1	99	75-125	02/08/2012 0313
Manganese	ND	2.0	2.0		1	100	75-125	02/08/2012 0313
Nickel	ND	2.0	2.0		1	102	75-125	02/08/2012 0313
Potassium	ND	40	41		1	102	75-125	02/08/2012 0313
Selenium	ND	0.40	0.40		1	101	75-125	02/08/2012 0313
Silver	ND	0.40	0.39		1	97	75-125	02/08/2012 0313
Sodium	ND	40	40		1	101	75-125	02/08/2012 0313
Thallium	0.0058	0.80	0.82		1	102	75-125	02/08/2012 0313
Vanadium	ND	2.0	2.0		1	101	75-125	02/08/2012 0313
Zinc	ND	2.0	2.1		1	103	75-125	02/08/2012 0313

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

ICP-AES - MB

Sample ID: NQ77202-001
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Dissolved Aluminum	0.072	J	1	0.20	0.044	mg/L	02/08/2012 0142
Dissolved Antimony	0.0032	J	1	0.010	0.0028	mg/L	02/08/2012 0142
Dissolved Arsenic	ND		1	0.010	0.0040	mg/L	02/09/2012 0055
Dissolved Barium	ND		1	0.025	0.0075	mg/L	02/08/2012 0142
Dissolved Beryllium	ND		1	0.0040	0.0012	mg/L	02/08/2012 0142
Dissolved Cadmium	ND		1	0.0020	0.00060	mg/L	02/08/2012 0142
Dissolved Calcium	ND		1	5.0	1.0	mg/L	02/08/2012 0142
Dissolved Chromium	ND		1	0.0050	0.0021	mg/L	02/08/2012 0142
Dissolved Cobalt	ND		1	0.025	0.0062	mg/L	02/08/2012 0142
Dissolved Copper	ND		1	0.0050	0.0015	mg/L	02/08/2012 0142
Dissolved Iron	ND		1	0.10	0.023	mg/L	02/08/2012 0142
Dissolved Lead	ND		1	0.010	0.0019	mg/L	02/08/2012 0142
Dissolved Magnesium	ND		1	5.0	1.2	mg/L	02/08/2012 0142
Dissolved Manganese	ND		1	0.015	0.0049	mg/L	02/08/2012 0142
Dissolved Nickel	ND		1	0.040	0.010	mg/L	02/08/2012 0142
Dissolved Potassium	ND		1	5.0	1.1	mg/L	02/08/2012 0142
Dissolved Selenium	ND		1	0.010	0.0026	mg/L	02/08/2012 0142
Dissolved Silver	ND		1	0.0050	0.00040	mg/L	02/08/2012 0142
Dissolved Sodium	ND		1	5.0	1.2	mg/L	02/08/2012 0142
Dissolved Thallium	ND		1	0.050	0.0045	mg/L	02/08/2012 0142
Dissolved Vanadium	ND		1	0.050	0.013	mg/L	02/08/2012 0142
Dissolved Zinc	ND		1	0.020	0.0045	mg/L	02/08/2012 0142

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

ICP-AES - LCS

Sample ID: NQ77202-002
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Dissolved Aluminum	20	18		1	88	80-120	02/08/2012 0145
Dissolved Antimony	0.40	0.39		1	97	80-120	02/08/2012 0145
Dissolved Arsenic	0.40	0.40		1	100	80-120	02/09/2012 0059
Dissolved Barium	2.0	1.8		1	92	80-120	02/08/2012 0145
Dissolved Beryllium	2.0	2.1		1	104	80-120	02/08/2012 0145
Dissolved Cadmium	0.40	0.44		1	109	80-120	02/08/2012 0145
Dissolved Calcium	40	41		1	103	80-120	02/08/2012 0145
Dissolved Chromium	2.0	2.1		1	106	80-120	02/08/2012 0145
Dissolved Cobalt	2.0	2.0		1	98	80-120	02/08/2012 0145
Dissolved Copper	2.0	1.8		1	90	80-120	02/08/2012 0145
Dissolved Iron	20	19		1	94	80-120	02/08/2012 0145
Dissolved Lead	0.40	0.39		1	98	80-120	02/08/2012 0145
Dissolved Magnesium	40	36		1	89	80-120	02/08/2012 0145
Dissolved Manganese	2.0	2.1		1	103	80-120	02/08/2012 0145
Dissolved Nickel	2.0	2.0		1	99	80-120	02/08/2012 0145
Dissolved Potassium	40	36		1	90	80-120	02/08/2012 0145
Dissolved Selenium	0.40	0.38		1	94	80-120	02/08/2012 0145
Dissolved Silver	0.40	0.43		1	106	80-120	02/08/2012 0145
Dissolved Sodium	40	36		1	91	80-120	02/08/2012 0145
Dissolved Thallium	0.80	0.77		1	96	80-120	02/08/2012 0145
Dissolved Vanadium	2.0	2.1		1	105	80-120	02/08/2012 0145
Dissolved Zinc	2.0	2.1		1	105	80-120	02/08/2012 0145

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

ICP-AES - LCSD

Sample ID: NQ77202-003
Batch: 77202
Analytical Method: 6010C

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 02/07/2012 1330

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Dissolved Aluminum	20	18		1	89	0.99	80-120	20	02/08/2012 0149
Dissolved Antimony	0.40	0.40		1	100	3.4	80-120	20	02/08/2012 0149
Dissolved Arsenic	0.40	0.41		1	103	3.5	80-120	20	02/09/2012 0103
Dissolved Barium	2.0	1.9		1	94	2.5	80-120	20	02/08/2012 0149
Dissolved Beryllium	2.0	2.1		1	105	0.57	80-120	20	02/08/2012 0149
Dissolved Cadmium	0.40	0.46		1	114	4.7	80-120	20	02/08/2012 0149
Dissolved Calcium	40	41		1	104	0.33	80-120	20	02/08/2012 0149
Dissolved Chromium	2.0	2.1		1	103	3.6	80-120	20	02/08/2012 0149
Dissolved Cobalt	2.0	2.0		1	99	0.25	80-120	20	02/08/2012 0149
Dissolved Copper	2.0	1.8		1	91	1.1	80-120	20	02/08/2012 0149
Dissolved Iron	20	19		1	95	0.090	80-120	20	02/08/2012 0149
Dissolved Lead	0.40	0.38		1	94	3.8	80-120	20	02/08/2012 0149
Dissolved Magnesium	40	37		1	92	3.4	80-120	20	02/08/2012 0149
Dissolved Manganese	2.0	2.1		1	104	1.1	80-120	20	02/08/2012 0149
Dissolved Nickel	2.0	2.0		1	98	1.3	80-120	20	02/08/2012 0149
Dissolved Potassium	40	35		1	88	1.5	80-120	20	02/08/2012 0149
Dissolved Selenium	0.40	0.37		1	94	0.48	80-120	20	02/08/2012 0149
Dissolved Silver	0.40	0.43		1	107	0.79	80-120	20	02/08/2012 0149
Dissolved Sodium	40	35		1	89	2.1	80-120	20	02/08/2012 0149
Dissolved Thallium	0.80	0.73		1	92	4.1	80-120	20	02/08/2012 0149
Dissolved Vanadium	2.0	2.1		1	106	0.83	80-120	20	02/08/2012 0149
Dissolved Zinc	2.0	2.1		1	104	0.73	80-120	20	02/08/2012 0149

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MB

Sample ID: NQ77143-001
Batch: 77143
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/06/2012 2023

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Mercury	ND		1	0.00010	0.000053	mg/L	02/07/2012 0034

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCS

Sample ID: NQ77143-002
Batch: 77143
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/06/2012 2023

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Mercury	0.0020	0.0020		1	102	85-115	02/07/2012 0037

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - LCSD

Sample ID: NQ77143-003
Batch: 77143
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/06/2012 2023

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Mercury	0.0020	0.0020		1	99	3.5	85-115	20	02/07/2012 0039

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MS

Sample ID: NB03008-007MS
Batch: 77143
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/06/2012 2023

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Mercury	ND	0.0020	0.0020		1	101	85-115	02/07/2012 0129

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

TAL Metals - MSD

Sample ID: NB03008-007MD
Batch: 77143
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/06/2012 2023

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Mercury	ND	0.0020	0.0020		1	101	0.00	85-115	20	02/07/2012 0132

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

CVAA - MB

Sample ID: NQ77314-001
Batch: 77314
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/08/2012 1739

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Dissolved Mercury	ND		1	0.00010	0.000053	mg/L	02/09/2012 0932

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

CVAA - LCS

Sample ID: NQ77314-002
Batch: 77314
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/08/2012 1739

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Dissolved Mercury	0.0020	0.0019		1	93	85-115	02/09/2012 0934

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

CVAA - LCSD

Sample ID: NQ77314-003
Batch: 77314
Analytical Method: 7470A

Matrix: Aqueous
Prep Method: 7470A
Prep Date: 02/08/2012 1739

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Dissolved Mercury	0.0020	0.0019		1	96	3.2	85-115	20	02/09/2012 0938

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Chain of Custody Record

Number 11927

Client: AECOM	Report to Contact: Dave Oliphant	Sampler (Printed Name): Matthew Law	Quote No.: 15026
Address: 10 Patewood Drive Bldg VI Suite 500	Telephone No. / Fax No. / Email: 864-234-3000	Waybill No.	Page 1 of 2
City: Greenville State: SC Zip Code: 29615	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: Adec / Translite			
Project Number: 60241001	P.O Number: [redacted]		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix GW	DW	WW	S	Other	Analysis	VOCs + TICs + 1,4 Dioxane	SVOCs + TICs	PAHs only	Total Metals	Diss Metals (Lab Filter)	Hex Cr	Remarks / Cooler ID
Number of Containers										3	2	2	1	1	1	
Bottle (See Instructions on back)										A	I	I	D	D	D	
Preservative										5	1	1	4	1	1	
Lot No.																NB03008
MW-06	2/2/12	1020	G	X						X						
MW-06-C	2/2/12	1020	G	X						X						
MW-07D	2/2/12	1055	G	X						X						
MW-07	2/2/12	1135	G	X						X	X		X	X		
MW-05	2/2/12	1230	G	X						X						
MW-03	2/2/12	1310	G	X						X		X	X	X		
MW-04	2/2/12	1430	G	X						X		X	X	X		
MW-04-MS	2/2/12	1430	G	X						X		X	X			
MW-04-MSD	2/2/12	1430	G	X						X		X	X			
MW-04-d	2/2/12	1430	G					X		X		X	X			

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

QC Requirements (Specify):

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler	2/2/12	1800	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by FEDEX	2.3.12	0900	4. Laboratory Received by	2/3/12	0910

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check): ☒ Yes ☐ No ☐ Ice Pack
Receipt Temp. 2.5 °C 2.8
Temp. Blank ☐ Y / ☐ N

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record** Number 11928

Client: AECOM	Report to Contact: Dave Oliphant	Sampler (Printed Name): McIver Law	Quote No.: 15026
Address: 10 Patewood Dr.	Telephone No. / Fax No. / Email: 864-234-3000	Waybill No.	Page 2 of 2
City: Greenville; State: SC; Zip Code: 29615	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: Ardee/Translite			
Project Number: 6024/001	P.O Number		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix GW	DW	WW	S	Other	Analysis: VOCs + TICs 1,4 Dioxane	SVOCs + TICs	Total Metals	Diss Metals (Lab Filter)	Hex Cr	Number of Containers	Bottle (See instructions on back)	Preservative	Lot No.	Remarks / Cooler ID
									3	2	1	1	1					
									A	I	D	D	D					
									S	1	4	4	1					
MW-02D	2/2/12	1545	G	X					X								NB03008	
MW-02	2/2/12	1620	G	X					X	X	X	X	X					
MW-02-a	2/2/12	1620	G	X					X		X							
MW-01	2/2/12	1715	G	X					X									
MW-04-6	2/2/12	1430	G					X	X									

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

QC Requirements (Specify):

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

1. Relinquished by / Sampler	Date 2/2/12	Time 1800	1. Received by	Date	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by FEDEX	Date 2/3/12	Time 0900	4. Laboratory Received by	Date 2-3-12	Time 0900

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack
Receipt Temp. 2.5 / 2.8 °C
Temp. Blank ☐ Y / ☐ N

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 9

Page 1 of 1
Replaces Date: 05/06/11
Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

Client: Accum Cooler Inspected by/date: Gn 7/3/12 Lot #: NB63008

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other

Yes ☑	No ☐		1. Were custody seals present on the cooler?
Yes ☑	No ☐		2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 2.5 / °C 2.8 °C / °C / °C
Method: ☐ Temperature Blank ☑ Against Bottles
Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other:_____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☐	No ☑	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☑	NA ☐	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed?
Yes ☑	No ☐		7. Was collection date & time listed?
Yes ☑	No ☐		8. Were tests to be performed listed on the COC?
Yes ☑	No ☐		9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with COC?
Yes ☐	No ☑		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		12. Was adequate sample volume available?
Yes ☐	No ☑		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		14. Were any samples containers missing?
Yes ☐	No ☑		15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☑	No ☐	NA ☐	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?
Yes ☑	No ☐	NA ☐	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s)_____were received incorrectly preserved and were adjusted accordingly in sample receiving with _____(H_2SO_4,HNO_3,HCl,NaOH) with the SR # (number) _____.

Sample(s)_____were received with bubbles >6 mm in diameter.

Sample(s)_____were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.

Corrective Action taken, if necessary:

Was client notified: Yes ☐ No ☐ Did client respond: Yes ☐ No ☐
SESI employee: _____ Date of response: _____
Comments: -007, -008 1 VOA vial rec'd broken for each sample. Gn 7/3/12

Oliphant, Dave

Subject: FW: Ardee Translite, Lims Deliverables (NA18016)

From: Nisreen Saikaly [mailto:nsaikaly@shealylab.com]
Sent: Wednesday, February 01, 2012 1:01 PM
To: Oliphant, Dave; Cullom, Doria; Collins, Tony
Cc: 'David Oliphant'
Subject: RE: Ardee Translite, Lims Deliverables (NA18016)

The aldol condensate is a by-product of the acetone used in the extraction solvent.

Nisreen M. Saikaly
Project Manager
Direct 803.227.2704

From: Oliphant, Dave [mailto:DAVE.OLIPHANT@aecom.com]
Sent: Wednesday, February 01, 2012 11:12 AM
To: Cullom, Doria; Collins, Tony; Nisreen Saikaly
Cc: Oliphant, Dave; David Oliphant
Subject: RE: Ardee Translite, Lims Deliverables (NA18016)

Dori and Tony,

There is a large SVOC TIC of mg/L magnitude in every sample. It must be the extractant liquid.... Is there any way we can tell that. Nisreen, can you comment on this "unknown aldol condensate" constituent TIC in the SVOC samples? Is it a solvent extractant?

From: Nisreen Saikaly [mailto:nsaikaly@shealylab.com]
Sent: Tuesday, January 31, 2012 12:21 PM
To: Cullom, Doria; Oliphant, Dave
Subject: Ardee Translite, Lims Deliverables (NA18016)

Shealy Environmental has gone paperless, attached are your report and EDD.

Please do not hesitate to contact me if you have questions.

Nisreen M. Saikaly

Project Manager
Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, SC 29172

nsaikaly@shealylab.com
Direct 803.227.2704
Main 803.791.9700 x106
Fax 803.791.9111

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May 31, 2013

Dave Oliphant
AECOM Environment
10 Patewood Drive
Bldg. VI, Ste. 500
Greenville, SC 29615

RE: Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Dear Dave Oliphant:
Enclosed are the analytical results for sample(s) received by the laboratory on May 10, 2013. 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.

Per client request, report revised May 31, 2013 to include additional 6010S metal elements and to update sample IDs.

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

Sincerely,

Kevin Godwin

kevin.godwin@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

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

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

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SAMPLE SUMMARY

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92157594001	**BG-9-0-0.5**	Solid	05/09/13 08:35	05/10/13 10:15
92157594002	**BG-8-0-0.5**	Solid	05/09/13 08:40	05/10/13 10:15
92157594003	**BG-7-0-0.5**	Solid	05/09/13 08:50	05/10/13 10:15
92157594004	**BG-6-0-0.5**	Solid	05/09/13 08:55	05/10/13 10:15
92157594005	**BG-2A-0-0.5**	Solid	05/09/13 09:05	05/10/13 10:15
92157594006	**BG-4-0-0.5**	Solid	05/09/13 09:10	05/10/13 10:15
92157594007	**BG-5-0-0.5**	Solid	05/09/13 09:15	05/10/13 10:15
92157594008	**MW-3A-0-0.5**	Solid	05/09/13 09:35	05/10/13 10:15
92157594009	**MW-3B-0-0.5**	Solid	05/09/13 09:40	05/10/13 10:15
92157594010	**BG-3B-0-0.5A**	Solid	05/09/13 09:40	05/10/13 10:15
92157594011	**BG-3B-0-0.5D**	Water	05/09/13 10:00	05/10/13 10:15
92157594012	**MW-6**	Water	05/09/13 11:55	05/10/13 10:15
92157594013	**MW-5**	Water	05/09/13 12:45	05/10/13 10:15
92157594014	**MW-7D**	Water	05/09/13 13:20	05/10/13 10:15
92157594015	**MW-7**	Water	05/09/13 14:20	05/10/13 10:15
92157594016	**MW-3**	Water	05/09/13 15:15	05/10/13 10:15
92157594017	**MW-4**	Water	05/09/13 16:00	05/10/13 10:15
92157594018	**MW-4A**	Water	05/09/13 16:00	05/10/13 10:15
92157594019	**MW-1**	Water	05/09/13 16:50	05/10/13 10:15
92157594020	**MW-2D**	Water	05/09/13 17:25	05/10/13 10:15
92157594021	**MW-2**	Water	05/09/13 18:00	05/10/13 10:15
92157594022	**MW-2-A**	Water	05/09/13 18:00	05/10/13 10:15

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SAMPLE ANALYTE COUNT

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92157594001	**BG-9-0-0.5**	EPA 6010	JMW	9	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594002	**BG-8-0-0.5**	EPA 6010	JMW	9	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594003	**BG-7-0-0.5**	EPA 6010	JMW	1	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594004	**BG-6-0-0.5**	EPA 6010	JMW	9	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594005	**BG-2A-0-0.5**	EPA 6010	JMW	1	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594006	**BG-4-0-0.5**	EPA 6010	JMW	9	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594007	**BG-5-0-0.5**	EPA 6010	JMW	1	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594008	**MW-3A-0-0.5**	EPA 6010	JMW	1	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594009	**MW-3B-0-0.5**	EPA 6010	JMW	1	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594010	**BG-3B-0-0.5A**	EPA 6010	JMW	1	PASI-A
		ASTM D2974-87	TNM	1	PASI-C
92157594011	**BG-3B-0-0.5D**	EPA 6010	JMW	2	PASI-A
92157594012	**MW-6**	EPA 6010	JMW	2	PASI-A
		EPA 8260	MCK	64	PASI-C
92157594013	**MW-5**	EPA 6010	JMW	2	PASI-A
		EPA 8260	MCK	64	PASI-C
92157594014	**MW-7D**	EPA 8260	MCK	64	PASI-C
92157594015	**MW-7**	EPA 6010	JMW	2	PASI-A
		EPA 8260	MCK	64	PASI-C
		EPA 7196	EWS	1	PASI-A
92157594016	**MW-3**	EPA 6010	JMW	2	PASI-A
		EPA 8260	MCK	64	PASI-C
		EPA 7196	EWS	1	PASI-A
92157594017	**MW-4**	EPA 6010	JMW	2	PASI-A
		EPA 8260	MCK	64	PASI-C
92157594018	**MW-4A**	EPA 8260	KJM	64	PASI-C
92157594019	**MW-1**	EPA 6010	JMW	2	PASI-A
		EPA 8260	KJM	64	PASI-C

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SAMPLE ANALYTE COUNT

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92157594020	**MW-2D**	EPA 8260	KJM	64	PASI-C
92157594021	**MW-2**	EPA 6010	JMW	2	PASI-A
		EPA 8260	KJM	64	PASI-C
		EPA 7196	EWS	1	PASI-A
92157594022	**MW-2-A**	EPA 6010	JMW	2	PASI-A
		EPA 8260	KJM	64	PASI-C
		EPA 7196	EWS	1	PASI-A

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HITS ONLY

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92157594001	**BG-9-0-0.5**					
EPA 6010	Arsenic	2.1	mg/kg	0.96	05/13/13 21:39	M1
EPA 6010	Cobalt	17.8	mg/kg	0.48	05/13/13 21:39	
EPA 6010	Iron	33700	mg/kg	96.4	05/31/13 14:40	
EPA 6010	Manganese	277	mg/kg	0.48	05/13/13 21:39	
EPA 6010	Selenium	1.2	mg/kg	0.96	05/13/13 21:39	
EPA 6010	Vanadium	62.8	mg/kg	0.48	05/13/13 21:39	
ASTM D2974-87	Percent Moisture	17.6	%	0.10	05/14/13 13:18	
92157594002	**BG-8-0-0.5**					
EPA 6010	Arsenic	12.7	mg/kg	1.2	05/13/13 21:47	
EPA 6010	Cobalt	21.6	mg/kg	0.58	05/13/13 21:47	
EPA 6010	Iron	35700	mg/kg	117	05/31/13 14:44	
EPA 6010	Manganese	363	mg/kg	0.58	05/13/13 21:47	
EPA 6010	Selenium	1.2	mg/kg	1.2	05/13/13 21:47	
EPA 6010	Vanadium	65.4	mg/kg	0.58	05/13/13 21:47	
ASTM D2974-87	Percent Moisture	17.5	%	0.10	05/14/13 13:18	
92157594003	**BG-7-0-0.5**					
EPA 6010	Arsenic	0.95	mg/kg	0.69	05/13/13 22:04	
ASTM D2974-87	Percent Moisture	7.3	%	0.10	05/14/13 13:20	
92157594004	**BG-6-0-0.5**					
EPA 6010	Cobalt	11.6	mg/kg	0.45	05/13/13 22:08	
EPA 6010	Iron	30900	mg/kg	89.9	05/31/13 14:47	
EPA 6010	Manganese	69.2	mg/kg	0.45	05/13/13 22:08	
EPA 6010	Vanadium	52.9	mg/kg	0.45	05/13/13 22:08	
ASTM D2974-87	Percent Moisture	21.7	%	0.10	05/14/13 13:20	
92157594005	**BG-2A-0-0.5**					
ASTM D2974-87	Percent Moisture	18.9	%	0.10	05/14/13 13:20	
92157594006	**BG-4-0-0.5**					
EPA 6010	Cobalt	14.3	mg/kg	0.48	05/13/13 22:18	
EPA 6010	Iron	30500	mg/kg	95.4	05/31/13 14:50	
EPA 6010	Manganese	44.3	mg/kg	0.48	05/13/13 22:18	
EPA 6010	Selenium	1.6	mg/kg	0.95	05/13/13 22:18	
EPA 6010	Vanadium	53.5	mg/kg	0.48	05/13/13 22:18	
ASTM D2974-87	Percent Moisture	19.4	%	0.10	05/14/13 13:20	
92157594007	**BG-5-0-0.5**					
EPA 6010	Arsenic	4.6	mg/kg	1.2	05/13/13 22:23	
ASTM D2974-87	Percent Moisture	21.6	%	0.10	05/14/13 13:21	
92157594008	**MW-3A-0-0.5**					
EPA 6010	Arsenic	3.2	mg/kg	1.1	05/13/13 22:27	
ASTM D2974-87	Percent Moisture	18.7	%	0.10	05/14/13 13:21	
92157594009	**MW-3B-0-0.5**					
EPA 6010	Arsenic	3.1	mg/kg	0.99	05/13/13 22:32	
ASTM D2974-87	Percent Moisture	12.7	%	0.10	05/14/13 13:21	

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HITS ONLY

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92157594010	**BG-3B-0-0.5A**					
EPA 6010	Arsenic	4.6	mg/kg	1.0	05/13/13 22:36	
ASTM D2974-87	Percent Moisture	14.9	%	0.10	05/14/13 13:21	
92157594013	**MW-5**					
EPA 8260	Tetrachloroethene	3.7	ug/L	1.0	05/15/13 09:13	
92157594014	**MW-7D**					
EPA 8260	Tetrachloroethene	3.2	ug/L	1.0	05/15/13 09:29	
92157594015	**MW-7**					
EPA 8260	Tetrachloroethene	5.2	ug/L	1.0	05/15/13 09:45	
92157594016	**MW-3**					
EPA 6010	Chromium	14.1	ug/L	10.0	05/14/13 11:36	
92157594017	**MW-4**					
EPA 8260	1,1-Dichloroethene	12.7	ug/L	1.0	05/15/13 10:16	
EPA 8260	Trichloroethene	15.3	ug/L	1.0	05/15/13 10:16	
92157594018	**MW-4A**					
EPA 8260	Chloroform	1.5	ug/L	1.0	05/16/13 08:49	
EPA 8260	1,1-Dichloroethene	20.7	ug/L	1.0	05/16/13 08:49	
EPA 8260	Trichloroethene	23.6	ug/L	1.0	05/16/13 08:49	
92157594019	**MW-1**					
EPA 8260	Chloroform	8.2	ug/L	1.0	05/16/13 09:05	
EPA 8260	1,1-Dichloroethene	3.6	ug/L	1.0	05/16/13 09:05	
92157594020	**MW-2D**					
EPA 8260	Chloroform	9.1	ug/L	1.0	05/16/13 09:21	
92157594021	**MW-2**					
EPA 8260	Chloroform	9.5	ug/L	1.0	05/16/13 09:37	
EPA 8260	1,1-Dichloroethane	1.3	ug/L	1.0	05/16/13 09:37	
EPA 8260	1,2-Dichloroethane	1.3	ug/L	1.0	05/16/13 09:37	
EPA 8260	1,1-Dichloroethene	62.9	ug/L	1.0	05/16/13 09:37	
EPA 8260	Tetrachloroethene	5.1	ug/L	1.0	05/16/13 09:37	
EPA 8260	Trichloroethene	2.7	ug/L	1.0	05/16/13 09:37	
92157594022	**MW-2-A**					
EPA 8260	Chloroform	9.5	ug/L	1.0	05/16/13 09:53	
EPA 8260	1,1-Dichloroethane	1.5	ug/L	1.0	05/16/13 09:53	
EPA 8260	1,2-Dichloroethane	1.5	ug/L	1.0	05/16/13 09:53	
EPA 8260	1,1-Dichloroethene	69.4	ug/L	1.0	05/16/13 09:53	
EPA 8260	Tetrachloroethene	5.7	ug/L	1.0	05/16/13 09:53	
EPA 8260	Trichloroethene	3.2	ug/L	1.0	05/16/13 09:53	

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PROJECT NARRATIVE

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Method: **EPA 6010**
Description: 6010 MET ICP
Client: AECOM Environment
Date: May 31, 2013

General Information:
10 samples were analyzed for EPA 6010. 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.

Sample Preparation:
The samples were prepared in accordance with EPA 3050 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.

Method Blank:
All analytes were below the report limit in the method blank 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.

QC Batch: MPRP/13284

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92157594001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 972903)
  - Arsenic

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: MPRP/13284

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 972904)
  - Arsenic

Additional Comments:

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PROJECT NARRATIVE

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Method: **EPA 6010**
Description: 6010 MET ICP, 3030C
Client: AECOM Environment
Date: May 31, 2013

General Information:
9 samples were analyzed for EPA 6010. 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.

Sample Preparation:
The samples were prepared in accordance with SM 3030C 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.

Method Blank:
All analytes were below the report limit in the method blank 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:

Analyte Comments:

QC Batch: MPRP/13280

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MW-3 (Lab ID: 92157594016)
  - Arsenic

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PROJECT NARRATIVE

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: AECOM Environment
Date: May 31, 2013

General Information:
11 samples were analyzed for EPA 8260. 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 with any exceptions noted below.

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

QC Batch: MSV/22959

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 973335)
  - 1,2,3-Trichlorobenzene
  - 1,2,4-Trichlorobenzene
  - Bromoform
  - Hexachloro-1,3-butadiene

QC Batch: MSV/22967

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- LCS (Lab ID: 973806)
  - 1,1-Dichloropropene
  - Dichlorodifluoromethane

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

Additional Comments:

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PROJECT NARRATIVE

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Method: **EPA 7196**
Description: 7196 Chromium, Hexavalent
Client: AECOM Environment
Date: May 31, 2013

General Information:
4 samples were analyzed for EPA 7196. 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.

Method Blank:
All analytes were below the report limit in the method blank 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: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-9-0-0.5 **Lab ID: 92157594001** Collected: 05/09/13 08:35 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Antimony	ND	mg/kg	0.48	0.27	1	05/11/13 16:15	05/13/13 21:39	7440-36-0	
Arsenic	**2.1**	mg/kg	0.96	0.31	1	05/11/13 16:15	05/13/13 21:39	7440-38-2	M1
Cobalt	**17.8**	mg/kg	0.48	0.13	1	05/11/13 16:15	05/13/13 21:39	7440-48-4	
Iron	**33700**	mg/kg	96.4	4.4	10	05/11/13 16:15	05/31/13 14:40	7439-89-6	
Manganese	**277**	mg/kg	0.48	0.029	1	05/11/13 16:15	05/13/13 21:39	7439-96-5	
Selenium	**1.2**	mg/kg	0.96	0.37	1	05/11/13 16:15	05/13/13 21:39	7782-49-2	
Silver	ND	mg/kg	0.48	0.029	1	05/11/13 16:15	05/13/13 21:39	7440-22-4	
Thallium	ND	mg/kg	0.96	0.25	1	05/11/13 16:15	05/13/13 21:39	7440-28-0	
Vanadium	**62.8**	mg/kg	0.48	0.039	1	05/11/13 16:15	05/13/13 21:39	7440-62-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**17.6**	%	0.10	0.10	1		05/14/13 13:18		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-8-0-0.5 **Lab ID: 92157594002** Collected: 05/09/13 08:40 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Antimony	ND	mg/kg	0.58	0.33	1	05/11/13 16:15	05/13/13 21:47	7440-36-0	
Arsenic	**12.7**	mg/kg	1.2	0.37	1	05/11/13 16:15	05/13/13 21:47	7440-38-2	
Cobalt	**21.6**	mg/kg	0.58	0.16	1	05/11/13 16:15	05/13/13 21:47	7440-48-4	
Iron	**35700**	mg/kg	117	5.4	10	05/11/13 16:15	05/31/13 14:44	7439-89-6	
Manganese	**363**	mg/kg	0.58	0.035	1	05/11/13 16:15	05/13/13 21:47	7439-96-5	
Selenium	**1.2**	mg/kg	1.2	0.44	1	05/11/13 16:15	05/13/13 21:47	7782-49-2	
Silver	ND	mg/kg	0.58	0.035	1	05/11/13 16:15	05/13/13 21:47	7440-22-4	
Thallium	ND	mg/kg	1.2	0.30	1	05/11/13 16:15	05/13/13 21:47	7440-28-0	
Vanadium	**65.4**	mg/kg	0.58	0.047	1	05/11/13 16:15	05/13/13 21:47	7440-62-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**17.5**	%	0.10	0.10	1		05/14/13 13:18		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-7-0-0.5 **Lab ID: 92157594003** Collected: 05/09/13 08:50 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**0.95**	mg/kg	0.69	0.22	1	05/11/13 16:15	05/13/13 22:04	7440-38-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**7.3**	%	0.10	0.10	1		05/14/13 13:20		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-6-0-0.5 **Lab ID: 92157594004** Collected: 05/09/13 08:55 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Antimony	ND	mg/kg	0.45	0.25	1	05/11/13 16:15	05/13/13 22:08	7440-36-0	
Arsenic	ND	mg/kg	0.90	0.29	1	05/11/13 16:15	05/13/13 22:08	7440-38-2	
Cobalt	**11.6**	mg/kg	0.45	0.13	1	05/11/13 16:15	05/13/13 22:08	7440-48-4	
Iron	**30900**	mg/kg	89.9	4.1	10	05/11/13 16:15	05/31/13 14:47	7439-89-6	
Manganese	**69.2**	mg/kg	0.45	0.027	1	05/11/13 16:15	05/13/13 22:08	7439-96-5	
Selenium	ND	mg/kg	0.90	0.34	1	05/11/13 16:15	05/13/13 22:08	7782-49-2	
Silver	ND	mg/kg	0.45	0.027	1	05/11/13 16:15	05/13/13 22:08	7440-22-4	
Thallium	ND	mg/kg	0.90	0.23	1	05/11/13 16:15	05/13/13 22:08	7440-28-0	
Vanadium	**52.9**	mg/kg	0.45	0.036	1	05/11/13 16:15	05/13/13 22:08	7440-62-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**21.7**	%	0.10	0.10	1		05/14/13 13:20		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-2A-0-0.5 **Lab ID: 92157594005** Collected: 05/09/13 09:05 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	ND	mg/kg	0.96	0.31	1	05/11/13 16:15	05/13/13 22:13	7440-38-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**18.9**	%	0.10	0.10	1		05/14/13 13:20		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-4-0-0.5 **Lab ID: 92157594006** Collected: 05/09/13 09:10 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Antimony	ND	mg/kg	0.48	0.27	1	05/11/13 16:15	05/13/13 22:18	7440-36-0	
Arsenic	ND	mg/kg	0.95	0.31	1	05/11/13 16:15	05/13/13 22:18	7440-38-2	
Cobalt	**14.3**	mg/kg	0.48	0.13	1	05/11/13 16:15	05/13/13 22:18	7440-48-4	
Iron	**30500**	mg/kg	95.4	4.4	10	05/11/13 16:15	05/31/13 14:50	7439-89-6	
Manganese	**44.3**	mg/kg	0.48	0.029	1	05/11/13 16:15	05/13/13 22:18	7439-96-5	
Selenium	**1.6**	mg/kg	0.95	0.36	1	05/11/13 16:15	05/13/13 22:18	7782-49-2	
Silver	ND	mg/kg	0.48	0.029	1	05/11/13 16:15	05/13/13 22:18	7440-22-4	
Thallium	ND	mg/kg	0.95	0.25	1	05/11/13 16:15	05/13/13 22:18	7440-28-0	
Vanadium	**53.5**	mg/kg	0.48	0.038	1	05/11/13 16:15	05/13/13 22:18	7440-62-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**19.4**	%	0.10	0.10	1		05/14/13 13:20		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-5-0-0.5 **Lab ID: 92157594007** Collected: 05/09/13 09:15 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**4.6**	mg/kg	1.2	0.38	1	05/11/13 16:15	05/13/13 22:23	7440-38-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**21.6**	%	0.10	0.10	1		05/14/13 13:21		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-3A-0-0.5 **Lab ID: 92157594008** Collected: 05/09/13 09:35 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**3.2**	mg/kg	1.1	0.35	1	05/11/13 16:15	05/13/13 22:27	7440-38-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**18.7**	%	0.10	0.10	1		05/14/13 13:21		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-3B-0-0.5 **Lab ID: 92157594009** Collected: 05/09/13 09:40 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**3.1**	mg/kg	0.99	0.32	1	05/11/13 16:15	05/13/13 22:32	7440-38-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**12.7**	%	0.10	0.10	1		05/14/13 13:21		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-3B-0-0.5A **Lab ID: 92157594010** Collected: 05/09/13 09:40 Received: 05/10/13 10:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**4.6**	mg/kg	1.0	0.34	1	05/11/13 16:15	05/13/13 22:36	7440-38-2	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**14.9**	%	0.10	0.10	1		05/14/13 13:21		

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: BG-3B-0-0.5D **Lab ID: 92157594011** Collected: 05/09/13 10:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/13/13 23:42	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/13/13 23:42	7440-47-3	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-6 **Lab ID: 92157594012** Collected: 05/09/13 11:55 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/13/13 23:45	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/13/13 23:45	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/15/13 08:58	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/15/13 08:58	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/15/13 08:58	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/15/13 08:58	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/15/13 08:58	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/15/13 08:58	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/15/13 08:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/15/13 08:58	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/15/13 08:58	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/15/13 08:58	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/15/13 08:58	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/15/13 08:58	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/15/13 08:58	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/15/13 08:58	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/15/13 08:58	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/15/13 08:58	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/15/13 08:58	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/15/13 08:58	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/15/13 08:58	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/15/13 08:58	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/15/13 08:58	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 08:58	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/15/13 08:58	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/15/13 08:58	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/15/13 08:58	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/15/13 08:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/15/13 08:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/15/13 08:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/15/13 08:58	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/15/13 08:58	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/15/13 08:58	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/15/13 08:58	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/15/13 08:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/15/13 08:58	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/15/13 08:58	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/15/13 08:58	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/15/13 08:58	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/15/13 08:58	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/15/13 08:58	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/15/13 08:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/15/13 08:58	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/15/13 08:58	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-6 **Lab ID: 92157594012** Collected: 05/09/13 11:55 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/15/13 08:58	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/15/13 08:58	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/15/13 08:58	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/15/13 08:58	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/15/13 08:58	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/15/13 08:58	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 08:58	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/15/13 08:58	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/15/13 08:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/15/13 08:58	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/15/13 08:58	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/15/13 08:58	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/15/13 08:58	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/15/13 08:58	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/15/13 08:58	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/15/13 08:58	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/15/13 08:58	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/15/13 08:58	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	78	%	70-130		1		05/15/13 08:58	460-00-4	
Dibromofluoromethane (S)	105	%	70-130		1		05/15/13 08:58	1868-53-7	
1,2-Dichloroethane-d4 (S)	82	%	70-130		1		05/15/13 08:58	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		05/15/13 08:58	2037-26-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-5 **Lab ID: 92157594013** Collected: 05/09/13 12:45 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/13/13 23:48	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/13/13 23:48	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/15/13 09:13	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/15/13 09:13	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:13	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/15/13 09:13	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/15/13 09:13	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/15/13 09:13	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/15/13 09:13	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/15/13 09:13	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/15/13 09:13	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/15/13 09:13	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/15/13 09:13	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/15/13 09:13	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/15/13 09:13	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/15/13 09:13	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/15/13 09:13	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/15/13 09:13	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/15/13 09:13	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/15/13 09:13	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/15/13 09:13	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/15/13 09:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 09:13	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/15/13 09:13	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/15/13 09:13	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/15/13 09:13	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/15/13 09:13	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/15/13 09:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/15/13 09:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/15/13 09:13	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/15/13 09:13	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/15/13 09:13	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/15/13 09:13	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/15/13 09:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/15/13 09:13	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/15/13 09:13	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:13	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/15/13 09:13	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/15/13 09:13	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/15/13 09:13	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/15/13 09:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/15/13 09:13	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/15/13 09:13	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-5 **Lab ID: 92157594013** Collected: 05/09/13 12:45 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/15/13 09:13	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/15/13 09:13	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/15/13 09:13	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/15/13 09:13	79-34-5	
Tetrachloroethene	**3.7**	ug/L	1.0	0.46	1		05/15/13 09:13	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/15/13 09:13	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 09:13	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/15/13 09:13	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/15/13 09:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/15/13 09:13	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/15/13 09:13	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/15/13 09:13	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/15/13 09:13	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/15/13 09:13	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/15/13 09:13	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/15/13 09:13	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/15/13 09:13	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/15/13 09:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		1		05/15/13 09:13	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		05/15/13 09:13	1868-53-7	
1,2-Dichloroethane-d4 (S)	81	%	70-130		1		05/15/13 09:13	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		05/15/13 09:13	2037-26-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-7D **Lab ID: 92157594014** Collected: 05/09/13 13:20 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/15/13 09:29	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/15/13 09:29	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:29	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/15/13 09:29	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/15/13 09:29	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/15/13 09:29	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/15/13 09:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/15/13 09:29	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/15/13 09:29	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/15/13 09:29	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/15/13 09:29	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/15/13 09:29	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/15/13 09:29	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/15/13 09:29	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/15/13 09:29	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/15/13 09:29	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/15/13 09:29	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/15/13 09:29	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/15/13 09:29	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:29	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/15/13 09:29	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 09:29	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/15/13 09:29	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/15/13 09:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/15/13 09:29	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/15/13 09:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/15/13 09:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/15/13 09:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/15/13 09:29	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/15/13 09:29	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/15/13 09:29	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/15/13 09:29	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/15/13 09:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/15/13 09:29	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/15/13 09:29	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:29	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/15/13 09:29	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/15/13 09:29	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/15/13 09:29	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/15/13 09:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/15/13 09:29	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/15/13 09:29	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		05/15/13 09:29	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/15/13 09:29	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/15/13 09:29	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/15/13 09:29	79-34-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-7D **Lab ID: 92157594014** Collected: 05/09/13 13:20 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Tetrachloroethene	**3.2**	ug/L	1.0	0.46	1		05/15/13 09:29	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/15/13 09:29	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 09:29	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/15/13 09:29	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/15/13 09:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/15/13 09:29	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/15/13 09:29	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/15/13 09:29	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/15/13 09:29	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/15/13 09:29	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/15/13 09:29	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/15/13 09:29	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/15/13 09:29	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/15/13 09:29	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	77	%	70-130		1		05/15/13 09:29	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		1		05/15/13 09:29	1868-53-7	
1,2-Dichloroethane-d4 (S)	82	%	70-130		1		05/15/13 09:29	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		05/15/13 09:29	2037-26-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-7 **Lab ID: 92157594015** Collected: 05/09/13 14:20 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/13/13 23:51	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/13/13 23:51	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/15/13 09:45	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/15/13 09:45	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:45	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/15/13 09:45	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/15/13 09:45	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/15/13 09:45	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/15/13 09:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/15/13 09:45	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/15/13 09:45	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/15/13 09:45	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/15/13 09:45	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/15/13 09:45	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/15/13 09:45	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/15/13 09:45	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/15/13 09:45	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/15/13 09:45	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/15/13 09:45	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/15/13 09:45	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/15/13 09:45	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/15/13 09:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 09:45	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/15/13 09:45	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/15/13 09:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/15/13 09:45	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/15/13 09:45	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/15/13 09:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/15/13 09:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/15/13 09:45	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/15/13 09:45	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/15/13 09:45	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/15/13 09:45	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/15/13 09:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/15/13 09:45	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/15/13 09:45	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/15/13 09:45	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/15/13 09:45	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/15/13 09:45	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/15/13 09:45	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/15/13 09:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/15/13 09:45	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/15/13 09:45	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-7 **Lab ID: 92157594015** Collected: 05/09/13 14:20 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/15/13 09:45	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/15/13 09:45	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/15/13 09:45	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/15/13 09:45	79-34-5	
Tetrachloroethene	**5.2**	ug/L	1.0	0.46	1		05/15/13 09:45	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/15/13 09:45	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 09:45	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/15/13 09:45	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/15/13 09:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/15/13 09:45	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/15/13 09:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/15/13 09:45	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/15/13 09:45	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/15/13 09:45	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/15/13 09:45	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/15/13 09:45	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/15/13 09:45	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/15/13 09:45	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	76	%	70-130		1		05/15/13 09:45	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		05/15/13 09:45	1868-53-7	
1,2-Dichloroethane-d4 (S)	81	%	70-130		1		05/15/13 09:45	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		05/15/13 09:45	2037-26-5	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.010	1		05/10/13 11:38	18540-29-9	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-3 **Lab ID: 92157594016** Collected: 05/09/13 15:15 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	20.0	20.0	2	05/11/13 12:30	05/14/13 11:36	7440-38-2	D3
Chromium	**14.1**	ug/L	10.0	10.0	2	05/11/13 12:30	05/14/13 11:36	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/15/13 10:00	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/15/13 10:00	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/15/13 10:00	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/15/13 10:00	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/15/13 10:00	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/15/13 10:00	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/15/13 10:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/15/13 10:00	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/15/13 10:00	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/15/13 10:00	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/15/13 10:00	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/15/13 10:00	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/15/13 10:00	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/15/13 10:00	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/15/13 10:00	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/15/13 10:00	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/15/13 10:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/15/13 10:00	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/15/13 10:00	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/15/13 10:00	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/15/13 10:00	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 10:00	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/15/13 10:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/15/13 10:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/15/13 10:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/15/13 10:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/15/13 10:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/15/13 10:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/15/13 10:00	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/15/13 10:00	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/15/13 10:00	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/15/13 10:00	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/15/13 10:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/15/13 10:00	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/15/13 10:00	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/15/13 10:00	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/15/13 10:00	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/15/13 10:00	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/15/13 10:00	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/15/13 10:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/15/13 10:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/15/13 10:00	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-3 **Lab ID: 92157594016** Collected: 05/09/13 15:15 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/15/13 10:00	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/15/13 10:00	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/15/13 10:00	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/15/13 10:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/15/13 10:00	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/15/13 10:00	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 10:00	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/15/13 10:00	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/15/13 10:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/15/13 10:00	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/15/13 10:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/15/13 10:00	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/15/13 10:00	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/15/13 10:00	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/15/13 10:00	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/15/13 10:00	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/15/13 10:00	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/15/13 10:00	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		1		05/15/13 10:00	460-00-4	
Dibromofluoromethane (S)	103	%	70-130		1		05/15/13 10:00	1868-53-7	
1,2-Dichloroethane-d4 (S)	82	%	70-130		1		05/15/13 10:00	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		05/15/13 10:00	2037-26-5	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.010	1		05/10/13 11:38	18540-29-9	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-4 **Lab ID: 92157594017** Collected: 05/09/13 16:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/13/13 23:58	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/13/13 23:58	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/15/13 10:16	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/15/13 10:16	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/15/13 10:16	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/15/13 10:16	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/15/13 10:16	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/15/13 10:16	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/15/13 10:16	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/15/13 10:16	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/15/13 10:16	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/15/13 10:16	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/15/13 10:16	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/15/13 10:16	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/15/13 10:16	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/15/13 10:16	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/15/13 10:16	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/15/13 10:16	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/15/13 10:16	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/15/13 10:16	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/15/13 10:16	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/15/13 10:16	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/15/13 10:16	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 10:16	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/15/13 10:16	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/15/13 10:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/15/13 10:16	107-06-2	
1,1-Dichloroethene	**12.7**	ug/L	1.0	0.56	1		05/15/13 10:16	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/15/13 10:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/15/13 10:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/15/13 10:16	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/15/13 10:16	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/15/13 10:16	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/15/13 10:16	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/15/13 10:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/15/13 10:16	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/15/13 10:16	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/15/13 10:16	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/15/13 10:16	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/15/13 10:16	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/15/13 10:16	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/15/13 10:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/15/13 10:16	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/15/13 10:16	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-4 **Lab ID: 92157594017** Collected: 05/09/13 16:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/15/13 10:16	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/15/13 10:16	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/15/13 10:16	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/15/13 10:16	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/15/13 10:16	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/15/13 10:16	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/15/13 10:16	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/15/13 10:16	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/15/13 10:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/15/13 10:16	79-00-5	
Trichloroethene	**15.3**	ug/L	1.0	0.47	1		05/15/13 10:16	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/15/13 10:16	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/15/13 10:16	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/15/13 10:16	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/15/13 10:16	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/15/13 10:16	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/15/13 10:16	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/15/13 10:16	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		1		05/15/13 10:16	460-00-4	
Dibromofluoromethane (S)	104	%	70-130		1		05/15/13 10:16	1868-53-7	
1,2-Dichloroethane-d4 (S)	81	%	70-130		1		05/15/13 10:16	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		05/15/13 10:16	2037-26-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-4A **Lab ID: 92157594018** Collected: 05/09/13 16:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/16/13 08:49	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/16/13 08:49	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/16/13 08:49	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/16/13 08:49	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/16/13 08:49	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/16/13 08:49	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/16/13 08:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/16/13 08:49	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/16/13 08:49	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/16/13 08:49	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/16/13 08:49	75-00-3	
Chloroform	**1.5**	ug/L	1.0	0.14	1		05/16/13 08:49	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/16/13 08:49	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/16/13 08:49	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/16/13 08:49	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/16/13 08:49	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/16/13 08:49	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/16/13 08:49	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/16/13 08:49	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/16/13 08:49	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/16/13 08:49	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 08:49	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/16/13 08:49	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/16/13 08:49	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/16/13 08:49	107-06-2	
1,1-Dichloroethene	**20.7**	ug/L	1.0	0.56	1		05/16/13 08:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/16/13 08:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/16/13 08:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/16/13 08:49	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/16/13 08:49	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/16/13 08:49	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/16/13 08:49	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/16/13 08:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/16/13 08:49	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/16/13 08:49	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/16/13 08:49	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/16/13 08:49	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/16/13 08:49	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/16/13 08:49	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/16/13 08:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/16/13 08:49	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/16/13 08:49	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		05/16/13 08:49	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/16/13 08:49	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/16/13 08:49	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/16/13 08:49	79-34-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-4A **Lab ID: 92157594018** Collected: 05/09/13 16:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/16/13 08:49	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/16/13 08:49	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 08:49	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/16/13 08:49	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/16/13 08:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/16/13 08:49	79-00-5	
Trichloroethene	**23.6**	ug/L	1.0	0.47	1		05/16/13 08:49	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/16/13 08:49	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/16/13 08:49	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/16/13 08:49	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/16/13 08:49	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/16/13 08:49	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/16/13 08:49	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/16/13 08:49	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		05/16/13 08:49	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		1		05/16/13 08:49	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		05/16/13 08:49	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		05/16/13 08:49	2037-26-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-1 **Lab ID: 92157594019** Collected: 05/09/13 16:50 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/14/13 00:17	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/14/13 00:17	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/16/13 09:05	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/16/13 09:05	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:05	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/16/13 09:05	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/16/13 09:05	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/16/13 09:05	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/16/13 09:05	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/16/13 09:05	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/16/13 09:05	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/16/13 09:05	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/16/13 09:05	75-00-3	
Chloroform	**8.2**	ug/L	1.0	0.14	1		05/16/13 09:05	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/16/13 09:05	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/16/13 09:05	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:05	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/16/13 09:05	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:05	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/16/13 09:05	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/16/13 09:05	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/16/13 09:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:05	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:05	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/16/13 09:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/16/13 09:05	107-06-2	
1,1-Dichloroethene	**3.6**	ug/L	1.0	0.56	1		05/16/13 09:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/16/13 09:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/16/13 09:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/16/13 09:05	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/16/13 09:05	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/16/13 09:05	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/16/13 09:05	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/16/13 09:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/16/13 09:05	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/16/13 09:05	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:05	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/16/13 09:05	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/16/13 09:05	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:05	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/16/13 09:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/16/13 09:05	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/16/13 09:05	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-1 **Lab ID: 92157594019** Collected: 05/09/13 16:50 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/16/13 09:05	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/16/13 09:05	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/16/13 09:05	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/16/13 09:05	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/16/13 09:05	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/16/13 09:05	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:05	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/16/13 09:05	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/16/13 09:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/16/13 09:05	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/16/13 09:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/16/13 09:05	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/16/13 09:05	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/16/13 09:05	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/16/13 09:05	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/16/13 09:05	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/16/13 09:05	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/16/13 09:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		05/16/13 09:05	460-00-4	
Dibromofluoromethane (S)	103	%	70-130		1		05/16/13 09:05	1868-53-7	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		05/16/13 09:05	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		05/16/13 09:05	2037-26-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-2D **Lab ID: 92157594020** Collected: 05/09/13 17:25 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/16/13 09:21	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/16/13 09:21	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:21	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/16/13 09:21	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/16/13 09:21	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/16/13 09:21	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/16/13 09:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/16/13 09:21	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/16/13 09:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/16/13 09:21	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/16/13 09:21	75-00-3	
Chloroform	**9.1**	ug/L	1.0	0.14	1		05/16/13 09:21	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/16/13 09:21	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/16/13 09:21	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:21	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/16/13 09:21	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/16/13 09:21	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/16/13 09:21	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/16/13 09:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:21	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:21	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/16/13 09:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/16/13 09:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/16/13 09:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/16/13 09:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/16/13 09:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/16/13 09:21	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/16/13 09:21	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/16/13 09:21	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/16/13 09:21	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/16/13 09:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/16/13 09:21	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/16/13 09:21	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:21	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/16/13 09:21	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/16/13 09:21	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:21	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/16/13 09:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/16/13 09:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/16/13 09:21	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		05/16/13 09:21	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/16/13 09:21	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/16/13 09:21	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/16/13 09:21	79-34-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-2D **Lab ID: 92157594020** Collected: 05/09/13 17:25 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/16/13 09:21	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/16/13 09:21	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:21	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/16/13 09:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/16/13 09:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/16/13 09:21	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/16/13 09:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/16/13 09:21	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/16/13 09:21	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/16/13 09:21	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/16/13 09:21	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/16/13 09:21	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/16/13 09:21	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/16/13 09:21	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		05/16/13 09:21	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		05/16/13 09:21	1868-53-7	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		05/16/13 09:21	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		05/16/13 09:21	2037-26-5	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-2 **Lab ID: 92157594021** Collected: 05/09/13 18:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/13/13 21:20	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/13/13 21:20	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/16/13 09:37	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/16/13 09:37	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:37	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/16/13 09:37	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/16/13 09:37	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/16/13 09:37	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/16/13 09:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/16/13 09:37	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/16/13 09:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/16/13 09:37	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/16/13 09:37	75-00-3	
Chloroform	**9.5**	ug/L	1.0	0.14	1		05/16/13 09:37	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/16/13 09:37	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/16/13 09:37	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:37	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/16/13 09:37	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/16/13 09:37	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/16/13 09:37	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/16/13 09:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:37	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:37	75-71-8	
1,1-Dichloroethane	**1.3**	ug/L	1.0	0.32	1		05/16/13 09:37	75-34-3	
1,2-Dichloroethane	**1.3**	ug/L	1.0	0.12	1		05/16/13 09:37	107-06-2	
1,1-Dichloroethene	**62.9**	ug/L	1.0	0.56	1		05/16/13 09:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/16/13 09:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/16/13 09:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/16/13 09:37	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/16/13 09:37	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/16/13 09:37	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/16/13 09:37	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/16/13 09:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/16/13 09:37	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/16/13 09:37	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:37	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/16/13 09:37	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/16/13 09:37	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:37	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/16/13 09:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/16/13 09:37	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/16/13 09:37	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-2 **Lab ID: 92157594021** Collected: 05/09/13 18:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/16/13 09:37	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/16/13 09:37	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/16/13 09:37	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/16/13 09:37	79-34-5	
Tetrachloroethene	**5.1**	ug/L	1.0	0.46	1		05/16/13 09:37	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/16/13 09:37	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:37	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/16/13 09:37	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/16/13 09:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/16/13 09:37	79-00-5	
Trichloroethene	**2.7**	ug/L	1.0	0.47	1		05/16/13 09:37	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/16/13 09:37	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/16/13 09:37	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/16/13 09:37	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/16/13 09:37	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/16/13 09:37	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/16/13 09:37	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/16/13 09:37	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		05/16/13 09:37	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		05/16/13 09:37	1868-53-7	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		05/16/13 09:37	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		05/16/13 09:37	2037-26-5	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.010	1		05/10/13 11:38	18540-29-9	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-2-A **Lab ID: 92157594022** Collected: 05/09/13 18:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Arsenic	ND	ug/L	10.0	10.0	1	05/11/13 12:30	05/14/13 00:20	7440-38-2	
Chromium	ND	ug/L	5.0	5.0	1	05/11/13 12:30	05/14/13 00:20	7440-47-3	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/16/13 09:53	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/16/13 09:53	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:53	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/16/13 09:53	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/16/13 09:53	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/16/13 09:53	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/16/13 09:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/16/13 09:53	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/16/13 09:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/16/13 09:53	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/16/13 09:53	75-00-3	
Chloroform	**9.5**	ug/L	1.0	0.14	1		05/16/13 09:53	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/16/13 09:53	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/16/13 09:53	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:53	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/16/13 09:53	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:53	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/16/13 09:53	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/16/13 09:53	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:53	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/16/13 09:53	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:53	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/16/13 09:53	75-71-8	
1,1-Dichloroethane	**1.5**	ug/L	1.0	0.32	1		05/16/13 09:53	75-34-3	
1,2-Dichloroethane	**1.5**	ug/L	1.0	0.12	1		05/16/13 09:53	107-06-2	
1,1-Dichloroethene	**69.4**	ug/L	1.0	0.56	1		05/16/13 09:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/16/13 09:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/16/13 09:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/16/13 09:53	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/16/13 09:53	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/16/13 09:53	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/16/13 09:53	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/16/13 09:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/16/13 09:53	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/16/13 09:53	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/16/13 09:53	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/16/13 09:53	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/16/13 09:53	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/16/13 09:53	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/16/13 09:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/16/13 09:53	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/16/13 09:53	1634-04-4	

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ANALYTICAL RESULTS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Sample: MW-2-A **Lab ID: 92157594022** Collected: 05/09/13 18:00 Received: 05/10/13 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Naphthalene	ND	ug/L	1.0	0.24	1		05/16/13 09:53	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/16/13 09:53	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/16/13 09:53	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/16/13 09:53	79-34-5	
Tetrachloroethene	**5.7**	ug/L	1.0	0.46	1		05/16/13 09:53	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/16/13 09:53	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/16/13 09:53	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/16/13 09:53	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/16/13 09:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/16/13 09:53	79-00-5	
Trichloroethene	**3.2**	ug/L	1.0	0.47	1		05/16/13 09:53	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/16/13 09:53	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/16/13 09:53	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/16/13 09:53	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/16/13 09:53	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/16/13 09:53	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/16/13 09:53	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/16/13 09:53	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		05/16/13 09:53	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		05/16/13 09:53	1868-53-7	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		05/16/13 09:53	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		05/16/13 09:53	2037-26-5	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.010	1		05/10/13 11:38	18540-29-9	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: MPRP/13284 — Analysis Method: EPA 6010
QC Batch Method: EPA 3050 — Analysis Description: 6010 MET
Associated Lab Samples: 92157594001, 92157594002, 92157594003, 92157594004, 92157594005, 92157594006, 92157594007, 92157594008, 92157594009, 92157594010

METHOD BLANK: 972901 — Matrix: Solid
Associated Lab Samples: 92157594001, 92157594002, 92157594003, 92157594004, 92157594005, 92157594006, 92157594007, 92157594008, 92157594009, 92157594010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	05/13/13 21:32	

LABORATORY CONTROL SAMPLE: 972902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	48.0	96	80-120	

MATRIX SPIKE SAMPLE: 972903

Parameter	Units	92157594001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	2.1	59.5	45.1	72	75-125	M1

SAMPLE DUPLICATE: 972904

Parameter	Units	92157594002 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	mg/kg	12.7	9.8	26	20	D6

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: MPRP/13280 — Analysis Method: EPA 6010
QC Batch Method: SM 3030C — Analysis Description: 6010 MET 3030C
Associated Lab Samples: 92157594011, 92157594012, 92157594013, 92157594015, 92157594016, 92157594017, 92157594019, 92157594022

METHOD BLANK: 972866 — Matrix: Water
Associated Lab Samples: 92157594011, 92157594012, 92157594013, 92157594015, 92157594016, 92157594017, 92157594019, 92157594022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	05/13/13 23:36	
Chromium	ug/L	ND	5.0	05/13/13 23:36	

LABORATORY CONTROL SAMPLE: 972867

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	500	483	97	80-120	
Chromium	ug/L	500	467	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 972868 972869

Parameter	Units	92157594017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	500	500	496	474	99	94	75-125	5	20	
Chromium	ug/L	ND	500	500	473	465	95	93	75-125	2	20	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: MPRP/13281
QC Batch Method: SM 3030C
Analysis Method: EPA 6010
Analysis Description: 6010 MET 3030C
Associated Lab Samples: 92157594021

METHOD BLANK: 972885
Matrix: Water
Associated Lab Samples: 92157594021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	05/13/13 20:58	
Chromium	ug/L	ND	5.0	05/13/13 20:58	

LABORATORY CONTROL SAMPLE: 972886

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	500	494	99	80-120	
Chromium	ug/L	500	462	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 972887 972888

Parameter	Units	92157594021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	500	500	480	496	96	99	75-125	3	20	
Chromium	ug/L	ND	500	500	466	468	93	93	75-125	0	20	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: MSV/22959 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92157594012, 92157594013, 92157594014, 92157594015, 92157594016, 92157594017

METHOD BLANK: 973334 Matrix: Water
Associated Lab Samples: 92157594012, 92157594013, 92157594014, 92157594015, 92157594016, 92157594017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/15/13 04:47	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/15/13 04:47	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/15/13 04:47	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/15/13 04:47	
1,1-Dichloroethane	ug/L	ND	1.0	05/15/13 04:47	
1,1-Dichloroethene	ug/L	ND	1.0	05/15/13 04:47	
1,1-Dichloropropene	ug/L	ND	1.0	05/15/13 04:47	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/15/13 04:47	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/15/13 04:47	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/15/13 04:47	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/15/13 04:47	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/15/13 04:47	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/15/13 04:47	
1,2-Dichloroethane	ug/L	ND	1.0	05/15/13 04:47	
1,2-Dichloropropane	ug/L	ND	1.0	05/15/13 04:47	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/15/13 04:47	
1,3-Dichloropropane	ug/L	ND	1.0	05/15/13 04:47	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/15/13 04:47	
2,2-Dichloropropane	ug/L	ND	1.0	05/15/13 04:47	
2-Butanone (MEK)	ug/L	ND	5.0	05/15/13 04:47	
2-Chlorotoluene	ug/L	ND	1.0	05/15/13 04:47	
2-Hexanone	ug/L	ND	5.0	05/15/13 04:47	
4-Chlorotoluene	ug/L	ND	1.0	05/15/13 04:47	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/15/13 04:47	
Acetone	ug/L	ND	25.0	05/15/13 04:47	
Benzene	ug/L	ND	1.0	05/15/13 04:47	
Bromobenzene	ug/L	ND	1.0	05/15/13 04:47	
Bromochloromethane	ug/L	ND	1.0	05/15/13 04:47	
Bromodichloromethane	ug/L	ND	1.0	05/15/13 04:47	
Bromoform	ug/L	ND	1.0	05/15/13 04:47	
Bromomethane	ug/L	ND	2.0	05/15/13 04:47	
Carbon tetrachloride	ug/L	ND	1.0	05/15/13 04:47	
Chlorobenzene	ug/L	ND	1.0	05/15/13 04:47	
Chloroethane	ug/L	ND	1.0	05/15/13 04:47	
Chloroform	ug/L	ND	1.0	05/15/13 04:47	
Chloromethane	ug/L	ND	1.0	05/15/13 04:47	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/15/13 04:47	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/15/13 04:47	
Dibromochloromethane	ug/L	ND	1.0	05/15/13 04:47	
Dibromomethane	ug/L	ND	1.0	05/15/13 04:47	
Dichlorodifluoromethane	ug/L	ND	1.0	05/15/13 04:47	
Diisopropyl ether	ug/L	ND	1.0	05/15/13 04:47	
Ethylbenzene	ug/L	ND	1.0	05/15/13 04:47	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

METHOD BLANK: 973334 Matrix: Water

Associated Lab Samples: 92157594012, 92157594013, 92157594014, 92157594015, 92157594016, 92157594017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/15/13 04:47	
m&p-Xylene	ug/L	ND	2.0	05/15/13 04:47	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/15/13 04:47	
Methylene Chloride	ug/L	ND	2.0	05/15/13 04:47	
Naphthalene	ug/L	ND	1.0	05/15/13 04:47	
o-Xylene	ug/L	ND	1.0	05/15/13 04:47	
p-Isopropyltoluene	ug/L	ND	1.0	05/15/13 04:47	
Styrene	ug/L	ND	1.0	05/15/13 04:47	
Tetrachloroethene	ug/L	ND	1.0	05/15/13 04:47	
Toluene	ug/L	ND	1.0	05/15/13 04:47	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/15/13 04:47	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/15/13 04:47	
Trichloroethene	ug/L	ND	1.0	05/15/13 04:47	
Trichlorofluoromethane	ug/L	ND	1.0	05/15/13 04:47	
Vinyl acetate	ug/L	ND	2.0	05/15/13 04:47	
Vinyl chloride	ug/L	ND	1.0	05/15/13 04:47	
Xylene (Total)	ug/L	ND	2.0	05/15/13 04:47	
1,2-Dichloroethane-d4 (S)	%	80	70-130	05/15/13 04:47	
4-Bromofluorobenzene (S)	%	72	70-130	05/15/13 04:47	
Dibromofluoromethane (S)	%	101	70-130	05/15/13 04:47	
Toluene-d8 (S)	%	102	70-130	05/15/13 04:47	

LABORATORY CONTROL SAMPLE: 973335

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	35.9	72	70-130	
1,1,1-Trichloroethane	ug/L	50	40.8	82	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	35.3	71	70-130	
1,1,2-Trichloroethane	ug/L	50	40.2	80	70-130	
1,1-Dichloroethane	ug/L	50	37.3	75	70-130	
1,1-Dichloroethene	ug/L	50	42.6	85	70-132	
1,1-Dichloropropene	ug/L	50	48.6	97	70-130	
1,2,3-Trichlorobenzene	ug/L	50	33.9	68	70-135	L0
1,2,3-Trichloropropane	ug/L	50	37.0	74	70-130	
1,2,4-Trichlorobenzene	ug/L	50	34.7	69	70-134	L0
1,2-Dibromo-3-chloropropane	ug/L	50	35.7	71	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	37.5	75	70-130	
1,2-Dichlorobenzene	ug/L	50	36.0	72	70-130	
1,2-Dichloroethane	ug/L	50	36.0	72	70-130	
1,2-Dichloropropane	ug/L	50	41.3	83	70-130	
1,3-Dichlorobenzene	ug/L	50	36.0	72	70-130	
1,3-Dichloropropane	ug/L	50	37.7	75	70-130	
1,4-Dichlorobenzene	ug/L	50	36.2	72	70-130	
2,2-Dichloropropane	ug/L	50	43.7	87	58-145	
2-Butanone (MEK)	ug/L	100	88.0	88	70-145	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

LABORATORY CONTROL SAMPLE: 973335

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorotoluene	ug/L	50	38.6	77	70-130	
2-Hexanone	ug/L	100	77.3	77	70-144	
4-Chlorotoluene	ug/L	50	36.6	73	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	75.5	76	70-140	
Acetone	ug/L	100	81.1	81	50-175	
Benzene	ug/L	50	37.7	75	70-130	
Bromobenzene	ug/L	50	36.2	72	70-130	
Bromochloromethane	ug/L	50	39.0	78	70-130	
Bromodichloromethane	ug/L	50	36.9	74	70-130	
Bromoform	ug/L	50	32.0	64	70-130	L0
Bromomethane	ug/L	50	31.2	62	54-130	
Carbon tetrachloride	ug/L	50	40.0	80	70-132	
Chlorobenzene	ug/L	50	36.5	73	70-130	
Chloroethane	ug/L	50	46.1	92	64-134	
Chloroform	ug/L	50	38.1	76	70-130	
Chloromethane	ug/L	50	48.3	97	64-130	
cis-1,2-Dichloroethene	ug/L	50	38.3	77	70-131	
cis-1,3-Dichloropropene	ug/L	50	41.8	84	70-130	
Dibromochloromethane	ug/L	50	35.6	71	70-130	
Dibromomethane	ug/L	50	38.7	77	70-131	
Dichlorodifluoromethane	ug/L	50	47.3	95	56-130	
Diisopropyl ether	ug/L	50	38.7	77	70-130	
Ethylbenzene	ug/L	50	37.1	74	70-130	
Hexachloro-1,3-butadiene	ug/L	50	34.2	68	70-130	L0
m&p-Xylene	ug/L	100	73.9	74	70-130	
Methyl-tert-butyl ether	ug/L	50	36.7	73	70-130	
Methylene Chloride	ug/L	50	37.5	75	63-130	
Naphthalene	ug/L	50	36.4	73	70-138	
o-Xylene	ug/L	50	37.8	76	70-130	
p-Isopropyltoluene	ug/L	50	37.0	74	70-130	
Styrene	ug/L	50	38.8	78	70-130	
Tetrachloroethene	ug/L	50	35.7	71	70-130	
Toluene	ug/L	50	36.0	72	70-130	
trans-1,2-Dichloroethene	ug/L	50	35.9	72	70-130	
trans-1,3-Dichloropropene	ug/L	50	43.9	88	70-132	
Trichloroethene	ug/L	50	38.2	76	70-130	
Trichlorofluoromethane	ug/L	50	42.1	84	62-133	
Vinyl acetate	ug/L	100	76.7	77	66-157	
Vinyl chloride	ug/L	50	37.4	75	69-130	
Xylene (Total)	ug/L	150	112	74	70-130	
1,2-Dichloroethane-d4 (S)	%			89	70-130	
4-Bromofluorobenzene (S)	%			79	70-130	
Dibromofluoromethane (S)	%			104	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 973336 973337

Parameter	Units	92157594017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	ug/L	12.7	50	50	83.9	91.3	142	157	70-166	8	30	
Benzene	ug/L	ND	50	50	56.9	62.8	114	126	70-148	10	30	
Chlorobenzene	ug/L	ND	50	50	50.0	58.8	100	118	70-146	16	30	
Toluene	ug/L	ND	50	50	53.6	57.4	107	115	70-155	7	30	
Trichloroethene	ug/L	15.3	50	50	81.3	87.9	132	145	69-151	8	30	
1,2-Dichloroethane-d4 (S)	%						100	100	70-130			
4-Bromofluorobenzene (S)	%						98	103	70-130			
Dibromofluoromethane (S)	%						102	103	70-130			
Toluene-d8 (S)	%						99	97	70-130			

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: MSV/22967 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92157594018, 92157594019, 92157594020, 92157594021, 92157594022

METHOD BLANK: 973805 Matrix: Water
Associated Lab Samples: 92157594018, 92157594019, 92157594020, 92157594021, 92157594022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/15/13 23:46	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/15/13 23:46	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/15/13 23:46	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/15/13 23:46	
1,1-Dichloroethane	ug/L	ND	1.0	05/15/13 23:46	
1,1-Dichloroethene	ug/L	ND	1.0	05/15/13 23:46	
1,1-Dichloropropene	ug/L	ND	1.0	05/15/13 23:46	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/15/13 23:46	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/15/13 23:46	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/15/13 23:46	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/15/13 23:46	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/15/13 23:46	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/15/13 23:46	
1,2-Dichloroethane	ug/L	ND	1.0	05/15/13 23:46	
1,2-Dichloropropane	ug/L	ND	1.0	05/15/13 23:46	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/15/13 23:46	
1,3-Dichloropropane	ug/L	ND	1.0	05/15/13 23:46	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/15/13 23:46	
2,2-Dichloropropane	ug/L	ND	1.0	05/15/13 23:46	
2-Butanone (MEK)	ug/L	ND	5.0	05/15/13 23:46	
2-Chlorotoluene	ug/L	ND	1.0	05/15/13 23:46	
2-Hexanone	ug/L	ND	5.0	05/15/13 23:46	
4-Chlorotoluene	ug/L	ND	1.0	05/15/13 23:46	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/15/13 23:46	
Acetone	ug/L	ND	25.0	05/15/13 23:46	
Benzene	ug/L	ND	1.0	05/15/13 23:46	
Bromobenzene	ug/L	ND	1.0	05/15/13 23:46	
Bromochloromethane	ug/L	ND	1.0	05/15/13 23:46	
Bromodichloromethane	ug/L	ND	1.0	05/15/13 23:46	
Bromoform	ug/L	ND	1.0	05/15/13 23:46	
Bromomethane	ug/L	ND	2.0	05/15/13 23:46	
Carbon tetrachloride	ug/L	ND	1.0	05/15/13 23:46	
Chlorobenzene	ug/L	ND	1.0	05/15/13 23:46	
Chloroethane	ug/L	ND	1.0	05/15/13 23:46	
Chloroform	ug/L	ND	1.0	05/15/13 23:46	
Chloromethane	ug/L	ND	1.0	05/15/13 23:46	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/15/13 23:46	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/15/13 23:46	
Dibromochloromethane	ug/L	ND	1.0	05/15/13 23:46	
Dibromomethane	ug/L	ND	1.0	05/15/13 23:46	
Dichlorodifluoromethane	ug/L	ND	1.0	05/15/13 23:46	
Diisopropyl ether	ug/L	ND	1.0	05/15/13 23:46	
Ethylbenzene	ug/L	ND	1.0	05/15/13 23:46	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

METHOD BLANK: 973805 Matrix: Water

Associated Lab Samples: 92157594018, 92157594019, 92157594020, 92157594021, 92157594022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/15/13 23:46	
m&p-Xylene	ug/L	ND	2.0	05/15/13 23:46	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/15/13 23:46	
Methylene Chloride	ug/L	ND	2.0	05/15/13 23:46	
Naphthalene	ug/L	ND	1.0	05/15/13 23:46	
o-Xylene	ug/L	ND	1.0	05/15/13 23:46	
p-Isopropyltoluene	ug/L	ND	1.0	05/15/13 23:46	
Styrene	ug/L	ND	1.0	05/15/13 23:46	
Tetrachloroethene	ug/L	ND	1.0	05/15/13 23:46	
Toluene	ug/L	ND	1.0	05/15/13 23:46	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/15/13 23:46	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/15/13 23:46	
Trichloroethene	ug/L	ND	1.0	05/15/13 23:46	
Trichlorofluoromethane	ug/L	ND	1.0	05/15/13 23:46	
Vinyl acetate	ug/L	ND	2.0	05/15/13 23:46	
Vinyl chloride	ug/L	ND	1.0	05/15/13 23:46	
Xylene (Total)	ug/L	ND	2.0	05/15/13 23:46	
1,2-Dichloroethane-d4 (S)	%	100	70-130	05/15/13 23:46	
4-Bromofluorobenzene (S)	%	99	70-130	05/15/13 23:46	
Dibromofluoromethane (S)	%	100	70-130	05/15/13 23:46	
Toluene-d8 (S)	%	99	70-130	05/15/13 23:46	

LABORATORY CONTROL SAMPLE: 973806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	54.1	108	70-130	
1,1,1-Trichloroethane	ug/L	50	55.9	112	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	53.7	107	70-130	
1,1,2-Trichloroethane	ug/L	50	57.4	115	70-130	
1,1-Dichloroethane	ug/L	50	57.7	115	70-130	
1,1-Dichloroethene	ug/L	50	55.3	111	70-132	
1,1-Dichloropropene	ug/L	50	67.0	134	70-130	L3
1,2,3-Trichlorobenzene	ug/L	50	56.5	113	70-135	
1,2,3-Trichloropropane	ug/L	50	53.9	108	70-130	
1,2,4-Trichlorobenzene	ug/L	50	57.9	116	70-134	
1,2-Dibromo-3-chloropropane	ug/L	50	54.1	108	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	56.3	113	70-130	
1,2-Dichlorobenzene	ug/L	50	57.0	114	70-130	
1,2-Dichloroethane	ug/L	50	50.7	101	70-130	
1,2-Dichloropropane	ug/L	50	60.4	121	70-130	
1,3-Dichlorobenzene	ug/L	50	55.4	111	70-130	
1,3-Dichloropropane	ug/L	50	59.7	119	70-130	
1,4-Dichlorobenzene	ug/L	50	56.0	112	70-130	
2,2-Dichloropropane	ug/L	50	47.8	96	58-145	
2-Butanone (MEK)	ug/L	100	123	123	70-145	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

LABORATORY CONTROL SAMPLE: 973806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorotoluene	ug/L	50	58.0	116	70-130	
2-Hexanone	ug/L	100	121	121	70-144	
4-Chlorotoluene	ug/L	50	56.9	114	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	118	118	70-140	
Acetone	ug/L	100	122	122	50-175	
Benzene	ug/L	50	54.8	110	70-130	
Bromobenzene	ug/L	50	56.6	113	70-130	
Bromochloromethane	ug/L	50	57.0	114	70-130	
Bromodichloromethane	ug/L	50	53.8	108	70-130	
Bromoform	ug/L	50	62.0	124	70-130	
Bromomethane	ug/L	50	53.0	106	54-130	
Carbon tetrachloride	ug/L	50	54.2	108	70-132	
Chlorobenzene	ug/L	50	55.8	112	70-130	
Chloroethane	ug/L	50	60.0	120	64-134	
Chloroform	ug/L	50	56.7	113	70-130	
Chloromethane	ug/L	50	63.4	127	64-130	
cis-1,2-Dichloroethene	ug/L	50	55.4	111	70-131	
cis-1,3-Dichloropropene	ug/L	50	59.8	120	70-130	
Dibromochloromethane	ug/L	50	57.4	115	70-130	
Dibromomethane	ug/L	50	53.3	107	70-131	
Dichlorodifluoromethane	ug/L	50	68.8	138	56-130	L3
Diisopropyl ether	ug/L	50	62.6	125	70-130	
Ethylbenzene	ug/L	50	56.4	113	70-130	
Hexachloro-1,3-butadiene	ug/L	50	51.1	102	70-130	
m&p-Xylene	ug/L	100	113	113	70-130	
Methyl-tert-butyl ether	ug/L	50	58.8	118	70-130	
Methylene Chloride	ug/L	50	56.2	112	63-130	
Naphthalene	ug/L	50	58.3	117	70-138	
o-Xylene	ug/L	50	55.3	111	70-130	
p-Isopropyltoluene	ug/L	50	59.9	120	70-130	
Styrene	ug/L	50	56.9	114	70-130	
Tetrachloroethene	ug/L	50	55.3	111	70-130	
Toluene	ug/L	50	54.5	109	70-130	
trans-1,2-Dichloroethene	ug/L	50	56.6	113	70-130	
trans-1,3-Dichloropropene	ug/L	50	62.8	126	70-132	
Trichloroethene	ug/L	50	53.8	108	70-130	
Trichlorofluoromethane	ug/L	50	56.0	112	62-133	
Vinyl acetate	ug/L	100	115	115	66-157	
Vinyl chloride	ug/L	50	54.0	108	69-130	
Xylene (Total)	ug/L	150	168	112	70-130	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Dibromofluoromethane (S)	%			101	70-130	
Toluene-d8 (S)	%			100	70-130	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 973807 973808

Parameter	Units	92157594021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	ug/L	62.9	50	50	134	127	143	127	70-166	6	30	
Benzene	ug/L	ND	50	50	65.4	60.1	131	120	70-148	9	30	
Chlorobenzene	ug/L	ND	50	50	61.6	58.1	123	116	70-146	6	30	
Toluene	ug/L	ND	50	50	62.2	57.0	124	114	70-155	9	30	
Trichloroethene	ug/L	2.7	50	50	70.9	66.5	136	127	69-151	6	30	
1,2-Dichloroethane-d4 (S)	%						99	98	70-130			
4-Bromofluorobenzene (S)	%						95	97	70-130			
Dibromofluoromethane (S)	%						101	99	70-130			
Toluene-d8 (S)	%						98	99	70-130			

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: PMST/5522
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92157594001, 92157594002

SAMPLE DUPLICATE: 973505

Parameter	Units	92157753001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	21.6	22.3	3	25	

SAMPLE DUPLICATE: 973506

Parameter	Units	92157594002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.5	17.5	0	25	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: PMST/5523
Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92157594003, 92157594004, 92157594005, 92157594006, 92157594007, 92157594008, 92157594009, 92157594010

SAMPLE DUPLICATE: 973507

Parameter	Units	92157594003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	7.3	7.7	6	25	

SAMPLE DUPLICATE: 973508

Parameter	Units	92157605011 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	12.3	13.8	11	25	

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QUALITY CONTROL DATA

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

QC Batch: WETA/15294 Analysis Method: EPA 7196
QC Batch Method: EPA 7196 Analysis Description: 7196 Chromium, Hexavalent
Associated Lab Samples: 92157594015, 92157594016, 92157594021, 92157594022

METHOD BLANK: 972556 Matrix: Water
Associated Lab Samples: 92157594015, 92157594016, 92157594021, 92157594022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	05/10/13 11:38	

LABORATORY CONTROL SAMPLE: 972557

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	.25	0.26	104	90-110	

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(704)875-9092

QUALIFIERS

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

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.

PRL - Pace Reporting 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-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ARDEE TRANSLITE
Pace Project No.: 92157594

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92157594001	**BG-9-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594002	**BG-8-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594003	**BG-7-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594004	**BG-6-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594005	**BG-2A-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594006	**BG-4-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594007	**BG-5-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594008	**MW-3A-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594009	**MW-3B-0-0.5**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594010	**BG-3B-0-0.5A**	EPA 3050	MPRP/13284	EPA 6010	ICP/12102
92157594011	**BG-3B-0-0.5D**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594012	**MW-6**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594013	**MW-5**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594015	**MW-7**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594016	**MW-3**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594017	**MW-4**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594019	**MW-1**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594021	**MW-2**	SM 3030C	MPRP/13281	EPA 6010	ICP/12101
92157594022	**MW-2-A**	SM 3030C	MPRP/13280	EPA 6010	ICP/12100
92157594012	**MW-6**	EPA 8260	MSV/22959		
92157594013	**MW-5**	EPA 8260	MSV/22959		
92157594014	**MW-7D**	EPA 8260	MSV/22959		
92157594015	**MW-7**	EPA 8260	MSV/22959		
92157594016	**MW-3**	EPA 8260	MSV/22959		
92157594017	**MW-4**	EPA 8260	MSV/22959		
92157594018	**MW-4A**	EPA 8260	MSV/22967		
92157594019	**MW-1**	EPA 8260	MSV/22967		
92157594020	**MW-2D**	EPA 8260	MSV/22967		
92157594021	**MW-2**	EPA 8260	MSV/22967		
92157594022	**MW-2-A**	EPA 8260	MSV/22967		
92157594001	**BG-9-0-0.5**	ASTM D2974-87	PMST/5522		
92157594002	**BG-8-0-0.5**	ASTM D2974-87	PMST/5522		
92157594003	**BG-7-0-0.5**	ASTM D2974-87	PMST/5523		
92157594004	**BG-6-0-0.5**	ASTM D2974-87	PMST/5523		
92157594005	**BG-2A-0-0.5**	ASTM D2974-87	PMST/5523		
92157594006	**BG-4-0-0.5**	ASTM D2974-87	PMST/5523		
92157594007	**BG-5-0-0.5**	ASTM D2974-87	PMST/5523		
92157594008	**MW-3A-0-0.5**	ASTM D2974-87	PMST/5523		
92157594009	**MW-3B-0-0.5**	ASTM D2974-87	PMST/5523		
92157594010	**BG-3B-0-0.5A**	ASTM D2974-87	PMST/5523		
92157594015	**MW-7**	EPA 7196	WETA/15294		
92157594016	**MW-3**	EPA 7196	WETA/15294		
92157594021	**MW-2**	EPA 7196	WETA/15294		
92157594022	**MW-2-A**	EPA 7196	WETA/15294		

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Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: March 13, 2013 Page 1 of 2
	Document No.: F-ASV-CS-003-rev.09	Issuing Authorities: Pace Asheville Quality Office

Client Name: AECOM

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#2 -80344039 **Type of Ice:** Wet Blue None ☑ Samples on ice, cooling process has begun

IR Gun Back Up- 111565135

Temp Correction Factor: Add / Subtract 0.1 C

Corrected Cooler Temp.: 5.8 C **Biological Tissue is Frozen:** Yes No N/A

Date and Initials of person examining contents: 5/10/13

Temp should be above freezing to 6°C

		Comments:
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. CR+C
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: WT		
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	**Initial when completed**
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: JG **Date:** 5/10/13

SRF Review: JDB **Date:** 5/13/13

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)

WO#: 92157594

92157594

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 3

1664611

Section A Required Client Information:

Company: AECOM
Address: 10 Patewood Dr
Bldg VI Suite 500
Greenville SC 29615
Phone: 864-234-3000 Fax: 864-234-3069
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Dave Olyphant
Copy To:
Purchase Order No.: 42737
Project Name: Arbee Transfite
Project Number:

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☑ OTHER NCDENER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) VOCs 8260	Metals 6010 (As/Cr)	Hex - Cr	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-6	WT	G	5/9/13	1155				4			X	X					X	X			012
2	MW-5	WT	G	5/9/13	1245				4			X	X					X	X			013
3	MW-7D	WT	G	5/9/13	1320				3				X					X				014
4	MW-7	WT	G	5/9/13	1420				5	X		X	X					X	X	X		015
5	MW-3	WT	G	5/9/13	1515				5	X		X	X					X	X	X		016
6	MW-4	WT	G	5/9/13	1600				4			X	X					X	X			017
7	MW-4-a	WT	G	5/9/13	1600				3				X					X				018
8	MW-4-MS	WT	G	5/9/13	1600				3				X					X				017
9	MW-4-MSD	WT	G	5/9/13	1600				3				X					X				017
10	MW-1	WT	G	5/9/13	1650				4			X	X					X	X			019
11	MW-2D	WT	G	5/9/13	1725				3				X					X				020
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Missing Trip blank	[signature]	5/9/13	1930	[signature]	5/10/13	10:15	5.5	Y	Y	X

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: McTom Law
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 5/9/13

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: March 13, 2013 Page 1 of 2
	Document No.: F-ASV-CS-003-rev.09	Issuing Authorities: Pace Asheville Quality Office

Client Name: AECOM

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#2 -80344039 **Type of Ice:** Wet Blue None ☑ Samples on ice, cooling process has begun

IR Gun Back Up- 111565135

Temp Correction Factor: Add/Subtract 0.1 C

Corrected Cooler Temp.: 5.8 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents: LS 5/10/13

		Comments:
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. CRTC
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: WT		
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	**Initial when completed**
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: LS **Date:** 5/10/13

SRF Review: JDB **Date:** 5/13/13

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)

92157594

Place label here

OR

Handwrite project number (if no label available)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 3 of 3

1664612

Section A Required Client Information:

Company: AECOM
Address: 10 Patewood Dr
Building VI, Suite 500
Greenville, SC 29615
Email To:
Phone: 864-234-3000 Fax: 864-234-3068
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Dave Oliphant
Copy To:
Purchase Order No.: 42737
Project Name: Ardee Transloite
Project Number:

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER NCDENR

Site Location STATE: NC

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): VOCs 8260	Metals 6010 (Al/Cr)	Hex - Cr	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-2	WT	G	5/9/13	1800				5	X		X	X					X	X	X		021
2	MW-2-a	WT	G	5/9/13	1800				5	X		X	X					X	X	X		022
3	MW-2-MS	WT	G	5/9/13	1800				1			X							X			021
4	MW-2-MSD	WT	G	5/9/13	1800				1			X							X			021
5	~~MW-2-C~~																					
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature]	5/9/13	1930	[signature]	5/10/13	10:15	5.8	Y	Y	✓

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: McIver Law
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 5/9/13

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: March 13, 2013 Page 1 of 2
	Document No.: F-ASV-CS-003-rev.09	Issuing Authorities: Pace Asheville Quality Office

Client Name: AECOM

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#2 -80344039 **Type of Ice:** Wet Blue None ☑ Samples on ice, cooling process has begun

IR Gun Back Up- 111565135

Temp Correction Factor: Add/Subtract 0.1 C

Corrected Cooler Temp.: 5.8 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 5/10/13

		Comments:
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. CRTC
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: WT		
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	**Initial when completed**
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: [illegible] **Date:** 5/10/13

SRF Review: JDB **Date:** 5/13/13

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

92157594

OR

Handwrite project number (if no label available)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 3

1664610

Section A Required Client Information:

Company: AECOM
Address: 10 Patewood Dr
Bldg III, Suite 500
Greenville SC 29615
Email To:
Phone: 864-234-3000 Fax: 864-234-3064
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Dave Oliphant
Copy To:
Purchase Order No.: 42737
Project Name: Ardee Transl.te
Project Number:

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER NCDNER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Metals 6010 (As)	Metals 6010 (Cr/As)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	BG-9-0-0.5	SL	G	5/9/13	835				1	X									X			001
2	BG-8-0-0.5	SL	G	5/9/13	840				1	X									X			002
3	BG-7-0-0.5	SL	G	5/9/13	850				1	X									X			003
4	BG-6-0-0.5	SL	G	5/9/13	855				1	X									X			004
5	BG-2A-0-0.5	SL	G	5/9/13	905				1	X									X			005
6	BG-4-0-0.5	SL	G	5/9/13	910				1	X									X			006
7	BG-5-0-0.5	SL	G	5/9/13	915				1	X									X			007
8	BG-3A-0-0.5	SL	G	5/9/13	935				1	X									X			008
9	BG-3B-0-0.5	SL	G	5/9/13	940				1	X									X			009
10	BG-3B-0-0.5-a	SL	G	5/9/13	940				1	X									X			010
11	BG-3B-0-0.5-d	WT	G	5/9/13	1000				1			X								X		011
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Missing trip blank	[signature]	5/9/13	1930	[signature]	5/10/13	10:15	5.8	Y	Y	Y

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Matthew Low

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/9/13

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

APPENDIX M

SITE-SPECIFIC AND COMMUNITY HEALTH AND SAFETY PLAN

COMMUNITY HEALTH AND SAFETY PLAN

Ardee Translite,
639 Washburn Switch Road,
Shelby, NC

Prepared for:

Genlyte Thomas Group, LLC, 639 Washburn Switch Road, Shelby, NC

Prepared by:

AECOM Technical Services, Inc.
10 Patewood Drive
Building VI, Suite 500
Greenville, South Carolina 29615

Health and Safety Plan Expiration Date: 07/31/2014

Project No: 60302815.1

Revision Log

Revision	Date	Author	Approver
1	July 2013	D. Oliphant	R. Reynolds

_____ August 28, 2013
Reviewed By – Russ Reynolds Date
District Safety, Health and Environment Manager
Southeast Environment

_____ August 28, 2013
Reviewed By – McIver Law Date
Site Safety Officer

_____ August 28, 2013
Reviewed By – Dave Oliphant Date
Project Manager

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Emergency Provider Map and Directions

Cleveland Regional Medical Center - (704) 487-3000

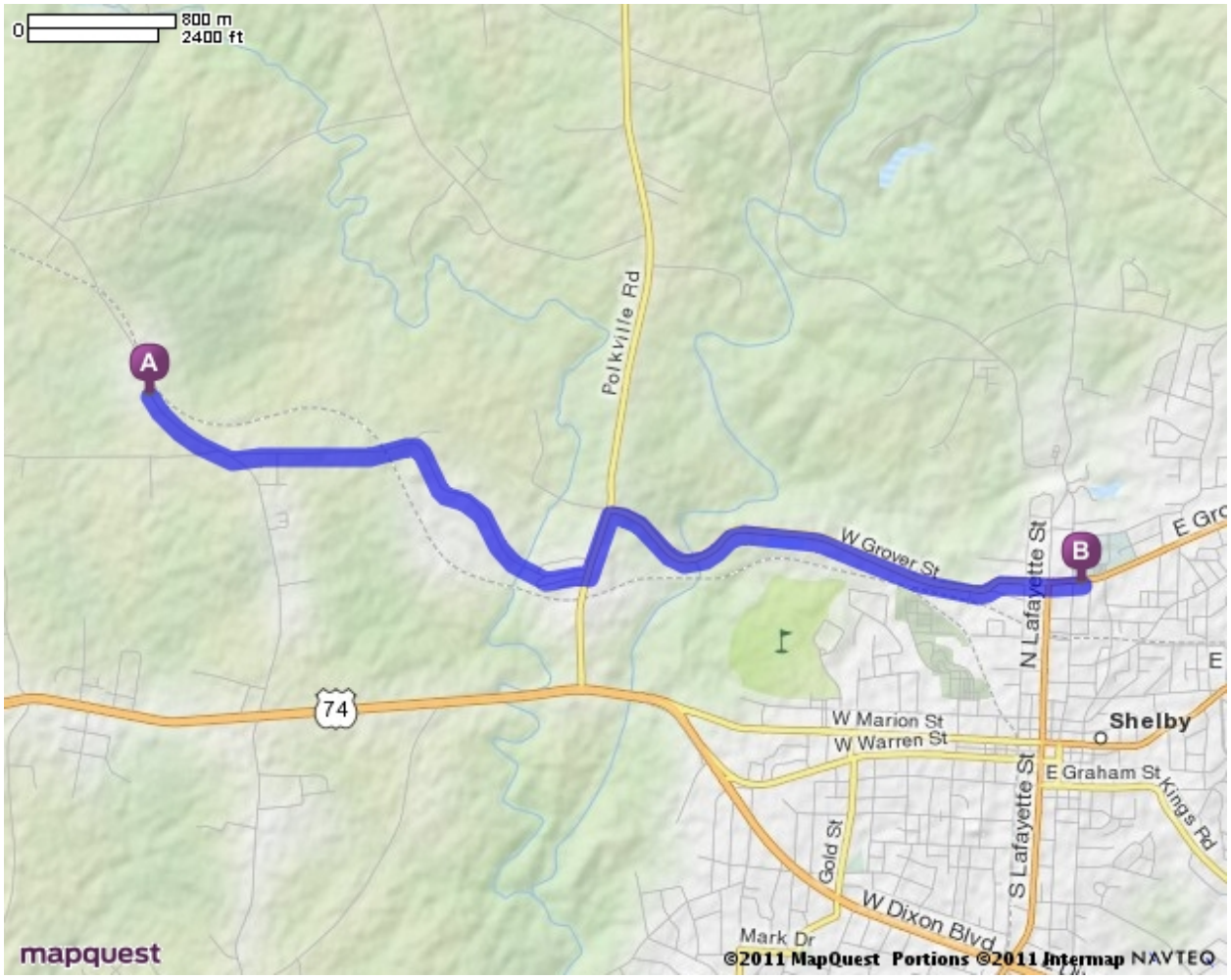
201 E Grover St, Shelby, NC, 28150

Start out going southeast on Washburn Switch Rd toward Artee Rd.

Turn left onto Randolph Rd.

Turn left onto Polkville Rd/NC-226

Turn right onto W Grover St. 2.1 mi



Non-Emergency Provider Map and Directions

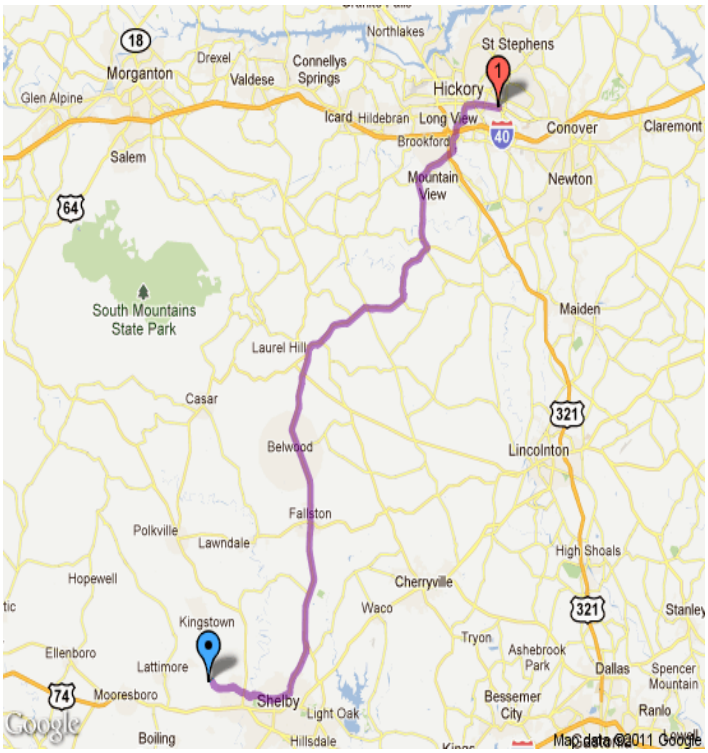
Non Emergency Provider	**Edwards, Allen, M D** **Allen Edwards M.D.**
Address	2850 Tate Blvd SE Hickory, NC 28602
Specialty	Occupational Medicine
Phone	828-326-7000
Fax:	828-326-7021

Estimated driving time: 72 minutes

From: **639 Washburn Switch Road Shelby, NC**

To: **2850 Tate Blvd SE Hickory, NC 28602**

Head **south** on **Washburn Switch Rd** toward **Artee Rd**	0.5 mi
Slight **left** onto **Randolph Rd**	0.8 mi
Take the 1st **left** onto **Southern Dr**	0.9 mi
Continue onto **W Grover St**	3.0 mi
W Grover St turns slightly **left** and becomes **N Carolina 18 N/Fallston Rd** Continue to follow N Carolina 18 N	18.0 mi
Continue onto **N Carolina 10 E**	10.0 mi
Turn **left** onto **N Carolina 127 N**	8.9 mi
Turn **right** onto **2nd Ave SE**	0.3 mi
Slight **left** onto **Tate Blvd SE** Destination will be on the right	1.7 mi



Underground Utilities

North Carolina One Call Center

http://www2.ncocc.org/ncocc/homepage.htm

Call – 1-800-632-4949

The National One Call utilities phone number is 811

Notification should be no less than three working days before commencing intrusive work. The markings are valid for 15 working days from the date of the call to the notification center. Providing the correct spelling of the street name, pavement type, nearest cross-street, and the area to be marked will assist the locators in marking the location of underground facilities within the required 72-hour time period. Be sure to know what utilities are included and who is responsible for obtaining the clearance.

Poison Control Center

1-800-222-1222 (Nationwide)

Emergency Muster Point

In case of a site/facility emergency, please meet at

TBD BY SSO

The escape route from the site and an emergency muster point will be determined and provided to all workers during the initial site safety meeting.

Client Contacts: Mr. Jesse Overgord

AECOM Project Representatives:	**Office**	**Mobile**
AECOM, Greenville, SC	864-234-3000	
Walter Gerald, Project Manager	864-234-8925	864-313-4722
Dave Oliphant, Sr. Task Manager	864-234-3560	864-380-6950
Russell Reynolds, DHSM	864-234-3042	864-906-7309
Harold McDaniel, RHSM	256.767.1210 ext 236	256-366-7650

AECOM Medical Records and Medical Consultant

Work Care North
Alameda, CA 94502
Telephone: 510-748-6900 Fax: 510-748-6915

Emergency Organization / Agency	**Telephone Number**
Police Department	911
Fire Department	911
State Police	911
Ambulance Service ***(EMT will determine appropriate hospital for treatment)***	911
Pollution Emergency	800-292-4706
National Response Center	800-424-8802
Chem-Trec	800-424-9300
Title 3 Hotline	800-535-0202

All accidents and incidents that occur on-site during any field activity will be promptly reported to the SSO and the immediate supervisor in accordance with SH&E 201, *Incident Reporting*. **All injuries must be reported to your supervisor and the Regional Health and Safety Manager.** Below is a flow diagram for incident reporting:

Hazard Assessment

Chemical Hazards

Potential Chemical Hazards include 1,1,1-TCA and TCE.

Physical Hazards

Animals
Cold
Compressed Gases
Dust
Excavations
Falling Objects
Flying Objects
Handling IDW
Heavy Equipment
Insects
Lifting
Noise
Overhead Utilities
Pinch Points
Poisonous Plants
Rotating Equipment
Sharp Objects
Splashing Liquids
System O&M
Traffic
Trips, Slips, & Falls
Underground Utilities
Vacuum Systems
Weather

Personal Protective Equipment

PPE Item	General	Soil boring	Clearing & Grubbing	Sampling
Hard Hat	1 & 2	✓	✓	2
Traffic Vests	2	2	2	2
Steel Toed Safety Shoes	1	✓	✓	✓
Safety Glasses with Sideshields	1	✓		✓
Goggles or Faceshield			✓	
Hearing Protection		✓	✓	3
Tyvek Coveralls		4	4	✓
Nitrile Gloves	4	4	4	✓
Cotton or Leather Work Gloves		✓	✓	
Kevlar® Gloves or Glove Liners				5
Ivy Block® or Ivy Screen® barrier cream	6	6	6	6
Snake Protection	7	7	7	7
Polycoated Tyvek coveralls with hood, double Nitrile gloves, rubber boots, and taped transitions.		8		7

✓ Required PPE

1 All employees must comply with client safety requirements.

2 Traffic vests and hardhats are required when working within twenty feet of any public road or any private road with active traffic.

3 Hearing protection should be worn around soil boring equipment if normal conversation cannot be understood.

4 Tyvek coveralls and Nitrile gloves are only required of those that are likely to come in direct contact with potentially contaminated soils and/or groundwater. Tyvek coveralls and Nitrile gloves will be worn to protect workers from poison ivy and poison oak when contact cannot be avoided.

5 Kevlar® gloves or glove liners should be work whenever force is applied to glass including tightening and removing lids.

6 Ivy Block® or Ivy Screen® barrier cream should be worn on exposed skin where there is a potential for exposure to poison ivy or oak.

7 Snake protection (e.g., boots and snake chaps) should be worn when walking through vegetated areas.

8 If the sustained PID reading exceeds 250 ppm as isobutylene or if irritating dust is encountered Contact DHSM or RHSM (respiratory PPE must be donned).

Respiratory Protection

Task	Instrument	Action Level and Action
All tasks involving potential exposure to contaminated soils and/or groundwater	Photoionization Detector (11.7 eV bulb)	>20 ppm as isobutylene (sustained 5 minutes in BZ) Stop work and Contact SH&E Professional.

THE FIRST LINE OF DEFENSE IS ALWAYS TO IMPLEMENT BEST WORK PRACTICES AND ENGINEERING CONTROLS TO ELIMINATE EXPOSURE. PPE IS THE SECONDARY CHOICE OF PROTECTION WHEN EXPOSURES TO HAZARDS CAN NOT BE ELIMINATED.

1.0 INTRODUCTION

1.1 AECOM Safety Policy

AECOM, Inc. is committed to providing our employees with a safe and healthy work environment. It is not only our obligation to each other, but also a sound business practice to do so. Work related injuries and illnesses cause needless pain and suffering, cost money, and adversely affect our reputation with our clients. It is our firm belief that all work related injuries and illnesses are preventable, and it is therefore our goal to have a workplace that is free from occupational injuries and illnesses. Every attempt shall be made to eliminate the possibility of injuries and illnesses. No aspect of the company's activities, including expediency and cost, shall take precedence over the health and safety of our employees.

The provisions of this HASP are mandatory for all AECOM personnel engaged in fieldwork associated with the environmental services being conducted at this site. A copy of this HASP and applicable SOPs will be maintained on-site. AECOM's SH&E guiding principles and SH&E Policy Statement are attached. These documents outline our approach to safety, define our company safety culture, and establish the foundation upon which a best-in-class safety program has been built. AECOM's consolidation of all corporate resources is on-going and many parallel resources are being utilized during this transitional period while AECOM branded policies and procedures are being finalized. The AECOM Safety Website is located on the Corporate Intranet, and is available for all AECOM employees as a resource for safety information, updates, and procedures. AECOM SH&E SOPs are available electronically at:

http://my.aecomnet.com/Intranet/Geographies/North+America/Functions/Safety%2C+Health+%26+Environment

Record keeping will be maintained in accordance with this HASP and the applicable Standard Operating Procedures (SOPs). In the event of a conflict between this HASP, the SOPs and federal, state, and local regulations, workers shall follow the most stringent/protective requirements.

1.1.1 Health and Safety Expectations

Commitment to safety, health, and environmental excellence requires that all work proceed only after it is safe and environmentally sound to do so. The responsibility for ensuring that this takes place rests with every worker present at this property. Effectively meeting these responsibilities depends upon open communication between individuals and their supervisors prior to work beginning, and – in certain cases – after safety, health and/or environmental issues are identified.

The safety and health of on-site personnel will take precedence over cost and schedule considerations for all project work. All AECOM personnel covered by this HASP have the authority to STOP WORK if they see a potential or actual hazard that may threaten the safety of people or the environment. Upon stopping work, the Site Safety Officer (SSO) must be immediately notified and provided with information regarding the nature of the safety, health or environmental concern. The SSO should meet with the worker with the intent of resolving the worker's concerns. Once the concerns are resolved to the satisfaction of the worker, work can proceed.

If the concerns are not resolved to the satisfaction of the worker and/or the SSO, work does not proceed. The AECOM Regional Health and Safety Manager (RHSM) or District Health & Safety manager (DHSM) will be contacted to obtain assistance in resolving the concerns. Using his/her expertise, safety, health, and environmental rules, regulations, and procedures, the AECOM Safety Professional will attempt to resolve the matter with all parties involved. Work will not resume until this criterion is met.

1.1.2 Maximum Duration of the Work Day for Field Activities

An employee may not work a shift that exceeds 16 hours in duration. For the purpose of this policy, the work shift includes time spent at lunch and on break. If an employee works more than one shift during the course of a calendar day, the total number of hours worked in that day cannot exceed 16 hours. Exception: If work is to be done continuously in ambient air temperatures of less than 20° F, the Site Safety Officer and Field Manager will use a guideline of limiting work shifts to 10 hours in duration, including 8 hours working outdoors and 2 hours of time spent at lunch, breaks, and travel. Refer to Section 5.15, Cold Stress, fur further work day guidelines.

1.1.3 Short Service Employee

A Short Service Employee (SSE) is an employee with fewer than six months experience working supervised on field projects or an employee who has not completed required training or received required certifications.

Short Service Employees will not be assigned to this project unless they are supervised on site by a qualified person. Note that clients may have specific procedures for identifying SSEs. The Project Manager must determine the identification method required by the client or project.

Field crews with less than five workers shall have no more than one SSE.

Field crews with five or more workers shall not have more than 20% SSE personnel.

1.2 Health and Safety Plan (HASP)

1.2.1 HASP Purpose

The purpose of this HASP is to identify hazards associated with this project and specify engineering and administrative controls and personal protective equipment necessary to mitigate the risks associated with these hazards. This HASP addresses the hazards recognized prior to writing or updating the documents. As new hazards are encountered, a Task Hazard Analysis (THA) or Job Safety Analysis (JSA) must be conducted and the results input into the HASP.

This HASP also assigns responsibilities for the implementation of safety programs on this project and defines monitoring and emergency response planning specific to the project.

1.2.2 HASP Applicability

This site-specific Health and Safety Plan (HASP) has been developed by AECOM Inc. (AECOM). It establishes the health and safety procedures required to minimize potential risk to AECOM and contractor personnel involved with the Parker Hannifin Facility Investigation.

Client, subcontractor, and visiting personnel who do not need to meet the training, medical surveillance, and personal protective equipment requirements of this HASP will not be exposed to hazards on the site and must be escorted at all times by a fully trained and qualified person with knowledge of all hazards on the site. Such unqualified people can include surveyors, utility locators, government personnel, AECOM and Client representatives, and others with business reasons to be at the site.

The provisions of this plan apply to AECOM and AECOM subcontractor personnel who will potentially be exposed to safety and/or health hazards related to activities described in Section 3.0 of this document.

Client and third party employees performing work that potentially exposes them to the chemical hazards at the site must work under their own HASP or read, sign, and work under the requirements of this HASP; inclusive of having 40 hour HAZWOPER training and a current 8 hour Refresher Certificate.

This HASP conforms to the following guidelines established by the regulatory agencies in the following documents:

- U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), Code of Federal Regulations, Title 29 (29 CFR), Part 1910.120.
- U.S. Department of Labor, OSHA, 29 CFR, Part 1910.1200.
- U.S. Department of Labor, OSHA, 29 CFR, Part 1910 and Part 1926.
- National Institute for Occupational Safety and Health (NIOSH)/OSHA/U.S. Coast Guard (USCG)/EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, Publication No. 85-115, 1985.
- State/local/client-specific references and/or requirements:

  South Carolina Occupational Safety & Health Act of 1971.

All activities covered by this HASP must be conducted in complete compliance with this HASP and with all applicable federal, state, and local health and safety regulations. Personnel covered by this HASP who cannot or will not comply will be excluded from site activities.

This plan will be distributed to each employee involved with the proposed activities at the site, including subcontractor employees. Each employee must sign a copy of the attached health and safety plan sign-off sheet (see Attachment A).

This HASP only pertains to the tasks that are listed in Section 3.0. A task specific HASP or addendum to this HASP will be developed at a later date for any other subsequent investigative/remedial activities at the site.

1.2.3 North Carolina Registered Environmental Consultant Community Health & Safety Plan

In accordance with the requirements of the REC program contained in 15A NCAC 13C .0306(g)(19), AECOM believes that the above components of the HASP are sufficient to protect surrounding communities from exposure to site contaminants. Historic groundwater monitoring data indicates that contaminated groundwater is contained on-site and there are no known receptors in the surrounding communities. The proposed activities to complete the Phase I RI consist of soil, groundwater, and surface water/sediment sampling that are not judged to have a significant potential to impact surrounding communities. The facility is an operating industrial plant, and access is controlled to reduce the potential for residents to enter the areas being investigated. No volatile organic compounds are anticipated to be emitted to the atmosphere during the proposed investigation procedures that could potentially impact surrounding communities.

Listed below are some of the activities to be performed and precautions to help protect the general public:

- Prior to work, the field team and subcontractors (as applicable) will review the work scope and this HASP, to understand the potential chemical and physical hazards associated with the tasks to be performed and chemical constituents of concern;

- Underground utilities will be cleared by a private utility locator in subsurface sampling areas;

- Daily safety "tailgate" meetings will be conducted to discuss work scope, identify potential chemical and physical safety hazards, and summarize protocols to be followed to protect the community.
- AECOM will communicate with Site facility personnel to identify potential community issues or concerns;
- Known physical hazards will be controlled (such as traffic using cones and barricades).
- Work exclusion zones and site controls will be used to prevent public access to work areas;
- Routine ambient air monitoring will be performed during work that brings subsurface contaminated media to the ground surface;
- Decontamination of subsurface tooling, drill rigs, and related equipment that comes into contact with contaminated media will be performed on the Ardee Translite property, prior to moving drill rigs and other equipment off site;
- Investigation derived waste (IDW) will be drummed, secured, and transported away for the point of generation to an off-site disposal facility. This IDW will be moved to an out of the way part of the site and the containers kept securely closed while awaiting off-site disposal.

1.3 Organization/Responsibility

The implementation of health and safety at this project location will be the shared responsibility of the AECOM Project Manager (PM), the AECOM Regional Health and Safety Manager (RHSM), the AECOM Project Site Safety Officer (SSO) and other AECOM personnel and AECOM's contractors implementing the proposed scope of work.

1.3.1 AECOM Project Manager

The AECOM PM (Walter Gerald/Dave Oliphant) is the individual who has the primary responsibility for ensuring the overall health and safety of this project. As such, the PM is responsible for ensuring that the requirements of this HASP are implemented. Some of the PM's specific responsibilities include:

- Assuring that all personnel to whom this HASP applies, including AECOM subcontractors, have received a copy of it;
- Providing the RHSM with updated information regarding conditions at the site and the scope of site work;
- Providing adequate authority and resources to the on-site SSO to allow for the successful implementation of all necessary safety procedures;
- Supporting the decisions made by the SSO and RHSM;
- Maintaining regular communications with the SSO and, if necessary, the RHSM;
- Coordinating the activities of all AECOM subcontractors and ensuring that they are aware of the pertinent health and safety requirements for this project, and
- Conducting random project audits.

1.3.2 AECOM Regional Health and Safety Manager

The AECOM RHSM (Harold McDaniel), or designee, is the individual responsible for the preparation, interpretation, and modification of this HASP. Modifications to this HASP which might result in less stringent precautions cannot be undertaken by the PM or the SSO without the approval of the RHSM. Specific duties of the RHSM include:

- Writing, approving and amending the HASP for this project;
- Advising the PM and SSO on matters relating to health and safety on this site;
- Recommending appropriate personal protective equipment (PPE) and respiratory equipment to protect personnel from potential site hazards;
- Facilitating Incident investigations; and,
- Maintaining regular contact with the PM and SSO to evaluate site conditions and new information which might require modifications to the HASP; and
- Conducting random project audits.

1.3.3 AECOM Site Safety Officer

All AECOM personnel are responsible for implementing the safety requirements specified in this HASP. However, one staff member (Mike Branson) will serve as the SSO. The SSO is appointed by the PM. The SSO will be on-site during all activities covered by this HASP. The SSO is responsible for enforcing the requirements of this HASP once work begins. The SSO has the authority to immediately correct all situations where noncompliance with this HASP is noted and to immediately stop work in cases where an immediate danger is perceived. Some of the SSO's specific responsibilities include:

- Assuring that all personnel to whom this HASP applies, including all subcontractors, have reviewed this HASP, and submitted a completed copy of the HASP review and acceptance form (Attachment A);
- Assuring that all personnel to whom this HASP applies have attended a pre-entry briefing and any subsequent safety meetings that are conducted during the implementation of the program;
- Maintaining a high level of health and safety consciousness among employees implementing the proposed investigative activities;
- Securing Work Permits. The SSO must determine what, if any, work permits must be secured from the facility prior to the commencement of activities. If required, the SSO must determine how long the work permit is good for and verify that all the provisions of the work permit can be met by AECOM and its subcontractors.
- Procuring the air monitoring instrumentation required and performing air monitoring for investigative activities;
- Procuring and distributing the PPE and safety equipment needed for this project for AECOM employees;
- Verifying that all PPE and health and safety equipment used by AECOM is in good working order;
- Verifying that AECOM contractors are prepared with the PPE, respiratory protection and safety equipment required for this program;
- Preparing an initial Job Safety Analysis (JSA) during the initial mobilization and revising the Job Safety Analysis if conditions or tasks change and communicating with all workers the results of the

Job Safety Analysis. See attachment B for a JSA form. The JSA will be reviewed daily by all workers and updated as needed.

- Notifying the PM of all noncompliance situations and stopping work in the event that an immediate danger situation is perceived;
- Monitoring and controlling the safety performance of all personnel within the established restricted areas to ensure that required safety and health procedures are being followed;
- Conducting accident/incident investigations and preparing accident/incident investigation reports;
- Conducting the pre-entry briefing prior to beginning work and subsequent safety meetings as necessary; and
- Initiating emergency response procedures in accordance with Section 11.0 of this HASP.

1.3.4 AECOM Field Personal

All AECOM field personnel covered by this HASP are responsible for following the health and safety procedures specified in this HASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Assess each task prior to beginning work on that task for hazards and necessary precautions.
- Assess the work area for changing conditions and new hazards and address the hazards;
- Stop work and initiate corrective actions if work site hazards create unacceptable risk;
- Reading this HASP in its entirety prior to the start of on-site work;
- Submitting a completed HASP Review and acceptance form (Attachment A)to the AECOM SSO prior to the start of work;
- Attending the required pre-entry briefing prior to beginning on-site work and any subsequent safety meetings that are conducted during the implementation of the program;
- Bringing forth any questions or concerns regarding the content of the HASP to the PM or the SSO prior to the start of work;
- Reporting all Incidents, injuries and illnesses, regardless of their severity, to the AECOM SSO; and,
- Complying with the requirements of this HASP and the requests of the SSO.

1.3.5 Contractors

Additionally, contractors hired by AECOM are responsible for:

- Proving in advance, a copy of a written safety plan and policies pertaining to their work;
- Reading the HASP in its entirety prior to the start of on-site work;
- Attending the required pre-entry briefing prior to beginning on-site work and any subsequent safety meetings that are conducted during the implementation of the program;
- Ensuring that their equipment is in good working order via daily inspections;
- Operating their equipment in a safe manner;
- Appointing an on-site safety coordinator to interface with the AECOM SSO;
- Providing AECOM with copies of material safety data sheets (MSDS) for all hazardous materials brought on-site;

- Providing AECOM with current copies of required training certifications for all personnel operating on-site; and,
- Providing all the required PPE, respiratory equipment and safety supplies to their employees.

1.4 Management of Change/Modification of the HASP

1.4.1 Management of Change

This document discusses the physical and chemical hazards associated with the proposed activities. However, unanticipated site-specific conditions or situations might occur during the implementation of this project. Also, AECOM and/or the contractors may elect to perform certain tasks in a manner that is different from what was originally intended due to a change in field conditions. As such, this HASP must be considered a working document that is subject to change to meet the needs of this dynamic project.

1.4.2 Job Safety Analysis (JSA) – Task hazard Analysis (THA)

AECOM and/or AECOM's contractors will complete a Job Safety Analysis (JSA) or Task Hazard Analysis (THA) for each task to be performed. The use of new techniques will be reviewed and if new hazards are associated with the proposed changes, they will be documented and evaluated on the JSA form. An effective control measure must also be identified for each new hazard. JSA and THA forms will be reviewed by the SSO prior to being implemented. Once approved, the completed forms will be reviewed with all field staff during the daily safety meeting. A blank JSA form and THAs are presented in Attachment B.

1.4.3 Employees Working Alone

Employees working alone at project sites will review the JSA/THA for their tasks as they are conducting their daily overview and reconnaissance of the site. After completing the review/revision and site reconnaissance, the employee should call the Project Manager and report any new hazards or site conditions observed.

1.4.4 HASP Modification

Should significant information become available regarding potential on-site hazards, it will be necessary to modify this HASP. All proposed modifications to this HASP must be reviewed and approved by the AECOM RHSM before such modifications are implemented. Any significant modifications must be incorporated into the written document as addenda and the HASP must be reissued. The AECOM PM will ensure that all personnel covered by this HASP receive copies of all issued addenda. Sign-off forms will accompany each addendum and must be signed by all personnel covered by the addendum. Sign-off forms will be submitted to the AECOM PM. The HASP addenda should be distributed during the daily safety meeting so that they can be reviewed and discussed. Attendance forms will be collected during the meeting.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Description

The Specialty site is located at 639 Washburn Switch Road, in Cleveland County, approximately 5 miles northwest of the City of Shelby, North Carolina. The facility is used for the manufacture and assembly of lighting fixtures.

2.2 Site Overview

The Specialty site is located at 639 Washburn Switch Road, in Cleveland County, approximately 5 miles northwest of the City of Shelby, North Carolina. The facility is used for the manufacture and assembly of lighting fixtures. The following information was reviewed in preparation of this proposal:

- Excerpts from June 1996 (Site Visit Date) Phase I ESA, conducted by Environ (Pages I-1, I-3 [Missing I-2], and II-6.
- Excerpts from June 1996 (Site Visit Date) Phase I ESA, conducted by Environ (Pages VIII-1 through VIII-20, and X-13.
- Letter dated December 28,2004 from Environ to GE Capital, for Phase I ESA site visit conducted on December 14, 2004 (Pages 1 through 10).
- Excerpts from Strata Environmental to Ronald D. Schneider, dated December 22, 2005 for Phase I ESA Site visit conducted on December 9, 2005 (Pages Five and Six).
- Excerpts from Phase II ESA Report, AECOM, October 2011.
- Data from Phase IIB ESA, conducted by AECOM, January and February 2012 and May 2013.

Based on a review of the above documents, we believe the following Phase I Environmental Site Assessments (ESAs) have been conducted at the Specialty site by others:

- June 1996
- 2002 (month not indicated)
- December 2004
- December 2005

2.3 Scope of Work

The following summarizes the scope of services for the project. All work will be conducted in accordance with protocols outlined in the work plan.

Anticipated Task	Task	Additional Task Information
☒	Mobilization/Demobilization	Mobilization: Assembly of all necessary equipment for the project including PPE. Demobilization: Return of all serviceable equipment to storage.
☒	Utilities Survey	AECOM will subcontract this work but will be in the field with the subcontractor.
☒	Soil Sampling	Samples will be collected and submitted for laboratory analysis. Soils will be lithologically profiled and screened with a PID.
☒	Monitoring Well Installation & Sampling	Providing oversight for this work, only. Soils will be lithologically profiled. Samples will be collected and submitted for laboratory analysis.
☒	Surface Water and Sediment Sampling	Will require accessing sampling points through some areas overgrown with kudzu and other vegetation. Samples will be collected and submitted for laboratory analysis.
☒	Surveying of well locations and updating of survey plat	AECOM will subcontract this work but will be in the field with the subcontractor.
☒	IDW Storage & Management	AECOM and subcontractor personnel will perform decontamination of equipment used to perform work within controlled work areas. All soils from drilling activities and or soil sampling will be contained as investigation derived waste (IDW) or spread on-site as prescribed.

2.3.1 Mobilization/Demobilization

Mobilization and demobilization represent limited pre and post-task activities. These activities include traveling to and from the site; initial site preparations, and post-work activities.

2.3.2 Utility Locates and Surveying

Utilities surveys and utility locates will be performed by AECOM subcontractors of third party representatives of utility companies. These personnel may be allowed to work on site outside the requirements of this HASP only if assigned to work at the site where they are not exposed to hazards at the site and under the direct supervision of the SSO.

All newly installed monitoring wells or one that has had the top of casing altered will be surveyed by a registered land surveyor. The surveyed top of casing elevations will be used to convert the measured depths to water to elevations. This information will be used to construct the potentiometric surface maps of the aquifers beneath the site and infer the groundwater flow direction(s).

2.3.3 Monitoring Well Installation

The drilling contractor to conduct the drilling work associated with monitoring well installations at the site will be determined when the task is needed. Contractors have direct control over the application and operation of all drilling and boring equipment owned by their organization. It is the Equipment Contractor operator's responsibility to implement safe work practices provided by the Contractor project management or supervision supplemented by good judgment, safe control, and caution whenever operating drilling and boring equipment. Permanent wells will be installed via mechanical drilling methods. DPT will be used to install discrete groundwater sampling points. Additional guidance is provided in S3NA_405_PR_ Drilling Boring and Direct Push Probing. Discrete groundwater sampling points and soil borings, where applicable, will be constructed using standard equipment and methods. Soil samples will be collected and evaluated for lithologic descriptions and for laboratory analysis. Overhead and underground utility locations may require the adjustment of soil boring locations and will be determined in the field.

2.3.4 Soil Sampling

Soil samples will be collected using stainless steel hand auger or DPT methods. Soil samples will be collected at the site using a variety of methodologies, depending on the targeted sample depth and the soil type encountered. Subsurface soil samples will be collected using DPT methods.

2.3.5 Well Development and Groundwater Sampling

Wells will be developed by submersible pumps. Development will be conducted until the water purged from the well is free of visible sediment and indicator parameters (pH, temperature, and specific conductivity) have stabilized. Groundwater samples will be collected using a peristaltic pump and flow-throw cell from monitoring wells.

2.3.6 Surface Water & Sediment Sampling

Surface water and sediment samples will be collected upstream and downstream of the former Outfall No. 1 at the unnamed creek tributary. In addition, background samples will be collected at least one upstream off-site location. There is an abandoned staircase at the creek, where surface water and sediment sampled could be collected. For surface water and sediment sampling downstream-most locations will be sampled first, followed by moving upstream. Sediment likely will be collected from the 0-0.5 foot or 0 -1.0 foot depths, since the stream is small and sediment depths likely are relatively shallow. Approximate sampling locations are shown in Figure 3-3 of the work plan. All access is by walking in rubber boots. Access to some of the sampling points will require passing through some areas overgrown with kudzu and other vegetation. Samples will be collected and submitted for laboratory analysis.

2.3.7 Decontamination

AECOM and subcontractor personnel will perform decontamination of equipment used to perform work within controlled work areas. Proper personal protective equipment, including protection for eyes, and skin and hands, must be worn by any personnel performing decontamination operations. All drilling equipment and tools that come in contact with the soil and or groundwater will be decontaminated using a pressure washer or equivalent prior to starting drilling activities and when moving between boring locations. Equipment decontamination procedures will be performed in an established temporary decontamination area. All decontamination rinsate will be collected and contained in DOT approved 55-gallon drums as IDW.

2.3.8 Management of Investigative-Derived Waste

All soils from drilling activities and or soil sampling will be contained as investigation derived waste (IDW) or spread on-site as prescribed. The IDW will be temporarily stored at the IDW secure storage

area on Base in labeled Department of Transportation (DOT) approved 55-gallon drums or roll off container at the excavation site on Base until disposal. All purge water from well development and sampling will be contained in separate labeled DOT 55-gallon drum(s). Representative samples of both soil and aqueous IDW will be sampled for site-specific COCs for disposal characterization. Upon receipt of the soil and water IDW analytical results, the waste will be profiled, manifested, and properly disposed off-site by a licensed subcontract transporter.

2.4 Assumptions

- All work performed by AECOM can be performed using Level D Personal Protective Equipment;
- No confined spaces will be entered on this project
- Field work will be performed under good weather and ground conditions and without major equipment failures
- Access to the Site will be granted to collect the necessary samples

3.0 HAZARD CONTROL

3.1 Controlling Exposures to Hazards

The first line of defense is to eliminate the hazards present in the work place whenever possible. Some examples include substitution of less hazardous alternative products or tools, repairing or replacing defective equipment, and filling holes that present trip hazards. If the hazards themselves can't be eliminated, personnel should implement engineering controls and best work practices to mitigate exposures to the chemical and physical hazards. PPE is the final choice of protection when exposures can't be eliminated or otherwise mitigated.

3.1.1 Engineering Controls

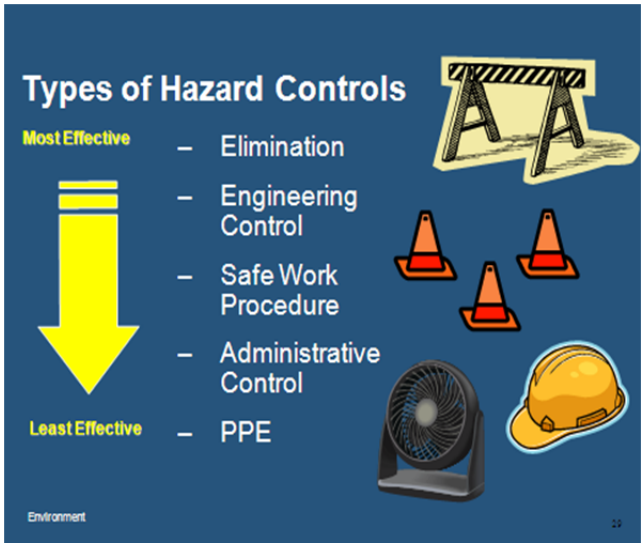
- Barricades, cones, and other physical barriers that prevent access into the work zone.
- Ventilation of the well head and/or vault for adequate enough amount of time to allow accumulated vapors to dissipate.
- The use of water spray to control dust emissions to control potential releases or contact with contaminated material.
- Guarded cutting tools utilized for task specific applications.

3.1.2 Administrative Controls

- Distance between worker and actual contaminated area, i.e., placing heavy equipment on clean side during certain activities to provide some measure of remoteness to the operation.
- Staying upwind from contaminant emissions.
- Ensuring only essential personnel are in work areas.

3.1.3 Personal Protective Equipment (PPE)

- Use of dermal protective clothing to avoid direct contact with contaminated media when collecting samples and decontaminating sampling equipment.
- Use of hardhat to avoid direct contact with potential hazards associated with overhead impact hazards.
- Use of high visibility apparel to afford protection from heavy equipment and vehicular traffic.



4.0 CHEMICAL HAZARD ASSESSMENT AND CONTROL

4.1 Chemical Contaminants of Concern

The following is a discussion of the hazards potentially presented to worker personnel during this project from on-site chemical hazards known or suspected to be present on site. Occupational Exposure Limits (OEL) are typically measured in ppm and equivalent units vary according to the exposure media and routes of exposure, to include mg/L for liquids and mg/kg in solids. Airborne concentrations are measured as mg/m^3 and can be converted to ppm as follows: ppm = 24.45 x mg/m^3 / gram molecular weight.

A PID outfitted with an 11.7eV bulb will be utilized to assess potential for exposures to the target COCs: 1,1,1-TCA and TCE. The odor threshold for 1,1,1-trichloroethane is 44 ppm, which is about 12.5% of the OSHA PEL and for TCE is about 100 PPM. Supplemental information for both of these chemicals is included in Attachment E. A combination of engineering controls, safe work procedures, and task specific PPE will be utilized to control exposures against these hazards.

4.1.1 Chlorinated Solvents

Overexposure to the chlorinated solvents that might be present in the site soils and groundwater can result in depression of the central nervous system, symptoms of which include dizziness, headache, giddiness and drunken-like behaviors. Chronic overexposures can result in liver and kidney damage. The OSHA permissible exposure limit (PEL) for trichloroethylene is 100 ppm, as an 8-hour time-weighted average (TWA). The American Conference of Governmental Industrial Hygienists (ACGIH) recommends a threshold limit value (TLV) of 50 ppm, as an 8-hour TWA. The OSHA PEL for tetrachloroethylene is 100 ppm, as an 8 hour TWA with the ACGIH recommending a TLV of 25 ppm, as an 8 hour TWA. The OSHA PEL and ACGIH TLV for 1,1,1-trichloroethane is 350 ppm, as an 8-hr TWA.

4.1.2 Volatile Organic Compounds (VOCs & SVOCs)

Volatile Organic Compounds refer to a group of volatile compounds or mixtures that are relatively stable chemically and that exists in the liquid state at temperatures of approximately 32° to 82°F.

VOCs are typically organic solvents used for extracting, dissolving, or suspending materials such as fats, waxes, and resins that are not soluble in water. The removal of the solvent from a solution permits the recovery of the solute intact with its original properties. Solvents are used in paints, adhesives, glues coatings, and degreasing/ cleaning agents.

Semivolatile Organic Compounds (SVOCs) are less volatile chemicals that tend to persist in the environment.

Inhalation and percutaneous absorption are the primary routes of exposure. Organic compounds are metabolized or they accumulate in the lipid-rich tissues such as the liver, fat cells, or the nervous system.

Solvent inhalation by workers can cause effects ranging from an alcohol-like intoxication to narcosis and death from respiratory failure. Symptoms that include drowsiness, headache, dizziness, dyspepsia, and nausea.

4.1.3 Dust

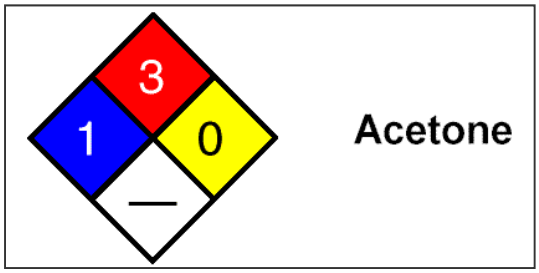
Dust generated during coring or cutting of concrete, boring, or excavations can be hazardous to the respiratory system and irritating to the eyes. Dust can also carry the contaminants of concern potentially exposing workers by skin contact and inhalation. The ACGIH has established an eight-hour exposure limit for dust at 3 mg/M^3. The concentrations of the chemicals of concern in the soil are low enough that inhalation of dust would not by itself be an exposure hazard. However contamination of skin and clothing can provide additional exposures. Therefore the generation and contact with dust should be minimized.

Water or other methods should be used to control dust during dusty operations; however care must be used to prevent electrical shock if electric tools are used in the same area. If dusts become irritating and engineering controls such as the application of water cannot be used, respirators should be donned as discussed in Section 7.

4.2 Hazard Substances Brought On Site by AECOM

A material safety data sheet (MSDS) must be available for each hazardous substance that AECOM or its contractors bring on the property. This includes solutions/chemicals that will be used to decontaminate sampling equipment and gases needed to calibrate air monitoring equipment.

In addition, all containers of hazardous materials must be labeled in accordance with OSHA's Hazard Communication Standard. Either the original manufacturer's label or an NFPA 704M label specific for the material (as shown at the right) is considered to be an acceptable label.



4.3 Chemical Exposure and Control

4.3.1 Chemical Exposure Potential

Employees can be exposed by inhalation to the chemicals of concern during the installation of the soil borings and sampling activities. Another route of potential exposure to the contaminants of concern is via direct dermal contact with soils and groundwater during sampling.

Although highly unlikely, exposure to all of the contaminants of concern can occur via ingestion (hand-to-mouth transfer). The activity specific PPE and decontamination procedures described in Section 9.0 address control measures and personal hygiene issues that will limit the potential for contaminant absorption and ingestion.

4.3.2 Chemical Hazard Control

The chemical hazards associated with the investigative and sampling activities can be controlled in several ways, including:

AECOM will perform air monitoring (Section 6) in the worker's breathing zone to determine exposure to the chemicals of concern during the installation of soil borings and the sampling program. If exposures exceed the action levels, the respiratory protection plan as discussed in Section 7, will be implemented.

To avoid direct dermal contact with contaminated media, protective clothing, as described in Section 7 will be required when collecting samples and decontaminating sampling equipment.

5.0 PHYSICAL HAZARDS AND CONTROLS

5.1 Hand Augering

In addition to the precautions listed in the Back Safety discussion below, additional care should be taken to prevent injuries when using hand augers.

- When practical, work as a team of two to advance borings with a hand auger.
- Do not apply excessive force to turn the auger or twist & turn your back in an effort to advance the auger.
- Wear cotton or leather gloves when rotating the auger.
- Avoid putting pressure on the palms of your hands; use a good grip to spread the pressure over the entire hand.
- Take frequent stretch breaks to stretch and relax your back, arms and hands.
- Use caution when transporting or decontaminating auger, as they can be bulky and have an irregular length and shape.
- Utilize hard hats when operating and decontaminating augers with “extensions” added.

5.2 Drilling Operations

Drilling operations, including hollow-stem, rotary and/or direct push drilling, present their own set of hazards. Several basic precautions that should be taken include, but are not limited to, confirming locations of underground and overhead utilities, wearing of appropriate PPE and the avoidance of loose clothing or jewelry, staying clear of moving parts, knowing the locations of emergency shut-off switches. A drill rig inspection checklist (Attachment E) should be completed prior to operating this equipment.

Use of a drill rig to advance soil borings and install monitoring wells will require all personnel in the vicinity of the operating rig to wear steel-toed boots, hard hats, hearing protection and safety eyewear. Personnel shall not remain in the vicinity of operating equipment unless it is required for their work responsibilities. Refer to AECOM SOP S3NA_405_PR_ Drilling Boring and Direct Push Probing.

Drill rigs, heavy machinery equipment and site vehicles present serious hazards site personnel. Blind spots, failure to yield, and other situations may cause equipment/vehicles to come into contact with personnel. To reduce the possibility of contact between equipment/traffic and personnel, always adhere to the following:

- Personnel must wear a high visibility, reflective safety vest at all times when working near drill rigs and/or other vehicle traffic. Operators should avoid exposure to moving parts and have “tear away” vest as appropriate for rotating equipment. Driller’s, helpers and geologists must secure all loose clothing when in the vicinity of drilling operations.
- Personnel must always yield to equipment/vehicle traffic and stay clear of equipment/vehicle traffic. Always maintain eye contact with operators.
- When feasible, place barriers between work areas and equipment/vehicle traffic.
- Always ensure reverse warning alarms are working and louder than surrounding noise. **Any equipment fitted with a “kill switch” must be tested to verify its functionality.** Personnel must report and repair inoperative safety alarms or switches. All drill rigs and other machinery with exposed moving parts must be equipped with an operational emergency stop device. Drillers and geologists

must be aware of the location of this device. This device must be tested prior to job initiation and periodically thereafter. The driller and helper shall not simultaneously handle augers unless there is a standby person to activate the emergency stop.

- The driller must never leave the controls while the tools are rotating unless all personnel are kept clear of rotating equipment.
- A long-handled shovel or equivalent must be used to clear drill cuttings away from the hole and from rotating tools. Hands and/or feet are not to be used for this purpose.
- A remote sampling device must be used to sample drill cuttings if the tools are rotating or if the tools are readily capable of rotating. Samplers must not reach into or near the rotating equipment. If personnel must work near any tools, which could rotate, the driller must shut down the rig prior to initiating such work.
- Only equipment, which has been approved by the manufacturer, may be used in conjunction with Site equipment and specifically to attach sections of drilling tools together. Pins that protrude excessively from augers shall not be allowed
- No person shall climb the drill mast while tools are rotating.
- No person shall climb beyond 6 feet above ground on the drill mast without the use of ANSI-approved fall protection (approved belts, lanyards and a fall protection slide rail) or portable ladder that meets the requirements of OSHA standards.

5.3 Utility Hazards

5.3.1 Underground Utilities

AECOM employees must review and comply with S3NA_417_PR_Utilities Underground. Each "person" as defined in the Underground Utility Damage Prevention Act must provide their own notice of excavation to request a mark-out of natural gas, electric, telephone, cable television, water and sewer lines in the proposed drilling locations.

Allow required time for marking. Excavation may begin when: All notified utilities have either marked their lines or reported that they have no facilities in the area of excavation OR the marking period has expired (after 7:00 AM on the third working day after notice to the center.)

Respect the marks - Protect and preserve the markings from the time excavation begins until the work is completed. Call the utility services and request the utility to be re-located if the marks become illegible due to time, weather, construction or any other cause.

Excavate carefully - If the excavation is within 2 feet of a marked utility line, expose the utility line by hand digging and keep all mechanized equipment at least 2 feet away from the extremities of the utility. Work will not begin until the required utility clearances have been performed.

Utility clearance organizations typically do not mark-out underground utility lines that are located on private property. As such, the drilling contractor must exercise due diligence and try to identify the location of any private utilities on the property being investigated. AECOM can fulfill this requirement in several ways, including:

- Obtaining as-built drawings for the areas being investigated from the property owner;
- Visually reviewing each proposed soil boring locations with the property owner or knowledgeable site representative;
- Performing a geophysical survey to locate utilities;
- Hiring a private line locating firm to determine the location of utility lines that are present at the property;
- Identifying a no-drill zone; or
- Hand digging in the proposed soil boring locations if insufficient data is available to accurately determine the location of the utility lines.

5.3.2 Overhead Utilities

AECOM employees must review and comply with S3NA_406_PR_Electrical Lines, Overhead . All overhead lines will be considered "energized" unless properly de-energized, grounded and tested by the utility company before working within the clearance distance as defined below. The AECOM SSO must observe de-energizing process and reconfirm that the lines are de-energized on a daily basis.

Any vehicle or mechanical equipment that is capable of having parts of its structure elevated near energized overhead lines shall be operated so that a minimum clearance of 10 feet is maintained at all times. This 10 foot distance shall be increased a minimum of 0.4 inches for each 1 kV over 50 kV. **If the voltage of the overhead line is unknown, maintain a clearance distance of 35 feet from ground projection of the nearest power line to the vehicle.** Any work within the clearance distance must be approved by the Regional Health and Safety Manager and the utility company.

Line Voltage (Kilovolts) Minimum Safe Working Distance
0 – 50 = 10 feet
>50 – 200 = 15 feet
>200 – 350 = 20 feet
>350 – 500 = 25 feet
>500 – 750 = 35 feet

Precautions must be taken when handling lengths of pipe or tubing that can approach overhead power and utility lines. When working with pipe or tubing, maintain a distance equal to the length of pipe plus the clearance distance.

5.4 Slips, Trips, Falls, and Protruding Objects

A variety of conditions may exist that may result in injury from slips, trips, falls, and protruding objects. Slips and trips may occur as a result of wet, slippery, or uneven walking surfaces. To prevent injuries from slips and trips, always keep work areas clean; keep walkways free of objects and debris; and report/clean up liquid spills. Serious injuries may occur as a result of falls from elevated heights. Always wear fall protection while working at heights of 6 feet or greater above the next lower level.

Protruding objects are any object that extends into the path of travel or working area that may cause injury when contacted by personnel. Always be aware of protruding objects and when feasible remove or label the

protruding object with an appropriate warning. On any work area, it is expected that or on top of debris or trash piles. When carrying equipment, identify a path that is clear of any obstructions. The ground surface might be v or unreliable due to settling. Surface debris might be present and wet or swampy areas can exist. ***Always utilize roads, pathways, or other designated routes or travel. Do not take shortcuts***.

Employees should walk around, not over might be necessary to remove obstacles to create a smooth, unobstructed access point to the work areas on site.

During the winter months, snow shovels and salt crystals or calcium chloride should be kept on site to keep work areas free of accumulated snow and ice. Furthermore, use sand or other aggregate material to help keep work surfaces from being slippery, especially where salt/calcium chloride cannot be used. In addition, make sure work boots have soles that provide good traction. When walking on ice is necessary crampons or Yaktrax® should be used.

Maintaining a work environment that is free from accumulated debris is the key to preventing slip, trip and fall hazards at construction sites. Essential elements of good housekeeping include

- Orderly placement of materials, tools and equipment;
- Placing trash receptacles at appropriate locations for the disposal of miscellaneous rubbish;
- Prompt removal and secure storage of items that are not needed to perform the immediate task at hand; and,
- Awareness on the part of all employees to walk around, not over or on, equipment that might have been stored in the work area.

5.5 Housekeeping

During site activities, work areas will be continuously policed for identification of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with waste PPE or contaminated materials. Additional information on the requirements of housekeeping can be found in S3NA_307_PR_Housekeeping Worksite.

5.6 Noise Exposure

AECOM employees must review and comply with S3NA_510_PR_Hearing Conservation Program. The use of heavy equipment or noise producing tools can expose the field team to noise levels that exceed the OSHA PEL of 90 dB for an 8-hour day. Exposure to noise can result in the following:

- Temporary hearing losses where normal hearing returns after a rest period;
- Interference with speech communication and the perception of auditory signals;
- Interference with the performance of complicated tasks; and,
- Permanent hearing loss due to repeated exposure resulting in nerve destruction in the hearing organ.

Since personal noise monitoring will not be conducted during the proposed activities, employees must follow this general rule of thumb: If the noise levels are such that you must shout at someone 5 feet away from you or you are within 25 ft of operating heavy equipment, you need to be wearing hearing protection. Employees can wear either disposable earplugs or earmuffs but all hearing protection must have a minimum noise reduction rating (NRR) of 24 dB.

5.7 Drums & IDW

5.7.1 Drum Handling

During handling of drums and other containers some hazards include physical injury resulting from moving heavy containers by hand and working around stacked drums, and deteriorated drums. When working around or with drums:

- Have a dry chemical fire extinguisher on hand to control small fires.
- Inspect drums at least weekly: check for labels, markings, etc., and note conditions of containers. Are the drums bulging, deteriorated, or leaking? If labels are not legible, replace them. If the drums are deteriorated or leaking, initiate emergency response and cleanup efforts.
- Before moving any drum or container, determine the most appropriate sequence in which the various containers should be moved, the destination, and clear route to the destination.
- Do not move drums that are not intact or tightly sealed.
- Pressurized drums are extremely hazardous. If possible, do not move drums that may be under internal pressure as evidenced by bulging or swelling.
- Use the following types of equipment to move drums and/or containers: 1) drum grappler attached to a hydraulic excavator, 2) small front-end loader with a bucket sling, 3) rough terrain fork lift, or 4) drum cart.
- Have over packs ready before any attempt is made to move drums containing hazardous wastes or chemicals.
- If the drum contents or origin are not known, do not open or move the drum. Notify your project manager and Regional Health and Safety Manager.
- Never stand on drum tops.

5.7.2 Drum Sampling

- When manually sampling a drum, keep non-sampling personnel at a safe distance
- Do not lean over other drums to reach the drum being sampled.
- Cover drum tops with plastic sheeting or other suitable material to avoid excessive contact with drum tops and to facilitate cleaning up small spills.
- Obtain samples with either glass rods or vacuum pumps.

5.7.3 Spill Prevention

Work activities may involve the use of hazardous materials (i.e. fuels, solvents) or work involving drums or other containers. AECOM employees must review and comply with S3NA_520_PR_Spill Response Incidental. The following procedures will be used to prevent or contain spills:

- All hazardous material will be stored in appropriate containers
- Tops/lids will be placed back on containers after use.
- Containers of hazardous materials will be stored appropriately away from moving equipment.

At least one spill response kit, to include an appropriate empty container, materials to allow for booming or diking the area to minimize the size of the spill, and appropriate clean-up material (i.e. speedy dri) shall be available at each work site (more as needed).

- All hazardous commodities in use (i.e. fuels) shall be properly labeled.

- Containers shall only be lifted using equipment specifically manufactured for that purpose.
- For drums/containers, follow the procedures in SH&E 608, *Handling Drums and Large Containers*, to minimize spillage.

5.8 Cuts and Lacerations

5.8.1 Cutting Tools

Direct push soil samples are collected in acetate or Lexan® liners that must be cut open in order to access soils to screen headspace or collect samples. Prior to cutting, drill rig operators should be requested to place acetate or Lexan® liners in a support tray or otherwise secure the acetate liner so it won't roll or move. Drill rig operators should be requested to cut the acetate or Lexan® liners utilizing a hook or guarded blade device specific to this function.

Additionally, tubing will need to be cut to facilitate groundwater sampling. Many makes and types of safety tubing cutters are readily available and should be used to cut these materials. **Cutting tools should be designed for the specific task and be safety cutting devices equipped with a completely enclosed and/or guarded blade.** If it is necessary to use knives or blades, follow the safety precautions listed below:

If it is necessary to use knives or blades, follow the safety precautions listed below:

- Keep your free hand and body parts out of the way or path of the cut
- Use only sharp blades; dull blades require more force, which results in less knife control
- Don't ever leave the blade open when not in use
- Use a hooked knife (i.e. linoleum knife) or a utility knife with a self-retracting blade
- Wear leather or Kevlar gloves when using cutting tools.

5.8.2 Working with Glassware

Glass bottles, laboratory equipment, and VOA vials can break and cause lacerations and puncture wounds. The follow preventive measures should be taken to reduce the potential for broken glassware.

- Package all glassware such that there is no glass to glass contact during transportation or storage;
- Assume that any time glass strikes another object it is damaged;
- Inspect all glassware for cracks, scratches, and other damage before using;
- Lids and caps should be “finger tight” unless there is a torque specification and you use a torque wrench;
- Never completely fill a glass container (other than VOA vials with a septum), always leave an air space to buffer thermal expansion of the liquid and minimize loss of any preservatives
- Avoid rapid temperature changes when filling glass containers.

Glass often has flaws that cannot be detected by visual inspection and the force needed to open and tighten lids can cause these flaws to fracture the glass. Any time force above “finger tight” is applied to lids or caps, or any force is applied directly to glass, workers should wear leather or preferably Kevlar® gloves. Kevlar® glove liners are available for use under Nitrile or cotton gloves.

5.9 Back Safety

Using the proper techniques to lift and move heavy pieces of equipment is important to reduce the potential for back injury. The guidance in S3NA_308_PR_Manual Lifting Field should be used. The following precautions should be implemented when lifting or moving heavy objects:

- Use mechanical devices to move objects that are too heavy to be moved manually
- If mechanical devices are not available, ask another person to assist you.
- Bend at the knees, not the waist. Let your legs do the lifting.
- Do not twist while lifting
- Bring the load as close to you as possible before lifting
- Be sure the path you are taking while carrying a heavy object is free of obstructions.

5.10 Hand Safety

5.10.1 Glove Selection

Gloves should be selected to afford protection from a variety of hazards to protect onsite workers from hand injuries, the following gloves will be used for when performing a specific duty:

- Leather gloves for general protection, cushioning, or abrasion/laceration protection
- Nitrile gloves for dermal protection from general chemical hazards
- Insulated gloves or Thermax glove liners as appropriate in cold weather
- Insulated gloves when working w/ electrical hazards
- Vibration dampening gloves when utilizing vibrating/gyrating saws, hammers, or other equipment
- Specialty gloves as appropriate: Rubber/Chemical Specific, Waterproof, added grip, filet gloves, etc.

Wear the right gloves or combination of gloves for the hazard and be sure to get the proper size gloves for all employees. Be sure to remove jewelry prior to work to avoid catching on equipment or creating pinch points.

Pinch points are found between a moving object and a stationary object, or between two continuously moving objects. Yellow hand stickers will be placed on equipment to remind workers of pinch points.

5.10.2 Hand Tools

Rules for the safe use of hand tools:

- Select the right size tool for the job. Don't use "cheaters" and avoid pulling old tools from the waste stream. There's a reason why they were thrown away!
- All hand tools must be in safe condition.
- Handles must be sound, straight and tight-fitting.
- Always inspect tools before use and replace or repair worn or damaged tools.
- Always keep the cutting edges sharp and never test a cutting edge with your finger.
- When working on an elevated surface (ladder, truck, scaffold), ensure your tools are secure. Falling tools can cause serious injury.
- Always carry your tools correctly and never put sharp or pointed tools in your pocket.
- When carrying hand tools, always point the cutting edge to the ground.
- Always keep your tools in a dry place to prevent rust.
- Cutting tools must be kept sharp and properly shaped.
- Secure work pieces prior to cutting or drilling.

- Keep the unused hand and other people away from the tool.

Use the following types of tools while working:

Screwdrivers:

Most screwdrivers are not designed to be used on electrical equipment. Use an insulated screwdriver for electrical work. No work will be performed by AECOM that exposes the employee to greater than fifty volts.

Do not hold an object in the palm of one hand and press a screwdriver into it; place the object on a bench or table. Never hammer with a screwdriver. Never use a screwdriver with a broken handle, bent or burred blade, etc.

Pliers:

Do not use pliers as a substitute for hammers, wrenches, pry bars, etc. Use insulated pliers when doing electrical work. Inspect the pliers frequently to make certain that they are free of breaks or cracks.

Use the right type of pliers for the specific task – adjustable, locking (Vise Grip®), standard, bolt size fit, pipe wrench.

Hammers:

Use the correct hammer for the specific type of striking work (task) to be done. Always wear safety glasses when using a hammer to strike an object. Always use the claw portion of a hammer to remove nails and not as a pick or awl. Have an unobstructed view and swing when using a hammer. Watch for overhead interference on back and forward swing. Use a good grip and use something other than your hand to hold a nail when starting hammering. Check for defects on the handle and head before using. If the hammer head shows signs of mushrooming, replace it immediately.

Handles may be wood, tubular/solid steel or fiberglass. Replace any hammer with a loose handle before the head flies off and causes injury to you or someone else. Tighten loose handles with the proper wedges; never use nails or staples for wedges. If a steel or fiberglass handle is loose replace it, since it is more difficult to repair than a wooden one. Some fiberglass handles can be tightened with the aid of a repair kit with epoxy materials.

Wrenches:

Select the correct size of wrench for the job. Never use a pipe wrench as a wrench handle extension. Too much leverage can ruin a tool and cause injury.

To avoid sudden slips, stand in a balanced position and always pull on the wrench instead of pushing against the fixed jaw, particularly when a pinch point is created. Wear gloves when using a wrench in a confined space.

Whenever possible use a box end wrench instead of an open end wrench to avoid slipping.

Chisels:

A screwdriver is not a chisel. Always wear safety glasses or a face shield when using a chisel. Drive chisels outward and away from your body. Do not use chisels to pry. Keep edges sharp for most effective work and protect when not in use. Driven tools (chisels, punches, etc.) must be dressed to remove any mushrooming. Use the proper hammer when using a chisel.

Cutting Tools:

Cutting tools must be designed for the specific task and must be safety cutting devices equipped with a completely enclosed and/or guarded blade. Always perform a thorough Job Safety Analysis (JSA) to define the proper cutting tool for the task.

Always place the item to be cut on a solid surface, attempt to hold the cut item without your hand and cut in a direction away from the body and hand.

Always keep hands and body clear of the cutting stroke. Always keep the cutting tool blades sharp.

Make sure there is plenty of open space around you when using any cutting tool.

Avoid knives and other fixed open blade cutters. Use the following safer tools to cut materials:

- Tubing cutters
- Self-retracting utility knives
- Guarded utility knives
- Shears, snips, and/or scissors
- Concealed blade cutters
- Pipe cutters
- Specialty cutters (e.g. Geoprobe Acetate Liner Cutter)
- Ratcheting tools

5.11 Traffic Safety

Basic Procedures

To make certain that motorists are aware of our presence, all employees who are potentially exposed to traffic hazards should **wear orange or yellow ANSI Class II or III safety vests**. Work area should be delineated with traffic cones, or other suitable warning barriers, to prevent motorists from inadvertently driving through. As for vests, cones or other barrier materials should be reflectorized if work will be performed during dusk or evening hours. Where it is not feasible to implement such procedures, a standby observer should be assigned to warn the work crew of any impending traffic hazards.

5.12 Driving Safety

AECOM employees must review and comply with S3NA_005_PR_Vehicle and Driver Safety Program. Drivers must be licensed to drive the class of vehicle they are operating and trained in defensive driving. Only AECOM personnel may drive AECOM vehicles or vehicles rented for AECOM business; client, subcontractor, or other work-related personnel may ride. Drivers and passengers must comply with all traffic laws and posted signs, and will not operate a vehicle if under the influence of impairing medication, alcohol, or any other substance.

Planning / Preparation

- Prior to departure, check traffic reports, weather conditions, road construction, and road closures. If necessary, develop an alternative route.
- Prior to entering the vehicle, inspect the vehicle.
- Leave early to allow for contingencies.

Distractions

AECOM employees must review and comply with SH&E 107 – Driver & Vehicle Safety. You must make every attempt NOT to operate a vehicle while talking on your cell phone, regardless of "hands free" or not. If you receive a call; attempt to pull over to answer it, or pull over and return the call. Although "hands free" is allowed, it is not encouraged. Do NOT allow other distractions to interfere with your safe operation of the vehicle. Under NO CIRCUMSTANCES is driving and talking without a "hands free" device acceptable while operating a motor vehicle on company business.

Secure Packing

Do not move your vehicle unless all equipment and supplies are secured. Items and material that may roll, slide, or move about in your vehicle while traveling are a major hazard. Secure the load!

Emergency Procedures:

Always move out of traffic if possible; even if those in front of you have stopped. Stopping on an active highway can precipitate being hit from the rear. If you must stop on an active roadway, leave at least one car length in front of you, and watch the rear mirror, so you can ease up if someone behind can't stop. Keep your flashers on in this situation. If you are the only driver coming to a stop on an active roadway, leave the flashers on and when safe to do so, exit the car and get to a safe location.

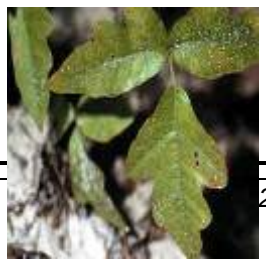
If you must stop due to vehicle failure, etc. try to coast out of traffic. Put on your flashers, and tie a white handkerchief, etc. on the driver's side door or mirror. If you remain in the vehicle, lock the doors. Use your cell phone to summon help.

5.13 Harmful Flora and Fauna

For a more detailed level of protection from poisonous plants and insects, AECOM employees must review and comply with SH&E 509 - Biological Hazards. The SOP includes INFORMATION to aid the employee in choosing protection including but not limited to Permethrin treated clothing.

5.13.1 Poisonous Plants

All undeveloped property potentially has poison ivy, oak, or sumac growing in areas where vegetation is not controlled. These plants can also be found in cultivated and landscaped areas. Use common sense when

Poison Ivy Grows in West, Midwest, Texas, East. Several forms – vine, trailing shrub, or shrub. Three leaflets (can vary 3-9). Leaves green in summer, red in fall. Yellow or green flowers. White berries.	
Poison Oak Grown in the East (NJ to Texas), Pacific Coast. 6-foot tall shrubs or long vines. Oak-like leaves, clusters of three.	

Yellow berries.	
Poison Sumac Grows in boggy areas, especially in the Southwest and Northern states. Shrub up to 15 feet tall. Seven to 13 smooth-edged leaflets. Glossy pale yellow or cream-colored berries.	

If you must enter areas containing such plants, wear protective clothing, such as Tyvek® coveralls, Nitrile or latex gloves, and boot covers. The use of a barrier cream such as Ivy Block can prevent the active agent in poisonous plants from affecting skin and Tecnu cleansing wipes can remove the plant oil from exposed skin.

Avoid using mowers and weed trimmers in areas where poison ivy and oak are likely. Additional care should be taken during early winter after the leaves have fallen from the poisonous plants; the poison still exists in the vines and stubble remaining above the ground. Wash any contaminated skin immediately with cold water and mild soap.

5.13.2 Plants

This site is known to have plants with thorns and seeds with burrs. When working at ground level and when removing boots, look for thorns and burrs and remove them from boots and clothing with tweezers. If possible, place a plastic sheet on the ground as a working surface to prevent contacting thorns and burrs.

5.13.3 Insects and Spiders

Spiders and wasps may be found in derelict buildings, sheltered areas, and even on open ground. Exercise care when collecting samples and avoid reaching into areas where visibility is limited. If stung by a wasp or bee, or bitten by a spider, notify a co-worker or someone who can help should you have an allergic reaction. If possible capture or identify the spider or insect. Stay calm and treat the area with ice or cold water. Seek medical attention if you have any reactions to the sting such as developing a rash, excessive swelling or pain at the site of the bite or sting or any swelling or numbness beyond the site of the bite or sting.

Black Widow Spider

Abdomen usually shows hourglass marking.

The female is 3-4 centimeters in diameter.

Have been found in well casings and flush-mount covers.

Not aggressive, but more likely to bite if guarding eggs.

Light, local swelling and reddening of the bite are early signs of a bite, followed by intense muscular pain, rigidity of the abdomen and legs, difficulty breathing, and nausea.

If bitten, see physician as soon as possible.

Brown Spiders (Recluse)

Central and South U.S., although in some other areas, as well.

¼-to-½-inch-long body, and size of silver dollar.

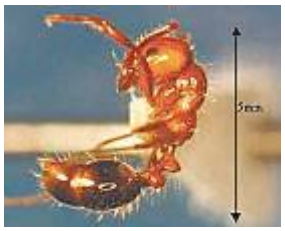
Hide in baseboards, ceiling cracks, and undisturbed piles of material.

Bite either may go unnoticed or may be followed by a severe localized reaction, including scabbing, necrosis of affected tissue, and very slow healing.

If bitten, see physician as soon as possible.

Studies have determined that repellants containing DEET as a main ingredient are most effective against spiders, mosquitoes, and other insects. DEET can be directly applied to the exposed skin of adults and/or clothing. Permanone® is another repellent however, it can only be directly applied to clothing.

Fire Ants – Fire ants are small (5 mm) red ants that build mounds of loose soil. When disturbed, they swarm and bite. Their venom is similar to that of wasps, etc., and may cause a similar allergic reaction.



Spiders and insects may be found in derelict buildings, sheltered areas, and even in or on open ground. Be aware of your surroundings, exercise care when collecting samples, and avoid reaching into areas where visibility is limited. If stung by a wasp or bee or bitten by a spider, notify a co-worker or someone who can help if you should you have an allergic reaction. Stay calm and treat the area with ice or cold water. Seek medical attention if you have any reactions to the sting such as developing a rash, excessive swelling or pain at the site of the bite or sting, or any swelling or numbness beyond the site of the bite or sting.

Ticks – Ticks are small, flattened insects that feed by sucking blood from a host. The major concern is the spread of Lyme disease (and possible Rocky Mountain Spotted Fever). The most common ticks are American dog tick (*Dermacentor variabilis*). They are the size of a pencil eraser. The ones that spread Lyme disease are deer ticks (*Ixodes dammini*) and are much smaller, the size of the head of a pin. Ticks generally wait at the tops of tall grass to attach to likely warm-blooded prey. The best way to avoid them is to avoid

long grass. Use insect repellent. Do a quick visual examination of your legs afterwards and flick crawling ticks off before they can attach.

Mosquitoes – Mosquitoes are frequently found near standing water and thick vegetation (i.e., wetlands). They are attracted to heat, IR light, and carbon dioxide and can quickly swarm around a stationary person. Their bites cause relatively mild itching but can spread disease – West Nile encephalitis is on the rise in the eastern US. Prevention is the best approach, so apply insect repellent (the active ingredient in most is DEET, but alternatives exist) early and often.

5.13.4 Venomous Snakes

Venomous snakes are found throughout the southeast. The most common venomous snakes encountered, especially while performing field surveys, are cottonmouths (*Agkistrodon piscivorus*), also known as water moccasins. Eastern diamondback rattlesnakes (*Crotalus adamanteus*), timber rattlesnake (also known as canebrake rattlesnake) (*Crotalus horridus*), copperhead (*Agkistrodon contortrix*), coral snake (*Micrurus fulvius*), and pigmy rattlesnakes (*Sistrurus miliarius*) may also be present at many sites.

Cottonmouth (*Agkistrodon piscivorus*) – The cottonmouth is a large, heavy-bodied, dark-colored snake with a head much wider then its neck. The inside of its mouth is snowy white, and it may repeatedly display this flash of white color when threatened (thus the name cottonmouth). They may stand their ground or even approach an intruder (i.e. they are more likely to posture than disappear into the undergrowth).

Eastern Diamondback Rattlesnake (*Crotalus adamanteus*) – The eastern diamondback rattlesnake is the largest venomous snake in North America, averaging 5½ feet. Color is grayish brown patterned with light-centered dark diamonds, but the distinguishing feature is the rattle, which makes a sharp rattling or buzzing sound when the snake is agitated.

Copperhead (*Agkistrodon contortrixI*) – Copperheads can be found in multiple habitats, from the low land forests of the coastal plains to hillsides in the piedmont and mountains. They vary in color from grayish-brown to dark brown. Copperheads are heavy-bodied snakes that vary approximately two to three feet in length.

5.14 Weather

The Site Safety Officer will check the weather forecast for the project area each morning prior to mobilization. Predicted weather conditions will be included in the Job Safety Analysis. Weather changes should initiate a review and update of the JSA as necessary.

Severe weather can occur with little warning. The employee must be aware of the potentials for lightning, flash flooding and high wind events.

Be Prepared, Know What is Coming your Way

- Listen to the radio for severe weather alerts.
- Check the Storm Prediction Center's web page for alerts and warnings.

  http://www.spc.noaa.gov/products/wwa/
- Pay attention to the weather in your area, up wind of your location, and in the watershed upstream from your location.
- When in the field, be aware of the route you must take to get to shelter.
- When working in low areas be aware of the potential for flash flooding and the route to higher ground.

5.14.1 Lightning

Lightning can strike up to a distance of 10 miles from the source cloud, but thunder can only be heard at a distance of 8 miles. Therefore, if site personnel working outdoors hear thunder and/or see lightning, work will be stopped and personnel will move to an indoor location.

If a storm comes up suddenly and you are outdoors, seek the best shelter you can find. If choosing between a building and a car, choose the building. If you're in a car, keep the windows closed. If there is no shelter, find a low-lying, open place that is a safe distance from trees, poles or metal objects that can conduct electricity. Make sure it is an area that is not likely to flood! Remember, lightning does not necessarily strike the tallest object; it will strike the best conductor on the ground, which might be a human being. Assume a tucked position and squat low to the ground. Place your hands on your knees with your head tucked between them. Try to touch as little of your body to the ground as possible and keep your feet touching each other. If you feel your hair stand on end in a storm, drop into a tucked position immediately. This sensation means electric charges are already rushing up your body from the ground toward an electrically charged cloud.

Work will resume 30 minutes following the final observance of thunder and/or lightning.

5.14.2 Tornados and High Wind

Outdoors:

Abandon vehicles and temporary buildings. A tornado can move faster than you can drive.

Find shelter! The danger in a tornado or high winds is flying debris including trees, vehicles and temporary buildings.

Find shelter in a ditch or other location that will protect you from winds coming from all directions. Bridges and overpasses offer little protection and should be the last choice for shelter; the space where the bridge abutment and the bridge meet is better than no shelter on open ground.

Indoors:

Get as many walls between you and the storm as you can, if you can see a window you are not in a shelter.

- Interior restrooms, stairwells and closets offer protection.
- Basements and underground shelters offer the best protection.

Never watch a nearby tornado either outside or through a window. Large tornadoes can blow airborne debris up to a mile from the funnel.

5.14.3 Heat/Cold Stress

Detailed procedures on mitigating heat and cold stress are outlined in S3NA_505_PR_Cold Stress Prevention and S3NA_511_PR_Heat Stress.

Measures to Avoid Heat Stress:

The following guidelines should be adhered to when working in hot environments:

- Establish work-rest cycles (short and frequent are more beneficial than long and seldom).
- Identify a shaded, cool rest area.
- Rotate personnel, alternative job functions.
- Water intake should exceed sweat produced. Most workers exposed to hot conditions drink less fluids than needed because of an insufficient thirst. DO NOT DEPEND ON THIRST TO SIGNAL WHEN AND HOW MUCH TO DRINK. Consume enough liquid to force urination every two hours. In humid climates ice water or ice should be consumed to help maintain normal body temperature since evaporation does not provide an efficient mechanism for heat removal.
- Eat light meals before and during work shifts. Avoid highly salted foods.
- Drink sports drinks such as Gatorade® diluted 1:1 with water.
- Save most strenuous tasks for non-peak heat hours such as the early morning or at night.
- Avoid alcohol during prolonged periods of heat. Alcohol will cause additional dehydration.
- Avoid double shifts and/or overtime.

The implementation and enforcement of the above mentioned measures will be the joint responsibility of the Project Manager and health and the Site Safety Officer. Potable water and fruit juices should be made available each day for the field team.

Methods to Prevent Cold Stress

When the ambient temperature, or a wind chill equivalent, falls to below 40° F (American Conference of Governmental Industrial Hygienists recommendation), site personnel who must remain outdoors should wear insulated coveralls, insulated boot liners, hard hat helmet liners and insulated hand protection. Wool mittens are more efficient insulators than gloves. Keeping the head covered is very important, since 40% of body heat can be lost when the head is exposed. If it is not necessary to wear a hard hat, a wool knit cap provides the best head protection. A facemask may also be worn.

Persons should dress in several layers rather than one single heavy outer garment. The outer piece of clothing should ideally be wind and waterproof. Clothing made of thin cotton fabric or synthetic fabrics such as polypropylene is ideal since it helps to evaporate sweat. Polypropylene is best at wicking away moisture while

still retaining its insulating properties. Loosely fitting clothing also aids in sweat evaporation. Denim is not a good protective fabric. It is loosely woven, which allows moisture to penetrate. Socks with high wool content are best. If two pairs of socks are worn, the inner sock should be smaller and made of cotton, polypropylene or similar types of synthetic material that wick away moisture. If clothing becomes wet, it should be taken off immediately and a dry set of clothing put on.

If wind conditions become severe, it might become necessary to shield the work area temporarily. The SSO and the PM will determine if this type of action is necessary. Heated break trailers or a designated area that is heated should be available if work is performed continuously in the cold at temperatures, or equivalent wind chill temperatures, of 20° F.

Dehydration occurs in the cold environment and can increase the susceptibility of the worker to cold injury due to significant change in blood flow to the extremities. Drink plenty of fluids, but limit the intake of caffeine. AECOM employees must review and comply with SH&E 615 – Cold Stress Prevention.

5.15 Confined Spaces

A confined space is defined as any space that meets the following criteria:

- Is not designed for continuous human occupancy
- Is large enough to physically enter with the whole body, and
- Has limited access and egress (you must climb over pipes, one way in/out, etc.)

No confined spaces are known to be present in the work area addressed in this scope of services. No confined space entry is permitted under this scope of work. When working in industrial settings, it is common to need to enter a confined space to make observations, collect samples, or perform other duties. Detailed information is outlined in S3NA_301_PR_Confined Spaces.

6.0 Air Monitoring

6.1 Monitoring Equipment

6.1.1 Photoionization Detector

A PID will be utilized to monitor the breathing zone of personnel for potential VOCs during intrusive activities as prescribed in the guidance below.

Task	Instrument	Action Level and Action
All tasks involving potential exposure to contaminated soils and/or groundwater	Photoionization Detector (11.7 eV bulb)	>20 ppm as isobutylene (sustained 5 minutes in BZ) Stop work and Contact SH&E Professional.

6.1.2 MiniRam

As a precautionary measure visible observations will be used to monitor the breathing zone of personnel for respirable dust during the proposed activities. If dust mitigation becomes an issue, employees are to stop work and contact with the SH&E department is required. If necessary, MiniRam can be utilized to more accurately assess respirable dust concentrations under the guidance below.

PARAMETER	LOCATION AND INTERVAL	RESPONSE LEVEL (Meter units/ppm above background)	RESPONSE
Dust, Mist, Aerosols (Total by Mini-Ram)	At least every 30 minutes in the worker's breathing zone during intrusive activities involving impacted materials. In addition, site perimeter monitoring may be initiated by the SSO based on elevated air monitoring results.	Initial excavation or disturbance of unknown materials	Level D ensemble as listed in this HASP and per SSO and HSM.
		< 0.2 mg/m^3 (Sustained for more than 5 minutes)	Continue Level D work and continue monitoring.
		≥ 0.2 mg/m^3 ≤ 1.0 mg/m^3 (Sustained for more than 5 minutes)	Temporarily cease work operations, contact the PM and HSM to discuss improving site mitigation measures. Prepare for possible upgrade to Level C PPE and continue Level C (minimum GMA/P100 cartridges or equivalent chemical cartridge combined with P100) and continue monitoring for exclusion zone workers.

6.2 Personal Air Sampling

After review of the most recent analytical data, the need for personal air sampling is not anticipated by AECOM during the activities covered by this HASP. The AECOM Project Manager, or the AECOM Regional Health and Safety Manager can prescribe personal air sampling based on observations or concerns recognized during the project.

6.2.1 Health and Safety Action Levels

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the Breathing Zone.

If ambient levels are measured that exceed the action levels in areas accessible to unprotected personnel, necessary control measures (barricades, warning signs, and mitigative actions, etc.) must be implemented prior to commencing activities at the specific work area. The provision for the appropriate action level and action to afford respiratory protection to on-site workers during this scope of services is:

No visible dust suspended in the breathing zone.

Task	Instrument	Action Level and Action
All tasks involving potential exposure to contaminated soils and/or groundwater	Photoionization Detector (11.7 eV bulb)	>20 ppm as isobutylene (sustained 5 minutes in BZ) Stop work and Contact SH&E Professional.

No respiratory (Level C) upgrade is anticipated or scoped for this project. Implementation of Level C protection requires a site specific respiratory program and concurrence from the DSM. Engineering controls will be implemented or a stop work order will be executed if monitoring action levels can't be met.

7.0 Personal Protective Equipment

Personal protective equipment (PPE) will be worn during these activities to prevent on-site personnel from being injured by the safety hazards posed by the site and/or the activities being performed. In addition, chemical protective clothing will be worn to prevent direct dermal contact with the site's chemical contaminants. The following table describes the PPE and chemical protective clothing to be worn for general site activities and for certain specific tasks. AECOM employees must review and comply with S3NA_208_PR_Personal Protective Equipment Program.

7.1 Personal Protective Equipment

PPE Item	General	Soil boring	Clearing & Grubbing	Sampling
Hard Hat	1 & 2	✓	✓	2
Traffic Vests	2	2	2	2
Steel Toed Safety Shoes	1	✓	✓	✓
Safety Glasses with Sideshields	1	✓		✓
Goggles or Faceshield			✓	
Hearing Protection		✓	✓	3
Tyvek Coveralls		4	4	✓
Nitrile Gloves	4	4	4	✓
Cotton or Leather Work Gloves		✓	✓	
Kevlar® Gloves or Glove Liners				5
Ivy Block® or Ivy Screen® barrier cream	6	6	6	6
Snake Protection	7	7	7	7
Polycoated Tyvek coveralls with hood, double Nitrile gloves, rubber boots, and taped transitions.		8		7

✓ Required PPE

9 All employees must comply with client safety requirements.

10 Traffic vests and hardhats are required when working within twenty feet of any public road or any private road with active traffic.

11 Hearing protection should be worn around soil boring equipment if normal conversation cannot be understood.

12 Tyvek coveralls and Nitrile gloves are only required of those that are likely to come in direct contact with potentially contaminated soils and/or groundwater. Tyvek coveralls and Nitrile gloves will be worn to protect workers from poison ivy and poison oak when contact cannot be avoided.

13 Kevlar® gloves or glove liners should be work whenever force is applied to glass including tightening and removing lids.

14 Ivy Block® or Ivy Screen® barrier cream should be worn on exposed skin where there is a potential for exposure to poison ivy or oak.

15 Snake protection (e.g., boots and snake chaps) should be worn when walking through vegetated areas.

16 If the sustained PID reading exceeds 250 ppm as isobutylene or if irritating dust is encountered Contact DHSM or RHSM (respiratory PPE must be donned).

General Personal Protective Equipment Selection Guidelines

Chemical Hazard	Glove Material	Coverall Material	Boot Material	Respirator Cartridge
Acids • Hydrochloric • Sulfuric	Butyl rubber	Saranex or Butyl rubber apron	Butyl rubber	Acid vapor
Coal Tar • Polyisocyanate • Naptha	Nitrile rubber	Polycoated Tyvek	Nitrile rubber	Organic vapor
Creosote	Butyl rubber	Polycoated Tyvek	Butyl rubber	Organic vapor
Dry Particulates • Metals • Asbestos	Nitrile rubber	Tyvek	Tyvek	HEPA
Fuel Hydrocarbons • Gasoline • Diesel	Nitrile rubber	Polycoated Tyvek	Nitrile rubber	Organic vapor
Halogens, Aliphatic • Carbon tetrachloride • Ethylene dichloride	Teflon	Polycoated Tyvek	Nitrile rubber	Organic vapor
Halogens, Vinylic • Vinyl chloride	Nitrile rubber	Polycoated Tyvek	Nitrile rubber	Organic vapor

Forsberg, K. and Mansdorf, S.Z., 1997. *Quick Selection Guide to Chemical Protective Clothing*, Third Edition. John Wiley & Sons, Inc.

7.2 Respiratory Protection Plan

THE FIRST LINE OF DEFENSE IS ALWAYS TO IMPLEMENT BEST WORK PRACTICES AND ENGINEERING CONTROLS TO ELIMINATE EXPOSURE. PPE IS THE SECONDARY CHOICE OF PROTECTION WHEN EXPOSURES TO HAZARDS CAN NOT BE ELIMINATED.

29 CR 1910.120 requires that a written site specific Respiratory Protection Plan (RPP) is developed when employees are exposed to concentrations above PELs and are required to implement respiratory protection. The plan must address the specific chemicals and concentrations employees could be exposed to and the monitoring equipment and PPE to be utilized. Although not likely, respiratory protection as described below will be required if worker breathing zone PID concentrations are sustained above the action levels. **Implementation of this RPP requires notification and concurrence from the DSM and/or RHSM.**

Table 7-2: PPE Upgrade Criteria for RPP

Task	Action Limit	Respiratory Protection	Level
All tasks involving potential exposure to contaminated soils and/or groundwater	TLV/CF ppm as Isobutylene for 1 minute	Half or full face mask respirator with combination organic vapor/HEPA cartridges	C
	10 X ppm as Isobutylene	Full face respirator with organic vapor/HEPA cartridges	C
	50 X ppm as isobutylene	Supplied air respirator	B

7.3 Other Safety Equipment

The following additional safety items will be available at the site:

- Portable, hand-held eyewash bottles
- First aid kit
- Type A-B-C fire extinguisher
- Portable phones

8.0 SITE CONTROL

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, hazardous work areas will be clearly identified and decontamination procedures will be required for personnel and equipment leaving those areas.

8.1 Designation of Zones

AECOM designates work areas or zones as suggested in the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," NIOSH/OSHA/USCG/EPA, November 1985. They recommend that the areas surrounding each of the work areas to be divided into three zones:

- Exclusion or "Hot" Zone
- Contamination Reduction Zone
- Support Zone

Figure 8-1 below illustrates typical work zone designations.

8.1.1 Exclusion Zone

An exclusion zone will be established around the project site. If the project site is accessible to the public or other workers not covered by this HASP, the perimeter of the exclusion zone will be marked with caution tape or indicated by traffic cones so that employees, visitors, and client or host employer personnel are aware of the work being conducted.

All AECOM and contractor personnel entering these work areas must wear the prescribed level of protective equipment.

8.1.2 Contamination Reduction Zone

A decontamination zone will be established adjacent to each work area. Personnel will remove contaminated gloves and other disposable items in this area and place them in a plastic bag until they can be properly disposed of.

8.1.3 Support Zone

At this site the support zone will include the area outside of the exclusion zone.

8.1.4 Site Access Control

The public will be restricted from the project site and monitoring well locations (during monitoring) by fences, barricade tape, traffic cones, and/or signs.

8.1.5 Parking and Staging Areas

Parking will be restricted to areas that have been cleared of tall grass and combustible material. Vehicles parked on the public streets will be marked with cones both in front of and behind the vehicle.

8.1.6 Pedestrian Walkways

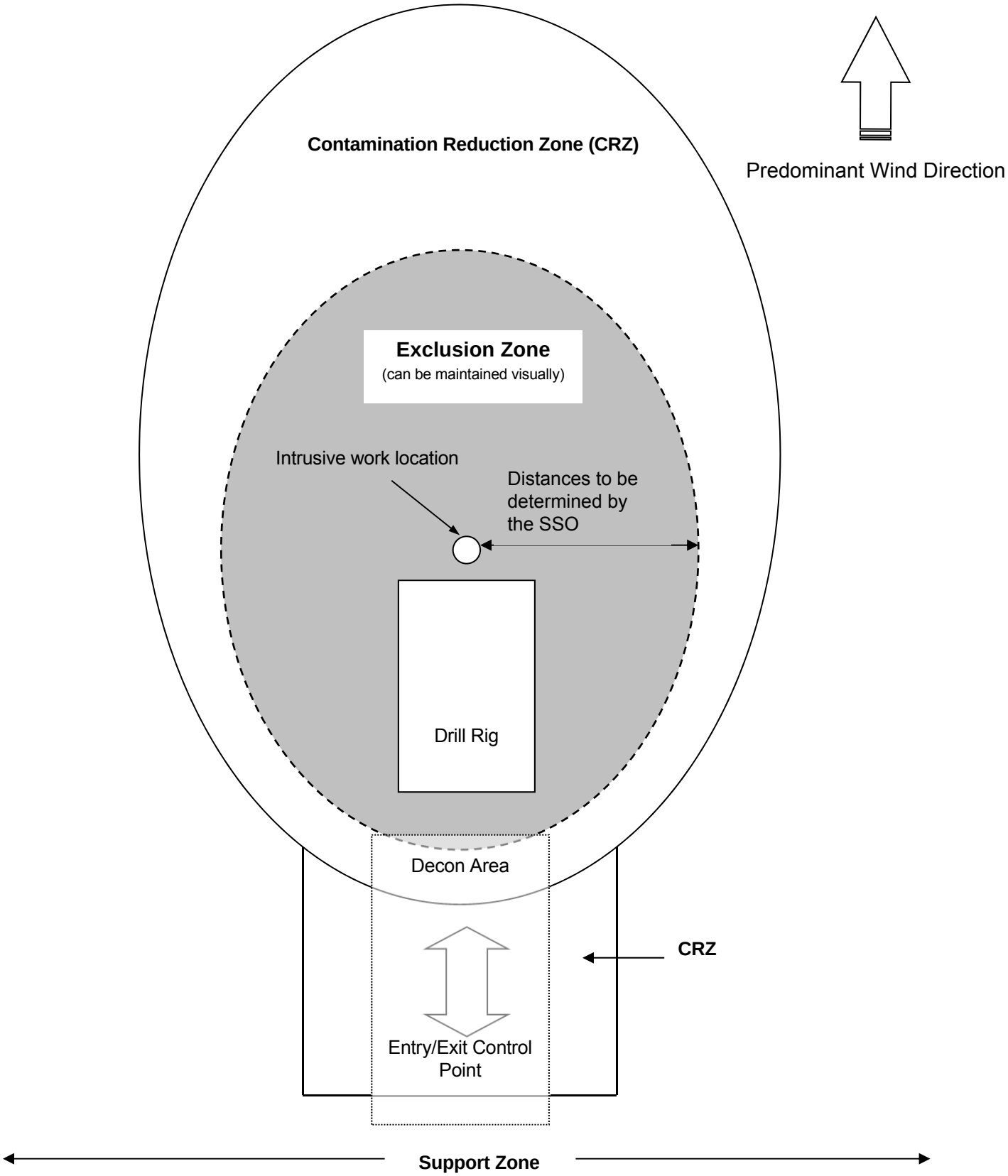
Pathways within the work areas will be kept clear of obstructions. Public pathways will be clearly marked to provide access to the business onsite and protect the public from the hazards of the project.

8.2 General Site Safety Practices

The following measures are designed to augment the specific health and safety guidelines provided in this plan.

- The "buddy system" will be used at all times by all field personnel. No one is to perform field work alone. Standby team member must be intimately familiar with the procedures for initiating an emergency response.
- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in the immediate work area and the decontamination zone.
- Smoking is prohibited in all work areas. Matches and lighters are not allowed in these areas.
- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking or any other activities.
- Beards or other facial hair that interfere with respirator fit are prohibited.
- The use of alcohol or illicit drugs is prohibited during the conduct of field operations.
- All equipment must be decontaminated or properly discarded before leaving the site in accordance with the project work plan.
- Parking and pedestrian areas will be established and communicated to all workers.

Figure 8-1: Drilling Site Control Layout



9.0 DECONTAMINATION

9.1 Personal Decontamination

Proper decontamination is required of all personnel before leaving the site. Decontamination will occur within the contamination reduction zone.

Regardless of the type of decontamination system required, a container of potable water and liquid soap should be made available so employees can wash their hands and face before leaving the site for lunch or for the day.

9.2 PPE Decontamination

Disposable PPE, such as Tyvek coveralls, gloves, etc. will be removed in the decon zone and placed in garbage bags. Final disposal of contaminated PPE will be in accordance with the work plan.

If worn, respirators will be cleaned after each use with respirator wipe pads and will be stored upright in plastic bags. Respirators will be thoroughly cleaned using disinfectant material within one week following any respirator use. Refer to the cleaning instructions provided with the respirator or specified by Appendix B-2 to the OSHA regulations at 29 CFR 1910.134.

9.3 Equipment Decontamination

Equipment will be decontaminated prior to being moved to other locations. Decontamination procedures will be specified by the Project Manager.

10.0 MEDICAL MONITORING AND TRAINING REQUIREMENTS

Each worker subject to this HASP shall have copies of documentation that the requirements for training, medical surveillance, and respirator use are current. Copies of these documents shall be made available to AECOM or AECOM's client upon request.

10.1 Medical Monitoring

All personnel performing activities covered by this HASP must be active participants in a medical monitoring program that complies with 29 CFR 1910.120(f). Each individual must have completed an annual surveillance examination and/or an initial baseline examination within the last year prior to performing any work on the site covered by this HASP.

10.2 Health and Safety Training

10.2.1 HAZWOPER

All personnel performing activities covered by this HASP must have completed the appropriate training requirements specified in 29 CFR 1910.120 (e). Each individual must have completed an annual 8-hour refresher training course and/or initial 40-hour training course within the last year prior to performing any work on the sites covered by this HASP.

10.2.2 Tailgate Meetings

Prior to the commencement of daily project activities, a pre-entry briefing or tailgate meeting will be conducted by the SSO to review the specific requirements of this HASP, review and revise the JSA, and discuss site conditions that have changed since the previous day or trip to the site. All personnel should review this document in its entirety and sign the Personal Acknowledgement Form in Attachment A at the time of job assignment. Attendance at the daily tailgate meeting is mandatory for all personnel covered by this HASP at the site and must be documented on the attendance form provided in Attachment C. All documentation should be maintained in the project file.

The pre-entry briefing must be completed for each new employee before they begin work at the site. Short safety refresher meetings will be conducted, as needed, throughout the duration of the project.

11.0 EMERGENCY RESPONSE

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." According to AECOM policy, AECOM personnel shall not participate in any emergency response where there are potential safety or health hazards (i.e., fire, explosion, or chemical exposure). AECOM response actions will be limited to evacuation and medical/first aid as described within this section below. As such this section is written to comply with the requirements of 29 CFR 1910.38 (a).

The basic elements of an emergency evacuation plan include:

- employee training;
- alarm systems;
- escape routes;
- escape procedures;
- critical operations or equipment;
- rescue and medical duty assignments;
- designation of responsible parties;
- emergency reporting procedures; and
- methods to account for all employees after evacuation.

11.1 Employee Training

Employees must be instructed in the site-specific aspects of emergency evacuation. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed.

11.2 Alarm System/Emergency Signals

An emergency communication system must be in effect at all sites. The simplest and most and effective emergency communication system in many situations will be direct verbal communications. Each site must be assessed at the time of initial site activity and periodically as the work progresses. Verbal communications must be supplemented anytime voices cannot be clearly perceived above ambient noise levels (i.e., noise from heavy equipment; drilling rigs, backhoes, etc.) and anytime a clear line-of-sight cannot be easily maintained amongst all AECOM personnel because of distance, terrain or other obstructions.

Verbal communications will be adequate to warn employees of hazards associated with the immediate work area. The property is occupied but AECOM may not have access to facility phones. Therefore, AECOM will bring a portable phone to the site to ensure that communications with local emergency responders is maintained, when necessary.

11.3 Escape Routes and Procedures

The escape route from the site and an emergency muster point will be determined and provided to all workers during the project mobilization.

Prior to mobilizing to a new project area, the Site Safety Officer or his designee will confirm that the escape routes are clear and lead to a safe area.

11.4 Employee Accounting Method

The SSO is responsible for identifying all AECOM personnel on-site at all times. AECOM and its subcontract employees will notify the SSO when they enter and leave the site. The SSO will account for all AECOM and its subcontract employees following an evacuation.

11.5 Injuries and Illnesses

The phone numbers of the police and fire departments, ambulance service, local hospital, and AECOM representatives are provided in the emergency reference sheet on page 1. This sheet will be posted in the site vehicle.

All injuries must be reported to direct supervisor/site supervisor and the Regional Health and Safety Manager.

All accidents and incidents that occur on-site during any field activity will be promptly reported to the SSO and the immediate supervisor in accordance with SH&E 201, *Incident Reporting*.

If any AECOM employee is injured and requires medical treatment, the Site Supervisor will contact the **Regional Safety Manager, AECOM's Incident Reporting Line at (800) 348-5046, and the applicable Account Manager immediately**. The Site Supervisor will initiate a written report, using the ***Supervisor's Report of Incident*** form (see S3NA_004_PR_Incident Reporting). The Site Supervisor will complete the first two sections of this form and forward to the PM for completion of Section 3. The report will then be provided to the SH&E Professional before the end of the following shift.

If any employee of a subcontractor is injured, documentation of the incident will be accomplished in accordance with the subcontractor's procedures; however, copies of all documentation (which at a minimum must include the OSHA Form 301 or equivalent) must be provided to the SSO within 24 hours after the accident has occurred.

All accidents/incidents will be investigated in accordance with S3NA_603_PR_Incident Investigation and Review. Copies of all subcontractor accident investigations, whether accomplished in accordance with their own procedures or S3NA_603_PR_Incident Investigation and Review , will be provided to the SSO within five (5) days of the accident/incident. Below is a flow diagram for incident reporting:

11.5.1 First Aid

Minor injuries will be treated on site using materials from the first aid kit or other local sources. All cuts and abrasions will be cleaned with potable water and a clean dressing applied. The injured employee will be evaluated at the end of the work day and the following day when the employee arrives at the project site to determine whether the wound has started the healing process. The wound will be protected from contamination during the project activities.

11.5.2 Professional Treatment

In the event an injury or illness requires more than first aid treatment, the SSO will accompany the injured person to the medical facility and will remain with the person until release or admittance is determined. The escort will relay all appropriate medical information to the on-site project manager and the RHSM.

If the injured employee can be moved from the accident area, he or she will be brought to the CRZ where their PPE will be removed. If the person is suffering from a back or neck injury the person will not be moved and the requirements for decontamination do not apply. The SSO must familiarize the responding emergency personnel about the nature of the site and the injury. If the responder feels that the PPE can be cut away from the injured person's body, this will be done on-site. If this not feasible, decontamination will be performed after the injured person has been stabilized.

11.6 Designation of responsible parties

The SSO is responsible for initiating emergency response. In the event the SSO cannot fulfill this duty, the alternate SSO will take charge.

11.7 Emergency Response Drills

For projects with durations of greater than four days on site, the SSO will initiate an evacuation drill during the first five days and shall repeat the drills at least quarterly. Deficiencies noted during the drills will be documented as a Near Loss, a Root Cause Analysis conducted and corrective actions initiated.

A table-top run through of the evacuations procedures from the manufacturing site will be conducted the first day on the site and reviewed with all workers arriving on site after that date.

Emergency Response drills and subsequent personnel briefings on evacuation procedures will be documented in the safety briefing agenda or briefing notes.

Attachment A - Health and Safety Plan Review Form

Personnel Acknowledgement

By signing below, the undersigned acknowledges that he/she has read and reviewed the AECOM Health and Safety Plan for the Ardee Translite Site. The undersigned also acknowledges that he/she has been instructed in the contents of this document and understands the information pertaining to the specified work, and will comply with the provisions contained therein.

PRINT NAME	SIGNATURE	ORGANIZATION	DATE

Attachment B – JSA & THA

Job Safety Analysis

AECOM

JSA Type: ☐ Investigation ☐ O&M ☐Office ☐ Construction ☐ Other	☐ New ☐ Revised	**Date**:
Work Activity:		
Personal Protective Equipment (PPE):		

Development Team	Position/Title	Reviewed By	Position/Title	Date

❶ Job Steps[1]	❷ Potential Hazards[2]	❸ Critical Actions[3]	STOP Stop Work Criteria
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•

1 – Target number of job steps: six to ten

2 – Codes for Potential Hazards:

Caught Between (CBT)	Contacted By (CB)	Caught On (CO)	Fall To Below (FB)	Overexertion (O)	Struck Against (SA)
Caught In (CI)	Contact With (CW)	Exposure (E)	Fall - Same Level (FS)	Release To (R)	Struck By (SB)

3 – Types of Critical Actions: Elimination, Engineering Controls, Safe Work Practice / SOP, Administrative Controls, and/or PPE.

4 – Stop Work Trigger: Condition or situation that would require work to be stopped and hazards re-assessed.

TASK HAZARD ANALYSIS (THA)
Phase II Investigation
Specialty Lighting Site
Shelby, NC

AECOM Job No. 60222287.1
Prepared by: Russell Reynolds **Date**: 8/23/2011

TASK NAME

DRILLING (GEO-PROBE OR AUGER DRILL RIG)

TASK DESCRIPTION

DPT soils and groundwater sampling will be done utilizing a Geoprobe drill rig. Utilities will be cleared at the site through the SC one call and metal detector or hand digging will be used as a secondary cautionary procedure to identify sub-grade obstructions. AECOM will not handle or operate drilling equipment.

CHEMICAL EXPOSURE HAZARDS

Possibly:

- VOCs
- Preservatives in bottleware

PPE

Level D

- Protective chemical gloves
- High-visibility reflective safety vest
- ANSI approved hardhat
- ANSI approved safety glasses
- ANSI approved steel toe safety boots
- Ear plugs
- Tyvek cover-alls when in contact with impacted soils

OTHER SAFETY EQUIPMENT

- Leather gloves while handling sharp edges or operating powered tools/machinery
- SPF 15 sunblock when working outdoors
- Equipment decontamination supplies
- First aid kit (located in vehicle)

PHYSICAL HAZARDS

- Drilling rig operations
- Manual lifting, overexertion
- Slip, trip, and falls
- Heat/cold stress
- Severe weather/sunburn
- Heavy equipment
- Hazardous noise
- Overhead hazards
- Pinch points
- Push/pull

APPLICABLE OPERATIONAL SAFETY PROCEDURES

Reference SOPs library @ AECOM SH&E SOPS

ADDITIONAL SAFETY CONSIDERATIONS

- Evaluate surrounding work area for additional hazards that may be present.
- All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
- Always ensure that the equipment operator can see you at all times. Never assume he can see you. Always yield to heavy equipment.
- Establish safe distances from drill rig (refer to HASP).
- Ensure functionality of “kill switch” and that equipment is inspected and in working order.

MONITORING PROCEDURES

Based on RPP section of the HASP.

TASK HAZARD ANALYSIS (THA)
Phase II Investigation
Specialty Lighting Site
Shelby, NC

AECOM Job No. 60222287.1
Prepared by: Russell Reynolds **Date**: 8/23/2011

TASK NAME

GROUNDWATER SAMPLING

TASK DESCRIPTION	CHEMICAL EXPOSURE HAZARDS
Groundwater sampling via use of peristaltic pumps. Use caution in areas prone to traffic and open monitoring wells from upwind. Care should be taken when opening wells that could be under pressure or serve as homes/shelter for biological hazards (primarily ants, bees, & wasps). Use caution when connecting the battery to the pump. Be sure to utilize safety vests and traffic cones in areas of equipment or vehicular travel.	• VOCs • Preservatives in bottleware

PPE	OTHER SAFETY EQUIPMENT	PHYSICAL HAZARDS
Level D Ensemble • ANSI approved hard hat • High visibility reflectorized traffic vest (bright green/orange, 360^0 view) • Full-length pants • ANSI approved safety-toe boots or approved equivalent • ANSI approved safety glasses • Nitrile gloves	• Tubing cutters, approved cutting device • Leather work gloves • Insect repellant (or feasible alternative when sampling for pesticides) • First aid kit (located in vehicle) • Fire extinguisher (located in vehicle) • Emergency Eye Wash kit • Sunscreen	• Containment / Transfer of IDW • Awkward / heavy items • Biological hazards (wasps, hornets, snakes, spiders, poisonous plants, etc.) • Abrasions from concrete well pads while opening flush mount wells • Sharp edges/corrosion on stick-up well abutments • Splash-back during purging/sampling • Slips, trips, falls, and protruding objects • Rough or uneven terrain

APPLICABLE OPERATIONAL SAFETY PROCEDURES	ADDITIONAL SAFETY CONSIDERATIONS
Reference SOPs library @ AECOM SH&E SOPS	• Pinched fingers / hands on drum rings • Heat stress • Dehydration • Peripheral vision while using safety glasses • Wash hands before eating, drinking, or smoking.

MONITORING PROCEDURES

Monitoring is not anticipated for this task.

AECOM

AECOM Job No. 60222287.1

TASK HAZARD ANALYSIS (THA)
Phase II Investigation
Specialty Lighting Site
Shelby, NC

TASK NAME

SURFACE WATER & SEDIMENT SAMPLING

TASK DESCRIPTION	CHEMICAL EXPOSURE HAZARDS
Surface water and sediment samples will be collected upstream and downstream of the former Outfall No. 1 at the unnamed creek tributary. In addition, background samples will be collected at least one upstream off-site location. There is an abandoned staircase at the creek, where surface water and sediment sampled could be collected. For surface water and sediment sampling downstream-most locations will be sampled first, followed by moving upstream. Sediment likely will be collected from the 0-0.5 foot or 0 -1.0 foot depths, since the stream is small and sediment depths likely are relatively shallow. Approximate sampling locations are shown in Figure 3-3 of the work plan. All access is by walking in rubber boots. Access to some of the sampling points will require passing through some areas overgrown with kudzu and other vegetation. Samples will be collected and submitted for laboratory analysis.	• VOCs • Preservatives in bottleware

PPE	OTHER SAFETY EQUIPMENT	PHYSICAL HAZARDS
Level D Ensemble • High visibility reflectorized traffic vest (bright green/orange, 360^0 view) • Full-length pants • ANSI approved safety-toe boots or approved equivalent • ANSI approved safety glasses • Nitrile gloves	• Tubing cutters, approved cutting device • Leather work gloves • Insect repellant (or feasible alternative when sampling for pesticides) • First aid kit (located in vehicle) • Fire extinguisher (located in vehicle) • Emergency Eye Wash kit • Sunscreen	• Containment / Transfer of IDW • Awkward / heavy items • Biological hazards (wasps, hornets, snakes, spiders, poisonous plants, etc.) • Abrasions from concrete well pads while opening flush mount wells • Sharp edges/corrosion on stick-up well abutments • Splash-back during purging/sampling • Slips, trips, falls, and protruding objects • Rough or uneven terrain

APPLICABLE OPERATIONAL SAFETY PROCEDURES	ADDITIONAL SAFETY CONSIDERATIONS
Reference SOPs library @ AECOM SH&E SOPS	• Slips, trips, and falls • Uneven walking surfaces • Working around water • Heat stress • Dehydration • Peripheral vision while using safety glasses • Wash hands before eating, drinking, or smoking.

MONITORING PROCEDURES

Monitoring is not anticipated for this task.

Attachment C - Daily Tailgate Meeting Attendance Form

AECOM

Tailgate Safety Meeting Log*

This sign-in log documents the topics of the tailgate safety briefing and individual attendance at the briefing. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge their ability to ask questions and receipt of such briefings daily. Please provide a brief narrative of the following topics as applicable to the Project.

Meeting Leader	Signature
Date /Time	Project Name & Location
Weather Conditions	Project Number

Topic	***Discussion (Circle one)***
Today's Scope of Work (All tasks)	yes / NA
Schedule / New Work / Scope Changes	yes / NA
Reviewed Procedures, THA, etc.	yes / NA
Emergency Action Plan & Procedures	yes / NA
Communications Protocol	yes / NA
Required PPE	yes / NA
Required Monitoring / Instruments	yes / NA
Site Control / Work Zones / Security	yes / NA
Access / Egress / Slips, Trips, & Falls	yes / NA
Smoking, Eating, & Drinking	yes / NA
Washroom / Facililties Location	yes / NA
Heat/Cold Stress	yes / NA
Exclusion Areas Barricades / Cones	yes / NA
Required Permits, Passes, Keys, etc.	yes / NA
Decon Procedures / IDW Mngmt	yes / NA
Equipment Inspections /Safety Checklists	yes / NA

Comments/Other:

Tailgate Meeting Attendees	
Printed Name	Signature

*This form is to be utilized for documenting daily safety meetings and stored with project files upon completion

Six Questions for Success – As your final preparedness take two minutes to think through and answer these questions**:**

1. What are we about to do?
2. What equipment are we going to use?
3. Have I/we been trained to use this equipment?
4. Have I/we been trained to do this job?
5. How can I/we be hurt?
6. How can I/we prevent this incident?

If you and your team aren't prepared to do the assigned work, ***STOP WORK***, and take time to properly prepare.

End of Day Sign-off: Site Safety Officer Signature

□ No Incidents Occurred

□ Number of Near Misses/Observations Reported _____

□ All Incidents Reported to Supervisor, SH&E Manager and Reporting Line

Lessons Learned/Comments/Other:

*This form is to be utilized for documenting daily safety meetings and stored with project files upon completion

Attachment D – Applicable SH&E SOPs

000 Series - SH&E Essentials	Publication Date
S3NA-000-MN SH&E Manual	October 1, 2010
S3NA-001-PR Safe Work Standards and Rules	October 1, 2010
S3NA-002-PR Stop Work Authority for Unsafe Work	December 1, 2010
S3NA-003-PR SH&E Training	October 1, 2010
S3NA-004-PR Incident Reporting	October 1, 2010
S3NA-005-PR Driver and Vehicle Safety Program	October 1, 2010

100 Series - Office	Publication Date
S3NA-101-PR Emergency Response Planning, Office	March 1, 2011
S3NA-102-PR Ergonomics, Office	December 1, 2010
S3NA-103-PR Housekeeping, Office	December 1, 2010
S3NA-104-PR Manual Lifting, Office	December 1, 2010
S3NA-105-PR Office Safety Programs	October 1, 2010
S3NA-106-PR Fire Protection, Office	December 1, 2010
S3NA-107-PR Violence in the Workplace	December 1, 2010

200 Series - Project Management	Publication Date
S3NA-201-PR Client Site Requirements	October 1, 2010
S3NA-202-PR Competent Person Designation	October 1, 2010
S3NA-203-PR Emergency Response Planning, Field	March 1, 2011
S3NA-204-PR Environmental Compliance	March 1, 2011
S3NA-205-PR Equipment Inspections & Maintenance	December 1, 2010
S3NA-206-PR Fire Protection, Field	December 1, 2010
S3NA-207-PR Medical Services and First Aid	October 1, 2010
S3NA-208-PR Personal Protective Equipment Program	December 1, 2010
S3NA-209-PR Project Hazard Assessment and Planning	October 1, 2010
S3NA-210-PR Project Safety Meetings	October 1, 2010
S3NA-211-PR Regulatory Inspections	October 1, 2010
S3NA-212-PR Site Inspections	October 1, 2010
S3NA-213-PR Subcontractors	October 1, 2010
S3NA-214-PR Site Safety Officer	October 1, 2010

300 Series - Field (Common)	Publication Date
S3NA-301-PR Confined Spaces	December 1, 2010
S3NA-302-PR Electrical, General	December 1, 2010
S3NA-303-PR Excavation and Trenching	March 1, 2011
S3NA-304-PR Fall Protection	March 1, 2011
S3NA-305-PR Hand and Power Tools	March 1, 2011
S3NA-306-PR Highway and Road Work	December 1, 2010
S3NA-307-PR Housekeeping, Worksite	December 1, 2010
S3NA-308-PR Manual Lifting, Field	December 1, 2010
S3NA-309-PR Mobile or Heavy Equipment	March 1, 2011
S3NA-310-PR Rigging, Hoisting, Cranes and Lifting Devises	December 1, 2010
S3NA-311-PR Scaffolding	March 1, 2011
S3NA-312-PR Stairways and Ladders	March 1, 2011
S3NA-313-PR Wildlife, Plants and Insects	March 1, 2011
S3NA-314-PR Working Alone & Remote Travel	March 1, 2011
S3NA-315-PR Water, Working Around	March 1, 2011

400 Series - Field (Uncommon)	Publication Date
S3NA-401-PR Aircraft Charters	October 1, 2010
S3NA-402-PR All Terrain Vehicles (ATVs)	March 1, 2011
S3NA-403-PR Avalanches	March 1, 2011
S3NA(US)-404-PR Commercial Motor Vehicles	March 1, 2011
S3NA-405-PR Drilling and Boring	March 1, 2011
S3NA-406-PR Electrical Lines, Overhead	March 1, 2011
S3NA-407-PR Electrofishing	March 1, 2011
S3NA-408-PR Elevated Work Platforms and Aerial Lifts	March 1, 2011
S3NA-409-PR Forklifts (operation of)	March 1, 2011
S3NA-410-PR Hazardous Energy Control	March 1, 2011
S3NA-411-PR Machine Guarding	March 1, 2011
S3NA-412-PR Powder-Actuated Tools	March 1, 2011
S3NA(US)-413-PR Process Safety Management	October 1, 2010
S3NA-414-PR Railway Sites	December 1, 2010
S3NA(US)-415-PR RCRA Regulated Facilities	October 1, 2010
S3NA-416-PR Tunnel and Underground Work	March 1, 2011
S3NA-417-PR Utilities, Underground	March 1, 2011
S3NA-418-PR Welding, Cutting and Other Hot Work	March 1, 2011
S3NA-419-PR Water, Marine Operations_Boating	March 1, 2011
S3-NA420-PR Water_Underwater Diving	October 1, 2010

500 Series - Industrial Hygiene (Chemical, Biological, Radiological, Nuclear)	Publication Date
S3NA-501-PR Asbestos	March 1, 2011
S3NA-502-PR Benzene	March 1, 2011
S3NA-503-PR Blood borne Pathogen Program	March 1, 2011
S3NA-504-PR Cadmium	March 1, 2011
S3NA-505-PR Cold Stress Prevention	March 1, 2011
S3NA-506-PR Compressed Gases	March 1, 2011
S3NA-507 PR Hazardous Materials Communication / WHMIS	October 1, 2010
S3NA-508-PR Hazardous Materials Handling and Shipping	October 1, 2010
S3NA-509-PR Hazardous Waste Operations and Emergency Response	December 1, 2010
S3NA-510-PR Hearing Conservation Program	December 1, 2010
S3NA-511-PR Heat Stress Prevention	March 1, 2011
S3NA-512-PR Laboratory Safety	March 1, 2011
S3NA-513-PR Lead	March 1, 2011
S3NA-514-PR Munitions and Explosives of Concern / Unexploded Ordnance (MEC-UXO)	March 1, 2011
S3NA-515-PR Nanotechnology	March 1, 2011
S3NA-516-PR Radiation Safety Programs	March 1, 2011
S3NA-517-PR Radiation, Non-Ionizing	March 1, 2011
S3NA-518-PR Radiation, Gauge Source program	March 1, 2011
S3NA-519-PR Respiratory Protection Program	December 1, 2010
S3NA-520-PR Spill Response, Incidental	December 1, 2010

600 Series - Incident & Medical Management	Publication Date
S3NA-601-PR Recordkeeping	October 1, 2010
S3NA-602-PR Exposure Monitoring	October 1, 2010
S3NA-603-PR Incident Investigation and Review	October 1, 2010
S3NA-604-PR Medical Records	October 1, 2010
S3NA-605-PR Medical Surveillance Program	October 1, 2010
S3NA-606-PR Modified Duty Program	October 1, 2010
S3NA-607-PR Post Incident Medical Management	October 1, 2010

700 Series - SH&E Program Management	Publication Date
S3NA-701-PR Rules and Regulatory Review	October 1, 2010
S3NA-702-PR SH&E Organizational Reporting Structure & Supporting Roles	October 1, 2010
S3NA-703-PR SH&E Manual and Procedures Review	October 1, 2010
S3NA-704-PR SH&E Program Auditing	March 1, 2011
S3NA-705-PR SH&E Program Monitoring and Reporting	October 1, 2010

S3NA-305-WI18 Electric and Battery Hand Tools Safety Card

All electrical tools and equipment must be operated in accordance with the requirements of *S3NA-302-PR Electrical, General.*

1.0 Safe Work Practices

1.1 Maintain all electrical tools and cords in good condition and not overloaded.

1.2 Do not wear loose or baggy clothing around tools with rotating parts.

1.3 The switch on the tool must be in the OFF position before connecting it to a power source.

1.4 Verify that the power source is the same voltage and current as indicated on the nameplate of the tool. Using a higher voltage can cause serious injury to the operator as well as burn out the tool.

1.5 The tool must have an approved three-wire cord with a three-prong plug so that it can be used only in a properly grounded three-hole receptacle, unless the tool is double insulated to protect the operator from electrical shock.

1.6 All outdoor receptacles must be protected by means of a ground fault circuit interrupter* (GFCI or GFI) available in portable or fixed models. Do not use any electric power tools outdoors in a receptacle that is not properly protected.

1.7 Report all shocks and/or sparks from electrical tools, no matter how minor. The tool in question should be tagged out and not be used until it has been checked for ground fault.

1.8 Maintain electrical cords and appliances in good working order.

1.8.1 Cords and appliances must be CSA approved.

1.8.2 Never carry an electric tool by the cord or disconnect the plug by pulling or jerking on the cord (can damage, loosen, or separate connections).

1.8.3 Check cords frequently for such damage such as kinks, cuts, and cracked or broken outer jackets (any cord that feels more than comfortably warm to the touch should be checked by an electrician for overloading).

1.9 Store electrical cords in a clean, dry area off the ground to prevent damage to cord.

1.10 Equipment must have proper guards or shields and they must remain in place. If, due to damage or deterioration, the original guard provided on a piece of equipment cannot be put in place, the tool must be removed from service.

1.11 Do not modify, remove, or disable any machine guards.

1.12 Stand to one side when engaging or disengaging an electrical circuit breaker to avoid electrical flash backs.

1.13 It's strongly advisable to use GFCI with all portable electric tools at any time.

1.14 A cord should not be pulled or dragged over nails, hooks, or other sharp objects that may cause cuts in the insulation. In addition, cords should never be placed on radiators, steam pipes, walls, and windows. Particular attention should be placed on connections behind furniture, since files and bookcases may be pushed tightly against electrical outlets, severely bending the cord at the plug.

1.15 Disconnect electrical equipment before cleaning, adjusting, or applying flammable solutions. If a guard is removed to clean or repair parts, replace it before testing the equipment and returning the machine to service.

1.16 Only authorized persons are permitted to activate, de-activate or lockout electrical equipment.

1.17 Where there is or may be a danger to a worker, from the inadvertent operation of electrical equipment, then that equipment must be locked out and tagged prior to commencing work.

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1.17.1 Switch off all appropriate devices (MCC, Distribution Panel, Disconnect).

1.17.2 Lock and tag Electrical Supply devices in the “OFF” position.

1.17.3 Test to be sure the equipment cannot be operated at the STOP-START switch.

1.17.4 Test to be sure electrical equipment is de-energized.

1.17.5 After completion of task, remove padlocks and destroy tags.

2.0 Inspection

2.1 Inspect tools for any damage prior to each use.

2.2 Ensure that the power tool has the correct guard, shield or other attachment that the manufacturer recommends.

2.3 Ensure that the tools are properly grounded using a 3-prong plug, are double-insulated (and are labeled as such), or are powered by a low-voltage isolation transformer; this will protect users from an electrical shock.

2.4 Check electric tools to ensure that a tool with a 3-prong plug has an approved 3-wire cord and is grounded. The 3-prong plug should be plugged in a properly grounded 3-pole outlet. If an adapter must be used to accommodate a 2-hole receptacle, the adapter wire must be attached to a known, functioning ground. Never remove the third, grounding prong from a plug.

2.5 Check the handle and body casing of the tool for cracks or other damage.

2.6 If the tool has auxiliary or double handles, check to see that they installed securely.

2.7 Inspect cords for defects: check the power cord for cracking, fraying, and other signs of wear or faults in the cord insulation.

2.8 Any tool with a spring-operated trigger switch shall be fully functional.

2.9 Check for damaged switches and ones with faulty trigger locks.

2.10 Inspect the plug for cracks and for missing, loose or faulty prongs.

2.11 If a tool is defective, remove it from service, and tag it clearly “Out of service for repair.” Replace damaged equipment immediately – do not use defective tools “temporarily.” DO NOT ATTEMPT FIELD REPAIRS.

3.0 Battery Powered Tools

3.1 Use only the kind of battery that the tool manufacturer specifies for the battery-powered tool that you are using.

3.2 Recharge a battery-powered tool only with a charger that is specifically intended for the battery in that tool.

3.3 Remove the battery from the tool or ensure that the tool is switched off or locked off before changing accessories, making adjustments, or storing the tool.

3.4 Store a battery pack safely so that no metal parts, nails, screws, wrenches and so on can come in contact with the battery terminals; this could result in shorting out the battery and possibly cause sparks, fires or burns.

4.0 Using Electric Tools

4.1 Switch off the tools before connecting them to a power supply.

4.2 If a power cord feels more than comfortably warm or if a tool is sparking excessively, have it checked by an electrician or other qualified person.

4.3 Disconnect the power supply before making adjustments or changing accessories.

4.4 Remove any wrenches and adjusting tools before turning on a tool.

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4.5 Inspect the cord for fraying or damage before each use. Tag defective tools clearly with an “Out of Service” tag and replace immediately with a tool in good running order.

4.6 During use, keep power cords clear of tools and the path that the tool will take.

4.7 Use clamps, a vice or other devices to hold and support the piece being worked on, when practical to do so. This will allow you to use both hands for better control of the tool and will help prevent injuries if a tool jams or binds in a work piece.

4.8 Use only approved extension cords that have the proper wire size for the length of cord and power requirements of the electric tool that you are using. This will prevent the cord from overheating.

4.9 For outdoor work, use outdoor extension cords marked “W-A” or “W.”

4.10 Suspend power cords over aisles or work areas to eliminate stumbling or tripping hazards.

4.11 Eliminate octopus connections: if more than one receptacle plug is needed, use a power bar or power distribution strip that has an integral power cord and a built-in overcurrent protection.

4.12 Pull the plug not the cord when unplugging a tool. Pulling the cord causes wear and may adversely affect the wiring to the plug - an electrical shock to the operator may result.

4.13 Keep power cords away from heat, water, oil, sharp edges and moving parts. They can damage the insulation and cause a shock.

4.14 Avoid accidental starting by ensuring the tool is turned off before you plug it in. Also do not walk around with a plugged-in tool with your finger touching the switch.

4.15 Do not bypass the ON/OFF switch and operate the tools by connecting and disconnecting the power cord.

4.16 Do not disconnect the power supply of the tool by pulling or jerking the cord from the outlet.

4.17 Do not leave a running tool unattended. Do not leave it until it has been turned off, has stopped running completely, and has been unplugged.

4.18 Do not use electric tools in wet conditions or damp locations unless tool is connected to a ground fault circuit interrupter (GFCI).

4.19 Do not expose electric power tools to rain or wet conditions; wet tools increase the likelihood for getting an electric shock.

4.20 Avoid body contact with grounded surfaces like refrigerators, pipes and radiators when using electric powered tools; this will reduce the likelihood of shock if the operator's body is grounded.

4.21 Do not plug several power cords into one outlet by using single-to-multiple outlet adapters or converters (“cube taps”).

4.22 Do not use light duty power cords.

4.23 Do not connect or splice extension cords together to make a longer connection: the resulting extension cord may not be able to provide sufficient current or power safely.

4.24 Do not carry electrical tools by the power cord.

4.25 Do not tie power cords in knots. Knots can cause short circuits and shocks. Loop the cords or use a twist lock plug.

4.26 Never break off the third prong on a plug: replace broken 3-prong plugs and make sure the third prong is properly grounded.

4.27 Never use extension cords as permanent wiring; use extension cords only as a temporary power supply to an area that does not have a power outlet.

4.28 Do not walk on or allow vehicles or other moving equipment to pass over unprotected power cords. Cords should be put in conduits or protected by placing planks on each side of them.

4.29 Do not brush away sawdust, shavings or turnings while the tool is running. Never use compressed air for cleaning surfaces or removing sawdust, metal turnings, etc.

4.30 Do not operate tools in an area containing explosive vapors or gases.

4.31 Do not clean tools with flammable or toxic solvents.

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4.32 Do not surprise or touch anyone who is operating a tool. Startling a tool operator could end up causing an accident or injury.

5.0 Belt Sanders

5.1 Wear safety glasses.

5.2 Make sure the sander is switched “OFF” before connecting the power supply.

5.3 Disconnect power supply before changing a sanding belt, making adjustments, or emptying dust collector.

5.4 Inspect sanding belts before using them. Replace those belts that are worn or frayed.

5.5 Install sanding belts that are the same widths as the pulley drum.

5.6 Adjust sanding belt tension to keep the belt running true and at the same speed as pulley drum.

5.7 Secure the sanding belt in the direction shown on the belt and the machine.

5.8 Keep hands away from a sanding belt.

5.9 Use two hands to operate sanders – one on a trigger switch and the other on a front handle knob.

5.10 Keep all cords clear of sanding area during use.

5.11 Clean dust from a motor and vents at regular intervals.

5.12 Do not use a sander without an exhaust system or a dust collector present that is in good working order. Empty the collector when 1/4 full. The dust created when sanding can be a fire and explosion hazard. Proper ventilation is essential.

5.13 Do not exert excessive pressure on a moving sander. The weight of the sander supplies adequate pressure for the job.

5.14 Do not work on unsecured stock unless it is heavy enough to stay in place. Clamp the stock into place or use a “stop block” to prevent movement.

5.15 Do not overreach. Always keep proper footing and balance.

5.16 Do not cover the air vents of the sander.

6.0 Drills

6.1 Wear safety glasses.

6.2 Keep drill air vents clear to maintain adequate ventilation.

6.3 Always keep drill bits sharp.

6.4 Keep all cords clear of the cutting area during use. Inspect for frays or damage before each use.

6.5 Disconnect power supply before changing or adjusting bit or attachments.

6.6 Tighten the chuck securely. Remove chuck key before starting drill.

6.7 Secure workpiece being drilled to prevent movement.

6.8 Slow the rate of feed just before breaking through the surface.

6.9 Drill a small “pilot” hole before drilling large holes.

6.10 For small pieces, clamp stock so work will not twist or spin. Do not drill with one hand while holding the material with the other.

6.11 Do not use a bent drill bit.

6.12 Do not exceed the manufacturer’s recommended maximum drilling capacities.

6.13 Do not use a hole saw cutter without the pilot drill.

6.14 Do not use high speed steel (HSS) bits without cooling or using lubrication.

6.15 Do not attempt to free a jammed bit by starting and stopping the drill. Unplug the drill and then remove the bit from the work piece.

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6.16 Do not reach under or around stock being drilled.

6.17 Do not overreach. Always keep proper footing and balance.

6.18 Do not raise or lower the drill by its power cord.

7.0 Planers

7.1 Wear safety glasses.

7.2 Disconnect the planer from the power supply before making any adjustments to the cutter head or blades.

7.3 Use blades of the same weight and set at the same height.

7.4 Ensure that the blade-locking screws are tight.

7.5 Remove adjusting keys and wrenches before turning on power.

7.6 Support the material (stock) in a comfortable position that will allow the job to be done safely and accurately.

7.7 Check stock thoroughly for staples, nails, screws, or other foreign objects before using a planer.

7.8 Start a cut with the infeed table (front shoe) resting firmly on the stock and with the cutter head slightly behind the edge of the stock.

7.9 Use two hands to operate a planer - one hand on the trigger switch and the other on a front handle.

7.10 Do not put your finger or any object in a deflector to clean out chips while a planer is running.

7.11 Disconnect the power supply when stopping to dump out chips.

7.12 Do not set a planer down until blades have stopped turning.

7.13 Keep all cords clear of cutting area.

8.0 Routers

8.1 Wear safety glasses.

8.2 Disconnect the power supply before making any adjustments or changing bits.

8.3 Ensure that the bit is securely mounted in the chuck and the base is tight.

8.4 Put the base of the router on the work, template or guide. Make sure that the bit can rotate freely before switching on the motor.

8.5 Secure stock. Never rely on yourself or a second person to support or hold the material. Sudden torque or kickback from the router can cause damage and injury.

8.6 Before using a router, check stock thoroughly for staples, nails, screws or other foreign objects.

8.7 Keep all cords clear of cutting area.

8.8 Always hold both hands on router handles, until a motor has stopped. Do not set the router down until the exposed router bit has stopped turning.

8.9 Do not overreach. Keep proper footing and balance.

8.10 When inside routing, start the motor with the bit above the stock. When the router reaches full power, lower the bit to two times the required depth.

8.11 When routing outside edges, guide the router counter clockwise around the work.

8.12 When routing bevels, moldings and other edge work, make sure the router bit is in contact with the stock to the left of a starting point and is pointed in the correct cutting direction.

8.13 Feed the router bit into the material at a firm, controlled speed.

8.14 With softwood, you can sometimes move the router as fast as it can go. With hardwood, knotty and twisted wood, or with larger bits, cutting may be very slow.

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8.15 The sound of the motor can indicate safe cutting speeds. When the router is fed into the material too slowly, the motor makes a high-pitched whine. When the router is pushed too hard, the motor makes a low growling noise.

8.16 When the type of wood or size of the bit requires going slow, make two or more passes to prevent the router from burning out or kicking back.

8.17 To decide the depth of cut and how many passes to make, test the router on scrap lumber similar to the work.

9.0 Circular Saws

9.1 Wear safety glasses and hearing protection.

9.2 Check the retracting lower blade guard to make certain it works freely.

9.3 Ensure that the blade that you have selected is sharp enough to do the job. Sharp blades work better and are safer.

9.4 Check the saw for proper blade rotation.

9.5 Set the depth of the blade, while the saw is unplugged, and lock it at a depth so that the lowest tooth does not extend more than about 1/8 inch beneath the wood.

9.6 Keep all cords clear of cutting area.

9.7 Circular saws are designed for right-hand operation; left-handed operation will demand more care to operate safely.

9.8 Check the retracting lower blade guard frequently to make certain it works freely. It should enclose the teeth as completely as possible, and cover the unused portion of the blade when cutting.

9.9 Check that the retracting lower blade guard has returned to its starting position before laying down the saw.

9.10 Keep upper and retracting lower blade guard clean and free of sawdust.

9.11 Disconnect power supply before adjusting or changing the blade.

9.12 Allow the saw to reach full power before starting to cut.

9.13 Use two hands to operate saws - one on a trigger switch and the other on a front knob handle.

9.14 Keep the motor free from accumulation of dust and chips.

9.15 Select the correct blade for stock being cut and allow it to cut steadily. Do not force it.

9.16 Secure work being cut to avoid movement.

9.17 Do not hold or force the retracting lower guard in the open position.

9.18 Do not place your hand under the shoe or guard of the saw.

9.19 Do not over tighten the blade-locking nut.

9.20 Do not twist the saw to change, cut or check alignment.

9.21 Do not use a saw that vibrates or appears unsafe in any way.

9.22 Do not force the saw during cutting.

9.23 Do not cut materials without first checking for obstructions or other objects such as nails and screws.

9.24 Do not carry the saw with a finger on the trigger switch.

9.25 Do not overreach. Keep proper footing and balance.

9.26 Do not rip stock without using a wedge or guide clamped or nailed to the stock.

10.0 Other Saws

10.1 Wear safety glasses.

10.2 Disconnect power supply before changing or adjusting blades.

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10.3 Use lubricants when cutting metals.

10.4 Keep all cords clear of cutting area.

10.5 Position the saw beside the material before cutting and avoid entering the cut with a moving blade.

10.6 Make sure guards, if present, are installed and are working properly.

10.7 Remember sabre saws cut on the upstroke.

10.8 Secure and support stock as close as possible to the cutting line to avoid vibration.

10.9 Keeps the base or shoe of the saw in firm contact with the stock being cut.

10.10 Select the correct blade for the material being cut and allow it to cut steadily. Do not force it. Clean and sharp blades operate best.

10.11 Set the blade to go no further than 1/8 to 1/4 inch deeper than the material being cut.

10.12 Do not start cutting until the saw reaches its full power.

10.13 Do not force a saw along or around a curve. Allow the machine to turn with ease.

10.14 Do not insert a blade into or withdraw a blade from a cut or lead hole while the blade is moving.

10.15 Do not put down a saw until the motor has stopped.

10.16 Do not reach under or around the stock being cut.

10.17 Maintain control of the saw always. Avoid cutting above shoulder height.

10.18 **External Cuts**

10.18.1 Make sure that the blade is not in contact with the material or the saw will stall when the motor starts.

10.18.2 Hold the saw firmly down against the material and switch the saw on.

10.18.3 Feed the blade slowly into the stock, maintaining an even forward pressure.

10.19 **Internal Cuts**

10.19.1 Drill a lead hole slightly larger than the saw blade. With the saw switched off, insert the blade in the hole until the shoe rests firmly on the stock.

10.19.2 Do not let the blade touch the stock until the saw has been switched on.

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S3NA-405-PR Drilling, Boring, and Direct Push Probing

1.0 Purpose and Scope

1.1 Provides the minimum requirements to be followed when drilling and boring work are performed.

1.2 This procedure applies to all AECOM North America-based employees and operations.

2.0 Terms and Definitions

None.

3.0 References

None.

4.0 Procedure

4.1 All client on-site safety procedures shall be understood and adhered to.

4.2 Be aware of the provincial/territorial regulations that govern drill rig operations and exposed moving parts.

4.3 **Roles and Responsibilities**

4.3.1 **Project Manager or Resident Engineer** is responsible for ensuring that sound principles of safety, training, inspection, maintenance, and operation consistent with all resource data available from the manufacturer, OSHA, and ANSI is provided to the operator and users by the Contractor or operating entity.

4.3.2 **Site Safety Coordinator (SSC)** shall assist the **Project Manager** in compliance with the requirements of this procedure.

4.3.3 The **SH&E Department** shall assist site management with guidance about this procedure.

4.3.4 **AECOM employees** engaged in project field activities shall be cognizant of contractor activities that may affect their safety and shall follow these procedures.

4.3.5 **AECOM Equipment Operator**

- In cases where AECOM owns and operates drilling, boring, or probing equipment, the lead equipment operator is responsible for the maintenance and safe operation of equipment under their control consistent with those responsibilities of a Contractor.
- Operations will be terminated during an electrical storm, and all crew members will move away from the rig. If lightning is observed, shut down all rig operations immediately.

4.3.6 **Contractors**

- **Contractors** have direct control over the application and operation of all drilling, boring, and probing equipment owned by their organization.
- It is the **Equipment Contractor** operator's responsibility to implement safe work practices provided by the **Contractor's** project management or supervisory staff supplemented by good judgment, safe control, and caution whenever operating drilling, boring, and probing equipment.

4.3.7 **Safety Representative**: Unless the **Contractor** has a designated **Safety Representative**, the **Contractor'**s responsible person for safety for the drill crew will be the drill rig operator. The safety person's responsibilities are to

- Consider the "responsibility" for safety and the "authority" to enforce safety to be a matter of first importance.
- Be the leader in using proper personal protective equipment (PPE) and set an example in following the rules that are being enforced on others. See section 4.5 for PPE required by this SOP.
- Enforce the use of proper safety equipment and take appropriate corrective action when proper PPE is not being used.

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- Understand that the proper maintenance of tools and equipment and general housekeeping on the drill rig will provide an environment that promotes and enforces safety. See Sections 4.7 and 4.9 for housekeeping and maintenance requirements of this SOP.
- Ensure that the operator has had adequate training and is thoroughly familiar with the rig, its controls, and its capabilities prior to commencement of drilling activities.
- Inspect the l rig at least daily for structural damage, loose bolts and nuts, proper tension in chain drives, loose or missing guards or protective covers, fluid leaks, damaged hoses, and/or damaged pressure gauges and pressure relief valves. A Rig Inspection Form has been provided in S3NA-405-FM1 Drill Rig Inspection for use in performing inspections when the Contractor does not have their own.
- Check and test all safety devices such as emergency shutdown switches at least daily and preferably at the start of a work shift. Rig operation should not be permitted until all emergency shutdown and warning systems are working correctly. Wiring around, bypassing, or removing an emergency device is not permitted.
- Check that all gauges, warning lights, and control levers are functioning properly, and listen for unusual sounds on each starting of an engine.
- Ensure that all new rig workers are informed of safe operating practices on and around the rig. Provide each new rig worker with a copy of the organization's drilling operations safety procedures and, when appropriate, the rig manufacturer's operations and maintenance manual. The safety person should ensure that each new employee reads and understands the safety procedures.
- Ensure that a first aid kit and fire extinguishers are available and properly maintained on each rig and on each additional vehicle.
- Be well trained and capable of using a first aid kit, a fire extinguisher, and all other safety devices and equipment.
- Maintain a list of addresses and telephone numbers of emergency assistance units (ambulance services, police, hospitals, etc.), and inform other members of the drill crew of its location.
- See that new workers are instructed in rig safety, and observe the new worker's progress toward understanding safe operating practices.
- Observe the mental, emotional, and physical capability of workers to perform the assigned work in a proper and safe manner. Dismiss from the job site any worker whose mental and physical capabilities might cause injury to the worker or coworkers.
- Rig Crew and Other Field Personnel (Those employees involved in fieldwork): All personnel engaged in site activities are required to become thoroughly familiar with, and to conform to, the provisions of AECOM's safety plan, procedures, and such other safety directives as may be considered appropriate by **Project Managers**, **Safety Officers,** and **Supervisors**.
- Rig Workers: Personnel are encouraged to offer ideas, suggestions, or recommendations regarding any operational condition, procedure, or practice that may enhance the safety of site personnel or the public. Their primary responsibilities will be:
  - Perform all required work safely.
  - Familiarize themselves with and understand the plan, including proper use of personal protective equipment.
  - Report any unsafe conditions to supervisory personnel.
  - Be aware of signs and symptoms of thermal stress.

4.4 Training

4.4.1 All staff shall be provided with on-site orientation to the rig and its operator.

4.4.2 All operators and assistants shall have industry-standard safety training and be versed in the equipment to be utilized. This may include, but is not limited to, HAZWOPER, Petroleum Safety Training (or Construction Safety Training), and H2S Alive as appropriate.

4.5 Personal Protective Equipment

4.6 For most geotechnical, mineral, and/or groundwater drilling projects, PPE should include

- Hard hat: Hard hats shall be worn by everyone working at a drilling/boring site. Hats should meet the requirements of ANSI Z89 and be kept clean and in good repair with the headband and crown straps properly adjusted for the employee.

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- Safety shoes: Safety shoes or boots shall be worn by all drilling personnel and all visitors to the site who observe operations within close proximity of the rig. Safety shoes or boots should meet the requirements of ANSI Z4 1.1.
- Safety glasses: All rig personnel shall wear safety glasses meeting the requirements of ANSI Z87.1.
- High Visibility Class II Safety Vest shall be worn by all **AECOM employees**. All rig personnel should attempt to wear high-visibility clothing that should be close fitting and not have large cuffs or loose material that can catch on rotating or translating components of the rig.
- Close fitting gloves and clothing: All rig personnel should wear gloves for hand protection against cuts and abrasions that could occur while handling wire rope or cable and from contact with sharp edges and burrs on drill rods and other drilling or sampling tools. Gloves should be close fitting and not have large cuffs or loose ties which can catch on rotating or translating components of the rig.
- Other protective equipment: For some operations, the project may dictate use of other protective equipment. The management of the contractor and its safety person shall determine the requirements. Such equipment might include face or ear protection or reflective clothing. The design and composition of the protective equipment and clothing should be determined as a joint effort of management and the client.
- Each worker should wear noise reducing ear protectors around operating equipment or during elevated noise levels.
- When drilling, boring, or probing is performed in chemically or radiological contaminated ground, special protective equipment and clothing will probably be required.
- The clothing of the individual rig worker is not generally considered protective equipment; however, clothing should be close fitting and comfortable without loose ends, straps, draw strings or belts or otherwise unfastened parts that might catch on some rotating or translating component of the rig. Rings and jewelry should not be worn during a work shift.

4.7 Housekeeping

4.7.1 A key requirement for safe field operations is that the Contractor safety person understands and fulfills the responsibility for maintenance and “housekeeping” on and around the drill rig, including the following:

- Suitable storage locations should be provided for all tools, materials, and supplies so that tools, materials, and supplies can be conveniently and safely handled without hitting or falling on a member of the crew or a visitor.
- Storage or transporting tools, materials, or supplies within or on the mast (derrick) of the rig should be avoided.
- Pipe, drill rods, probe rods, casing augers, and similar tooling should be orderly stacked on racks or sills to prevent spreading, rolling, or sliding.
- Penetration or other driving hammers should be placed at a safe location on the ground or be secured to prevent movement when not in use.
- Work areas, platforms, walkways, scaffolding and other accesses should be kept free of materials, debris and obstructions and substances such as ice, grease, or oil that could cause a surface to become slick or otherwise hazardous.
- All controls, control linkages, warning and operation lights, and lenses should be kept free of oil, grease, and/or ice.
- Do not store gasoline in any portable container other than a non-sparking, red safety container with a flame arrester in the fill spout and having the word “gasoline” easily visible.

4.8 Traffic Control

4.8.1 When operating near public vehicular and pedestrian traffic, the on-site personnel shall take every precaution necessary to see that the work zone is properly established, identified, and isolated from both moving traffic and passerby pedestrians.

4.8.2 All traffic control devices shall be installed, placed, and maintained in accordance with the Traffic Control Plan, client specifications, and/or the Manual of Uniform Traffic Control Devices (MUTCD). Traffic control devices shall consist of and not be limited to:

- Directional and informational signage;
- High visibility barricades, cones, or barrels;

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- Lighting; and
- Other equipment and devices as required.

4.9 Maintenance & Inspection

4.9.1 Good maintenance and thorough inspection will make operations safer. Maintenance tasks should be done safely by a qualified maintenance person. Inspection and maintenance tasks include but are not limited to the following requirements:

- Inspections shall be completed at the beginning of each day by the equipment operator and in the presence of an AECOM employee when the equipment is not owned and operated by AECOM. A Rig Inspection Form is provided in S3NA-405-FM1 Drill Rig Inspection for use in performing inspections.
- Safety glasses should be worn when performing maintenance on a rig or on drilling or probing tools.
- The drill rig engine should be shut down to make repairs or adjustments to a drill rig or to lubricate fittings (except repairs or adjustments that can only be made with the engine running).
- Precautions should be taken to prevent accidental starting of an engine during maintenance by removing or tagging the ignition key.
- Wheels or the lowering of leveling jacks or both should be blocked ("zero energy state") and hand brakes set before working under a drill rig.
- When possible and appropriate, all pressure on the hydraulic systems should be released as well as the drilling fluid system and the air pressure systems of the drill rig prior to performing maintenance. In other words, reduce the drill rig and operating systems to a “zero energy state” before performing maintenance. Use extreme caution when opening drain plugs and radiator caps and other pressurized plugs and caps.
- Personnel shall not touch an engine or the exhaust system of an engine following its operation until the engine and exhaust system have adequate time to cool.
- Welding and cutting shall not occur on or near a fuel tank.
- Wire rope safety factors shall be in accordance with American National Standards Institute B 30.5-1968 or SAE J959-1966.
- Gasoline or other volatile or flammable liquids shall not be used as a cleaning agent on or around an l rig.
- The manufacturer's recommendations should be followed for applying the proper quantity and quality of lubricants, hydraulic oils, and/or coolants.
- All caps, filler plugs, protective guards, panels, high-pressure hose clamps, chains, or cables that have been removed for maintenance should be replaced.

4.10 Hand Tools

4.10.1 A large number of hand tools can be used on or around a drill or probe rig and in repair shops and more than an equal number of instructions for proper use exist. “Use the tool for its intended purpose” is the most important rule. Additionally, equipment operators and assistants should not use their hand in place of the proper tool; work shall be stopped until the correct tool can be found. The following are a few specific and some general suggestions that apply to the safe use of several hand tools that are often used on and around rigs:

- When a tool becomes damaged, either repair it before using it again or get rid of it.
- When using a hammer, any kind of hammer for any purpose, wear safety glasses and require all others around you to wear safety glasses.
- When using a chisel, any kind of chisel, for any purpose, wear safety glasses and require all others around you to wear safety glasses.
- Keep all tools cleaned and orderly stored when not in use.
- Use wrenches on nuts; don't use pliers on nuts.
- Use screwdrivers with blades that fit the screw slot.
- When using a wrench on a tight nut, first use some penetrating oil, use the largest wrench available that fits the nut, when possible pull on the wrench handle rather than pushing, and apply force to the wrench with both hands when possible and with both feet firmly placed. Don’t push or pull with one or both feet on the drill rig or the side of a mud pit or some other blocking-off device. Always assume that you may lose your footing – check the place where you may fall for sharp objects.

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- Keep all pipe wrenches clean and in good repair. The jaws of pipe wrenches should be wire brushed frequently to prevent an accumulation of dirt and grease which would otherwise build up and cause wrenches to slip. Replace hook and heel jaws when they become visibly worn.
- Avoid the use pipe wrenches in place of a rod-holding device whenever possible.
- When breaking tool joints on the ground or on a drilling platform, position your hands so that your fingers will not be smashed between the wrench handle and the ground or the platform, should the wrench slip or the joint suddenly let go.

4.11 Clearing Work Areas

4.11.1 Prior to set up, adequate site clearing and leveling should be performed to accommodate the rig and supplies and provide a safe working area. Clearing the site includes clearing the intended drilling area of underground utilities in accordance with S3NA-417-PR Utilities, Underground. Drilling or probing should not be commenced when tree limbs, unstable ground or site obstructions cause unsafe tool handling conditions.

4.11.2 Start-Up

- All rig personnel and visitors should be instructed to "stand clear" of the rig immediately prior to and during starting of an engine.
- Make sure all gear boxes are in neutral, all hoist levers are disengaged, all hydraulic levers are in the neutral-actuating positions, and the cathead rope is not on the cathead before starting a drill rig engine.
- Start all engines according to the manufacturer’s manual.

4.12 Drilling and Probing Operations

4.12.1 The following safety measures shall be taken during drilling and probing operations on-site:

- The operator and helper shall be present during all active rig operations.
- Site personnel shall remain within visual contact of the rig operator.
- Hard hats, approved safety boots and hearing protection shall be worn in the presence of a rig.
- Services shall be cleared prior to drilling or probing.
- Hands shall be kept away from moving parts (augers).
- The emergency shut-off switch on the rig should be identified to site personnel and tested on a regular basis by the operator.
- Unauthorized personnel shall be kept clear of the rig.

4.12.2 Safety requires the attention and cooperation of every worker and site visitor.

- Do not drive the rig from hole to hole with the mast (derrick) in the raised position.
- Before raising the mast (derrick) look up to check for overhead obstructions. Refer to *S3NA-417-PR Utilities, Underground* and *S3NA-406-PR Electrical Lines, Overhead*.
- Before raising the mast (derrick), all rig personnel (with the exception of the operator) and visitors should be cleared from the areas immediately to the rear and the sides of the mast. All rig personnel and visitors should be informed that the mast is being raised prior to raising it.
- Before the mast (derrick) of a drill rig is raised and drilling is commenced, the drill rig shall be first leveled and stabilized with leveling jacks and/or solid cribbing. The drill rig should be releveled if it settles after initial set up. Lower the mast (derrick) only when the leveling jacks are down, and do not raise the leveling jack pads until the mast (derrick) is lowered completely.
- Before starting drilling operations, secure and/or lock the mast (derrick) if required according to the drill manufacturer's recommendations.
- The operator of a rig should only operate a drill rig from the position of the controls. If the operator of the rig shall leave the area of the controls, the operator should shift the transmission controlling the rotary drive into neutral and place the feed control lever in neutral. The operator should shut down the drill engine before leaving the vicinity of the drill.
- Throwing or dropping tools will not be permitted. All tools should be carefully passed by hand between personnel or a hoist line should be used.
- Do not consume alcoholic beverages or other depressants or chemical stimulants prior to starting work on a rig or while on the job.
- If it is necessary to operate the rig within an enclosed area, make certain that exhaust fumes are conducted out of the area. Exhaust fumes can be toxic and some cannot be detected by smell.

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- Clean mud and grease from your boots before mounting a rig platform and use hand holds and railings. Watch for slippery ground when dismounting from the platform.
- During freezing weather, do not touch any metal parts of the rig with exposed flesh. Freezing of moist skin to metal can occur almost instantaneously.
- All air and water lines and pumps should be drained when not in use if freezing weather is expected.
- All unattended bore holes shall be adequately covered or otherwise protected to prevent rig personnel, site visitors, or animals from stepping or falling into the hole. All open bore holes should be covered, protected, or backfilled adequately and according to local or state regulations on completion of the drilling project.
- "Horsing around" within the vicinity of the drill rig and tool and supply storage areas should never be allowed, even when the rig is shut down.
- When using a ladder on a rig, face the ladder and grasp either the side rails or the rungs with both hands while ascending or descending. Always use adequate fall protection and a full body harness when climbing above six feet of the ground. Do not attempt to use one or both hands to carry a tool while on a ladder. Use a hoist line and a tool "bucket" or a safety hook to raise or lower hand tools.

4.13 Elevated Derrick Platforms

4.13.1 The following precautions should be used:

- When a rig worker first arrives at a derrick platform, the platform should immediately be inspected for broken members, loose connections, and loose tools or other loose materials.
- A derrick platform over 4 feet (1.2 m) above ground surface should have toe boards and safety railings that are in good condition.
- When climbing to a derrick platform that is higher than 6 feet (am), a fall arresting device shall be used. The fall arresting device should consist of a full body harness and fall protection. The harness should fit snugly but comfortably. The lifeline when attached to the derrick should be less than 6 feet (2 m) long and attached to a fall arrester. The harness and lifeline should be strong enough to withstand the dynamic force of a 250-pound (115 kg) weight (contained within the belt) falling 6 feet (2 m).
- When a rig worker is on a derrick platform, the lifeline should be fastened to the derrick just above the derrick platform and to a structural member that is not attached to the platform or to other lines or cables supporting the platform.
- Tools should be securely attached to the platform with safety lines. Do not attach a tool to a line attached to your wrist or any other part of your body.
- When you are working on a derrick platform, do not guide drill rods or pipe into racks or other supports by taking hold of a moving hoist line or a traveling block.
- Loose tools and similar items should not be left on the derrick platform or on structural members of the derrick.
- Workers on the ground or the drilling floor should avoid being under rig workers on elevated platforms whenever possible.

4.14 Lifting Heavy Objects

4.14.1 Before lifting any object without using a hoist, make sure that the load is within your personal lifting capacity. If it is too heavy, ask for assistance.

4.14.2 Before lifting a relatively heavy object, approach the object by bending at the knees, keeping your back vertical and unarched while obtaining a firm footing. Grasp the object firmly with both hands and stand slowly and squarely while keeping your back vertical and unarched. In other words, perform the lifting with the muscles in your legs, not with the muscles in your lower back.

4.14.3 If a heavy object shall be moved some distance without the aid of machinery, keep your back straight and unarched. Change directions by moving your feet, not by twisting your body.

4.14.4 Move heavy objects with the aid of handcarts or lifting devices whenever possible.

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4.15 Use of Wire Line Hoists, Wire Rope, and Hoisting Hardware

4.15.1 The use of wire line hoists, wire rope, and hoisting hardware should be as stipulated by the American Iron Steel Institute, Wire Rope Users Manual.

- All wire ropes and fittings should be visually inspected during use and thoroughly inspected at least once a week for abrasion, broken wires, wear, reduction in rope diameter, reduction in wire diameter, fatigue, corrosion, damage from heat, improper revving, jamming, crushing, bird caging, kinking, care protrusion, and damage to lifting hardware. Wire ropes should be replaced when inspection indicates excessive damage according to the Wire Rope Users Manual. All wire ropes that have not been used for a period of a month or more should be thoroughly inspected before being returned to service.
- End fittings and connections consist of spliced eyes and various manufactured devices. All manufactured end fittings and connections should be installed according to the manufacturer's instructions and loaded according to the manufacturer's specifications.
- If a ball-bearing type hoisting swivel is used to hoist drill rods, swivel bearings should be inspected and lubricated daily to ensure that the swivel freely rotates under load.
- If a rod-slipping device is used to hoist drill or probe rods, do not drill through or rotate drill rods through the slipping device; do not hoist more than 1 foot (.3 m) of the rod column above the top of the mast (derrick); and do not hoist a rod column with loose tool joints while the rod column is being supported by a rod slipping device. If rods should slip back into the hole, do not attempt to break the fall of the rods with your hands or by applying tension to the slipping device.
- Most sheaves on exploration drill rigs are stationary with a single part line. The number of parts of line should never be increased without first consulting with the manufacturer of the drill rig.
- Wire ropes shall be properly matched with each sheave. If the rope is too large, the sheave will pinch the wire rope; if the rope is too small, it will groove the sheave. Once the sheave is grooved, it will severely pinch and damage larger-sized wire ropes and therefore shall be replaced.

4.15.2 The following procedures and precautions shall be understood and implemented for safe use of wire ropes and rigging hardware.

- Use tool-handling hoists only for vertical lifting of tools (except when angle hole drilling). Do not use tool-handling hoists to pull on objects always from the rig; however, drills may be moved using the main hoist if the wire rope is spooled through proper sheaves according to the manufacturer's recommendations.
- When struck tools or similar loads cannot be raised with a hoist, disconnect the hoist line and connect the stuck tools directly to the feed mechanism of the drill. Do not use hydraulic leveling jacks for added pull to the hoist line or the feed mechanism of the drill.
- When attempting to pull out a mired down vehicle or drill rig carrier, only use a winch on the front or rear of the vehicle and stay as far as possible away from the wire rope. Do not attempt to use tool hoists to pull out a mired down vehicle or drill rig carrier.
- Minimize shock loading of a wire rope. Apply loads smoothly and steadily. Avoid sudden loading in cold weather.
- Never use frozen ropes.
- Protect wire rope from sharp corners or edges.
- Replace faulty guides and rollers.
- Replace damaged safety latches on safety hooks before using.
- Know the safe working load of the equipment and tackle being used. Never exceed this limit.
- Clutches and brakes of hoists should be periodically inspected and tested.
- Know and do not exceed the rated capacity of hooks, rings, links, swivels, shackles, and other lifting aids.
- Always wear gloves when handling wire ropes.
- Do not guide wire rope on hoist drums with your hands.
- Following the installation of a new wire rope, first lift a light load to allow the wire rope to adjust.
- Never carry out any hoisting operations when the weather conditions are such that hazards to personnel, the public, or property are created.
- Never leave a load suspended in the air when the hoist is unattended.

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- Keep your hands away from hoists, wire rope, hoisting hooks, sheaves, and pinch points while slack is being taken up and when the load is being hoisted.
- Never hoist the load over the head, body, or feet of any personnel. Never use a hoist line to "ride" up the mast (derrick) of a drill rig.
- Replacement wire ropes should conform to the drill rig manufacturer's specifications.

4.16 Use of Cathead and Rope Hoists

4.16.1 The following safety procedures should be employed when using a cathead hoist:

- Keep the cathead clean and free of rust and oil and/or grease. The cathead should be cleaned with a wire brush if it becomes rusty.
- Check the cathead periodically, when the engine is not running, for rope wear grooves. If a rope groove forms to a depth greater than 1/8 inches (3 mm), the cathead should be replaced.
- Always use a clean, dry, sound rope. A wet or oily rope may “grab” the cathead and cause drill tools or other items to be rapidly hoisted to the top of the mast.
- Should the rope “grab” the cathead or otherwise become tangled in the drum, release the rope and sound an appropriate alarm for all personnel to rapidly back away and stay clear. The operator should also back away and stay clear. If the rope “grabs” the cathead, and tools are hoisted to the sheaves at the top of the mast, the rope will often break, releasing the tools. If the rope does not break, stay clear of the drill rig until the operator cautiously returns to turn off the drill rig engine and appropriate action is taken to release the tools. The operator should keep careful watch on the suspended tools and should quickly back away after turning off the engine.
- The rope should always be protected from contact with all chemicals. Chemicals can cause deterioration of the rope that may not be visibly detectable.
- Never wrap the rope from the cathead (or any other rope, wire rope or cable on the drill rig) around a hand, wrist, arm, foot, ankle, leg or any other part of your body.
- Always maintain a minimum of 18 inches of clearance between the operating hand and the cathead drum when driving samplers, casing or other tools with the cathead and rope method. Be aware that the rope advances toward the cathead with each hammer blow as the sampler or other drilling tool advances into the ground.
- Never operate a cathead (or perform any other task around a drill rig) with loose unbuttoned or otherwise unfastened clothing or when wearing gloves with large cuffs or loose straps or lacings.
- Do not use a rope that is any longer than necessary. A rope that is too long can form a ground loop or otherwise become entangled with the operator's legs.
- Do not use more rope wraps than are required to hoist a load.
- Do not leave a cathead unattended with the rope wrapped on the drum. Position all other hoist lines to prevent contact with the operating cathead rope.
- When using the cathead and rope for driving or back driving, make sure that all threaded connections are tight and stay as far away as possible from the hammer impact point.
- The cathead operator shall be able to operate the cathead standing on a level surface with good, firm footing conditions without distraction or disturbance.

4.17 Use of Augers

4.17.1 The following general procedures should be used when starting a boring with continuous flight of hollow-stem augers:

- Prepare to start an auger boring with the drill rig level, the clutch or hydraulic rotation control disengaged, the transmission in low gear, and the engine running at low RPM.
- Apply an adequate amount of down pressure prior to rotation to seat the auger head below the ground surface.
- Look at the auger head while slowly engaging the clutch or rotation control and starting rotation. Stay clear of the auger.
- Slowly rotate the auger and auger head while continuing to apply down pressure. Keep one hand on the clutch or the rotation control at all times until the auger has penetrated about one foot or more below ground surface.
- If the auger head slides out of alignment, disengage the clutch or hydraulic rotation control and repeat the hole starting process.
- An auger guide can facilitate the starting of a straight hole through hard ground or a pavement.

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- The operator and tool handler should establish a system of responsibility for the series of various activities required for auger drilling, such as connecting and disconnection auger sections, and inserting and removing the auger fork. The operator shall ensure that the tool handler is well away from the auger column and that the auger fork is removed before starting rotation.
- Only use the manufacturer's recommended method of securing the auger to the power coupling. Do not touch the coupling or the auger with your hands, a wrench, or any other tools during rotation.
- Whenever possible, use tool hoists to handle auger sections.
- Never place hands or fingers under the bottom of an auger section when hoisting the auger over the top of the auger section in the ground or other hard surfaces such as the drill rig platform.
- Never allow feet to get under the auger section that is being hoisted.
- When rotating augers, stay clear of the rotating auger and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason.
- Use a long-handled shovel to move auger cuttings away from the auger. Never use your hands or feet to move cuttings away from the auger.
- Do not attempt to remove earth from rotating augers. Augers should be cleaned only when the drill rig is in neutral and the augers are stopped from rotating.

4.18 Rotary and Core Drilling

4.18.1 Rotary drilling tools should be safety checked prior to drilling:

- Water swivels and hoisting plugs should be lubricated and checked for "frozen" bearings before use.
- Drill rod chuck jaws should be checked periodically and replaced when necessary.
- The capacities of hoists and sheaves should be checked against the anticipated weight to the drill rod string plus other expected hoisting loads.

4.18.2 Special precautions that should be taken for safe rotary or core drilling involve chucking, joint break, hoisting, and lowering of drill rods:

- Only the operator of the drill rig should brake or set a manual chuck so that rotation of the chuck will not occur prior to removing the wrench from the chuck.
- Drill rods should not be braked during lowering into the hole with drill rod chuck jaws. Drill rods should not be held or lowered into the hole with pipe wrenches.
- If a string of drill rods are accidentally or inadvertently released into the hole, do not attempt to grab the falling rods with your hands or a wrench.
- In the event of a plugged bit or other circulation blockage, the high pressure in the piping and hose between the pump and the obstruction should be relieved or bled down before breaking the first tool joint.
- When drill rods are hoisted from the hole, they should be cleaned for safe handling with a rubber or other suitable rod wiper. Do not use your hands to clean drilling fluids from drill rods.
- If work shall progress over a portable drilling fluid (mud) pit, do not attempt to stand on narrow sides or cross members. The mud pit should be equipped with rough-surfaced, fitted cover panels of adequate strength to hold drill rig personnel.
- Drill rods should not be lifted and leaned unsecured against the mast. Either provide some method of securing the upper ends of the drill rod sections for safe vertical storage or lay the rods down.

4.19 Site Movement of Equipment

4.19.1 The individual who transports a rig on and off a drilling site should:

- Be properly licensed and should only operate the vehicle according to federal, state, and local regulations.
- Know the traveling height (overhead clearance), width, length and weight of the rig with carrier and know highway and bridge load, width and overhead limits, making sure these limits are not exceeded with and adequate margin.
- Never move an l rig unless the vehicle brakes are in sound working order.
- Allow for mast overhand when cornering or approaching other vehicles or structures.

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- Be aware that the canopies of service stations and motels are often too low for a drill rig mast to clear with the mast in the travel position.
- Watch for low hanging electrical lines, particularly at the entrances to drilling sites or restaurants, motels, other commercial sites.
- Never travel on a street, road, or highway with the mast (derrick) of the rig in the raised or partially raised position.
- Remove all ignition keys if rig is left unattended.

4.19.2 Loading and Unloading

- Use ramps of adequate design that are solid and substantial enough to bear the weight of the rig with carrier, including tools.
- Load and unload on level ground.
- Use the assistance of someone on the ground as a guide.
- Check the brakes on the rig carrier before approaching loading ramps.
- Distribute the weight of the rig, carrier, and tools on the trailer so that the center of eight is approximately on the centerline of the trailer and so that some of the trailer load is transferred to the high of the pulling vehicle. Refer to the trailer manufacturer's weight distribution recommendations.
- The rig and tools should be secured to the hauling vehicle with ties, chains, and/or load binders of adequate capacity.

4.19.3 Off-Road Movement

The following safety suggestions relate to off-road movement:

- Before moving a drill rig, first walk the route of travel, inspecting for depressions, stumps, gullies, ruts, and similar obstacles.
- Always check the brakes of a drill rig carrier before traveling, particularly on rough, uneven, or hilly ground.
- Check the complete drive train of a carrier at least weekly for loose or damaged bolts, nuts, studs, shafts, and mountings.
- Discharge all passengers before moving a drill rig on rough or hilly terrain.
- Engage the front axle (for 4 x 4, 6 x 6, etc. vehicles or carriers) when traveling off highway on hilly terrain.
- Use caution when traveling side-hill. Conservatively evaluate side-hill capability of drill rigs, because the arbitrary addition of drilling tools may raise the center of mass. When possible, travel directly uphill or downhill. Increase tire pressures before traveling in hilly terrain (do not exceed rated tire pressure).
- Attempt to cross obstacles such as small logs and small erosion channels or ditches squarely, not at an angle.
- Use the assistance of someone on the ground as a guide when lateral or overhead clearance is close.
- After the drill has been moved to a new drilling site, set all brakes and/or locks. Always block/chock the wheels.

4.20 Tires, Batteries, and Fuel

4.20.1 Tires on the rig shall be checked daily for safety and during extended travel for loss of air and they shall be maintained and/or repaired in a safe manner. If tires are deflated to reduce ground pressure for movement on soft ground, the tires should be inflated to normal pressures before movement on firm or hilly ground or on streets, roads and highways. Under-inflated tires are not as stable on firm ground as properly inflated tires. Air pressures should be maintained for travel on streets, roads, and highways according to the manufacturer's recommendations. During air pressure checks, inspect for:

- Missing or loose wheel lugs.
- Objects wedged between dual or embedded in the tire casing. Damaged or poorly fitting rims or rim flanges.
- Abnormal wear, cuts, breaks, or tears in the casing.
- The repair of truck and off-highway tires should only be made with required special tools and following the recommendations of a tire manufacturer's repair manual.

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4.20.2 Batteries contain strong acid. Use extreme caution when servicing batteries.

- Batteries should only be serviced in a ventilated area while wearing safety glasses.
- When a battery is removed from a vehicle or service unit, disconnect the battery ground clamp first.
- When installing a battery, connect the battery ground clamp last.
- When charging a battery with a battery charger, turn off the power source to the battery before either connecting or disconnecting charger leads to the battery posts. Cell caps should be loosened prior to charging to permit the escape of gas.
- Spilled battery acid can burn your skin and damage your eyes. Spilled battery acid should be immediately flushed off of your skin with lots of water. Should battery acid get into someone's eyes, flush immediately with large amounts of water and see a physician at once.
- To avoid battery explosions, keep the cells filled with electrolyte; use a flashlight (not an open flame) to check electrolyte levels and avoid creating sparks around the battery by shorting across a battery terminal. Keep lighted smoking materials and flames away from batteries.

4.20.3 Special precautions shall be taken for handling fuel and refueling the rig or carrier. Only use the type and quality of fuel recommended by the engine manufacturer.

- Refuel in a well-ventilated area.
- Do not fill fuel tanks while the engine is running. Turn off all electrical switches. Do not spill fuel on hot surfaces. Clean any spillage before starting an engine. Wipe up spilled fuel with cotton rags or cloths. Do not use wool or metallic cloth.
- Keep open lights, lighted smoking materials, and flames or sparking equipment well away from the fueling area.
- Turn off heaters in carrier cabs when refueling the carrier or the drill rig.
- Do not fill portable fuel containers completely full to allow expansion of the fuel during temperature changes.
- Keep the fuel nozzle in contact with the tank being filled to prevent static sparks from igniting the fuel.
- Do not transport portable fuel containers in the vehicle or carrier cab with personnel.
- Fuel containers and hoses should remain in contact with a metal surface during travel to prevent the buildup of static charge.

4.21 First Aid (see S3NA-207-PR Medical Services and First Aid)

4.21.1 At least one member of the crew (and if only one, preferably the drilling and safety supervisor) should be trained to perform first aid. First aid is taught on a person-to-person basis, not by providing or reading a manual. Manuals should only provide continuing reminders and be used for reference. It is suggested that courses provided or sponsored by the American Red Cross or a similar organization would best satisfy the requirements of first aid training for drill crews.

4.21.2 For drilling and probing operations it is particularly important that the individual responsible for first aid should be able to recognize the symptoms and be able to provide first aid for electrical shock, heart attack, stroke, broken bones, eye injury, snake bite, and cuts or abrasions to the skin. Again, first aid for these situations is best taught to drill crewmembers by instructors qualified by an agency such as the American Red Cross.

4.21.3 A first aid kit should be available and well maintained on each drill site. The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item.

4.22 Rig Utilization

4.22.1 Do not attempt to exceed manufacturers' ratings of speed, force, torque, pressure, flow, etc.

4.22.2 Only use the drill rig and tools for the purposes that they are intended and designed.

4.23 Rig Alterations

4.23.1 Alterations to a rig or drilling or probing tools should only be made by qualified personnel and only after consultation with the manufacturer.

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5.0 Records

None.

6.0 Attachments

6.1 S3NA-405-FM1 Drill Rig Inspection

6.2 S3NA-405-FM2 Subsurface Investigation Checklist

6.3 S3NA-405-ST Drilling and Boring

6.4 S3NA-405-WI Core Drilling Machine Safety Card

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S3NA-509-PR Hazardous Waste Operations and Emergency Response Activities

1.0 Purpose and Scope

1.1 Provides requirements for AECOM operations pertaining to hazardous waste and emergency response (HAZWOPER) services.

1.2 This procedure applies to all AECOM North America-based employees and operations.

1.3 In Canada there is no direct federal or provincial counterpart to HAZWOPER; however, as due diligence and in compliance with applicable provincial duty of care/general duty clauses, staff working in Canada will comply with this procedure.

2.0 Terms and Definitions

2.1 **Emergency Response**: A response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence that results, or is likely to result, in an uncontrollable release of a hazardous substance. Responses to incidental release of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area or by maintenance personnel are not considered to be emergency responses within the scope of the HAZWOPER standard. Responses to releases of hazardous substances where there is no potential safety or health hazard are not considered to be emergency responses.

2.2 **Health and Safety Plan**: A document prepared for each project that contains site-specific information including the Emergency Response Plan for the project.

2.3 **Incident Command System (ICS)**: ICS is a standardized on-scene incident management concept designed specifically to allow responders to adopt an integrated organizational structure equal to the complexity and demands of any single incident or multiple incidents without being hindered by jurisdictional boundaries. In the ICS the first person responding to an incident becomes the Incident Commander and turns that title and duties over to more qualified responders as they arrive on scene.

2.4 **First Responder**: First responders are individuals who are likely to witness or discover a hazardous substance release, injury, fire, or other incident and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond first aid, initial control of the incident, and notifying the authorities and others of the incident.

2.5 **Hazardous Materials Specialist**: Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician; however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with federal, state, local, and other government authorities in regards to site activities.

2.6 **Hazardous Materials Technician**: Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder in that they will approach the point of release in order to plug, patch, or otherwise stop the release of a hazardous substance.

2.7 **Incident Commander**: The Incident Commander (IC) is responsible for all aspects of the response, including developing incident objectives and managing all incident operations. The title and responsibilities are typically assumed by a qualified IC from the client or public sector.

2.8 **Hazardous Waste**: Hazardous waste is waste that is dangerous or potentially harmful to our health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products, like cleaning fluids or pesticides, or the byproducts of manufacturing processes. Hazardous waste are divided into Listed wastes, Characteristic wastes, Universal wastes,

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and mixed wastes. Specific procedures determine how waste is identified, classified, listed, and delisted.

2.9 **Hazardous Materials:** A hazardous material is any item or agent (biological, chemical, physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. Additionally a hazardous material may be defined as any substance or chemical which is a "health hazard" or "physical hazard," including chemicals that are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents that act on the hematopoietic system; agents that damage the lungs, skin, eyes, or mucous membranes; chemicals that are combustible, explosive, flammable, oxidizers, pyrophorics, unstable-reactive, or water-reactive; and chemicals that in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists, or smoke that may have any of the previously mentioned characteristics. This may be caused when released by spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, disposing into the environment, by being transported or moved, and items or chemicals that are "special nuclear source" or byproduct materials or radioactive substances.

3.0 References

3.1 Federal Emergency Management Agency—**FEMA: Incident Command System**

3.2 29 CFCR 1910.120, Hazardous Waste Operations and Emergency Response

3.3 29 CFR 1910.38, Emergency Action Plans

4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Regional Operations Managers** and **District Managers** shall be responsible for the following:

- Provide support to the implementation of Health and Safety Plans and Emergency Action Plans.

4.1.2 **Project managers** shall be responsible for the following:

- Prepare or request a HASP for every AECOM project.
- Verify that all personnel working on the project are qualified.
- Request client's emergency response procedures.
- Appoint a Site Safety Officer (SSO) for each project.
- Communicate the site-specific emergency response details to all employees assigned to a field project.
- Confirm that the necessary communications equipment for the project is available.
- Confirm that an accident/incident investigation is performed and a report is filed.

4.1.3 **Regional SH&E managers** shall be responsible for the following:

- Provide technical guidance for the development and implementation of Health and Safety Plans and Emergency Action Plans.
- Prepare emergency action plans as part of project HASPs and emergency reference sheets.
- Interface with the local emergency responders when necessary.
- Interface with clients regarding facility emergency response procedures.

4.1.4 **Site Safety Officer** is responsible for the following:

- Verify that a HASP is available for the project.
- Communicate the site-specific emergency response details to all employees assigned to a field project.
- Stop work and initiate emergency response procedures as required.
- Account for all AECOM and subcontractor employees after site evacuation.

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- Conduct pre-entry briefing and daily tailgate meetings and review facility and site-specific emergency procedures.
- Brief on-site and off-site responders in the event of an emergency.

4.1.5 **Employees**

- Maintain HAZWOPER training.
- Follow the HASP and emergency procedures prepared for the project.
- Initiate emergency response via verbal communications or the alarm system if first to encounter the emergency.

4.1.6 All personnel (e.g., AECOM employees, general laborers, equipment operators, chemists, supervisors, etc.) performing activities at hazardous waste sites that expose or potentially expose them to hazardous wastes and health hazards are considered HAZWOPER site workers and must meet the training and medical surveillance requirements specified in 29 CFR 1910.120(e) and (f), respectively. Additional training may be required based on site activities including related exposures and risks (e.g., confined space entry, excavations, fall protection, other materials [lead], etc.). These additional training requirements are to be outlined in the project- or site-specific health and safety plan (HASP).

4.2 Personnel Qualifications—Medical Surveillance and Training

4.2.1 HAZWOPER-qualified employees will participate in the following medical surveillance and training requirements.

4.2.2 Medical Surveillance

- Specific HAZWOPER medical examination protocols have been developed by AECOM's Corporate Medical Provider (CMP) to meet the requirements of 29 CFR 1910.120(f). To be medically qualified to perform HAZWOPER work, employees receive the following medical examinations:
  - Initial (Baseline) Examination—The initial examination is part of pre-employment requirements and must be completed (with results received) prior to the employee's start of work date.
  - Annual Examination—HAZWOPER-qualified employees will complete a medical examination once each year. Medical qualification expires on the anniversary date of the last examination completed. There will be no "grace period" exemptions beyond this date without the express approval of the Regional SH&E Manager. At the recommendation of the SH&E Department, the CMP may approve an alternate examination frequency at periods of up to two years (biennial) in cases in which the worker's exposures to environmental contaminants are infrequent and typically well below any occupational exposure limits (e.g., senior management personnel).
  - Termination Examination—When reassigned to non-HAZWOPER duties, or at the conclusion of employment at AECOM, HAZWOPER-qualified personnel will be provided with the opportunity to receive a termination medical examination.
  - Special Examinations—The SH&E Department and the CMP will jointly determine the need for special examinations because of
    - Unusual exposure conditions.
    - In response to possible overexposures.
- The CMP will determine the medical protocol elements for each of these examinations based on exposure information provided by the SH&E Department. The CMP will evaluate the results of each employee's examination and will provide a written statement of medical clearance clearly stating medical compliance with the HAZWOPER regulatory standard (29 CFR 1910.120(f)) and approval of the employee to perform unrestricted HAZWOPER activities. for initial and annual examinations, the CMP will also evaluate the employee for the use of air purifying and supplied air respiratory protection. The written evaluation from these examinations will indicate the CMP's approval/limitations on the employee's use of respiratory protection.

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4.2.3 AECOM Training

- All personnel assigned to work at a hazardous waste site must participate in training meeting the requirements of 29 CFR 1910.120(e).
- Initial 40-Hour Training—Before being assigned to a HAZWOPER site, AECOM employees must complete 40 hours of off-site training meeting the requirements of 29 CFR 1910.120(e)(3)(i). At the conclusion of training, personnel will receive a written certification of course completion, signed by the instructor, that indicates the course of instruction (40-hour HAZWOPER) and training dates. A copy of this certification must be provided to the employee's SH&E Coordinator. Employees are responsible for maintaining their own copy of this certificate and for presenting it to the site supervisor when working on any HAZWOPER site.
- In addition to the initial 40-hour training, the employee must receive three days of actual supervision by a trained experienced supervisor.
    - Available Training Sources:
        - On-site training provided by the SH&E Department.
        - Outsourced training providers approved by the SH&E Department.
- Refresher 8-Hour Training—To remain qualified to perform on-site HAZWOPER work activities, each AECOM employee will complete 8 hours of HAZWOPER refresher training meeting the requirements of 29 CFR 1910.120(e)(8) at yearly intervals following completion of Initial 40-hour training. At the conclusion of training, personnel will receive a written certification of course completion, signed by the instructor, that indicates the course of instruction (8-hour HAZWOPER Refresher) and the training date. A copy of this certification must be provided to the employee's SH&E Coordinator. Employees are responsible for maintaining their own copy of this certificate and for presenting it to the site supervisor when working on any HAZWOPER site.
    - Available Training Sources:
        - Internet-based training approved by SH&E Department
        - On-site training provided by the SH&E Department
        - Outsourced training providers approved by the SH&E Department
- Supervisor 8-Hour Training—Any AECOM employee acting in a management capacity for HAZWOPER activities (e.g., project management personnel, field managers/foremen, site safety officers, etc.) must complete an additional 8 hours of HAZWOPER Supervisor training meeting the requirements of 29 CFR 1910.120(e)(4). Although this training is required only once, supervisors must maintain their overall HAZWOPER qualification through annual completion of refresher training. At the conclusion of Supervisor 8-Hour Training personnel will receive a written certification of course completion, signed by the instructor, that indicates the course of instruction and the training date. A copy of this certification must be provided to the employee's SH&E coordinator. Employees are responsible for maintaining their own copy of this certificate and for presenting it to the senior site supervisor when working on any HAZWOPER site.
    - Available Training Sources:
        - On-site training provided by the SH&E Department
        - Outsourced training providers approved by the SH&E Department
- 24-Hour HAZWOPER Training—Site support contractors and site visitors may qualify to substitute 24-hour HAZWOPER training in place of 40-hour training, as specified in 29 CFR 1910.120(e)(3)(ii). Personnel potentially qualifying for this alternative training include:
    - Site support personnel who will not work in any Exclusion Zone areas.
- Subcontractors and site visitors whose duties will not entail significant exposure to site contaminants defined as not working in any areas where airborne contaminant concentrations exceed one-half of any applicable occupational exposure limit, and no contact or exposure to materials with site contaminant concentrations exceeding natural background levels.The Regional SH&E Manager or SH&E department designee must approve the substitution of 24-hour training for initial 40-hour training. Persons qualifying for

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24-hour training must provide written certification of course completion prior to beginning work on site. Persons completing 24-hour training must complete 8 hours of annual refresher training at the required interval to maintain eligibility for on-site work and must provide proof of this training (as necessary to demonstrate retraining) prior to beginning work on site.

4.2.4 Subcontractor Personnel

Any subcontractor organization whose employees will support AECOM operations at a HAZWOPER site will:

- Provide the AECOM Project Manager with a copy of their written HAZWOPER medical surveillance and training program requirements. The elements of the program(s) must be similar to those for AECOM's own program, as detailed above.
- Provide the Project Manager with written certification of a physician's approved medical clearance for each employee who will work on the site. Certification can be demonstrated by:
  - A copy of the physician's signed medical clearance for each employee (preferred), or
  - A letter identifying the medical status and clearance expiration date of every employee, signed by the company's safety director or an officer of the company.
  - A copy of the each employee's training certifications, which will include:
    - The initial 40-hour training certificate (24-hour training may be substituted with SH&E department approval).
    - The most current Refresher training certificate (must be current within the previous one-year period).
    - A copy of the Supervisor training certificate for each person serving in a site supervisory capacity (e.g., field managers/foremen, site safety officers, etc.).

4.3 Project SH&E Documentation—Health and Safety Plans

4.3.1 The project SH&E documentation prepared for HAZWOPER activities is referred to as a site-specific Health and Safety Plan (HASP), and must meet the requirements presented in 29 CFR 1910.120(b)(4).

4.3.2 The required plan elements include:

- A description of the work location, the site history, and a summary of any information available concerning site hazards (including both physical hazards and contamination conditions).
- A summary of the work activities to be performed under AECOM's scope of activities.
- A safety and health risk or hazard analysis for each on-site task that will be performed. Identified risks must include both chemical and physical hazards to which personnel may be exposed during the conduct of the work task.
- Protective measures for each work task to prevent or mitigate the potential hazards identified in the hazard analyses.
- Personal protective equipment (PPE) requirements for each work task.
- Frequency and types of air monitoring, personal monitoring, and environmental sampling techniques and instrumentation to be used.
- Site control measures.
- Decontamination procedures.
- An emergency response plan, *S3NA-509-FM4 Emergency Information and Hazard Assessment*, addressing actions to be taken in the event of each type of credible incident that might result during the performance of planned work activities, including minor and major injuries, and chemical release and fire. Response plans must address the means for coordinating the evacuation of all on-site personnel in the event of a catastrophic incident.

4.3.3 Responsibility for development of each AECOM HASP will be coordinated between the **Project Manager** and the **Regional SH&E Manager** or SH&E Department designee as part of project

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initiation. Regardless of where the HASP is developed, it will be reviewed and approved by the SH&E Department prior to submission to any agency outside of AECOM.

4.4 Contractors and Subcontractors

4.4.1 The health and safety of any contractor's or subcontractor's employees is solely the responsibility of that contractor or subcontractor, who shall evaluate the hazards and potential hazards to their own employees and shall adhere to their own Health and Safety Plan.

4.4.2 In addition, all AECOM subcontractors' Health and Safety Plans will, at a minimum conform to the requirements of the AECOM Health and Safety Plan. The AECOM Health and Safety Plan does not, nor is it intended to, address procedures of contractors or subcontractors during their site activities.

4.5 Field Emergency Response Plans

4.5.1 AECOM employees are not expected to take action or to participate in rescues or responses to chemical releases beyond the initial discovery of the release and immediate mitigation actions such as closing a valve, placing absorbents, and notifying the client and or public emergency response system (911.) If AECOM employees are to participate in the response to a chemical release beyond the initial reaction, there must be a contractual provision for this response and the employees must be specifically trained for this response. This document is designed to provide guidelines on how to prepare a written plan that will ensure prompt and proper response to an emergency situation that arises during field investigations and to outline the duties of AECOM employees during a field emergency and the associated training requirements.

4.5.2 Site specific health and safety plans that are prepared to comply with the HAZWOPER standard (29 CFR 1910.120) must address emergency response. This standard specifically outlines the elements that must be contained in an emergency response plan. However, the definition of emergency response, as written in 29 CFR 1910.120, focuses on emergencies involving the uncontrolled release of hazardous substances. Under 29 CFR 1910.120, an employer can opt to evacuate employees from the danger area when such an emergency occurs. AECOM does not expect its employees to actively assist in the handling of uncontrollable chemical releases that may occur during the implementation of field programs. As such, and as provided by the HAZWOPER standard, AECOM is exempt from the emergency response plan requirements of the standard as long as it provides an emergency action plan within the HASP that complies with 29 CFR 1910.38 (a). Therefore, all emergency response plans required under 29 CFR 1910.120 will be written to comply with 29 CFR 1910.38 (a).

4.5.3 The HAZWOPER standard does not prohibit AECOM employees from performing limited response activities. AECOM employees can provide response assistance by placing absorbent pillows or vermiculite around a small, contained spill that occurs during sampling efforts. AECOM's SH&E SOP 203—*Spill Containment Program*, describes the specific procedures that AECOM will follow when responding to an incidental chemical spill.

4.5.4 Field Project Preparation

- Every HASP that is prepared by AECOM will contain an emergency response section in which the required elements of an emergency action plan will be contained. For all projects that do not require a HASP, an emergency reference sheet will be prepared; minimally, the sheet will list the telephone numbers of the local emergency responders and the local hospital and provides directions to the local hospital. When AECOM is working at an operating facility, the emergency response procedures of the facility will be appended to the HASP or the emergency reference sheet.
- There are two types of emergency situations that AECOM personnel must be prepared for and that must be addressed in the emergency action plan. These include:
  - Emergencies related to the operations of our clients at the facility where AECOM is working.
  - Emergencies related to our own on-site activities/investigations.
- AECOM employees are typically not expected to take action or participate in responses to chemical releases beyond the initial discovery of the release and immediate mitigation actions such as closing a valve, placing absorbents, and notifying the client and or public emergency response system (911.)
- AECOM employees are not to accept the role of Incident Commander without specific authority from the Regional SH&E Manager and the General Operations Manager

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responsible for the project. Assuming the role of the Incident Commander requires training beyond the scope of this Procedure.

4.5.5 Client Facility Emergency Response Procedures

- AECOM implements field programs on active properties, including manufacturing facilities. These facilities have typically developed an emergency response plan that is specific to facility-related emergencies. If AECOM is working at an operating facility, emergency procedures established by the facility must be followed in the event of a facility catastrophe. AECOM personnel must be aware of and familiar with the alarm signals used at the facility to alert personnel to an emergency. AECOM personnel must also know where to assemble in the event of a facility evacuation as the facility must be able to account for all personnel, including subcontractors such as AECOM in the event of an evacuation.
- The first priority in AECOM's preparation of a project emergency action plan is to ensure that the responsibilities under the client's emergency response plan are fully understood. Because of the nature of their business, many of our clients have in-house fire brigades, medical staff, and hazardous materials teams that can assist AECOM in the event of an emergency related to our field activities. In many instances, our clients prefer or require that subcontractors seek emergency assistance through their facility first before calling outside responders to the site.
- A copy of the facility's procedures must be made available to AECOM so that the information can be incorporated into the HASP or attached to the emergency reference sheet. If this information is not available to AECOM prior to arriving on site, the SSO must meet with client representatives upon arrival to the facility to review procedures in the event of an emergency related to plant operations.

4.5.6 Emergency Action Plan

- As a minimum, each emergency action plan must contain the following topics as required by 29 CFR 1910.38 (a):
  - Procedures and contact information for reporting emergencies to public service responders and on-site (client or host employer) emergency control centers.
  - Emergency escape procedures and emergency escape route assignments.
  - Procedures to be followed by employees who remain to operate critical site operations before they evacuate.
  - Procedures to account for all employees after emergency evacuation is complete.
  - Rescue and medical duties for those employees who are to perform them.
  - Preferred means of reporting fires and other emergencies.
  - PPE to protect employees from expected exposures and potential exposures during an emergency.
  - Names of persons or departments who can be contacted for further information (i.e. emergency reference sheet).
  - Availability of medical surveillance for workers who might have been exposed to chemicals, bloodborne pathogens, or other biological agents as a result of project work or emergency response.
- In addition, each plan must establish the specific alarm system that will be used on site to warn employees of an AECOM emergency. The chosen alarm signals should not conflict with alarm signals already in place at the facility.

4.5.7 Escape Routes and Procedures

- Prior to the commencement of on-site activities, the SSO must determine how AECOM employees will evacuate each AECOM work area of the site. Two or more routes that are separate or remote from each other for each work area must be identified. Multiple routes are necessary in case one is blocked by fire or chemical spill. These routes must not overlap because, if a common point were obstructed, all intersecting routes would be blocked.
- Prominent wind direction should also be considered when designating escape routes and assembly areas. Escape routes and assembly areas should be upwind of the site whenever possible.

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- Upon arrival to the site, the SSO must verify that the selected routes are appropriate for evacuation. During an emergency, the quickest and most direct route should be selected. However, when working at an operating facility, the established escape routes of the facility should be used whenever possible. In the event of a facility-related emergency, all AECOM employees must meet at the facility's assembly area so that the client can verify that AECOM has evacuated the property.

4.5.8 Accounting Method for All Employees after Evacuation

- The SSO is responsible for determining that all AECOM employees have been successfully evacuated from the work area(s). It is the responsibility of each AECOM subcontractor to verify that all of its employees evacuated the site and to report this information to the AECOM SSO. All employees must meet at the designated assembly area. A headcount is an acceptable way to determine complete evacuation when the field team is of a small size. The site log-in book should be referenced when attempting to account for more than 10 people. In the event of a facility-related emergency, the SSO must notify facility representatives that all AECOM employees and AECOM subcontract employees have successfully evacuated the work area(s). The SSO must notify emergency responders if any employee is unaccounted for and where on the site they were last seen.
- In the event of a project-related emergency, the SSO will provide off-site emergency responders or on-site HAZMAT teams or fire brigades (Incident Commander) with all available knowledge about the emergency situation upon their arrival to the scene.

4.5.9 Employees Who Remain to Operate Critical Site Operations Before They Evacuate

- All equipment and operations are required to cease in accordance with the established alarm signal procedures. The only exception will be related to health and safety. The SSO must determine at the time of the emergency if health and safety will be jeopardized by immediate stoppage of any particular piece of equipment. If such a determination is made, personnel involved in critical operations must be minimized. Once it is determined that the operation is no longer needed or the threat to the operators is imminent, operations will cease and the operators will immediately evacuate.

4.5.10 Rescue and Medical Duties

- Only currently trained individuals will administer first aid or CPR. If the injury is life threatening, the Emergency Medical System (EMS) should be called (911). Depending on the procedures established for the project, the SSO would contact an emergency responder directly or notify the facility representatives for medical assistance. If the employee needs medical attention that can not be provided on-site, the SSO shall escort the individual to the local hospital identified on the emergency reference sheet and shall remain with the person until release or admittance is determined. The escort will relay all appropriate medical information to the Project Manager and Regional SH&E Manager.

4.5.11 Preferred Means of Reporting

- Unless facility representatives specifically indicate that they prefer AECOM personnel to notify them first of an emergency, the SSO will directly contact the appropriate emergency responders listed on the emergency reference sheet.

4.5.12 Alarm Signals

- An emergency communication system must be in effect at all sites. The most simple and effective emergency communication system in many situations will be direct verbal communications. However, verbal communications must be supplemented any time voices cannot be clearly perceived above ambient noise levels and any time a clear line of sight can not be easily maintained among all AECOM personnel because of distance, terrain, or other obstructions.
- Portable two-way radio communications may be used when employees must work out of the line of sight of other workers.
- When verbal communications must be supplemented, the following emergency signals shall be implemented using handheld portable air horns, whistles, or similar devices. Signals must be capable of being perceived above ambient noise by all employees in the affected portions of the workplace.

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- One Blast: General Warning—A relatively minor and localized, yet important, on-site event. An example of this type of an event would be a minor chemical spill where there is no immediate danger to life or health yet personnel working on the site should be aware of the situation so that unnecessary problems can be avoided. If one horn blast is sounded, personnel must stop all activity and equipment on-site and await further instructions from the SSO.
- Three Blasts: Medical Emergency—A medical emergency for which immediate first aid or emergency medical care is required. If three horn blasts are sounded, all first aid and/or CPR trained personnel should respond as appropriate. All other activity and equipment should stop and personnel should await further instructions from the SSO.
- Three Blasts Followed by One Continuous Blast: Immediate Threat to Life and Health—A situation that could present an immediate danger to life and health of personnel onsite. Examples include fires, explosions, large hazardous chemical release, severe weather-related emergencies, or security threats. If three horn blasts followed by a continuous blast are sounded, all activity and equipment must stop. All personnel must evacuate the site and meet in the designated assembly area where the SSO will account for all employees. The SSO will arrange for other emergency response actions if necessary. Information concerning the need to follow decontamination procedures during an emergency evacuation will be addressed in the emergency action plan.
- The SSO or his designate will acknowledge the distress signal with two short blasts on the air-horn or whistle.
- One Continuous Blast Following Any of the Above: All Clear/Return to Work—Personnel who sound the initial alarm are required to send an all clear signal when the emergency is over.

4.5.13 Emergency Reference Sheet

- An emergency reference sheet (see *S3NA-509-FM4 Emergency Information and Hazard Assessment*) must be prepared for projects not requiring a HASP. Each emergency reference sheet must list the following:
  - Emergency phone numbers for local police, fire, and ambulance service.
  - In-house facility extensions for reporting an emergency (applies to operating facilities only).
  - Phone number and address of closest hospital with an emergency room to the site.
  - Directions to the hospital from the site.
  - Map highlighting the site-to-hospital route.
  - Phone number for the Poison Control Center.
  - Names and phone numbers of AECOM representatives and facility representatives.

4.5.14 On-site and Off-site Communications

- Regardless of the size or location of AECOM's field projects, it is extremely important that both on-site and off-site communications be maintained so that in the event of an emergency employees can contact each other or place a phone call immediately with the appropriate responder(s).
- Walkie-talkies are required when members of the field team are working in separate areas of the site and verbal communications are no longer effective because of distance. A walkie-talkie must be available for each team that is working in a separate area of the site.
- When AECOM is working at an occupied facility, access to a telephone may not be a problem. When AECOM is working on abandoned properties or when there is no access to a phone, a cellular telephone must be brought to the work location.

4.5.15 Evacuation

- Although emergency evacuation procedures are included in AECOM's initial 40-hour HAZWOPER training, emergency procedures at each site will be different. Therefore, employees must be instructed about the specifics of the emergency procedures developed for the site during the site-specific pre-entry briefing that must be held daily prior to the

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commencement of field activities. Update training is required anytime escape routes or procedures change. An evacuation drill will be conducted for projects that are scheduled for one month or longer. Visitors and untrained employees shall not be allowed into the project area until they receive a safety briefing including evacuation alarms and procedures.

4.5.16 First Responder

First responders shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

- An understanding of what hazardous substances are, and the risks associated with them in an incident.
- An understanding of the potential outcomes associated with an emergency.
- The ability to recognize the presence of hazardous substances and physical hazards in an emergency.
- An understanding of the role of the first responder.
- The ability to realize the need for additional resources and to make appropriate notifications to the communication center.

4.5.17 First Responder HAZWOPER Operations Level

First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:

- Knowledge of the basic hazard and risk assessment techniques.
- Know how to select and use proper personal protective equipment provided to the first responder operational level.
- An understanding of basic hazardous materials terms.
- Know how to perform basic control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.
- Know how to implement basic decontamination procedures.
- An understanding of the relevant standard operating procedures and termination procedures.

4.5.18 Hazardous Materials Technician

Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

- Know how to implement the employer's emergency response plan.
- Know the classification, identification, and verification of known and unknown materials by using field survey instruments and equipment.
- Be able to function within an assigned role in the Incident Command System.
- Know how to select and use proper specialized chemical PPE provided to the hazardous materials technician.
- Understand hazard and risk assessment techniques.
- Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.
- Understand and implement decontamination procedures.
- Understand termination procedures.
- Understand basic chemical and toxicological terminology and behavior.

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4.5.19 Hazardous Materials Specialist

Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the employer shall so certify:

- Know how to implement the local emergency response plan.
- Understand classification, identification, and verification of known and unknown materials by using advanced survey instruments and equipment.
- Know the state emergency response plan.
- Be able to select and use proper specialized chemical PPE provided to the hazardous materials specialist.
- Understand in-depth hazard and risk techniques.
- Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.
- Be able to determine and implement decontamination procedures.
- Have the ability to develop a site safety and control plan.
- Understand chemical, radiological, and toxicological terminology and behavior.

4.6 Personal Protective Equipment (PPE) Ensembles

4.6.1 Defined HAZWOPER PPE ensembles are specified for general use on all AECOM HAZWOPER operations. The project HASP may specify modifications to these requirements to meet site-specific conditions.

4.6.2 Level D Ensemble

- The Level D ensemble provides a minimal level of skin protection (primarily against physical rather than chemical hazards) and no respiratory protection. Level D PPE is the minimum work uniform which will be used on HAZWOPER sites. Its use is appropriate when there is no significant potential for encountering hazardous substances or health hazards while working in controlled work areas.
- Level D Equipment List
  - Hard hat
  - Eye protection
  - Safety-toe work boots
  - Shirts with sleeves and long pants (shorts are unacceptable for use)
  - Hearing protection (as required)

4.6.3 Modified Level D Ensemble

- The Modified Level D ensemble provides moderate skin protection against contact with hazardous substances, but no respiratory protection. Its use is appropriate where there is a moderate-to-low potential for skin contact with known hazardous substances and health hazards, but no significant inhalation hazard is anticipated. The Modified Level D ensemble will consist of the Level D ensemble, supplemented by the addition of one or more of the following items:
- Modified Level D Equipment List
  - Chemical-resistant disposable outer coveralls
  - Chemical-resistant outer gloves taped to outer coveralls[1]
  - Chemical-resistant inner gloves1
  - Chemical-resistant safety-toe boots (taped to outer coveralls)

4.6.4 Level C Ensemble

1 Selection of specific glove types/materials will be provided in the project HASP based on consideration of the contaminants and the physical conditions of the work.

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- The Level C ensemble provides moderate skin protection against contact with hazardous substances and moderate respiratory protection. Its use is appropriate where there is the potential for skin contact with known hazardous substances and health hazards, together with a limited and well-defined potential for exposure via inhalation.
- Level C Equipment List
  - Full-face air-purifying respirator (APR) equipped with cartridge types as designated in the project HASP[2]
  - Chemical-resistant disposable outer coveralls
  - Chemical-resistant outer gloves taped to outer coveralls[3]
  - Chemical-resistant inner gloves[3]
  - Hard hat
  - Safety-toe boots taped to coveralls; the use of boot covers (e.g., booties) or chemical-resistant boots may be specified
  - Hearing protection (as required)

4.6.5 Level B Ensemble

- The Level B ensemble provides both the highest level of inhalation exposure protection and considerable skin contact protection. Its use is appropriate where there are significant known or suspected hazardous substances and health hazards, involving both skin and inhalation exposure (up to and including Immediately Dangerous to Life or Health [IDLH] conditions) or where adverse atmospheric conditions cannot be mitigated by use of air purifying respirators (e.g., oxygen deficient atmospheres or chemicals with poor warning properties). The use of Level B PPE requires prior approval by the Regional SH&E Manager.
- Level B Equipment List
  - Supplied air respirator (SCBA or air line system with Grade D or better breathing air)
  - Chemical-resistant disposable outer coveralls
  - Chemical-resistant outer glove taped to outer coveralls[3]
  - Chemical-resistant inner gloves[3]
  - Hard hat
  - Chemical resistant safety-toe boots taped to coveralls
  - Hearing protection (as required)

4.6.6 Level A Ensemble

- The Level A ensemble provides the highest level of both respiratory and skin protection, up to and including protection against skin contact with vapor-phase contaminants. The use of Level A PPE requires prior approval by the Corporate SH&E Director.
- Specific Level A ensemble components will be determined on a case-by-case basis by the SH&E Department.

4.7 Employee Exposure Monitoring

4.7.1 Exposure monitoring at HAZWOPER sites will be conducted to determine explosive and oxygen levels, monitor and control employee exposures to airborne contaminants, and to determine and regulate controlled work area boundaries (e.g., support zone, contamination reduction zone, and exclusion zone) for the protection of non-HAZWOPER workers and the general public.

4.7.2 Direct Reading Exposure Monitoring Requirements

- Explosive levels, oxygen levels, and airborne contaminants present potential hazards to HAZWOPER personnel working within controlled work areas and to non-HAZWOPER workers and the general public present outside the controlled work areas. On-site exposure

2 Selection of specific cartridges will be made by the SH&E Department (or Competent Person – Respiratory Protection as designated by the DSM) based on contaminants present. A cartridge change-out frequency will also be specified in the HASP based on the manufacturer's cartridge performance data.

3 Selection of specific glove types/materials will be provided in the project HASP based on consideration of the contaminants and the physical conditions of the work.

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monitoring will be utilized to assess the magnitude of these hazards and to provide indications of any necessary control procedures to mitigate unacceptable hazards. *S3NA-509-FM1 Direct Reading Instrument Monitoring Log* will be used to record all monitoring efforts using direct reading instruments and will remain part of the project file.

- Specific exposure monitoring requirements will be established in individual HASPs and will be implemented by the project team(s) subject to the following requirements:
  - Direct reading instrumentation will be used in accordance with the following table:

Direct Reading Instrument	Example Trade Names	Use
Flame Ionization Detector (FID)	OVA	Detection of select organic vapors
Photo ionization detector (PID)	miniRAE, Micro-TIP	Detection of select organic vapors
Portable gas chromatograph	OVA	Detection of select organic vapors
Explosive meter	MSA ALTAIR, QRAE II, BW GasAlert	Determine explosiveness (as a percent of the Lower Explosive Limit [LEL])
Oxygen monitor	MSA ALTAIR, QRAE II, BW GasAlert	Determine oxygen concentration (in percent)
Single gas meters (mono-tox) • Hydrogen sulfide • Carbon monoxide • Oxides of nitrogen • Cyanide		Determine airborne concentrations of selected contaminants (in parts per million)
Colorimetric Detector Tubes	Drager	Determine airborne concentrations of selected contaminants (in parts per million)
Aerosol monitor	Mini-RAM	Determine airborne particulate concentration (in milligrams per cubic meter)

- Selected instruments will be capable of discriminating contaminant concentrations to concentrations of at least one-half of the HASP-specified exposure limit. All direct-reading instrumentation will be calibrated daily as directed by the manufacturer. *S3NA-509-FM2 Instrument Calibration Log* will be used to record instrument calibrations.

4.7.3 Work Area Exposure Monitoring

- Work area exposure monitoring will include breathing zone readings for the maximum exposed worker(s).
- Results will be used to determine adequacy of PPE (especially respiratory protection). Specific criteria for upgrade/downgrade will be established in the HASP.

4.7.4 Perimeter Exposure Monitoring

- Perimeter air samples will be collected when the potential exists for airborne contaminants to migrate off-site.
- Perimeter exposure monitoring will be conducted at locations downwind from the project activities at a minimum (also upwind if the potential exists for offsite contamination to migrate onto the site).
- Sample results will be recorded in a log book or on the sample log form provided in *S3NA-509-FM3 Personal Sampling Data Sheet*.

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- Records will indicate individual name, SSN (last 4 digits is acceptable), and job/operation at the time of sample collection.
- Samples sent out for independent laboratory analysis will follow chain of custody requirements.
- Exposure results will be posted on site and explained in a safety briefing.
- Employees will receive a written statement of results within 15 days of receipt from the laboratory.
- Results of all personal exposure monitoring will be provided to the SH&E department for inclusion in the employee medical records.

5.0 Records

5.1 All forms and documents generated during a HAZWOPER project will be maintained in the project file.

6.0 Attachments

6.1 S3NA-509-FM1 Direct Reading Instrument Monitoring Log

6.2 S3NA-509-FM2 Instrument Calibration Log

6.3 S3NA-509-FM3 Personal Sampling Data Sheet

6.4 S3NA-509-FM4 Emergency Information and Hazard Assessment

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Attachment E - Material Safety Data Sheets

1,1,1-Trichloroethane (CH_3CCl_3)
CAS 71-55-6; UN 2831

Synonyms include α-T, α-trichloroethane, chloroethene, methylchloroform, methyltrichloromethane, TCEA, and trichloromethylmethane.

Persons exposed only to 1,1,1-trichloroethane vapor pose no risk of secondary contamination. Persons whose skin or clothing is contaminated with liquid 1,1,1-trichloroethane can contaminate response personnel by direct contact or through off-gassing of vapor.

1,1,1-Trichloroethane is a colorless, volatile, nonflammable liquid with a sweet, chloroform-like odor. The vapor is heavier than air and can collect to toxic levels in poorly ventilated spaces. Odor generally provides adequate warning of hazardous concentrations.

1,1,1-Trichloroethane is rapidly absorbed if inhaled or ingested. Dermal absorption is slow and does not contribute significantly to systemic toxicity.
1,1,1-Trichloroethane crosses the placenta and is excreted in breast milk.

Description

1,1,1-Trichloroethane is a colorless, nonflammable liquid. It evaporates quickly and has a sweet, chloroform-like odor. It has only negligible solubility in water, but it is miscible in most organic solvents. It can explode if concentrations of 7.5% to 15.5% in air are ignited by a spark or flame. At temperatures higher than 500 °F (>260 °C), 1,1,1-trichloroethane decomposes to form hydrogen chloride and trace amounts of phosgene, which are severe pulmonary irritants. 1,1,1-Trichloroethane should be stored at ambient temperature in a well-ventilated area away from metals, open flames, and moisture.

Routes of Exposure

Inhalation

Inhalation is the most important route of exposure, and 1,1,1-trichloroethane is readily absorbed from the lungs. The odor threshold for 1,1,1-trichloroethane is 44 ppm, which is about one-eighth of the OSHA PEL. Odor is an adequate warning of hazardous concentrations. The vapor is heavier than air and can collect to toxic levels in poorly ventilated or low-lying spaces. A one hour exposure to 1,000 ppm can cause dizziness and loss of coordination. Central nervous system (CNS) depression generally begins at 5,000 ppm. Levels of 10,000 ppm or higher can cause sedation, hypotension, cardiac dysrhythmia, coma, and death.

Children exposed to the same levels of 1,1,1-trichloroethane vapor as adults may receive a larger dose because they have greater lung surface area:body weight ratios and increased minute volumes:weight ratios. In addition, they may be exposed to higher levels than adults in the same location because of their short stature and the higher levels of 1,1,1-trichloroethane vapor found nearer to the ground.

Skin/Eye Contact

Transient chemical conjunctivitis can result from exposure to high levels of vapor or direct contact with liquid 1,1,1-trichloroethane. The liquid is mildly irritating to the skin. Because absorption across intact skin is slow, systemic toxicity is unlikely unless liquid on the skin is prevented from evaporating by heavy clothing or other impermeable covering.

Children are more vulnerable to toxicants affecting the skin because of their relatively larger surface area:body weight ratio.

Ingestion

Gastrointestinal absorption is rapid and can cause systemic effects similar to those seen with inhalation exposure.

Sources/Uses

1,1,1-Trichloroethane is a synthetic chemical that was first developed as a safer substitute for other chlorinated and flammable solvents. The most common method for industrial production of 1,1,1-trichloroethane is the reaction of hydrochloric acid with vinyl chloride to obtain 1,1-dichloroethane, followed by either thermal or photochemical chlorination. In industry, it has been widely used as a solvent and as a cold cleaning and vapor degreasing agent. It was used in many household products, including aerosol sprays, spot cleaners, glues, and lubricants. While it is no longer used for such products, it is likely that some of these may still be found in homes, garages, workshops, and hazardous waste sites. It has been intentionally abused for its CNS-intoxicating effects. At one time, it was used as an anesthetic agent. Because 1,1,1-trichloroethane damages the ozone layer, production in the United States was phased out in 1996, but supplies as a raw material will be available until the year 2002.

Standards and Guidelines

OSHA PEL (permissible exposure limit) = 350 ppm (averaged over an 8-hour workshift)

NIOSH IDLH (immediately dangerous to life or health) = 700 ppm

AIHA ERPG-2 (emergency response planning guideline) (maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without

experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action) = 700 ppm.

Physical Properties

Description: colorless, nonflammable liquid with a sweet, chloroform-like odor

Warning properties: odor detectable at 44 ppm; generally adequate warning to avoid acute, high-level exposure.

Molecular weight: 133.40 daltons

Boiling point (760 mm Hg): 165.38 °F (74.1 °C)

Freezing point: -23 °F (-30.56 °C)

Specific gravity: 1.34 at 68 °F (20 °C) (water = 1)

Vapor pressure: 100 mm Hg at 68 °F (20 °C)

Gas density: 4.63 (air = 1)

Water solubility: Negligible, 0.4% at 68 °F (20 °C)

Flammability: considered nonflammable and usually requires preheating before it will burn. Under extraordinary circumstances of high-energy ignition (e.g., blasting cap) or a high-oxygen atmosphere, the vapors can be ignited and will burn or explode.

Flammable range: 7.5% to 15.5% (concentration in air).

Incompatibilities

1,1,1-Trichloroethane can decompose to form hydrogen chloride gas when it comes in contact with strong caustics, strong oxidizers, or chemically active metals like zinc, sodium or potassium, or aluminum and magnesium powders. 1,1,1-Trichloroethane reacts slowly with water to form hydrochloric acid and forms trace amounts of phosgene when ignited or burned above 260 °C.

Health Effects

1,1,1-Trichloroethane is irritating to the skin and eyes. Inhalation or ingestion of 1,1,1-trichloroethane can produce headache, dizziness, and lack or coordination (at moderate exposure levels, >1,000 ppm) and stupor or coma (at high exposure levels, >10,000 ppm).

CNS and respiratory depression or cardiac dysrhythmia (from high-level exposures) can result in death. Other effects include hypotension, nausea, vomiting, and diarrhea.

1,1,1-Trichloroethane sensitizes the heart to epinephrine, making it more susceptible to epinephrine-induced arrhythmias.

The effects of 1,1,1-trichloroethane on the CNS are thought to be due to direct interaction of 1,1,1-trichloroethane with proteinaceous components of membranes. 1,1,1-Trichloroethane crosses the placenta and is excreted in breast milk.

Acute Exposure

1,1,1-Trichloroethane is thought to depress the CNS via a solvent effect on lipids and protein components of neural membranes. It sensitizes the heart to epinephrine, making it more susceptible to epinephrine-induced arrhythmias. Direct exposure to liquid 1,1,1-trichloroethane degreases the skin, causing redness, blistering, and scaling.

Children do not always respond to chemicals in the same way that adults do. Different protocols for managing their care may be needed.

CNS

1,1,1-Trichloroethane causes concentration-related CNS depression. Symptoms can include euphoria, headache, dizziness, malaise, hallucinations or distorted perceptions, behavioral changes, ataxia, seizures, sedation, coma, cerebral edema, and death. CNS effects resolve quickly when the victim is removed from further exposure.

Cardiovascular

Inhalation of high concentrations can cause hypotension and dysrhythmia. 1,1,1-Trichloroethane sensitizes the heart to epinephrine. Physical exertion, stress, or other stimuli resulting in epinephrine release can trigger dysrhythmia and result in sudden death.

Gastrointestinal

Nausea, vomiting, and diarrhea can occur following ingestion or inhalation of a high dose (3,000–10,000 ppm) of

1,1,1-trichloroethane. Ingestion can produce a burning sensation in the mouth, throat, and esophagus.

Respiratory

Inhalation of 1,1,1-trichloroethane can lead to respiratory arrest due to CNS depression and may also cause pulmonary edema.

Children may be more vulnerable because of relatively increased minute ventilation per kg and failure to evacuate an area promptly when exposed.

Hydrocarbon pneumonitis may be a problem in children.

Hepatic

Although there are no reports of toxicity at low concentrations, hepatic lipidosis, macronodular cirrhosis, and transient hepatitis have been reported following high-level inhalation exposures.

Dermal

Direct skin exposure to liquid 1,1,1-trichloroethane can cause a burning sensation, erythema, and blistering.

Because of their relatively larger surface area:body weight ratio, children are more vulnerable to toxicants affecting the skin.

Ocular

Exposure to 1,1,1-trichloroethane vapor (>500 ppm for 1 hour) and direct contact with the liquid can cause irritation or transient conjunctivitis.

Potential Sequelae

Some survivors of severe, acute exposures (e.g., involving coma or respiratory arrest) suffer brain or cardiac damage due to hypoxia.

Chronic Exposure

Chronic exposure can cause lethargy, impaired memory, and impaired balance. Chronic skin exposure can cause irritant contact dermatitis.

Chronic exposure may be more serious for children because of their potential longer latency period.

Carcinogenicity

1,1,1-Trichloroethane has been assessed for carcinogenic effects; the International Agency for Research on Cancer (IARC) has assigned 1,1,1-trichloroethane to Group 3 (not classifiable as to carcinogenicity in humans) and the Environmental Protection Agency (EPA) has assigned it to Group D (not classifiable as to carcinogenicity in humans) based on inadequate evidence of cancer for humans and experimental animals.

Reproductive and Developmental Effects

1,1,1-Trichloroethane is not included in *Reproductive and Developmental Toxicants,* a 1991 report published by the U.S. General Accounting Office (GAO) that lists 30 chemicals of concern because of widely acknowledged reproductive and developmental consequences. Adverse reproductive or developmental effects in humans have not been reported and animal studies do not suggest that 1,1,1-trichloroethane is a reproductive or developmental toxicant although it crosses the placenta and is excreted in breast milk.

Prehospital Management

Victims exposed only to 1,1,1-trichloroethane vapor pose no risk of secondary contamination to rescuers. Victims whose skin or clothing is contaminated with liquid 1,1,1-trichloroethane can contaminate rescuers by direct contact or through off-gassing of vapor. Vomitus from patients who have ingested 1,1,1-trichloroethane can also off-gas the vapor.

1,1,1-Trichloroethane is irritating to the skin and eyes. Inhalation or ingestion of 1,1,1-trichloroethane can lead to headache, dizziness, lack of coordination, stupor, coma, CNS and respiratory depression, and cardiac dysrhythmia. Other effects include hypotension, nausea, vomiting, and diarrhea.

There is no antidote for 1,1,1-trichloroethane. Treatment consists of support of respiratory and cardiovascular functions.

Hot Zone

Rescuers should be trained and appropriately attired before entering the Hot Zone. If the proper equipment is not available, or if the rescuers have not been trained in its use, call for assistance from a local or regional HAZMAT team or other properly equipped response organization.

Rescuer Protection

1,1,1-Trichloroethane vapor is readily absorbed by inhalation and is a respiratory tract irritant. The liquid is a mild skin irritant with minimal absorption through the skin.

Respiratory protection: Positive-pressure, self-contained breathing apparatus (SCBA) is recommended in response situations that involve exposure to potentially unsafe levels of 1,1,1-trichloroethane vapor.

Skin protection: Chemical-protective clothing is not generally required when only vapor exposure is expected: 1,1,1-Trichloroethane vapor is only mildly irritating and is not absorbed well through the skin. Chemical-protective clothing is recommended when extensive skin contact with the liquid might occur.

ABC Reminders

Quickly access for a patent airway, ensure adequate respiration and pulse. Provide supplemental oxygen if cardiopulmonary compromise is suspected. If trauma is suspected, maintain cervical immobilization manually and apply a cervical collar and a backboard when feasible.

Victim Removal

If victims can walk, lead them out of the Hot Zone to the Decontamination Zone. Victims who are unable to walk should be removed on backboards or gurneys. If these are not available, carefully carry or drag victims to safety.

Consider appropriate management of chemically contaminated children, such as measures to reduce separation anxiety if a child is separated from a parent or other adult.

Care should be taken that victims (particularly children) do not have problems due to 1,1,1-trichloroethane being heavier than air and settling in pockets close to the ground.

Decontamination Zone

Patients exposed only to 1,1,1-trichloroethane vapor who have no skin or eye irritation may be transferred immediately to the Support Zone. Other patients will require decontamination as described below.

Rescuer Protection

If exposure levels are determined to be safe, decontamination may be conducted by personnel wearing a lower level of protection than that worn in the Hot Zone (described above).

ABC Reminders

Quickly access for a patent airway, ensure adequate respiration and pulse. Stabilize the cervical spine with a collar and a backboard if trauma is suspected. Administer supplemental oxygen as required. Assist ventilation with a bag-valve-mask device if necessary.

Basic Decontamination

Victims who are able may assist with their own decontamination. Quickly remove and double-bag contaminated clothing and personal belongings.

Flush exposed skin and hair with water for 3 to 5 minutes. Wash with mild soap and water (preferably under a shower). Rinse thoroughly with water. Use caution to avoid hypothermia when decontaminating children or the elderly. Use blankets or warmers when appropriate.

Flush exposed eyes with plain water or saline for at least 15 minutes. Remove contact lenses if easily removable without additional trauma to the eye. If a corrosive material is suspected or if pain or injury is evident, continue irrigation while transferring the victim to the Support Zone.

In cases of ingestion, **do not induce emesis.** If the victim is alert, asymptomatic, and has a gag reflex, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g).

A soda can and straw may be of assistance when offering charcoal to a child.

Consider appropriate management of chemically contaminated children at the exposure site. Provide reassurance to the child during decontamination, especially if separation from a parent occurs.

Transfer to Support Zone

As soon as basic decontamination is complete, move the victim to the Support Zone.

Support Zone

Be certain that victims have been decontaminated properly (see *Decontamination Zone* above). Victims who have undergone decontamination or have been exposed only to vapor generally pose no serious risks of secondary contamination. In such cases, Support Zone personnel require no specialized protective gear.

ABC Reminders

Quickly access for a patent airway. If trauma is suspected, maintain cervical immobilization manually and apply a cervical collar and a backboard when feasible. Ensure adequate respiration and pulse. Administer supplemental oxygen as required and establish intravenous access if necessary. Place on a cardiac monitor.

Additional Decontamination

Continue irrigating exposed skin and eyes, as appropriate.

In cases of ingestion, **do not induce emesis.** If activated charcoal has not been given previously and the victim is alert, asymptomatic, and has a gag reflex, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g). A soda can and straw may be of assistance when offering charcoal to a child.

Advanced Treatment

In cases of respiratory compromise secure airway and respiration via endotracheal intubation. If not possible, perform cricothyroidotomy if equipped and trained to do so.

Treat patients who have bronchospasm with aerosolized bronchodilators. The use of bronchial sensitizing agents in situations of multiple chemical exposures may pose additional risks. Consider the health of the myocardium before choosing which type of bronchodilator should be administered. However, the use of sympathomimetic agents such as epinephrine and isoproterenol could precipitate fatal dysrhythmias and should be avoided. Selective beta-2 agonists would be preferred, but clinical reports of their use are lacking. Theophylline derivatives have not been studied. Use all catecholamines with caution because of the enhanced risk of cardiac arrhythmias.

Patients who are comatose, hypotensive, or are having seizures or cardiac arrhythmias should be treated according to advanced life support (ALS) protocols.

Transport to Medical Facility

Only decontaminated patients or patients not requiring decontamination should be transported to a medical facility. "Body bags" are not recommended.

Report to the base station and the receiving medical facility the condition of the patient, treatment given, and estimated time of arrival at the medical facility.

If 1,1,1-trichloroethane has been ingested, prepare the ambulance in case the patient vomits toxic material. Have ready several towels and open plastic bags to quickly clean up and isolate vomitus.

Multi-Casualty Triage

Consult with the base physician or the regional poison control center for advice regarding triage of multiple victims

Patients with evidence of significant inhalation exposure such as CNS disruption, breathing difficulties, or cardiac dysrhythmia and patients who ingested 1,1,1-trichloroethane should be transported to a medical facility for evaluation. Others may be discharged from the scene after their names, addresses, and telephone numbers are recorded. Those discharged should be advised to seek medical care promptly if symptoms develop (see *Patient Information Sheet* below).

Emergency Department Management

Patients exposed only to 1,1,1-trichloroethane vapor pose no risk of secondary contamination to rescuers. Patients whose skin or clothing is contaminated with liquid 1,1,1-trichloroethane can contaminate rescuers by direct contact or through off-gassing of vapor. Vomitus from patients who have ingested 1,1,1-trichloroethane can also off-gas the vapor.

1,1,1-Trichloroethane is irritating to the skin and eyes. Inhalation or ingestion of 1,1,1-trichloroethane can lead to headache, dizziness, lack of coordination, stupor, coma, CNS and respiratory depression, and cardiac dysrhythmia. Other effects include hypotension, nausea, vomiting, and diarrhea.

There is no antidote for 1,1,1-trichloroethane. Treatment consists of support of respiratory and cardiovascular functions.

Decontamination Area

Unless previously decontaminated, all patients suspected of contact with liquid 1,1,1-trichloroethane and all victims with skin or eye irritation require decontamination as described below. All other patients may be transferred to the Critical Care area.

Be aware that use of protective equipment by the provider may cause fear in children, resulting in decreased compliance with further management efforts.

Because of their relatively larger surface area:body weight ratio, children are more vulnerable to toxicants affecting the skin. Also, emergency room personnel should examine children's mouths because of the frequency of hand-to-mouth activity among children.

ABC Reminders

Evaluate and support airway, breathing, and circulation. In cases of respiratory compromise secure airway and respiration via endotracheal intubation. If not possible, surgically create an airway. Provide supplemental oxygen if cardiopulmonary compromise is suspected.

Treat patients who have bronchospasm with aerosolized bronchodilators. The use of bronchial sensitizing agents in situations of multiple chemical exposures may pose additional risks. Consider the health of the myocardium before choosing which type of bronchodilator should be administered. However, the use of sympathomimetic agents such as epinephrine and isoproterenol could precipitate fatal dysrhythmias and should be avoided. Selective beta-2 agonists would be preferred, but clinical reports of

their use are lacking. Theophylline derivatives have not been studied. Use all catecholamines with caution because of the enhanced risk of cardiac arrhythmias.

Patients who are comatose, hypotensive, or have seizures or ventricular arrhythmias should be treated in the conventional manner. Avoid sympathomimetics or catecholamines or use them with caution. Beta-blockers may be more effective than lidocaine in cases of prolonged or resistant arrhythmias.

Basic Decontamination

Patients who are able may assist with their own decontamination. Remove and double-bag contaminated clothing and personal belongings.

Flush exposed skin and hair with water for 3 to 5 minutes. Wash with mild soap and water (preferably under a shower). Rinse thoroughly with water. Use caution to avoid hypothermia when decontaminating children or the elderly. Use blankets or warmers when appropriate.

Flush exposed eyes with plain water or saline for at least 15 minutes. Remove contact lenses if easily removable without additional trauma to the eye. If a corrosive material is suspected or if pain or injury is evident, continue irrigation while transferring the victim to the Critical Care Area.

In cases of ingestion, **do not induce emesis.** If activated charcoal has not been given previously and the victim is alert, asymptomatic, and has a gag reflex, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g). A soda can and straw may be of assistance when offering charcoal to a child.

Critical Care Area

Be certain that appropriate decontamination has been carried out (see *Decontamination Area* above).

ABC Reminders

Evaluate and support airway, breathing, and circulation as in *ABC Reminders* above. Establish intravenous access in seriously ill patients if this has not been done previously. Continuously monitor cardiac rhythm.

Patients who are comatose, hypotensive, or have seizures or ventricular arrhythmias should be treated in the conventional manner. Avoid sympathomimetics or catecholamines or use them with caution. Beta-blockers may be more effective than lidocaine in cases of prolonged or resistant dysrhythmias.

Inhalation Exposure

Administer supplemental oxygen by mask to patients who have respiratory complaints. Treat patients who have bronchospasm with aerosolized bronchodilators. The use of bronchial sensitizing agents in situations of multiple chemical exposures may pose additional risks. Consider the health of the myocardium before choosing which type of bronchodilator should be administered. However, the use of sympathomimetic agents such as epinephrine and isoproterenol could precipitate fatal dysrhythmias and should be avoided. Selective beta-2 agonists would be preferred, but clinical reports of their use are lacking. Theophylline derivatives have not been studied. Use all catecholamines with caution because of the enhanced risk of cardiac arrhythmias.

Skin Exposure

If the skin was in prolonged contact with liquified 1,1,1-trichloroethane, chemical burns might be present; treat these as thermal burns.

Because of their relatively larger surface area:body weight ratio, children are more vulnerable to toxicants absorbed through the skin.

Eye Exposure

Ensure that adequate eye irrigation has been completed. Examine the eyes for corneal damage and treat appropriately. Immediately consult an ophthalmologist for patients who have corneal injuries.

Ingestion Exposure

Do not induce emesis.

If the patient is alert, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g), if not done previously. A soda can and straw may be of assistance when offering charcoal to a child.

Consider endoscopy to evaluate the extent of gastrointestinal tract injury. Extreme throat swelling may require endotracheal intubation or cricothyroidotomy. Gastric lavage is useful in certain circumstances to remove toxic material and prepare for endoscopic examination. Consider gastric lavage with a small nasogastric tube if: (1) a large dose has been ingested; (2) the patient's condition is evaluated within 30 minutes; (3) the patient has oral lesions or persistent esophageal discomfort; and (4) the lavage can be administered within 1 hour of ingestion. Care must be taken when placing the gastric tube because blind gastric-tube placement may further injure the chemically damaged esophagus or stomach.

Because children do not ingest large amounts of toxic materials, and because of the risk of perforation from nasogastric intubation, lavage is discouraged in children unless performed under endoscopic guidance.

Toxic vomitus or gastric washings should be isolated, e.g., by attaching the lavage tube to isolated wall suction or another closed container.

Antidotes and Other Treatments

There is no antidote for 1,1,1-trichloroethane. Treatment is supportive of respiratory and cardiovascular functions.

Laboratory Tests

The diagnosis of acute 1,1,1-trichloroethane toxicity is primarily clinical, based on symptoms of CNS disruption or respiratory distress. However, laboratory testing is useful for monitoring the patient and evaluating complications. Routine laboratory studies for seriously exposed patients include CBC, glucose, electrolytes, and liver enzyme tests. Patients who have respiratory complaints should be evaluated with pulse oximetry or ABG measurements and chest radiography.

1,1,1-Trichloroethane levels in blood or expired air are not clinically useful but can be used to document an exposure. Exposure to 1,1,1-trichloroethane is also suggested by detection of trichloroethanol or trichloroacetic acid in blood or urine; these tests are not specific for 1,1,1-trichloroethane, however.

Disposition and Follow-up

Consider hospitalizing patients who have had significant inhalation exposure (e.g., with loss of consciousness) and patients who have ingested significant amounts of 1,1,1-trichloroethane.

Patient Release

Patients who have not experienced alterations in mental status or had initially mild symptoms and are asymptomatic 6 to 8 hours later may be discharged. Discharged patients should be instructed to seek medical care promptly if symptoms develop (see the *1,1,1-Trichloroethane—Patient Information Sheet* below).

Follow-up

Obtain the name of the patient's primary care physician so that the hospital can send a copy of the ED visit to the patient's doctor.

Follow-up laboratory evaluation of hepatic function should be arranged for severely exposed patients. Neurologic examination for post-hypoxic injury is recommended in cases of severe exposure. Patients who have skin burns or corneal damage should be re-examined within 24 hours.

Reporting

If a work-related incident has occurred, you might be legally required to file a report; contact your state or local health department.

Other persons might still be at risk at the place where this incident occurred. If the incident occurred in the workplace, discussing it with company personnel might prevent future incidents. If a public health risk exists, notify your state or local health department or other responsible public agency. When appropriate, inform patients that they may request an evaluation of their workplace from the Occupational Safety and health Administration (OSHA) or the National Institute for Occupational Safety and Health (NIOSH).

1,1,1-Trichloroethane (CH_3CCl_3)
Patient Information Sheet

This handout provides information and follow-up instructions for persons who have been exposed to 1,1,1-trichloroethane.

What is 1,1,1-trichloroethane?
1,1,1-Trichloroethane is a colorless, volatile, nonflammable liquid with a sweet, chloroform-like odor. It is used to make other chemicals. It has been used to clean grease from metal parts. It used to be found in many household products, such as spot cleaners and glues. You may still have some of these products in your home, garage or workshop, although use of 1,1,1-trichloroethane has been phased out by the EPA because it damages the ozone layer. Sometimes people intentionally inhale it to get high.

What immediate health effects can be caused by exposure to 1,1,1-trichloroethane?
Breathing or swallowing 1,1,1-trichloroethane can cause lightheadedness, dizziness, blurred vision, a feeling of excitement, nausea, and vomiting. Breathing or swallowing large amounts can cause irregular heart beat, fainting, coma, and even death. If the skin has been in contact with high levels of 1,1,1-trichloroethane for a long time, a skin rash or burns might develop. Generally, the more serious the exposure, the more severe the symptoms.

Can 1,1,1-trichloroethane poisoning be treated?
There is no antidote for 1,1,1-trichloroethane, but its effects can be treated and most exposed persons recover completely. Persons who have swallowed or inhaled large amounts of 1,1,1-trichloroethane might need to be hospitalized.

Are any future health effects likely to occur?
Delayed or long-term effects generally do not occur from single exposures to 1,1,1-trichloroethane. A high-dose exposure, or an exposure over many years, can affect the brain, skin, liver, and heart.

What tests can be done if a person has been exposed to 1,1,1-trichloroethane?
Specific tests for the presence of 1,1,1-trichloroethane breakdown products in blood and urine are available, but they are not generally useful to your doctor. If a severe exposure has occurred, blood and other tests might show whether the heart or liver has been damaged. Testing is not needed in every case.

Where can more information about 1,1,1-trichloroethane be found?
More information about 1,1,1-trichloroethane can be obtained from your regional poison control center; the state, county, or local health department; the Agency for Toxic Substances and Disease Registry (ATSDR); your doctor; or a clinic in your area that specializes in occupational and environmental health. If the exposure happened at work, you may wish to discuss it with your employer, the Occupational Safety and Health Administration (OSHA), or the National Institute for Occupational Safety and Health (NIOSH). Ask the person who gave you this form for help in locating these telephone numbers.

Follow-up Instructions

Keep this page and take it with you to your next appointment. Follow *only* the instructions checked below.

[ ] Call your doctor or the Emergency Department if you develop any unusual signs or symptoms within the next 24 hours, especially:

- Sudden severe weakness, fainting, or dizziness
- irregular heartbeat
- shortness of breath, coughing, or wheezing
- increased pain or discharge from injured eyes

[ ] No follow-up appointment is necessary unless you develop any of the symptoms listed above.
[ ] Call for an appointment with Dr. _____ in the practice of _____. When you call for your appointment, please say that you were treated in the Emergency Department at _____ Hospital by _____ and were advised to be seen again in _____ days.
[ ] Return to the Emergency Department/ _____ Clinic on (date) _____at __ _____ AM/PM for a follow-up examination.
[ ] Do not perform vigorous physical activities for 1 to 2 days.
[ ] You may resume everyday activities including driving and operating machinery.
[ ] Do not return to work for _____ days.
[ ] You may return to work on a limited basis. See instructions below.
[ ] Avoid exposure to cigarette smoke for 72 hours; smoke may worsen the condition of your lungs.
[ ] Avoid drinking alcoholic beverages for at least 24 hours; alcohol may worsen injury to your stomach or have other effects.
[ ] Avoid taking the following medications: _____
[ ] You may continue taking the following medication(s) that your doctor(s) prescribed for you: __ _____
_____
[ ] Other instructions: _____
_____
_____

- Provide the Emergency Department with the name and the number of your primary care physician so that the ED can send him or her a record of your emergency department visit.

- You or your physician can get more information on the chemical by contacting: _____ _____ or _____, or by checking out the following Internet Web sites: _____; _____.

Signature of patient _____ Date _____

Signature of physician _____ Date _____

.....Alconox

SPI Supplies Division
Structure Probe, Inc.
P.O. Box 656 West Chester, PA 19381-0656 USA
Phone: *1-(610)-436-5400* ***Fax:*** *1-(610)-436-5755*
E-mail: *spi3spi@2spi.com*
WWW: http://www.2spi.com
Manufacturer's CAGE: 1P573

Material Safety Data Sheet

SPI #01200-AB and #01200A-AB Alconox® Powdered Detergent

Section 1: Identification

```
Date Effective...........  November 14, 2005
                           (most recent revision)

Chemical Name/Synonyms...  On Label:  Alconox®

Chemical Family..........  Anionic powdered detergent

Emergencies
Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...
Worldwide phone: 1-(703)-527-3887
Worldwide FAX:   1-(703)-741-6090
Toll-free phone: 1-(800)-424-9300 USA only

Product or Trade Name....  SPI #01200-AB and #01200A-AB
                           Alconox® Powdered Detergent

CAS #....................  Not applicable

Chemical Formula.........  Not applicable
```

Section 2 Composition

Component Name	CAS #	OSHA	OSHA	ACGIH	ACGIH

No hazardous ingredients in Alconox Powdered Detergent as defined by the OSHA Standard and Hazardous Substance List 29 CFR 1910 Subpart Z.

Hazardous Material Information System USA	**Health**	**0**	**National Fire Protection Association USA**	
	Fire Hazard	**0**		
	Reactivity	**0**		
	Personal Protection			

NFPA (National Fire Protection Association) Rating (Scale 0-4):
HEALTH=0 FLAMMABILITY=0 REACTIVITY=0 OTHER=0 Not known

Section 3: Hazard Identification

Routes of entry
- Inhalation? Yes
- Skin? No
- Ingestion? Yes

Health Hazards (Acute and chronic):
Inhalation of powder may prove locally irritating to mucous membranes. Ingestion may cause discomfort and/or diarrhea. Eye contact may prove irritating.

Carcinogenicity:
- NTP? No
- IARC Monographs? No
- OSHA Regulated? No

Section 4: First Aid Measures

Signs and Symptoms of Exposure:
Exposure may irritate mucous membranes. May cause sneezing.

Medical conditions generally aggravated by exposure:
Not established. Unnecessary exposure to this product or any industrial chemical should be avoided. Respiratory conditions may be aggravated by powder if air borne.

Emergency and First Aid Procedures:

Eyes: Immediately flush eyes with copious amounts of water for minimum 15 minutes. Call physician.

Skin: Flush with plenty of water.

Ingestion: Drink large quantities of water or milk. Do not induce vomiting. If vomiting occurs re-administer fluids. See a physician for discomfort.

Section 5: Fire Fighting Measures

NFPA Rating: Not known

Extinguishing Media

Suitable/Not suitable:

SMALL FIRE: Use DRY chemical powder, water, foam, carbon dioxide

LARGE FIRE: Use extinguishing media suitable for the surrounding materials.

Special firefighting procedures:
Self-contained positive pressure breathing apparatus and protective clothing should be worn when fighting fires involving chemicals.

Unusual Fire/Explosion Hazards: None

Hazardous thermal decomposition products: None known.

Protection of fire fighters: No special measures are required.

Flammable Limits:
LEL: No data
UEL: No data

Section 6: Accidental Release Measures

Personal precautions: No special precautions

Environmental Precautions and Clean Up Methods:
Material foams profusely. Recover as much as possible and flush remainder to sewer. Material is biodegradable.

Section 7: Handling and Storage

Material should be stored in a dry area to prevent caking.

Section 8: Exposure Controls and Personal Protection

Engineering controls: Normal ventilation is normally required when handling or using this product. Avoid conditions that could produce dusting.

Personal Protective Equipment

Respiratory system: Dust mask recommended but not required.

Skin and body: Laboratory coat recommended but not required.

Hands: Impervious gloves recommended

Eyes: Goggles are recommended, especially when handling solutions irrespective of what they might be.

Other: Wash hands before eating, drinking, or smoking.

Section 9: Physical and Chemical Properties

Physical State and Appearance: White powder interspersed with cream colored flakes.

Odor: None

Boiling Point: Not applicable

Melting Point: Not applicable

Density (water = 1): Not applicable

Solubility: Appreciable, to 10% at ambient conditions.

Octanol/water partition coefficient: Not available

pH: Not known

Flash Point: None

Flammability: Non-flammable

Autoignition temperature: Not applicable

Section 10: Stability and Reactivity

Chemical Stability: The product is stable

Hazardous polymerization: Will not occur

Conditions to Avoid: None

Hazardous Products of Deposition: May release CO_2 on burning.

Reactions with Air and Water:
Does not react with air, water or other common materials.

Section 11: Toxicological Information

Summary: Not considered to be toxic to humans or animals.

Skin Effects: Can be locally irritating

Eye Irritation: Can be irritating to the eyes

Inhalation: Dust can be irritating to mucous membranes

Sensitization: Not known

Chronic toxicity: There is no known effect from the chronic exposure to this product.

Section 12: Ecological Information

Exotoxicity: Not know but it is expected to be low because the material is biodegradable.

Environmental Fate: It is biodegradable.

Bioaccumulation: Not expected to occur (because the material is biodegradable).

Section 13: Disposal Considerations

This material is NOT classified as a hazardous material by RCRA. Use only licensed transporters and permitted disposal facilities and conform to all laws.

Recycle to process, if possible.

Germany water class: VCI WGK: No products were found.

Methods of disposal; waste of residues; contaminated packaging:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

Proper Shipping Name: Non-Regulated, No dangerous cargo

DOT Hazard Class: Non-Regulated, No dangerous cargo

UN/NA ID: Non-Regulated, No dangerous cargo

Packing Group: Not Applicable

Labels: Not Regulated

Marine Pollutant: No

NAER Guidebook: Not Regulated

DOT Status: Not Regulated

Land-Road/Railway:
ADR/RID Class: No dangerous cargo

Sea:
IMDG Class: No dangerous cargo

Air:
IATA-DGR Class: No dangerous cargo

Section 15: Regulatory Information

TSCA: All components of this product are listed on the TSCA 8(b) inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification Rule, they will be listed below.

TSCA 12(b) Component Listed under TSCA Section

SARA Title 3: Section 313 Information/Emissions Reporting (**40 CFR 372**):

Component Reporting Threshold

SARA-Section 311/312:

No components present in this product are subject to the reporting requirements of this statute.

CERCLA Hazardous Substances and their Reportable Quantities:

Component	Reportable Quantity

EU Regulations: Risk Phrases: This product is not classified according to the EU regulations.

Safety Phrases: Not applicable

Contains: Not applicable

California Prop. 65:
Proposition 65 requires manufacturers or distributors of consumer products into the State of California to provide a warning statement if the product contains ingredients for which the State has found to cause cancer, birth defects or other reproductive harm. If this product contains an ingredient listed by the State of California to cause cancer or reproductive toxicity, it will be listed below:

None found

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

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Thursday February 22, 2007

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Worldwide Distributors, Representatives, and Agents

…..Isobutylene Calibration Gas

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS:	**NON-FLAMMABLE GAS MIXTURE**
•	Document Number: 002103
PRODUCT USE:	For general analytical/synthetic chemical uses.
SUPPLIER/MANUFACTURER'S NAME:	AIRGAS INC.
ADDRESS:	259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283
BUSINESS PHONE:	1-610-687-5253
EMERGENCY PHONE:	1-800-949-7937
International:	1-423-479-0293
DATE OF PREPARATION:	April 22, 2001

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA		NIOSH	OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	ppm
Isobutylene	115-11-7	1 ppm - 1.7%	There are no specific exposure limits for Isobutylene. Isobutylene is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Air	25635-88-5	Balance	There are no specific exposure limits applicable to Air.					
Air is a mixture of gases. The primary components of air, and the approximate concentration of each component, are listed below								
Nitrogen	7727-37-9	79%	There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Oxygen	7782-44-7	21%	There are no specific exposure limits for Oxygen					

NE = Not Established. See Section 16 for Definitions of Terms Used.

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This product is a colorless, odorless, non-flammable gas. The main health hazards associated with releases of this gas are related to the high pressure within the cylinder. Air, the main component of this product, is generally considered non-flammable, however, Air will support combustion. The flammable component of this gas mixture is below the LEL. A cylinder rupture hazard exists when this product, which is under pressure, is subjected to heat or flames. Emergency responders must wear personal protective equipment appropriate for the situation to which they are responding.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant route of over-exposure for air is by inhalation at elevated or reduced pressure.

INHALATION: This product is non-toxic. Air, the main component of this product, is necessary for life.

OTHER POTENTIAL HEALTH EFFECTS: Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in **Lay Terms**. Over-exposure to this product may cause the following health effects:

ACUTE: The most significant hazards associated with compressed air is the pressure hazard. Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.

CHRONIC: There are currently no known adverse health effects associated with chronic exposure to this gas.

TARGET ORGANS: ACUTE: Respiratory system under ambient low pressure conditions. Central nervous system under ambient high pressure conditions. CHRONIC: None expected.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus equipment should be worn.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s). Remove victim(s) to fresh air, as quickly as possible. In case of eye contact which leads to irritation, immediately flush eyes with copious amounts of water for at least 15 minutes. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Only trained personnel should administer supplemental oxygen.
In case of frostbite, place the frostbitten part in warm water. DO NOT USE HOT WATER. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions, as well as disorders involving the "Target Organs", as listed in Section 3 (Hazard Information), may be aggravated by overexposure to the components of this product.
RECOMMENDATIONS TO PHYSICIANS: Administer oxygen as soon as possible, following exposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.
AUTOIGNITION TEMPERATURE: Not applicable.
FLAMMABLE LIMITS (in air by volume, %):
Lower (LEL): Not applicable.
Upper (UEL): Not applicable.

5. FIRE-FIGHTING MEASURES (Continued)

FIRE EXTINGUISHING MATERIALS: Non-flammable gas. Use extinguishing media appropriate for surrounding fire.
UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide. Additionally, when involved in fire, the cylinders may rupture.
Explosion Sensitivity to Mechanical Impact: Not Sensitive.
Explosion Sensitivity to Static Discharge: Not Sensitive.
SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move fire-exposed cylinders from area, if it can be done without risk to fire-fighters. Withdraw immediately in case of rising sounds from venting pressure relief devices or any discoloration of tanks or cylinders due to a fire.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area, protect people, and respond with trained personnel. Minimum Personal Protective Equipment should be **Level D: safety glasses, and mechanically-resistant gloves. Level B, which includes the use of Self- Contained Breathing Apparatus, should be worn when oxygen levels are below 19.5% or are unknown.** Locate and seal the source of the leaking gas. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in place or remove it to a safe area and allow the gas to be released there.

PART III *How can I prevent hazardous situations from occurring?*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: Do not eat or drink while handling chemicals.
STORAGE AND HANDLING PRACTICES: Cylinders should be stored in dry, well-ventilated areas away from sources of heat. Compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits.
SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: Protect cylinders against physical damage. Store in cool, dry, well-ventilated, fireproof area, away from flammable or combustible materials and corrosive atmospheres. Store away from heat and ignition sources and out of direct sunlight. Do not store near elevators, corridors or loading docks. Do not allow area where cylinders are stored to exceed

52°C (125°F). Isolate from incompatible materials including flammable materials (see Section 10, Stability and Reactivity), which can burn violently. Use only storage containers and equipment (pipes, valves, fittings to relieve pressure, etc.) designed for the storage of Air. Do not store containers where they can come into contact with moisture. Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Never tamper with pressure relief devices in valves and cylinders. The following rules are applicable to situations in which cylinders are being used:

Before Use: Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap in-place until cylinder is ready for use.

During Use: Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.

After Use: Close main cylinder valve. Replace valve protection cap. Mark empty cylinders "EMPTY".

NOTE: Use only DOT or ASME code containers. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information refer to the Compressed Gas Association Pamphlet P-1, *Safe Handling of Compressed Gases in Containers*. Additionally, refer to CGA Bulletin SB-2 "*Oxygen Deficient Atmospheres*".

7. HANDLING and STORAGE (Continued)

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation.

RESPIRATORY PROTECTION: Maintain Oxygen levels above 19.5% in the workplace. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION: Splash goggles, face-shields or safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133, or Canadian Standards.

HAND PROTECTION: Wear mechanically-resistant gloves when handling cylinders of this product. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate for task. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for **Air**, the main component of this product , unless otherwise stated:

RELATIVE VAPOR DENSITY: 1 EVAPORATION RATE (nBuAc = 1): Not applicable.
SPECIFIC GRAVITY: Not applicable. FREEZING POINT: -216.2°C (-357.2°F)
SOLUBILITY IN WATER: 1.49% (v/v) BOILING POINT @ 1 atmos: -194.3°C(-317.8°F)
VAPOR PRESSURE, mmHg @ 20°C:. pH: Not applicable.
EXPANSION RATIO: Not applicable. VAPOR PRESSURE: Not applicable.
SPECIFIC VOLUME: 13.3 ft^3/lb; (0.833 m^3/kg) ODOR THRESHOLD: Not applicable.
COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

The following information is pertinent to this gas mixture:
APPEARANCE, ODOR AND COLOR: This product is a colorless, odorless gas.
HOW TO DETECT THIS SUBSTANCE (warning properties): There are no distinctive properties to this product. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

10. STABILITY and REACTIVITY

STABILITY: Normally stable.
DECOMPOSITION PRODUCTS: None known.
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE. Air (the main component of this product) is not compatible with fuels, in that air will support combustion. The Isobutylene component of this mixture is incompatible with Strong oxidizers (e.g., chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

PART III *How can I prevent hazardous situations from occurring?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology data are for the components of this gas mixture present at a level greater than 1 mole %:

ISOBUTYLENE:

LC50 (Inhalation-Rat) 620 gm/m3/4 hours LC50 (Inhalation-Mouse) 415 gm/m3/2 hours

SUSPECTED CANCER AGENT: No component of this gas mixture is found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC, and therefore is not considered to be, nor suspected to be, cancer causing agents by these agencies.
IRRITANCY OF PRODUCT: Contact with rapidly expanding gases can cause frostbite and damage to exposed skin and eyes.
SENSITIZATION OF PRODUCT: No component of this product is a skin or respiratory sensitizer.
REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to cause mutagenic effects in humans.
Embryotoxicity: This product is not reported to cause embryotoxic effects in humans.
Teratogenicity: This product is not reported to cause teratogenic effects in humans.

Reproductive Toxicity: This product is not reported to cause adverse reproductive effects in humans.
A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with
the reproductive process.
BIOLOGICAL EXPOSURE INDICES: Biological Exposure Indices (BEIs) have been determined for the components of this product are as follows:

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: This gas will be dissipated rapidly in well-ventilated areas.
EFFECT OF MATERIAL ON PLANTS or ANIMALS: No adverse effect is anticipated to occur to plant-life, except for frost produced in the presence of rapidly expanding gases.
EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence of an adverse effect of this product on aquatic life is currently available.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Product removed from cylinder must be disposed of in accordance with appropriate U.S. Federal, State and local regulations or with regulations of Canada and its Provinces. Return cylinders with residual product to Airgas, Inc. Do not dispose of locally.

14. TRANSPORTATION INFORMATION

THIS GAS MIXTURE IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (Air, Isobutylene)
HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Compressed Gas)
UN IDENTIFICATION NUMBER: UN 1956
PACKING GROUP: Not Applicable
DOT LABEL(S) REQUIRED: Compressed Gas
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This gas mixture is considered as dangerous goods, per regulations of Transport Canada. Use the above information for the preparation of Canadian Shipments.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:
U.S. SARA REPORTING REQUIREMENTS: The components of this gas mixture are not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this material. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.
U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.
U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.
OTHER U.S. FEDERAL REGULATIONS: Not applicable.
U.S. STATE REGULATORY INFORMATION: The components of this gas mixture are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None.
California - Permissible Exposure Limits for Chemical Contaminants: None.
Florida - Substance List: Isobutylene. **Illinois - Toxic Substance List:** None.
Kansas - Section 302/313 List: None.
Minnesota - List of Hazardous Substances: Isobutylene.
Massachusetts - Substance List: None.
Missouri - Employer Information/Toxic Substance List: None.
New Jersey - Right to Know Hazardous Substance List: Isobutylene.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: None.
Pennsylvania - Hazardous Substance List: Isobutylene.
Rhode Island - Hazardous Substance List: None.
Texas - Hazardous Substance List: None.
West Virginia - Hazardous Substance List: None.
Wisconsin - Toxic and Hazardous Substances: None.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is on the California Proposition 65 Lists.

LABELING: **CAUTION:** HIGH PRESSURE GAS.
MAY ACCELERATE COMBUSTION.
Keep oil and grease away.
Use equipment rated for cylinder pressure.
Close valve after each use and when empty.
Use in accordance with the Material Safety Data Sheet.

FIRST-AID: **IF INHALED**, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
IN CASE OF FROSTBITE, obtain immediate medial attention.
DO NOT REMOVE THIS PRODUCT LABEL.

ADDITIONAL CANADIAN REGULATIONS:
CANADIAN DSL INVENTORY: The components of this product are listed on the DSL Inventory.
OTHER CANADIAN REGULATIONS: Not applicable.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this product are not on the CEPA Priorities Substances Lists.
CANADIAN WHMIS SYMBOLS: **Class A:** Compressed Gases

16. OTHER INFORMATION

PREPARED BY: CHEMICAL SAFETY ASSOCIATES, Inc.
9163 Chesapeake Drive, San Diego, CA 92123-1002

858/565-0302

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. AirGas, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, AirGas, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV -** Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average **(TWA)**, the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level **(C)**. Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration. **PEL -** Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, “Vacated 1989 PEL,” is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health **-** This level represents a concentration from which one can escape within 30- minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany’s Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. **O**ccupational **S**afety and **H**ealth **A**dministration (**OSHA**). NIOSH issues exposure guidelines called **R**ecommended **E**xposure **L**evels (**REL**s). When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93□C [100-200□F]); **3** (Class IB and IC flammable liquids with flash points below 38□C [100□F]); **4** (Class IA flammable liquids with flash points below 23□C [73□F] and boiling points below 38□C [100□F]. Reactivity Hazard: **0** (normally stable); 1

(material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures). **PERSONAL PROTECTIVE EQUIPMENT CODES: B:** Gloves and goggles; **C:** Gloves, goggles, rubber apron (appropriate body protection); **D:** Gloves, goggles, faceshield; rubber apron (appropriate body protection);. **X:** Special attention should be given to PPE Selection.

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:
Much of the information related to fire and explosion is derived from the National Fire Protection Association (**NFPA**). Flash Point – Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL – the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:
Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD50** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC50** – Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m3** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. Ecological Information: EC is the effect concentration in water.

REGULATORY INFORMATION:
This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act **(SARA)**; the Canadian Domestic/Non-Domestic Substances List **(DSL/NDSL)**; the U.S. Toxic Substance Control Act **(TSCA)**; Marine Pollutant status

according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act **(CERCLA or Superfund)**; and various state regulations.

AMERADA HESS CORPORATION

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW
DANGER!
EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-04)

Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732)750-6000
MSDS Internet Website www.hess.com/about/environ.html

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS * (rev. Jan-04)

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION (rev. Dec-97)

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES (rev. Dec-97)

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES (rev. Dec-97)

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 “Low Expansion Foam - 1994 Edition.”

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Dec-97)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product

vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Dec-97)

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-04)

EXPOSURE LIMITS

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	
n-Butane (106-97-8)	ACGIH	800	--	2003 NOIC: 1000 ppm (TWA) Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--	
	ACGIH	1000	--	A4
Ethyl benzene (100-41-4)	OSHA	100	--	
	ACGIH	100	125	A3

Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Note
		Exposure Limits		
n-Hexane (110-54-3)	OSHA	500	--	
	ACGIH	50	--	skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	50	--	A4 (skin)
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	--	
Xylene, mixed isomers (1330-20-7)	OSHA	100	--	
	ACGIH	100	150	A4

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jan-04)

APPEARANCE

A translucent, straw-colored or light yellow liquid

ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 – 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %

SOLUBILITY (H_2O): Non-oxygenated gasoline - negligible (< 0.1% @ 77 ^oF). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 ^oF); ethanol is readily soluble in water

10. STABILITY and REACTIVITY (rev. Dec-94)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES (rev. Dec-97)

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION (rev. Jan-04)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS (rev. Dec-97)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Jan-04)

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION (rev. Jan-04)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Jan-04)

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
	* CHRONIC		

SUPERSEDES MSDS DATED: 12/30/97

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212)642-4900
API	American Petroleum Institute (202)682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General Info: (800)467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Workplace Hazardous Materials Information System (Canada)

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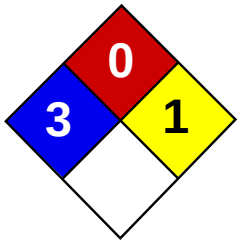

Health	3
Fire	0
Reactivity	1
Personal Protection	

Material Safety Data Sheet
Hydrochloric acid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric acid

Catalog Codes: SLH1462, SLH3154

CAS#: Mixture.

RTECS: MW4025000

TSCA: TSCA 8(b) inventory: Hydrochloric acid

CI#: Not applicable.

Synonym: Hydrochloric Acid; Muriatic Acid

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Hydrogen chloride	7647-01-0	20-38
Water	7732-18-5	62-80

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target

organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of metals

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammble gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrodgen gas.

Special Remarks on Explosion Hazards:

Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4 , Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials, metals, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m3) from NIOSH TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)] TWA: 2 STEL: 8 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Irritating (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point:
108.58 C @ 760 mm Hg (for 20.22% HCl in water) 83 C @ 760 mm Hg (for 31% HCl in water) 50.5 C (for 37% HCl in water)

Melting Point:
-62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -25.4 C (39.17% HCl in water)

Critical Temperature: Not available.

Specific Gravity:
1.1- 1.19 (Water = 1) 1.10 (20%and 22% HCl solutions) 1.12 (24% HCl solution) 1.15 (29.57% HCl solution) 1.16 (32% HCl solution) 1.19 (37% and 38%HCl solutions)

Vapor Pressure: 16 kPa (@ 20°C) average

Vapor Density: 1.267 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.25 to 10 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble in cold water, hot water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, water

Incompatibility with various substances:
Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.

Corrosivity:
Extremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Reacts with water especially when water is added to the product. Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Sodium reacts very violently with gaseous hydrogen chloride. Calcium phosphide and hydrochloric acid undergo very energetic reaction. It reacts with oxidizers releasing chlorine gas. Incompatible with, alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts with most metals to produce flammable Hydrogen gas. Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct sunlight, alkalies (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and pressure) Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid onto silicon dioxide results in exothmeric reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. Hydrogen chloride or Hydrochloric Acid in contact with the folloiwng can cause explosion or ignition on contact or

Special Remarks on Corrosivity:

Highly corrosive. Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinium, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (fetoxicity). May affect genetic material.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjuntivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and larryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well has headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomitting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophogeal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Hydrochloric acid, solution UNNA: 1789 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid California Director's List of Hazardous Substances: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R34- Causes burns. R37- Irritating to respiratory system. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 1

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References:

-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

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Agency for Toxic Substances and Disease Registry
Case Studies in Environmental Medicine (CSEM)
Trichloroethylene Toxicity

Course: **WB1112**
Original Date: **November 8, 2007**
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Key Concepts	• Trichloroethylene (TCE) is a common industrial solvent and contaminant of hazardous waste sites, groundwater, and drinking water. • TCE is a CNS depressant and a suspected hepatotoxin in humans. • TCE is reasonably anticipated to be a human carcinogen based on limited evidence of carcinogenicity from studies in humans and sufficient evidence of carcinogenicity from studies in experimental animals.
About This and Other Case Studies in Environmental Medicine	This educational case study document is one in a series of self-instructional publications designed to increase the primary care provider's knowledge of hazardous substances in the environment and to promote the adoption of medical practices that aid in the evaluation *and care of* potentially exposed patients. The complete series of *Case Studies in Environmental Medicine* is located on the ATSDR Web site at www.atsdr.cdc.gov/csem/**.** In addition, the downloadable PDF version of this educational series and other environmental medicine materials provides content in an electronic, printable format, especially for those who may lack adequate Internet service.
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Please Note: Each content expert for this case study has indicated that there is no conflict of interest to disclose that would bias the case study content.

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Disclaimer

The state of knowledge regarding the treatment of patients potentially exposed to hazardous substances in the environment is constantly evolving and is often uncertain. In this educational monograph, ATSDR has made diligent effort to ensure the accuracy and currency of the information presented, but makes no claim that the document comprehensively addresses all possible situations related to this substance. This monograph is intended as an educational resource for physicians and other health professionals in assessing the condition and managing the treatment of patients potentially exposed to hazardous substances. It is not, however, a substitute for the professional judgment of a health care provider. The document must be interpreted in light of specific information regarding the patient and in conjunction with other sources of authority.

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U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry
Division of Toxicology and Environmental Medicine
Environmental Medicine and Educational Services Branch

How to Use This Course

Introduction	The goal of *Case Studies in Environmental Medicine* (CSEM) is to increase the primary care provider's knowledge of hazardous substances in the environment and to aid in the evaluation of potentially exposed patients. This CSEM focuses on trichloroethylene toxicity.
Available Versions	Two versions of the Trichloroethylene Toxicity CSEM are available: • the HTML version http://www.atsdr.cdc.gov/csem/tce/ provides content through the Internet; • the downloadable PDF version provides content in an electronic, printable format, especially for those who may lack adequate Internet service. The HTML version offers interactive exercises and prescriptive feedback to the user.
Instructions	To make the most effective use of this course, we recommend that you: • take the initial check to assess your current knowledge about trichloroethylene toxicity, • read the title, learning objectives, text, and key points in each section, • complete the progress check exercises at the end of each section and check your answers, and • complete and submit your assessment and posttest responses online if you wish to obtain continuing education credit. Continuing education certificates can be printed immediately upon completion.
Instructional Format	This course is designed to help you learn efficiently. Topics are clearly labeled so that you can skip sections or quickly scan sections you are already familiar with. This labeling will also allow you to use this training material as a handy reference. To help you identify and absorb important content quickly, each section is structured as follows

Section Element	Purpose
Title	Serves as a "focus question" that you should be able to answer after completing the section
Learning Objectives	Describes specific content addressed in each section and focuses your attention on important points
Text	Provides the information you need to answer the focus question(s) and achieve the learning objectives
Key Points	Highlights important issues and helps you review
Progress Check exercises	Enables you to test yourself to determine whether you have mastered the learning objectives
Progress Check answers	Provides feedback to ensure you understand the content and can locate information in the text

Learning Objectives	Upon completion of the Trichloroethylene Toxicity CSEM, you should be able to: • explain what trichloroethylene (TCE) is, • identify sources of trichloroethylene exposure, • identify the primary route of exposure to trichloroethylene, • identify the populations most heavily exposed to trichloroethylene, • identify who is at risk of exposure to trichloroethylene, • identify the OSHA permissible exposure limit (PEL) for trichloroethylene, • identify EPA's maximum contaminant level (MCL) for trichloroethylene in drinking water, • explain the characteristics of the absorption, distribution, metabolism and elimination of TCE in the body, • describe the physiological effects associated with trichloroethylene exposure, • identify the primary focuses of the exposure history, • describe the characteristic finding on patient examination, • describe characteristic clinical presentations of patients with acute or chronic trichloroethylene exposure, • identify direct and indirect measurements that can assist with diagnosis of trichloroethylene exposure, • describe the principal treatment strategy for managing trichloroethylene poisoning, • describe advice on self care and follow-up care normally provided to patients exposed to trichloroethylene.

Initial Check

Instructions	This Initial Check will help you assess your current knowledge about trichloroethylene toxicity. To take the Initial Check, read the case below and then answer the questions that follow.
Case Study	***Concerns of a young family exposed to TCE-contaminated drinking water*** Your practice is in a suburban community with a number of high-technology industries. A couple for whom you have been the family physician asks for an appointment to discuss their daughter's illnesses and a matter of concern to them. During the initial consultation, the mother reports that they are living in an area supplied by municipal well water. They have recently received a notice from the municipal water district stating that their drinking water contains 100 parts per billion (ppb) trichloroethylene (TCE), and as a precaution, they are being supplied with bottled drinking water until an alternative well can be put into service. The notice indicates that the well water is suitable for bathing and laundering. The father interjects that he is familiar with TCE; it is used in the electronics plant where he works. The daughter, aged four has had a number of ear infections during her first two years, culminating in a myringotomy at age three. Follow-up by an Ear, Nose, and Throat (ENT) specialist has shown normal hearing. Although there have been no further infections, the mother stresses that her daughter seems to have a greater number of colds than her classmates and "has not seemed as healthy as she should be." However, the daughter's chart does not reflect an unusual number of office visits or calls. The mother also notes that the child's day-care center is next to "some kind of machine shop" where a chemical odor has been noticed recently. Several of the children and one of the teachers have complained of eye and throat irritation in association with the odor. The mother, who is 33 years old, then reveals that she might be pregnant and she has had mild nausea for one week. It has been eight weeks since her last menstrual period. Both parents are concerned about the possibility that the TCE in the drinking water might have affected the fetus. Although this pregnancy was planned, they might consider terminating the pregnancy if the fetus was likely to be "damaged." They are also concerned that the entire family might suffer from cancer or other diseases in the future. Before receiving bottled water, the family drank tap water when thirsty and made coffee with tap water. Tap water also was used for cooking and brushing teeth, and is still used for bathing. They have never noticed discoloration or an off-taste to the tap water. They encourage their child to drink water instead of sodas during the summer and estimate the amount of water each of them drinks is two to three glasses a day. You schedule each parent and the child for an individual office visit.

Initial Check Questions

1. What would you include in the mother's and daughter's problem list?
2. What additional information would you seek before seeing the family again?
3. What reassurances might you provide at the end of this initial visit?
4. What are the possible sources of exposure to TCE for the family described in the case study?
5. Which members of the family described in the case study are at increased risk for adverse effects from TCE? Explain.
6. On the next visit to your office, the mother states that some families in their neighborhood are being seen by another practitioner, who has sent specimens to a laboratory for measurement of indicators of TCE exposure. What biologic indicators of TCE exposure are likely being measured?
7. If biologic measurements are performed, what considerations should be taken into account to properly interpret the results?
8. The father says that he has felt increasingly tired and easily fatigued for the past few months. Results of his physical examination are entirely within normal limits. What tests, if any, would you order?
9. The mother's obstetrician calls one month later. Examination, including sonogram, is normal for her stage of pregnancy. The obstetrician asks you about the potential fetotoxicity of TCE and whether a more invasive evaluation (amniocentesis or chorionic villus biopsy) is indicated. What is your response?
10. You evaluate the 4-year-old child. A review of her history reveals three to four episodes of otitis media, which were treated with ampicillin, in each of the last three years. The child was placed on continuous prophylactic antibiotics during the last two cold seasons. Last year, the child developed additional infections despite the antibiotic regimen, and you referred her to an otolaryngologist, who performed a myringotomy and tympanostomy without incident. The mother estimates the child has had four episodes of coryza or mild influenza last year, with about seven days of illness that merited staying home from day care.

    Does this pattern reflect compromise of the child's immune system?

11. The mother asks about immune system tests. A health care practitioner evaluating other families has performed such tests. Is the assessment of immunocompetence appropriate in this case?
12. TCE has been identified as the irritant at the day-care center. The mother described in the case study is concerned and wishes to take action to get the level reduced. What can you recommend to her?

Initial Check Answers

1. The mother's problem list includes pregnancy and anxiety; the child's, frequent otitis media (status post myringotomy and tympanostomy tube placement) and frequent upper respiratory infections.

2. You will need information on TCE toxicity, including reproductive and developmental effects; information on TCE contamination of the family's drinking water, including duration and level of contamination; copies of information provided to the family by the municipal water company; and responses, if any, from local and state health agencies.

   More information for this answer can be found in the sections "How Are People Exposed to Trichloroethylene?" and "What Are the Physiologic Effects of Trichloroethylene?"

3. None of the symptoms described in the case indicate serious illness. However, you should reassure the family that you will perform a complete physical examination with appropriate testing at the next visit. In response to concern about the child's infections, you should indicate that you will collect information about possible TCE effects on the immune system. Explain to the parents that tests of immune function are often difficult to interpret and might not be appropriate. You might indicate that you will consult sources of information on TCE's effects on pregnancy. It is important to maintain a balance between reassurance that the unborn child is probably not affected by the water contamination and concern for the possible risk to the fetus. Reassurance should not, however, appear to trivialize the family's fears. It would also be appropriate to discuss that no evaluation, however thorough, can totally exclude the possibility that a person might develop an illness, including cancer.

   More information for this answer can be found in the section "What Are the Physiologic Effects of Trichloroethylene?"

4. Possible sources of the family's TCE exposure include home drinking water (ingestion and dermal and inhalation exposure during bathing), the father's workplace (inhalation), and the daughter's day-care center (inhalation). Other sources would be washing dishes, laundry, or any other use of hot water in the home; the use of TCE-containing consumer products such as correction fluid, spot removers, and so forth.

   More information for this answer can be found in the section "How Are People Exposed to Trichloroethylene?"

5. All members of the family described in the case study are at increased risk for adverse effects from TCE exposure.

   More information for this answer can be found in the section "How Are People Exposed to Trichloroethylene?"

6. The most convenient biologic indicators of TCE exposure are the urinary metabolites, trichloroethanol and trichloroacetic acid. These metabolites are not specific to TCE, however, because they are also metabolites of tetrachloroethylene (perchloroethylene), 1,1,1-trichloroethane (methyl chloroform), and certain medications. TCE itself can be measured directly in blood or exhaled air, but because of the difficulty of obtaining samples, such measurements are not indicated here.

   More information for this answer can be found in the section "What Laboratory Tests Can Assist in the Evaluation of Patients Exposed to Trichloroethylene?"

7. To properly interpret any of the tests mentioned in answer 6, knowledge of the time lapse between exposure and collection is necessary. To prevent contamination or sample loss (evaporation or adsorption), the proper collection, handling, storage, and transportation procedures must be followed. It is likely that members of this family would have elevated levels of TCE or its metabolites, above background levels, for a few hours after exposure, for instance, after they shower. However, there are no appropriate reference values currently available for a health risk assessment.

   More information for this answer can be found in the section "What Laboratory Tests Can Assist in the Evaluation of Patients Exposed to Trichloroethylene?"

8. No further studies are indicated for TCE exposure. A workup for fatigue can indicate additional tests.

9. Evidence from animal and epidemiologic studies suggests that several reproductive and developmental toxicity end points may be associated with TCE exposure, including infertility in males and females, impaired fetal growth, and cardiac teratogenesis. Invasive procedures are therefore justified in this case.

   More information for this answer can be found in the section "What Are the Physiologic Effects of Trichloroethylene?"

10. No. A survey of infections in children under three years of age over a September-to-March period found an average of 2.5 total infections and more than one episode of otitis media per child (1.4 episodes per child for those in day care). More than 3% of the children in day care were hospitalized for tympanostomies (Bell, Gleiber *et al.* 1989). The child described in the case study appears to have an above-average rate of infections, but they are not frequent enough to suggest immunologic impairment.

11. No. Immunocompetence tests are not appropriate because no evidence of immune function abnormalities has been found in this case. It is uncertain about TCE drinking water exposures and immune system abnormalities given the lack of quality studies on this question.

Primary immunodeficiency is suspected in an infant who has repeated upper respiratory tract or other infections. It is also suspected if repeated infection occurs in a child who has had little exposure to infectious agents, or any child with unusual infections, incomplete clearing of infections, growth failure, hepatosplenomegaly, or features associated with specific immunodeficiency disorders, such as ataxia or telangiectasia. The child described in the case study has none of these indications.

More information for this answer can be found in the section "What Are the Physiologic Effects of Trichloroethylene?"

12. Although EPA has not issued an emission standard for TCE, New York State has set a guideline for TCE air emission of 5 $\mu g/m^3$.

    Assuming discussions with the owner or operator of the shop adjacent to the day-care center have not been effective in reducing the level of ambient TCE, the community's air pollution control center should be notified. States might allow this control under the jurisdiction of local air pollution control districts, county health departments, or other local agencies. The agency responsible for enforcement of air standards should be contacted to investigate possible release of TCE onto the day-care center property.

    More information for this answer can be found in the section "What Are the U.S. Standards for Trichloroethylene Exposure?"

What is Trichloroethylene?

Learning Objectives	Upon completion of this section, you should be able to: • explain what TCE is.
Definition	TCE ($Cl_2C=CHCl$) is a clear, colorless, nonflammable liquid possessing a sweet, fruity odor characteristic of chloroform. The odor threshold is approximately 100 parts per million (ppm) (Agency for Toxic Substances and Disease Registry 1997).
Uses	Estimated use patterns suggest that 80% of TCE is used for vapor degreasing of fabricated metal parts in the automotive and metal industries. Consumer products that contain TCE include: • adhesives, • spot removers, • cleaning fluids for rugs, • paint removers/strippers, and • typewriter correction fluids
Other Uses	Before its ban for certain applications in 1977, TCE was also used as a general (mostly obstetric) anesthetic, grain fumigant, disinfectant, pet food additive, and extractant of spices in foods and caffeine in coffee (Candura and Faustman 1991)
Synonyms	Trichloroethylene is also known as • acetylene trichloride, • ethylene trichloride, • TCE, • Tri, and • trichloroethene Trade names for trichloroethylene include: • Benzinol, • Circosolve, • Flock Fli, • Narcogen, • Perm-A-Chlor, • Tri-clene, and • Vestrol
Key Points	• TCE is used mainly for vapor degreasing of fabricated metal parts in the automotive and metal industries.

Progress Check	1. Trichloroethylene is: A. a clear, colorless, nonflammable liquid B. used for vapor degreasing of fabricated metal parts in the automotive and metal industries C. no longer used as a general anesthetic, grain fumigant, disinfectant, or pet food additive since 1977 D. all of the above. *To review relevant content, see "Definition," "Uses," and "Other Uses" in this section.*

Where is Trichloroethylene Found?

Learning Objectives

Upon completion of this section, you should be able to:

- identify sources of TCE exposure.

Introduction

TCE does not occur naturally; therefore, its presence indicates manufacture, use, or storage. Production of TCE has increased from just over 260,000 lbs in 1981 to 320 million lbs in 1991. The U.S. International Trade Commission (USITC) has not published more recent production statistics because there are only two U.S. manufacturers (Agency for Toxic Substances and Disease Registry 1997; HSDB April 2006).

Vapor degreasing of fabricated metal parts and some textiles accounts for 80% of its use. 5% is used as an intermediate in the production of organic chemicals and pharmaceuticals. Miscellaneous uses (5%) include solvents for dry cleaning, extraction and as a refrigerant/heat exchange liquid. An estimated 10% is exported.

Occupational Exposures

Occupational exposures may occur in chemical industries that manufacture:

- other polychlorinated aliphatic hydrocarbons, flame retardant chemicals, and insecticides where TCE is a chemical intermediate,
- pentachloroethane, or
- polyvinyl chloride.

Other potential exposures occur in the manufacturing processes of:

- disinfectants,
- dyes,
- perfumes,
- pharmaceuticals, and
- soaps.

The following occupations also have increased likelihood of exposure:

- dry cleaners,
- mechanics,
- oil processors,
- printers,
- resin workers,
- rubber cementers,
- shoemakers,
- textile and fabric cleaners,
- varnish workers, and
- workers reducing nicotine in tobacco.

Although some dry cleaners used TCE in the past, most dry cleaners now use tetrachloroethylene (perchloroethylene) or 1,1,1-trichloroethane.

In the workplace, TCE is seldom present as a pure substance. Industrial grade TCE contains small amounts of stabilizers in the form of antioxidants or acid receptors; total chemical impurities usually do not exceed 0.1% by weight. Decomposition of TCE into dichloroacetylene (a neurotoxic compound) and phosgene (a serious pulmonary irritant) occurs in the presence of alkali at temperatures above 60°C for the unstabilized compound and above 130°C for the stabilized compound.

Environmental Exposures

Because of its widespread use, TCE has become a common environmental contaminant. Contamination results from:

- discharge to surface waters and groundwater by industry commerce, and individual consumers,
- evaporative losses during use,
- incidental addition of TCE during food production, or
- leaching from hazardous waste landfills leaching into groundwater

In the atmosphere, TCE is destroyed by photooxidation, with a half-life of 3-8 days during the summer months and approximately 2 weeks in cold climates during the winter. This relatively short half-life significantly limits the transport of TCE in air; however, the continual volatilization of TCE from emission sources or contaminated surface waters ensures its persistence in air.

The average TCE level detected in samples collected from ambient air in the Norwegian Arctic between 1982 and 1983 was 0.007 ppb. This compares to mean TCE concentrations of 0.03 ppb in rural or remote areas, 0.46 ppb in urban and suburban areas, and up to 1.2 ppb in areas near emission sources of TCE. Indoor air concentrations have ranged from 0.14 ppb in a school to 5 ppb in an office building (Agency for Toxic Substances and Disease Registry 1997).

TCE is now a common contaminant at Superfund sites and many Department of Defense facilities. TCE has been identified in at least 861 of the 1,428 sites proposed for inclusion on the U.S. EPA National Priorities List (Agency for Toxic Substances and Disease Registry 1997). According to U.S. EPA Toxic Release Inventory (Wu and Schaum 2000; U.S. EPA 2003). TCE releases into the environment have ranged from 55.6 million pounds in 1987 down to 7.2 million pounds in 2003.

TCE in drinking water is a result of its rapid leaching from landfills and its discharge from industrial wastewaters. TCE volatilizes quickly from water at a rate that depends on temperature, water movement, and aeration. The biodegradation of TCE under anaerobic conditions is slow, making TCE relatively persistent in subsurface waters. An EPA national groundwater survey (US Environmental Protection Agency 1985) detected TCE in approximately 10% of the wells tested. It is the most frequently detected organic solvent in groundwater supplies, and is estimated to be in up to 34% of the nation's drinking water supplies (Agency for Toxic Substances and Disease Registry 1997).

Because of TCE's volatility, household activities such as bathing, laundering, and cooking with contaminated water may produce TCE air concentrations above ambient levels.

	Both natural and processed foods may contain TCE because of direct uptake through the environment, contamination of water used in food processing, and contamination by solvents used in cleaning food processing equipment. Most processed foods examined contain levels of a few parts per billion. Studies indicate that TCE has a low tendency to bioaccumulate in the food chain (Agency for Toxic Substances and Disease Registry 1997).
Exposures from Consumer Products	TCE is found as an ingredient in a number of consumer products such as • adhesives, • cleaning fluids for rugs, • paint removers/strippers, • spot removers, spot removers, and • typewriter correction fluids.
Key Points	• Workplace is a major source of TCE exposure. • The most common sources of non-occupational exposure to TCE are ambient air and drinking water.
Progress Check	2. TCE is a common environmental contaminant. What sources does contamination result from? A. evaporative losses during use B. discharge to surface waters and groundwater by industry, commerce, and individual consumers C. leaching from hazardous waste landfills into groundwater D. all of the above. *To review relevant content, see "Environmental Exposures" in this section.*

How Are People Exposed to Trichloroethylene?

Learning Objectives	Upon completion of this section, you should be able to • identify the primary route of exposure to TCE.
Introduction	Occupational exposure to trichloroethylene may occur through inhalation and dermal contact at workplaces where TCE is produced or used. The general population may be exposed to TCE via inhalation of ambient air and ingestion of food and drinking water.
Inhalation	The air pathway is the most common route of exposure to TCE, and the route that most commonly leads to illness. Exposure scenarios include inhalation of contaminated air: • because of vapors formed during bathing and laundering from using contaminated water at home, • due to accidental spills, and use of products in small, enclosed spaces, • due to deliberate abuse because TCE inhalation can cause euphoria, • during work in the same space as others working with TCE, • during work with TCE, • in areas where TCE is released to air and water by evaporation or fugitive emissions from industrial and from landfills, and • on worker's skin and clothing.
Ingestion	Ingestion—a minor pathway of exposure—occurs through • incidental addition of TCE during food production and • swallowing food or drinking water contaminated with TCE
Skin	Dermal contact is a common route of TCE exposure in workplace and among the general public. However, dermal contact is less important since it is not likely to cause toxic effects under normal conditions.
Key Points	• The main route of occupational exposure to TCE is by inhalation.
Progress Check	3. The primary route of exposure to trichloroethylene is: A. ingestion B. inhalation C. dermal contact D. all are equally important *To review relevant content, see "Inhalation" in this section.*

Who Is at Risk of Trichloroethylene Exposure?

Learning Objective	Upon completion of this section, you should be able to: • identify the populations most heavily exposed to TCE and • identify who is at risk of exposure to TCE.
Introduction	Most significant exposures to TCE occur in the workplace. Occupational exposure to TCE in the U.S. has been identified in various degreasing operations, silk screening, taxidermy, and electronic cleaning.
Worker Exposure	The National Institute for Occupational Safety and Health (NIOSH) conducted a survey of various industries from 1981 to 1983 and estimated that approximately 401,000 U.S. employees in 23,225 plants are potentially exposed to TCE. Time-weighted average concentrations from personal monitoring ranged from 1.2 to 5.1 ppm at individual industrial sites where TCE was used (Agency for Toxic Substances and Disease Registry 1997; Wu and Schaum 2000). Deaths have occurred in workers who were accidentally exposed to high levels (up to 8,000 ppm) of TCE, and in solvent abusers deliberately sniffing typewriter correction fluid (King, Smialek *et al.* 1985). Some of these deaths were due to asphyxia, whereas others were attributed to either ventricular fibrillation or asystole. Although no human studies have directly assessed potential dysrhythmogenic effects of TCE, no evidence exists to show that persons exposed to TCE at background environmental concentrations or at allowable workplace levels are at increased risk of developing cardiac dysrhythmias (Candura and Faustman 1991). Increased potential for exposure may be encountered by the following workers: • dry cleaners, • mechanics, • oil processors, • printers, • resin workers, • rubber cementers, • shoe makers, • textile and fabric cleaners, • tobacco denicotinizers, and • varnish workers
TCE Inhalant Abuse	Inhalants - particularly volatile solvents, gases, and aerosols - are often among the first drugs that young children use. One national survey indicates that about 3.0 percent of U.S. children have tried inhalants by the time they reach fourth grade. About 17% of US youth has ever tried to get 'high' from inhaled solvents, including TCE. National surveys indicate that more than 22.9 million Americans have abused inhalants at least once in their lives (NIDA 2005). Inhalant abuse can become chronic and extend into adulthood. Sudden death due to TCE abuse has been reported (Miller, Mycyk *et al.* 2002).

Banned Uses	Until 1977, when certain uses were banned, TCE was employed as an inexpensive, nonflammable, and self-administered obstetrical anesthetic (Tri-lene). It was discovered that alkali in rebreathing systems could lead to the production of dichloroacetylene, which produces cranial nerve injuries. Workers in environments containing this TCE-decomposition product could also be at risk of developing injury to trigeminal, optic, or facial nerve (Lawrence and Partyka 1981).
Degreaser's Flush	Alcohol potentiates TCE's effects on the central nervous system (CNS). Concurrent alcohol consumption and exposure to TCE can result in "degreaser's flush," (Stewart, Hake *et al.* 1974) a temporary redness and itching of the back, neck, and face. Liver dysfunction or disulfiram (Antabuse) treatment could reduce the metabolism of TCE thereby increasing its CNS depressant effects.
Use of Groundwater	TCE is one of the volatile organic contaminants most frequently found in groundwater. There have been a number of studies reported that examined the health of persons who ingested TCE-contaminated groundwater over varying period of time. The results of these studies have been inconsistent. A link between ingestion of TCE and incidence of cancer in humans is controversial, but has not been excluded.
Maternal Transmission	TCE rapidly crosses the placenta in both humans and animals, and can accumulate in the fetus (Agency for Toxic Substances and Disease Registry 1997). To gather information on the health effects of ingesting TCE-contaminated water, the ATSDR, in cooperation with the states, has established a national registry. This registry is discussed in Sources of Information section.
Key Points	• Workers in metal-fabricating and cleaning operations have the greatest likelihood of exposure to high concentrations of TCE. • Persons using groundwater contaminated with trichloroethylene can be exposed by inhalation as well as ingestion. • Trichloroethylene crosses the placenta and can accumulate in the fetus. • Ingestion of alcohol may potentiate the central nervous system depressant effects of TCE.
Progress Check	4. Occupations that entail exposure to trichloroethylene include which of the following? A. workers in metal-fabricating and cleaning operations B. workers in dry cleaners C. shoemakers D. all of the above. *To review relevant content, see "Worker Exposure" in this section.* 5. Who is most likely to be at risk of trichloroethylene exposure? A. the newborns of nursing mothers who are employed at a chemical industry. B. residents who use well water for food preparation, bathing, and laundry. C. consumers who use spot remover. D. mechanics who degrease fabricated metal parts in the automotive industries. *To review relevant content, see "Worker Exposure" in this section.*

What Are the U.S. Standards for Trichloroethylene Exposure?

Learning Objectives

Upon completion of this section, you should be able to:

- identify the OSHA permissible exposure limit (PEL) for TCE and
- identify the EPA's maximum contaminant level (MCL) for TCE in drinking water.

Introduction

The government has developed regulations and guidelines for TCE. These standards are designed to protect the public from potential adverse health effects.

Workplace Standards

The OSHA permissible exposure limit (PEL) is a time-weighted average (TWA) of 100 ppm, with 300 ppm TCE as a 5-minute maximum peak allowable in any 2-hour period (OSHA 1993).

The National Institute for Occupational Safety and Health (NIOSH) considers TCE a potential occupational carcinogen and recommends an exposure limit of 2 ppm (as a 60-minute ceiling) during the usage of TCE as an anesthetic agent (TCE is no longer used as an anesthetic agent) and 25 ppm as a 10-hour TWA during all other exposures.

The American Conference of Governmental Industrial Hygienists (ACGIH) recommends an 8-hour TWA of 50 ppm and a short-term exposure limit (STEL) of 100 ppm (American Conference of Governmental Industrial Hygienists. 2003).

Biologic exposure indices (BEIs) recommended by ACGIH that might involve either direct or indirect measures of individual worker exposure.

- The TCE metabolite, free trichloroethanol, can be measured in the blood. However, a number of other compounds affect the level of trichloroethanol found in the blood, thereby clouding the clinical significance of this metabolite as an indicator of TCE exposure. Thus, if higher-than-expected blood levels of trichloroethanol are detected, the clinician must consider alternate explanations for the elevated levels (Agency for Toxic Substances and Disease Registry 1997).
- Alternatively, a concentration of 100 milligrams (mg) of trichloroacetic acid per gram of creatinine in urine at the end of the work week reflects the upper biologic limit for TCE exposure. Urinary trichloroacetic acid levels can be increased by the same compounds that affect blood trichloroethanol levels (Agency for Toxic Substances and Disease Registry 1997). Because of large individual variations, a urinary trichloroacetic acid level of 100 mg per gram of creatinine should be used only as a "warning" level or mean for a group of workers (American Conference of Governmental Industrial Hygienists. 2003; Meditext 2004).

Table 1 summarizes current standards and regulations for TCE exposure.

Table 1. Standards and Regulations for Trichloroethylene.

Agency*	Focus	Level	Comments
American Conference of Governmental Industrial Hygienists	Air: workplace	50 ppm 100 ppm	Advisory; TLV/TWA† Advisory; STEL‡;
National Institute for Occupational Safety and Health	Air: workplace	25 ppm	Recommendation; 10-hour TWA§; potential carcinogen
Occupational Safety and Health Administration	Air: workplace	100 ppm 300 ppm	Regulation; PEL¶ over 8-hour workday Regulation; 5-minute maximum peak in any 2 hour period
Environmental Protection Agency	Air: environment	Not available	Not available
	Drinking water	5 ppb	Regulation

* ppm: parts per million; ppb: parts per billion.

†TLV/TWA (threshold limit value/time-weighted average): time-weighted average concentration for a normal 8-hour workday or 40-hour work week to which nearly all workers may be repeatedly exposed.

‡STEL(short-term exposure limit): concentration at which workers can be exposed continuously for a short period of time (usually 15 minutes) without suffering irritation, chronic irreversible tissue damage, or narcosis.

§TWA (time-weighted average): concentration for a normal 8-hour workday and 40-hour work week is set at a level at which nearly all workers may be repeatedly exposed without adverse effects.

¶PEL (permissible exposure limit): highest level averaged over an 8-hour workday to which a worker may be exposed. Note: A PEL of 50 ppm was enacted by Occupational Safety and Health Administration in 1989, but that level along with 375 others, was vacated for procedural reasons by the 11th Circuit Federal Court in 1993.

Environmental Standards	Environmental exposures to TCE are generally low and are decreasing because limitations have been imposed on its use as an anesthetic, solvent extractant, fumigant, and dry-cleaning agent. ***Air*** TCE has a short atmospheric half-life (less than seven days) and is not likely to bioaccumulate in the food chain. ***Water*** The World Health Organization recommended drinking water limit is 30µg TCE/liter (L) of water (30 ppb). EPA has set a maximum contaminant level (MCL) of 5µg/L (5 ppb) in drinking water (US Environmental Protection Agency 1985). Although there is no incontrovertible evidence of human health effects associated with exposures to environmental levels of TCE (Brown, Farrar *et al.* 1990), the issue is not entirely settled. More reliable information is necessary for a final assessment.
Key Points	• OSHA's current permissible exposure limit is 100 ppm. • EPA has established a drinking water MCL for TCE of 5 ppb.
Progress Check	6. OSHA's PEL for TCE in the workplace is which of the following? A. 50 ppm (8-hour TWA) B. 100 ppm (8-hour TWA) C. 25 ppm (8-hour TWA) D. none of the above. *To review relevant content, see "Table 1" in this section.* 7. EPA's MCL for TCE in drinking water is which of the following? A. 5 ppm B. 5 ppb C. 10 ppb D. none of the above. *To review relevant content, see "Table 1" in this section.*

What Is the Biological Fate of Trichloroethylene in the Body?

Learning Objectives	Upon completion of this section, you should be able to: • explain the characteristics of the absorption, distribution, metabolism and elimination of TCE in the body.
Introduction	TCE is readily absorbed following both inhalation and oral exposures. Once absorbed, TCE diffuses readily across biological membranes and is widely distributed to tissues and organs via the circulatory system. Studies in animals and humans have found TCE or its metabolites in most major organs and tissues. TCE metabolism occurs primarily in the liver and eliminated either unchanged in expired air or by metabolic transformation with subsequent excretion primarily in urine.
Absorption and distribution	In humans, TCE is rapidly and extensively absorbed by the lungs and into the alveolar capillaries(Sato, Nakajima *et al.* 1977; Monster, Boersma *et al.* 1979; Clewell, Gentry *et al.* 1995). Case reports of human poisoning after ingestion of TCE indicate that gastrointestinal absorption is also substantial (Kleinfeld and Tabershaw 1954; Defalque 1961; Bruning, Vamvakas *et al.* 1998). Because of its lipid solubility, TCE accumulation occurs in organs containing high levels of adipose tissue, such as, the lungs, liver, kidneys and central nervous system. Consequently, slow release of TCE from adipose stores might act as an internal source of exposure, ultimately resulting in longer residence times and bioavailability of TCE(Fernandez, Droz *et al.* 1977; Dallas, Gallo *et al.* 1991; Fisher, Gargas *et al.* 1991; WHO 2005). Age-dependent factors may influence TCE distribution in humans, suggesting greater susceptibility to TCE in children than in adults(Pastino, Yap *et al.* 2000; WHO 2005).
Metabolic Pathways	TCE undergoes metabolism by two major pathways (Lash, Fisher *et al.* 2000): • oxidation by cytochrome P450 enzymes • conjugation with glutathione (GSH) by glutathione-S-transferases (GSTs) The oxidative metabolism of TCE take place primarily in the liver, although it may also occur in other tissues, such as the lung(Lash, Fisher *et al.* 2000). The principal metabolites derived from oxidation pathway are: • chloral hydrate, further metabolized to trichloroethanol (TCOH), • trichloroacetic acid (TCA), and • dichloroacetic acid (DCA)

The GSH conjugation also occurs mainly in the liver by GST, although several other tissues (kidney, biliary tract and intestines) are involved(Lash, Fisher *et al.* 2000).

The metabolites derived from the conjugation pathway are:

- S-(1,2-dichlorovinyl)glutathione (DCVG)
- S-(1,2-dichlorovinyl)cysteine (DCVC) (can be further converted to other reactive metabolites)

The mutagenic and carcinogenic potential of TCE is generally thought to be due to reactive intermediate biotransformation products rather than the parent molecule itself.

The oxidative metabolites are responsible for the effects on the liver (both cancer and non-cancer), whereas the conjugative metabolites may preferentially affect other organs (e.g., kidney) (Davidson and Beliles 1991; Lash, Fisher *et al.* 2000; WHO 2005). For examples, one of the issues of most concern with TCE is its conversion to DCA which is clearly carcinogenic in both mice and rats(Chen 2000; Bull, Orner *et al.* 2002; WHO 2005); Dichlorovinylcysteine (DCVC) is mutagenic and may cause DNA damage in mammalian cells in vitro and in vivo (NTP 2004). However, TCA or DCA is unlikely to be responsible for human liver cancer at environmental levels of exposure to TCE(DeAngelo, Daniel *et al.* 1997; WHO 2005).

One study (Lipscomb, Garrett *et al.* 1997) reported significant variability in TCE metabolism in a sample of 23 human hepatic microsomal samples. The results indicate that humans are not uniform in their capacity for cytochrome P450-dependent metabolism of TCE. An increased activity of this metabolic pathway may increase susceptibility to TCE induced toxicity in the human.

Elimination

Elimination pathways appear to be similar for ingestion and inhalation. A relatively small amount of absorbed TCE is exhaled unchanged; most of an absorbed dose is metabolized and excreted in the urine, as TCA, TCOH or DCV conjugates.

Studies in human volunteers have shown that after exposure to air concentrations between 50 and 380 ppm, approximately 58% of an absorbed dose appears in urine as metabolites (Monster, Boersma *et al.* 1976; Monster, Boersma *et al.* 1979). The time between TCE inhalation and urinary excretion of trichloroethanol is relatively short (biologic half-life approximately 10 hours) compared with the urinary excretion of trichloroacetic acid (biologic half-life approximately 52 hours). Trichloroacetic acid is theoretically detectable in urine for at least a week after TCE exposure (Sato, Nakajima *et al.* 1977; Monster, Boersma *et al.* 1979).

No studies have provided evidence of saturation of TCE metabolism in humans, at least for short-term inhalation exposure to high concentrations up to 315 ppm (Agency for Toxic Substances and Disease Registry 1997).

Species *vs.* Susceptibility	Although the pathways for metabolism of TCE in mice, rats, and humans appear to be qualitatively similar, quantitatively differences among species may substantially alter the effective dose of reactive metabolite(s) that is delivered to a target organ (Bruckner, Davis *et al.* 1989). It has been estimated that humans metabolize approximately 20 times less TCE on a body weight basis than rats at similar exposure levels. Consequently, humans metabolize approximately 60 times less TCE on a body weight basis than mice (Goeptar, Commandeur *et al.* 1995). Species differences in TCE metabolism might explain observed differences in susceptibility to specific TCE-related diseases. Liver cancer, for example, occurs mainly in strains of mice that generate high levels of trichloroacetic and dichloroacetic acids as TCE metabolites in liver cells. By contrast, rats that metabolize more TCE via glutathione conjugation are prone to renal cancer. Because of such species-specific effects, caution must be used when extrapolating adverse effects from experimental animals to humans (Kimbrough, Mitchell *et al.* 1985; Fan 1988; Goeptar, Commandeur *et al.* 1995; Kaneko, Wang *et al.* 1997; Lash, Fisher *et al.* 2000).
Key Points	• Pulmonary and gastrointestinal absorption of TCE is rapid. Because of its lipid solubility, TCE accumulation occurs in organs containing high levels of adipose tissue, such as, the lungs, liver, kidneys and central nervous system. • The mutagenic and carcinogenic potential of TCE is thought to be due to reactive intermediate biotransformation products rather than the parent molecule TCE itself. • Because of species difference in TCE metabolism, caution should be used in extrapolating adverse effects to humans.

Progress Check

8. Which of the following statements about metabolism of an absorbed dose of TCE is correct?

   A. a small amount is exhaled unchanged
   B. most of the dose is metabolized in the liver
   C. TCE is excreted in the urine as trichloroacetic acid and trichloroethanol
   D. all of the above.

   To review relevant content, see "Half Life" and "Key Points" in this section.

9. Which of the metabolic pathways of TCE is associated with hepatic toxicity?

   A. cytochrome P450-dependent oxidation
   B. glutathione (GSH) conjugation
   C. both cytochrome P450-dependent oxidation and glutathione (GSH) conjugation
   D. none of the above.

   To review relevant content, see "Metabolic Pathways" in this section.

What Are the Physiological Effects of Trichloroethylene?

Learning Objectives

Upon completion of this section, you should be able to

- describe the physiological effects associated with TCE exposure.

Introduction

Some occupational studies have shown that TCE produces

- CNS effects
- decreased appetite
- gastrointestinal irritation
- headaches
- mucous membrane
- skin irritation

Hepatotoxicity has been associated primarily with TCE inhalation and ingestion of very large amounts.

Renal failure has been reported in concert with confirmed hepatic damage.

Cardiac dysrhythmias may be induced by heavy TCE exposure.

Neurological Effects

TCE-induced CNS symptoms depend on both concentration and exposure duration.

Acute Exposure

In one study of human volunteers, exposure to TCE air levels of 27 ppm for one to four hours caused drowsiness and mucous membrane irritation, and at 81 ppm, headaches (Nomiyama and Nomiyama 1977).

In another study, an 8-hour exposure (two 4-hour exposures separated by 1.5 hours) to 110 ppm TCE for two 4-hr periods resulted in decreased performance on tests of perception, memory, reaction time, and dexterity (Salvini, Binaschi *et al.* 1971). However, a later attempt to replicate these results found no effects other than fatigue and drowsiness (Stewart RD 1974a).

The available data suggest that the threshold for CNS effects in humans is in the range 81-110 ppm TCE, although the effects observed at these exposure levels reflected only mild symptoms of CNS depression (Brown, Farrar *et al.* 1990).

Symptoms due to short-term exposures typically resolve within a few hours of exposure. However, one report demonstrated evidence of long-term residual oculomotor and ciliary reflex dysfunction as well as impaired neuropsychological performance as a result of acute TCE intoxication (Feldman, White *et al.* 1985).

Chronic Exposure

In a study of 73 workers employed from one month to 15 years in various industrial cleaning and degreasing operations using TCE, complaints due to chronic exposure included:

- a reduced number of word associations,
- ataxia,
- decreased appetite,
- headache,
- short-term memory loss,
- sleep disturbances, and
- vertigo

Greater frequency of symptoms was noted in workers exposed to higher (85 ppm) than lower (14 ppm) mean TCE concentrations (Grandjean, Munchinger *et al.* 1955).

Some of the observed neurological effects from long-term exposure to TCE indicate impaired trigeminal nerve function (e.g., blink reflex and masseter reflex) (Buxton and Hayward 1967; Agency for Toxic Substances and Disease Registry 1997). This is thought to be neurotoxicity induced dichloroacetylene, a breakdown product of TCE (Armstrong and Green 2004).

A study found neurobehavioral deficits from exposures to drinking water contaminated with to TCE (Reif, Burch *et al.* 2003).

Deliberate Abuse

Abuse of volatile chlorocarbon solvents is a risk factor for development of cerebellar damage and ataxia.

Animal Studies

Studies on the neurological effects of acute TCE inhalation in animals have produced results similar to human studies (Agency for Toxic Substances and Disease Registry 1997).

Gastrointestinal, Hepatic and Renal Effects

When swallowed, TCE causes gastrointestinal (GI) irritation, with possible inflammation of the GI tract, manifested as:

- abdominal pain
- diarrhea
- nausea
- vomiting

Hepatotoxicity has been associated primarily with intentional TCE inhalation abuse. In these cases, hepatic histological examination has revealed centrilobular necrosis with fatty infiltration (Joron, Cameron *et al.* 1955; Thiele, Eigenbrodt *et al.* 1982).

Chronic TCE exposures at concentrations currently permissible in the workplace or at those expected in ambient air are not likely to cause liver damage (Agency for Toxic Substances and Disease Registry 1997).

Studies that have examined exposure to TCE and development of kidney disease (Lash, Parker *et al.* 2000).

- One case report links acute renal failure with normal liver function in a male worker opening bins containing 7.5 L of a nearly pure solution of TCE (David, Wolman *et al.* 1989).
- One study reports that adverse kidney effects associated with occupational exposure to TCE are very mild (Nagaya, Ishikawa *et al.* 1989).
- Another study of a small group of male metal degreasers in Sweden observed no increase in *N*-acetyl-β-glucosamineidase (NAG) excretion into urine, and concluded that TCE was not nephrotoxic at low exposures levels (Selden, Hultberg *et al.* 1993).
- A retrospective study was performed on 39 workers who were exposed to high levels of TCE from 1956 to 1975. The study concluded that chronic exposure to high doses of TCE causes persistent changes to the proximal tubules (Bruning, Sundberg *et al.* 1999).
- In a recent cross-sectional study of 70 workers currently exposed to TCE, the mean exposure to TCE, estimated from urinary trichloroacetic acid concentrations, was 32 ppm (range 0.5 – 252 ppm) with average duration of exposure of 4.1 years (range 1-20 years). The results suggested that kidney damage could occur at exposure concentrations higher than 250 ppm (Green, Dow *et al.* 2004).
- A study reports on a 17-year-old male who ingested approximately 70 ml TCE in a suicide attempt. This study first demonstrated that a single, oral dose of TCE can produce nephrotoxicity in humans (Bruning, Vamvakas *et al.* 1998).

Cardiac Effects

A few case studies of persons who died following acute occupational exposure to TCE have revealed cardiac arrhythmias to be the apparent cause of death(Kleinfeld and Tabershaw 1954; Smith 1966).

When TCE was administered as an anesthetic agent, serious ventricular arrhythmias and cardiac arrests were rare and were nearly always associated with hypoxia(Norris and Stuart 1957).

Significant ventricular ectopy would not be expected from TCE exposure at background environmental levels or those currently allowed in the workplace (Candura and Faustman 1991).

The underlying mechanism of these cardiac effects of TCE exposure might be due to changed sensitization of the heart to catecholamines (Agency for Toxic Substances and Disease Registry 1997).

Reproductive and Developmental Effects	Adverse effects were noted in residents of several communities where TCE was found to be present in drinking water (Bove, Shim *et al.* 2002). The Tucson study (1990) (Goldberg, Lebowitz *et al.* 1990) reported a higher risk of congenital cardiac defects associated with exposure to TCE-contaminated drinking water. The New Jersey study (1995) (Bove, Fulcomer *et al.* 1995) reported a strong association between exposure to TCE-contaminated drinking water and oral clefts as well as neural tube defects (NTDs). The Woburn study (1996) (Massachusetts Department of Public Health 1996) found associations between exposures to TCE-contaminated well water and small for gestational age (SGA), fetal deaths, eye defects, choanal atresia, NTDs, cleft lip, and hypospadias. The Camp LeJeune study (1998) also found increased risk of SGA associated with TCE (Bove, Shim *et al.* 2002). One retrospective occupational study suggested an increased risk of spontaneous abortion in women exposed to TCE, but the result was not statistically significant, and the effect disappeared when odds ratios were adjusted for potential confounders (Windham, Shusterman *et al.* 1991). In animals, some abnormalities (decreased fetal body weight, ossification anomalies, and cardiac defects) have been reported infrequently (Agency for Toxic Substances and Disease Registry 1997).
Carcinogenic Effects	Evidence for the carcinogenicity of TCE in humans comes from several cohort studies where specific TCE exposures were well characterized for individual study subjects. A meta-analysis of these cohort studies found that occupational exposure to TCE was associated with excess incidences of liver cancer, kidney cancer, non-Hodgkin's lymphoma, prostate cancer, and multiple myeloma, with the strongest evidence for the first three cancers (Wartenberg, Reyner *et al.* 2000; NTP 2004). It is important to note that the conclusions drawn in these studies were based on a relatively small number of exposed workers and were confounded by exposure to other solvents and other risk factors. Other studies did not reveal any excess cancer mortality from low exposures to TCE (Axelson, Andersson *et al.* 1978; Tola, Vilhunen *et al.* 1980; Shindell and Ulrich 1985; Spirtas, Stewart *et al.* 1991; Axelson, Selden *et al.* 1994). A study (Massachusetts Department of Public Health 1996) performed in Woburn, Massachusetts by the Massachusetts Department of Health (1996) found an elevated risk of childhood leukemia in a group exposed to TCE in uterus. The New Jersey study (Bove, Fulcomer *et al.* 1995) found associations with childhood leukemia among females and with non-Hodgkin's lymphoma. A review on mutagenicity of TCE and its metabolites indicated that TCE and its metabolites are not potent genotoxic agents and require high doses to induce a response (Moore and Harrington-Brock 2000). The full tumor development is likely to require promotional stimuli under high

(suggested: >500 ppm peak exposures) and long-term (several years) exposure to TCE (Bolt, Lammert *et al.* 2004).

A cohort study of 169 male workers having been exposed to unusually high levels of TCE in Germany between 1956 and 1975 supported a nephrocarcinogenic effect of TCE in humans. A further case-control study confirmed the results of the previous cohort study, supporting the concept of involvement of prolonged and high-dose TCE exposures in the development of renal cell cancer (Bruning and Bolt 2000). The finding of a TCE-specific mutation of the von Hippel-Landau (VHL) tumor suppressor gene, a gene associated with kidney tumors, provides strong evidence that TCE causes kidney cancer (Brauch, Weirich *et al.* 1999).

A study of three Michigan communities exposed to chlorinated solvents, including TCE in drinking water, showed no significant increase in cancers, including leukemia, among the exposed population. However, the cohort size in the study was only 223 (Agency for Toxic Substances and Disease Registry 1997). A study of 4,280 people exposed to TCE and other contaminants in drinking water in three states reported an increase in respiratory tract cancer in males. The study authors concluded that, based on the incidence of smoking in the population, "it would be inappropriate to relate this excess solely to TCE exposure" (Agency for Toxic Substances and Disease Registry 1997).

The findings in humans are supported by evidence of carcinogenicity in experimental animals, in which tumors occurred at several of the same sites as in humans. Inhalation or oral exposure to high doses of TCE produces liver and lung tumors in mice (Maltoni, Lefemine *et al.* 1988), and renal adenocarcinomas, testicular tumors, and possibly leukemia in rats (Maltoni, Lefemine *et al.* 1988).

However, it is important to understand interspecies differences in TCE metabolism and pharmacokinetics in order to reduce uncertainties inherent in species-to-species extrapolations (Bruckner, Davis *et al.* 1989).

Many studies reviewed by the International Agency for Research on Cancer (IARC) examined the relationship between TCE exposure and kidney and liver cancer mortality or incidence. Most of studies were of occupational exposures (Bull 2000; Lash, Parker *et al.* 2000).

In conclusion, TCE is *reasonably anticipated to be a human carcinogen* based on limited evidence of carcinogenicity from studies in humans, sufficient evidence of carcinogenicity from studies in experimental animals, which indicates there is an increased incidence of malignant and/or a combination of malignant and benign tumors at multiple tissue sites in multiple species of experimental animals, and information suggesting TCE acts through mechanisms that indicate it would likely cause cancer in humans (NTP 2004).

Other Effects

Respiratory

TCE produces minimal irritation of the respiratory tract at concentrations that do not exceed current workplace standards (Waters, Gerstner *et al.* 1977).

TCE is not a sensitizing agent, and bronchospasm is unlikely to occur except after exposure to high concentrations (Agency for Toxic Substances and Disease Registry 1997). Reactive Airway Dysfunction Syndrome (RADS) or Irritant Induced Asthma (IIA) has been attributed to exposure to very high concentrations of solvents (Rosenman, Reilly *et al.* 2003).

In a study conducted with human volunteers, 200 ppm TCE was inhaled simultaneously with ethanol ingestion, an increase in both heart rate and breathing rate was observed. However, when 200 ppm TCE was inhaled in the absence of ethanol ingestion, these TCE-related effects did not occur (Agency for Toxic Substances and Disease Registry 1997).

TCE is both acutely toxic and carcinogenic to the mouse lung following exposure by inhalation. Toxicity to the mouse lung is confined almost exclusively to the nonciliated Clara cell (Forkert, Sylvestre *et al.* 1985).

Comparisons between species suggest that the ability of the human lung to metabolize TCE is approximately 600-fold less than that in the mouse.

In addition, the human lung differs markedly from the mouse lung in the number and morphology of its Clara cells. Thus, risks from TCE exposure to human lung damage are minimal (Green 2000).

Skin

Like other organic solvents, TCE may produce contact dermatitis, rashes, and burns. The defatting dermatitis resulting from prolonged contact may reduce resistance to skin infections. An irritant reaction resembling an exfoliative dermatitis or scarlatiniform reaction can occur from dermal contact with contaminated clothing (Waters, Gerstner *et al.* 1977; Agency for Toxic Substances and Disease Registry 1997).

A syndrome called degreaser's flush (Stewart, Hake *et al.* 1974) has been associated with the interaction of ingested ethanol and inhaled TCE. Typically, erythema resulting from vasodilation develops around the face, back, and shoulders within 30 minutes of exposure and resolves in about an hour.

Immune System

The immunotoxic effects of TCE were evaluated in an animal study. The investigators concluded that, although the effects observed were not remarkable, the immune system does appear to be sensitive to the chemical (Sanders, Tucker *et al.* 1982). A few reports have been found on human immunological abnormalities related to usage of TCE contaminated well water(Byers, Levin *et al.* 1988; Kilburn, Warshaw *et al.* 1992; Waller, Clauw *et al.* 1994). A recent study of TCE exposed workers has found immune abnormalities (Iavicoli, Marinaccio *et al.* 2005).

Key Points	• CNS depression is the most prominent effect of acute TCE exposure. • Chronic occupational TCE exposure has been associated with neurological abnormalities. • Case reports associate liver damage with inhalation of high levels of TCE. • Renal toxicity has been described in the literature but would not be expected from ambient air exposure. • Significant cardiac effects would not be expected from TCE exposure at background environmental levels or those currently allowed in the workplace. • Several studies have reported reproductive or developmental abnormalities thought to be associated with exposure to TCE in drinking water. • TCE is *reasonably anticipated to be a human carcinogen* based on limited evidence of carcinogenicity from studies in humans, sufficient evidence of carcinogenicity from studies in experimental animals, which indicates there is an increased incidence of malignant and/or a combination of malignant and benign tumors at multiple tissue sites in multiple species of experimental animals, and information suggesting TCE acts through mechanisms that indicate it would likely cause cancer in humans (NTP 2004). • TCE is a mild respiratory tract irritant and can produce contact dermatitis.
Progress Check	10. Trichloroethylene has been associated with all of the following types of cancer in humans except for A. liver cancer B. brain cancer C. Non-Hodgkin's lymphoma D. kidney cancer. *To review relevant content, see "Carcinogenic Effects" in this section.* 11. The reported cranial neuropathic effects of TCE exposure include A. sensorineural hearing loss B. trigeminal functional losses C. Bells Palsy D. color vision loss. *To review relevant content, see "Neurological Effects" in this section.* 12. Which of following statements is correct? A. Comparisons between species suggest that the ability of the human lung to metabolize TCE is much greater than that in the mouse. B. Inhalation or oral exposure to high doses of TCE for a prolonged period is likely to induce liver and lung tumors in both animals and humans. C. TCE and its metabolites are potent genotoxic agents. D. none of the above. *To review relevant content, see "Carcinogenic Effects" in this section.*

How Should Patients Exposed to Trichloroethylene Be Evaluated?

Learning Objectives

Upon completion of this section, you should be able to:

- identify the primary focuses of the exposure history,
- describe the characteristic finding on patient examination, and
- describe characteristic clinical presentations of patients with acute or chronic TCE exposure.

Introduction

When considering the human health effects of TCE, it is important to make a distinction between occupational exposures to relatively high levels by inhalation and general environmental exposures to low levels in drinking water and ambient air.

Patient History

An occupational history should be routinely obtained. It should include items such as:

- company name and location
- job title
- description of chemical processes encountered
- known toxic agents used
- workplace investigations
- complaints of co-workers

An environmental history should also be obtained, including:

- location and duration of residence
- proximity to industry
- diet
- daily activities
- type of water supply
- use of consumer products that contain TCE

If a temporal association between symptoms and exposure to certain products is suspected, an attempt should be made to identify the specific chemical ingredients involved. In the situation involving occupational or consumer product exposure, if the product label does not list the chemical ingredients, the regional poison control center may maintain a list of ingredients in consumer and proprietary products. In the U.S.: call 1-800-222-1222, or check http://www.aapcc.org/ for an updated list of U.S. Poison Control Centers. The World Health Organization and the International Program on Chemical Safety maintain an international list of poison control centers:

http://www.who.int/ipcs/poisons/centre/directory/en/index.html

In occupational exposures in the U.S., the employer or manufacturer is required by law to provide a material safety data sheet (MSDS), which lists the chemical ingredients and describes their potential toxicity.

Physical Examination

The patient's complaints should be identified in terms of onset, duration, and intensity. Complaints should be investigated by focusing first on major organ systems that are likely to be affected by exposure to TCE (CNS, hepatic, integumentary, cardiovascular, renal), and then on systems unlikely to be affected (respiratory, gastrointestinal, endocrine, skeletal).

Vital signs should be recorded, especially abnormalities of heart rate or rhythm. Eyes, nose, throat, and skin should be examined carefully for inflammation or irritation. The conjunctiva may be injected, and nasal mucosa may be injected and swollen. Repeated inhalation exposures to trichloroethylene can cause defatting of nasal mucosa, leading to a friable condition with drying, cracking, or bleeding. Skin contact may cause dermatitis by irritation and defatting.

The patient's abdomen should be palpated for hepatomegaly and right upper quadrant tenderness.

Patients should receive a complete neurological examination, including a mental status exam and evaluation of the cranial nerves, to detect either peripheral or central nervous system involvement. Cranial neuropathies in patients with a history of TCE exposure are uncommon.

Signs and Symptoms

No unique pattern of symptoms characterizes TCE-induced illness.

Acute Exposure

With inhalation of high concentrations, TCE causes initial CNS excitation followed by CNS depression. Depending on the duration and intensity of exposure, symptoms (Meditext 2004) can include:

- ataxia,
- bronchial irritation,
- confusion,
- dizziness,
- drowsiness,
- dyspnea,
- euphoria,
- fatal cardiac dysrhythmias,
- fatigue,
- headache,
- lethargy,
- light-headedness,
- pulmonary edema,
- renal and hepatic damage,
- respiratory depression,
- seizures,
- stupor, and
- visual disturbances

Coma and respiratory depression may occur with prolonged, high-level exposure (*i.e.*, above 2,000 ppm). Serious ventricular arrhythmias can develop up to 24 hours after large TCE ingestions (Agency for Toxic Substances and Disease Registry 1997).

Effects from ingestion include:

- abdominal pain,
- circulatory collapse,
- diarrhea,
- dizziness,
- dysphagia,
- dysrhythmias,
- hallucinations or distorted perceptions,
- headache,
- incoordination,
- jaundice,
- nausea,
- paresthesia,
- partial paralysis,
- somnolence, and
- vomiting

The main systemic response is CNS depression (Meditext 2004).

TCE is a skin irritant and may cause defatting dermatitis of the skin. Scleroderma has been linked with TCE exposure. Dermal absorption is not likely to be significant if dermatitis is prevented. Vasodilation and malaise ('degreasers flush') recur in workers who drink ethanol after exposure to TCE (Meditext 2004).

After any type of acute exposure, the clinician should keep in mind that:

- because respiratory depression is the most common serious sequela of acute TCE exposure, the adequacy of ventilation should be carefully assessed,
- because of possible arrhythmias, patients with preexisting cardiovascular disease should be monitored by continuous electrocardiogram and frequent evaluation of vital signs, and
- because hepatic injury may occur, liver function tests should be performed.

Chronic Exposure

The symptoms seen in humans in cases of long-term exposure were similar to those seen in acute exposure, but occurred in more extreme and persistent forms (Kleinfeld and Tabershaw 1954; Fan 1988).

Reported neurological effects associated with chronic workplace exposure to TCE have included nonspecific symptoms such as:

- ataxia,
- decreased appetite,
- dizziness,
- emotional instability,
- fatigue,
- headache,
- impaired judgment,
- memory loss,
- sleep disturbances, and
- weakness

WHO (1985) noted that chronic effects such as disturbance of the nervous system can occur following prolonged exposure to TCE concentrations of about 100 ppm (WHO 1985).

Although some CNS symptoms may disappear within several weeks after cessation of exposure, other CNS adverse health effects such as memory loss and mood swings may persist in persons who have been exposed to TCE for long periods (Agency for Toxic Substances and Disease Registry 1997).

Persistent neurological symptoms suggest the possibility of psychiatric disorders and also prompt a search for exposure to neurotoxicants, such as alcohol and other drugs of abuse.

Key Points

- TCE exposure produces no unique clinical clues.
- Respiratory depression can result from acute, high-dose TCE exposure.
- At permissible workplace levels, CNS symptoms of TCE exposure are usually nonspecific and transient.

Progress Check

13. A temporal association between symptoms and exposure to certain products is one of the focuses of patient history because:

    A. it helps evaluate general health
    B. it helps find out patient history on alcohol and drug use
    C. it helps provide important clues on the cause
    D. all of the above

    To review relevant content, see "Patient History" in this section.

14. On patient examination, short-term memory loss, if associated with TCE exposure, is generally:

    A. irreversible
    B. reversible
    C. similar to the forms of dementia
    D. the initial symptom of acute exposure

To review relevant content, see "Signs and Symptoms" in this section.

15. Symptoms associated with inhalation of high-level TCE may include all of the following except:

    A. dyspnea
    B. euphoria
    C. stupor
    D. diarrhea

    To review relevant content, see "Signs and Symptoms" and "Acute Exposure" in this section.

What Laboratory Tests Can Assist in the Evaluation of Patients Exposed to Trichloroethylene?

Learning Objective

Upon completion of this section, you should be able to:

- identify direct and indirect measurements that can assist with diagnosis of TCE exposure.

Introduction

TCE may be measured to confirm TCE exposure. Significant exposure to TCE may result in elevated values of routine laboratory tests, including renal and liver function tests.

Direct Biologic Indicators

TCE

Directly testing for TCE in the blood can be used for either immediate exposure or chronic exposure. However there are multiple factors that influence these results, including time when the sample was taken, total body fat, activity level, and enzyme activity of aldehyde and alcohol dehydrogenase (Waksman and Phillips 2004). Detectable plasma levels of TCE in persons without occupational exposure are approximately 0.01 to 0.13 micrograms per deciliter (μg/dL).

TCE Metabolites

Although TCE disappears rapidly from the blood, metabolites (e.g., trichloroacetic acid) can persist in the blood for several weeks and in urine up to three weeks after heavy exposure (Sato, Nakajima *et al.* 1977; Monster, Boersma *et al.* 1979). Immediate exposure is best measured by trichloroethanol levels in the blood. Chronic exposure is best measured by urinary trichloroacetic acid (Waksman and Phillips 2004).

Caution

The presence of TCE metabolites should be interpreted with caution because some medications (chloral hydrate and disulfiram) and other chlorinated hydrocarbons (1,1,1-trichloroethane and tetrachloroethylene) are also metabolized to trichloroacetic acid and excreted in the urine (Agency for Toxic Substances and Disease Registry 1997).

Indirect Biologic Indicators

Kidney

Urinary excretion of glutathione-S-transferase alpha (Bruning, Sundberg *et al.* 1999), α1-microglobulin (Bolt, Lammert *et al.* 2004), β2-microglobulin (Nagaya, Ishikawa *et al.* 1989) and N-acetyl-β-D-glucosaminidase (Brogren, Christensen *et al.* 1986; Selden, Hultberg *et al.* 1993) are used to indicate kidney damage, but neither marker is specific to TCE-induced damage; a number of short-chain halogenated hydrocarbons can produce similar effects (Agency for Toxic Substances and Disease Registry 1997).

Liver

Biochemical abnormalities are uncommon after acute TCE exposures. Rarely have elevations of serum hepatic transaminases (serum glutamic-oxaloacetic transaminase (SGOT) or aspartate aminotransferase (AST), serum glutamic-pyruvic transaminase (SGPT) or alanine aminotransferase (ALT)), bilirubin, and creatinine resulted from acute TCE exposure; (Rasmussen, Brogren *et al.* 1993; Agency for Toxic Substances and Disease Registry 1997) nevertheless, liver and kidney function and serum creatinine tests should be performed to establish baselines.

Heart

Electrocardiogram and continuous cardiac monitoring should be considered for heavily exposed persons.

Gastrointestinal

Ingestion of large amounts of TCE, which can cause profuse diarrhea, can produce an electrolyte imbalance.

Nervous System

Because the trigeminal, optic, and facial nerves can be impaired by exposure to dichloroacetylene, changes in the visual fields and trigeminal nerve potentials can be noted (Szlatenyi and Wang 1996).

Immune System

Two studies that may be of value are Kahn and Letz (1989) and American College of Physicians (1989).

If it had been indicated, laboratory evaluation of immunologic host-defense defects would consist of three phases.

The preliminary screening is a complete blood count with differential smear and quantitative immunoglobulin levels. These tests, together with history and physical examination, will identify more than 95% of patients with primary immunodeficiencies.

The second testing phase consists of readily available studies including B-cell function (such as antibodies and response to immunization), T-cell function (skin tests and contact sensitization), and complement levels.

The first two phases combined will detect most immunodeficiencies amenable to conventional treatment with gamma globulin or plasma.

The third phase (in-depth investigation) consists of testing induction of B-lymphocyte differentiation *in vitro*, stimulated by pokeweed mitogen

	and histological and immunofluorescent examination of biopsy specimens; T-cell surface markers; assays of T-cell helper or killer cell functions; and functional assays using appropriate target cells. It is inappropriate to perform the latter tests on environmentally exposed patients except for epidemiologic research. If the patient's concerns include an increased risk of autoimmune illnesses, general evaluation for autoimmune diseases might include • C-reactive protein (CRP), • evaluation of the antinuclear antibody (ANA), and • the erythrocyte sedimentation rate (ESR). If a specific autoimmune disease is suspected, appropriate serologic markers should be assessed, where available.
Key Points	• TCE can be detected in the breath and urine up to 16 hours after exposure; metabolites can persist for a week or more. • Urinary metabolites are trichloroethanol and trichloroacetic acid. • Urinary proteins, liver function tests, a serum creatinine test, and continuous cardiac monitoring should be considered for persons acutely exposed to high levels of TCE.
Progress Check	16. To confirm TCE exposure, which of the following measurements is the most reliable testing? A. trichloroacetic acid in blood and urine B. TCE in breath, blood, or urine C. elevated values of renal and liver function tests D. elevated values of routine laboratory tests. *To review relevant content, see "Direct Biologic Indicators" in this section.*

How Should Patients Exposed to Trichloroethylene Be Treated and Managed?

Learning Objectives	Upon completion of this section, you should be able to: • describe the principal treatment strategy for treating and managing TCE poisoning.
Introduction	There is no antidote for TCE poisoning. Treatment consists of support of respiratory and cardiovascular functions.
Acute Exposure	In the case of dermal contact with liquid TCE, contaminated clothes should be removed and the affected areas washed with copious amounts of soap and water. Direct eye splashes require irrigation for at least 15 minutes. Corneal epithelium damage usually resolves spontaneously after irrigation. Patients should be removed from the contaminated environment as soon as possible; begin artificial ventilation, if needed. Those with altered mental status or apparent respiratory insufficiency should receive supplemental oxygen. If the patient's pulse is absent, cardiopulmonary resuscitation should be initiated. Gut decontamination (emesis, lavage, or saline cathartic) is recommended if it can be initiated within two to three hours after the ingestion of more than a swallow of TCE. However, the effects of these measures have not been clinically evaluated. If emesis is considered, administer the emetic only to patients who are fully conscious and have an intact gag reflex. Activated charcoal has not been proven to absorb TCE, but, in general, it effectively decreases absorption of most ingested toxic agents. • No data are available on the ability of hemodialysis or hemoperfusion to increase TCE elimination. • No specific antidotes exist (Meditext 2004). • Patients with serious TCE toxicity should be monitored for the possible development of arrhythmias. • When diarrhea is present, monitor for the development of electrolyte abnormalities and screen for the possible development of hepatorenal dysfunction (Meditext 2004). • Sequelae are unusual in acute exposures but reported (Lawrence and Partyka 1981; Feldman, White *et al.* 1985; Szlatenyi and Wang 1996).
Chronic Exposure	No known treatment for chronic exposure to TCE exists. Potentially involved organ systems should be independently evaluated, and supportive measures should be initiated.
Key Points	• Removal from the source and supportive care is the recommended treatment for acute TCE exposure. • Symptomatic treatment is recommended for chronic TCE exposure.

Progress Check

17. The primary strategy for managing TCE poisoning patients includes

    A. supportive measures
    B. ventilation therapy
    C. reduction or elimination of exposure
    D. all of the above.

To review relevant content, see "Introduction" and "Acute Exposure" in this section.

18. All of following statements are correct except:

    A. Symptoms related to chronic exposure tend to worsen during exposure and improve when exposure ceases.
    B. CNS symptoms due to acute TCE inhalation exposure are transient but may linger for hours after exposure ceases.
    C. Supportive care directed to adequate ventilation and circulation should be provided.
    D. There is a specific antidote for TCE poisoning.

To review relevant content, see "Chronic Exposure" in this section.

What Instructions Should Be Given to Patients?

Learning Objective	Upon completion of this section, you should be able to: • describe advice on self care and follow-up care normally provided to patients who are exposed to TCE.
Introduction	All patients exposed to TCE need some basic guidance on: • self care, so they can minimize further risks and avoid complications to the extent possible and • clinical follow up, so they understand when and why to return for further medical attention. ATSDR has developed a patient education sheet on TCE that you might find useful. It can be found at [add URL for patient education]
Self Care	Patients should be advised to avoid exposures and conditions that might further increase their risk of disease or worsen their existing condition. **At work** • Be sure to use personal protective equipment (PPE) - gloves, goggles, masks. • Ask employer for the MSDS on products that you use. • Be sure all containers are labeled for any chemical you use at work. • Ask your employer for training on how to use chemicals at work. • Your employer is required to provide labeling, MSDS and training as part of the OSHA Hazard Communication Standard. It's the law! **At home** • Search for safer alternatives to products with TCE. • When using consumer products containing TCE, open all windows and use fans in your workspace. • Use respirators or gloves. • Use cold water to wash dishes, clothes, etc. • Ventilate the bathroom when showering.
Clinical Follow Up	Since TCE has been implicated as a likely cause of cancer, periodic physical exams may be of value in detecting abnormalities at an early stage if they occur. Patients should be advised to consult their physician if they develop: • any sign or symptom of central nervous system or • signs or symptoms of other health changes (especially those possibly related to heart, liver, and kidney problems) ATSDR's patient education sheet on TCE includes a more detailed checklist that you can use to indicate which types of follow up are relevant for a given patient.

Key Points	• Patients should be advised to avoid exposures and conditions that might further increase their risk of disease or worsen their existing condition. • Patients should contact their physician if they develop neurological problems or other health changes.
Progress Check	19. Patients who have been exposed to TCE should A. speak to their employer about PPE (if exposures are occupational) B. learn how to avoid further exposure C. know when to call their doctor D. all of the above. *To review relevant content, see all content in this section.*

Where Can I Find More Information?

For More Information

Please refer to the following Web resources for more information on the adverse effects of TCE, the treatment of TCE poisoning, and management of persons exposed to TCE. You may also contact ATSDR (see URLs provided below), your state and local health departments, and university medical centers.

Association of Occupational and Environmental Clinics

http://www.aoec.org

American College of Occupational and Environmental Medicine

http://www.acoem.org

American College of Medical Toxicologists

http://www.acmt.net

American College of Preventive Medicine:

http://www.acpm.org

ATSDR Information Center

http://www.atsdr.cdc.gov/icbkmark.html

ATSDR Information Center Contact Information

http://www.atsdr.cdc.gov/contacts.html

Other CSEMs

Case Studies in Environmental Medicine: Trichloroethylene Toxicity is one monograph in a series. To view the *Taking an Exposure History* CSEM and other publications in this series, please go to

http://www.atsdr.cdc.gov/csem/exphistory/

Posttest

Introduction	ATSDR seeks feedback on this course so we can asses its usefulness and effectiveness. We ask you to complete the assessment questionnaire online for this purpose. You can receive continuing education credits as follows, if you complete the assessment and posttest online.

Accrediting Organization	Credits Offered
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Posttest

Please select the best correct answer

1. Which of the following products contain trichloroethylene?

   A. Anesthetic.
   B. Grain fumigant.
   C. Spot remover.
   D. Disinfectant.

2. People can be exposed to trichloroethylene from

   A. Environmental sources.
   B. Consumer products.
   C. Occupational sources.
   D. All of the above.

3. The common sources of non-occupational exposure to TCE are

   A. Discharge to surface waters and groundwater by industry.
   B. Leaching from hazardous water landfills into groundwater.
   C. Continual volatilization of TCE from emission sources.
   D. All of the above.

4. Which of the following persons have an increased likelihood of trichloroethylene exposure?

   A. Racecar drivers.
   B. Fabric cleaners.
   C. Pharmacists.
   D. Tree sprayers.

5. NIOSH considers trichloroethylene a potential occupational carcinogen and recommends exposure limit of which as a 10-hour TWA

   A. 25 ppm.
   B. 100 ppm.
   C. 50 ppm.
   D. None of the above.

6. Which of the following statements about trichloroethylene is true?

   A. A large amount of absorbed TCE is exhaled unchanged.
   B. Once absorbed, TCE is slowly cleared from the blood.
   C. Most of an absorbed dose is metabolized in the liver.
   D. Trichloroacetic acid is only detectable within 72 hours after TCE exposure.

7. Which of the following statements is not correctly described with regards to TCE metabolism?

   A. TCE accumulation occurs in organs containing high levels of adipose tissue.
   B. Humans are uniform in their capacity for metabolism of TCE.
   C. The pathways for metabolism of TCE in humans, rats, and mice are qualitatively similar.
   D. Humans metabolize much less TCE on a body weight basis than rats or mice at similar exposure levels.

8. Common clinical effects associated with acute exposure to pure TCE at concentrations > 2,000 ppm include

   A. CNS depression.
   B. Nausea.
   C. Upper respiratory tract and eye irritation.
   D. All of the above.

9. Chronic exposure to TCE might

   A. Cause headaches or drowsiness.
   B. Mildly alter liver function.
   C. Cause short-term memory deficits.
   D. All of the above.

10. The main systemic response to TCE exposure is

    A. Respiratory depression.
    B. CNS depression.
    C. Gastrointestinal irritation.
    D. Skin irritation.

11. Laboratory tests to confirm TCE exposure include

    A. Breath analysis for trichloroacetic acid.
    B. Cardiac isoenzymes.
    C. Blood analysis for trichloroethanol.
    D. Urinary creatinine.

12. Treatment for acute inhalation of TCE might include

    A. Oxygen.
    B. Hemodialysis.
    C. Emesis.
    D. Milk of magnesia.

Relevant Content	To review content relevant to the posttest questions, see:
Question	**Location of Relevant Content**
1	What is trichloroethylene?
2	Where is trichloroethylene found?
3	How are people exposed to trichloroethylene?
4	Who's at risk of trichloroethylene exposure?
5	What are U.S. standards for trichloroethylene exposure?
6	What is the biologic fate of trichloroethylene in the body?
7	What is the biologic fate of trichloroethylene in the body?
8	What are the physiological effects of trichloroethylene?
9	What are the physiological effects of trichloroethylene?
10	How should patients exposed to trichloroethylene be evaluated?
11	What laboratory tests can assist in the evaluation of patients exposed to trichloroethylene?
12	How should patients exposed to trichloroethylene be treated and manage?

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Answers to Progress Check Questions

1. The best choice is D. TCE ($Cl_2C=CHCl$) is a clear, colorless, nonflammable liquid possessing a sweet, fruity odor characteristic of chloroform. 80% of TCE is used for vapor degreasing of fabricated metal parts in the automotive and metal industries. Before its ban for certain applications in 1977, TCE was also used as a general anesthetic (mostly in obstetric settings), grain fumigant, disinfectant, pet food additive, and extractant of spices in foods and caffeine in coffee.

2. The best choice is D. Because of its widespread use, TCE has become a common environmental contaminant. Contamination results from evaporative losses during use; discharge to surface waters and groundwater by industry, commerce, and individual consumers; leaching from hazardous waste landfills into groundwater; and from the incidental addition of TCE during food production.

3. The best choice is B. The air pathway is the most common route of exposure to trichloroethylene, and the route that most commonly leads to illness.

4. The best choice is D. Increased potential for exposure may be encountered by workers performing degreasing and metal cleaning shoemakers, rubber cementers, dry cleaners, etc.

5. The best choice is D. It's unnecessary for those workers from answers A-C to entail high risk of exposure to trichloroethylene. Mechanics who degrease fabricated metal parts in the automotive industries, however, certainly bear a higher risk of exposure to TCE.

6. The best choice is B. The current OSHA 8-hour TWA for TCE is 100 ppm.

7. The best choice is B. EPA has established a drinking water maximum contaminant level (MCL) for trichloroethylene of 5 ppb.

8. The best choice is D. A relatively small amount of absorbed TCE is exhaled unchanged; most of an absorbed dose is metabolized in the liver and excreted in the urine as trichloroacetic acid and trichloroethanol.

9. The best choice is A. The cytochrome P450 pathway generates tri- and dichloroacetate as metabolites of trichloroethylene, and these are associated with hepatic toxicity and carcinogenicity.

10. The best choice is B. Brain cancer risk has not been reported to be significantly elevated in association with TCE exposure.

11. The best choice is B. Trigeminal abnormalities (abnormal blink reflex and masseter).

12. The best choice is B. Inhalation or oral exposure to high doses of TCE for a prolonged period is likely to induce liver and lung tumors in both animals and humans.

13. The best choice is C. A temporal relationship between onset of symptoms and work or other activity may provide important clues on the cause. If a temporal association between symptoms and exposure to certain products is suspected, an attempt should be made to identify the specific chemical ingredients involved.

14. The best choice is B. Short-term memory impairments gradually clear after exposure to TCE ceases. Patients may be mistakenly diagnosed with various forms of dementia, such as Alzheimer disease or other CNS disorders, when they in fact suffer from a preventable and possibly reversible toxic disorder. The best choice is D. Diarrhea is one of the effects from ingestion of TCE.

15. The best choice is B. If the cause of symptoms is questionable, direct biologic testing, such as measuring TCE level in breath, blood, or urine, may be warranted to confirm TCE exposure.

16. The best choice is D. Supportive care directed to adequate ventilation and circulation should be provided. Patients should be removed from the contaminated environment as soon as possible; begin artificial ventilation, if needed.

17. The best choice is D. There is no antidote for TCE poisoning. Treatment should focus on support of respiratory and cardiovascular functions.

18. The best choice is D. If exposures are occupational, patients should speak to their employer about PPE. Patients should be advised to avoid exposures and conditions that might further increase their risk of disease or worsen their existing condition. In addition, patients should contact their physician if they develop neurological problems or other health changes.

Attachment F – Field Forms

Drill Rig Inspection Form

Project Name:_____ **Project Number:**_____

Date:_____ **Subcontractor Inspected:**_____

Site Manager:_____

General Safety		
Safety Officer Designated for Job:	☐ Yes	☐ No
Name:		
Safety Meeting Performed (Daily)	☐ Yes	☐ No
Personal Protective Equipment (PPE)		
Hard Hats	☐ Yes	☐ No
Safety Glasses	☐ Yes	☐ No
Steel Toed Boots	☐ Yes	☐ No
Hearing Protection	☐ Yes	☐ No
Work Gloves	☐ Yes	☐ No
Orange Work Vests	☐ Yes	☐ No
Traffic Cones and Signs	☐ Yes	☐ No
Other	☐ Yes	☐ No
Disposal of PPE in Proper Waste Containers (if applicable)	☐ Yes	☐ No
Comments:		
Daily Inspections of Drill Rig:		
Structural Damage, Loose Bolts	☐ Yes	☐ No
Proper Tension in Chain Drives	☐ Yes	☐ No
Loose or Missing Guards, Fluid Leaks	☐ Yes	☐ No
Damaged Hoses and/or Damaged Pressure	☐ Yes	☐ No
Gages and Pressure Relief Valves	☐ Yes	☐ No
Comments:		

CHECK AND TEST ALL SAFETY DEVICES SUCH AS:		
Emergency shutdown switches, at least daily	☐ Yes	☐ No
All gauges and warning lights, and ensure control levers are functioning properly	☐ Yes	☐ No
First Aid and fire extinguishers on drill rig	☐ Yes	☐ No
Back up alarm functioning properly	☐ Yes	☐ No
Comments:		

DRILL CREW TRAINING REQUIREMENTS:		
40-hour OSHA Training	☐ Yes	☐ No
8-hour Annual Refresher Training	☐ Yes	☐ No
Drill Rig Training/Safe Operating Practices	☐ Yes	☐ No
First Aid/CPR	☐ Yes	☐ No
Emergency Procedures	☐ Yes	☐ No
Emergency Phone Numbers Posted	☐ Yes	☐ No
Site Orientation	☐ Yes	☐ No
Health and Safety Plan Review	☐ Yes	☐ No
Comments:		

HOUSEKEEPING:		
Suitable storage for tools, materials, and supplies	☐ Yes	☐ No
Pipes, drill rods, casing, and augers stacked on racks to prevent rolling and sliding	☐ Yes	☐ No
Platforms and other work areas free of debris materials and obstructions	☐ Yes	☐ No
Comments:		

HAND TOOLS:		
Tools in good condition	☐ Yes	☐ No
Broken tools discarded and replaced	☐ Yes	☐ No
Right tool used for the right job	☐ Yes	☐ No
Comments:		

DRILLING OPERATIONS:		
Mast or derrick down when moving rig	☐ Yes	☐ No
Overhead obstructions identified before mast is raised	☐ Yes	☐ No
Drill rig stabilized using leveling jacks or solid cribbing	☐ Yes	☐ No
Secure and lock derrick	☐ Yes	☐ No
Comments:		

OVERHEAD AND BURIED UTILITIES:		
Buried utilities identified and marked	☐ Yes	☐ No
Safe distance of drill rig from overhead power lines	☐ Yes	☐ No
Comments:		

WIRE LINE HOISTS, WIRE ROPE AND HARDWARE:		
Inspection for broken wires where reduction in rope diameter, wire diameter, fatigue, corrosion, damage from gear jamming, crushing, bird caging, kinking	☐ Yes	☐ No
Inspect and lubricate parts daily	☐ Yes	☐ No
Comments:		

Auger Operations - What to look for:

- A system of responsibility between the operator and the tool handler when connecting and disconnecting auger sections and inserting and removing auger fork.
- During connecting and disconnecting auger sections and inserting auger for the tool, handler should position himself away from the auger column while it is rotating.
- When securing the auger to the power coupling, pin should be inserted and tapped into place using a hammer or other similar device.
- Tool hoist should be used to lower second section of auger into place.
- Both operators should be clear of auger as it is being lifted into place.
- Long-handled shovel should be used to move dirt away from auger.

Overall Summary:

_____

_____

_____

_____

SUBSURFACE INVESTIGATIONS CHECKLIST

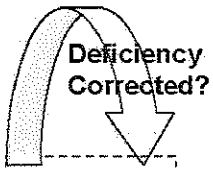
Name of Contractor: _____

Location: _____ Project #: _____

Date: _____ Time: _____ Weather: _____

Person Conducting Inspection: _____ Title: _____

*Note: As you conduct your inspection you should be able to answer each question with a **YES**. If the answer to any question is **NO,** this deficiency should be corrected as soon as possible.*



	YES	NO	OK	N/A
1. Do on-site personnel have required level PPE (steel toe boots, safety vests, hard hats, safety glasses, & gloves)?	☐	☐	☐	☐
2. Is there a copy of HASP and EAP available at each drill rig location?	☐	☐	☐	☐
3. Are there a PID, multi-gas meter, and a colorimetric pump available at each drill rig location?	☐	☐	☐	☐
4. HAS THE FIELD SCREENING EQUIPMENT BEEN CALIBRATED IN THE MORNING?	☐	☐	☐	☐
5. Are calibration gases available at the site?	☐	☐	☐	☐
6. Are drilling fluids contained in the mud tub?	☐	☐	☐	☐
6a. Does mud tub set-up provide adequate splash guards to protect public?	☐	☐	☐	☐
6b. Does set-up present five (5) feet of walk space for public?	☐	☐	☐	☐
6c. Will mud tub be emptied at end of day?	☐	☐	☐	☐
6d. Explain how the mud tub will be covered to prevent an accident _____				
6e. Are adequate containment practices being implemented to prevent mud tub liquids from being released to pedestrian walkways?	☐	☐	☐	☐
7. Is the drill rig properly grounded?	☐	☐	☐	☐
8. Is there a DOT permit available on-site at each drill rig location?	☐	☐	☐	☐
8a. Are operations in compliance with DOT permit?	☐	☐	☐	☐
9. Is there an orange snow fence with appropriate warning signage erected as a site barrier around the drill rig to keep-off the pedestrians from work area?	☐	☐	☐	☐
10. Are hydrant water hoses out of the pedestrian side walk?	☐	☐	☐	☐

	YES	NO	OK	N/A
11. Is there smoking and eating prohibited in the immediate work area?	☐	☐	☐	☐
12. Does each drill rig have a fire extinguisher, absorbent materials to cleanup a spill, and a first aid kit?	☐	☐	☐	☐
13. Is the waste from mud tub properly contained into 55-gallon drums?	☐	☐	☐	☐
13a. Are drums properly labeled?	☐	☐	☐	☐
14. Is there proper housekeeping to avoid slips, trips, and falls?	☐	☐	☐	☐
15. Are decontamination/hand washing capabilities available at the site?	☐	☐	☐	☐

COMMENTS:

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