

**FINAL REPORT
FOR
MILLVILLE TCE
PRELIMINARY ASSESSMENT
MILLVILLE, MASSACHUSETTS**

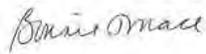
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ACRONYM/ABBREVIATIONS LIST

%	Percent
bgs	below ground surface
AOC	Area of Concern
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
BVW	Bordering Vegetative Wetland
CB&I	Chicago Bridge & Iron
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
cfs	Cubic Feet Per Second
CGI	Combustible Gas Indicator
CLP	Contract Laboratory Program
CO	Carbon Monoxide
COR	Contracting Officer Representative
CRQL	Contract Required Quantitation Limit
CVOC	Chlorinated Volatile Organic Compound
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ft ²	Square feet
GIS	Geographic Information System
H ₂ S	Hydrogen Sulfide
LEL	Lower Explosive Limit
LSE	Lakeshore Environmental
MA	Massachusetts
MCP	Massachusetts Contingency Plan
MassDEP	Massachusetts Department of Environmental Protection
mg/L	Milligrams Per Liter
µg/Kg	Micrograms Per Kilogram
µg/L	Micrograms Per Liter
µR/hr	MicroRoentgens per hour
mi ²	Square Miles
NAPL	Non-Aqueous Phase Liquid
NERL	New England Regional Laboratory
No.	Number
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NTNC	non-transient non-community
O ₂	Oxygen
OEME	Office of Environmental Measurement and Evaluation
OHM	Oil or Hazardous Material
OSRR	Office of Site Remediation and Restoration
PA	Preliminary Assessment
PCE	Tetrachloroethylene
PE	Performance Evaluation
PEL	Probable Effects Level
PID	Photoionization Detector
POET	Point of Entry Treatment
PPE	Probable Point of Entry
ppb	parts per billion

ACRONYM/ABBREVIATIONS LIST

ppm	Parts per million
PRP	Potentially Responsible Party
PVC	Polyvinyl Chloride
PWS ID	Public Water System Identification
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RCGW	Reportable Concentrations in Groundwater
REC	Recognized Environmental Condition
RI	Rhode Island
RTN	Release Tracking Number
SDG	Sample Delivery Group
SEMS	Superfund Enterprise Management System
SQuiRT	Screening Quick Reference Table
START	Superfund Technical Assessment and Response Team
SVOC	Semivolatile Organic Compound
SWP	Surface Water Pathway
TCE	Trichloroethylene
TDL	Target Distance Limit
TEL	Threshold Effects Level
USDA	United States Department of Agriculture
TPH	Total Petroleum Hydrocarbons
USGS	United States Geologic Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WPA	Wellhead Protection Area

INTRODUCTION

The Weston Solutions, Inc., Superfund Technical Assessment and Response Team IV (START) was requested by the U.S. Environmental Protection Agency (EPA) Region I, Office of Site Remediation and Restoration (OSRR) to perform a Preliminary Assessment (PA) of the Millville TCE site. The Millville TCE site has currently been identified by a contamination plume of unknown origin, encompassing a group of private residential drinking water supply wells located along Providence Street, Millville, Massachusetts (MA) (see Attachment A, Figure 1) [3]. The contamination plume contains chlorinated volatile organic compounds (CVOCs), including trichloroethylene (TCE) and tetrachloroethylene (PCE), at levels elevated above their respective state drinking water standards associated with a source release of unknown origin. At the current time, elevated levels of contamination have been documented in drinking water samples from wells on the following properties: 19/25 Providence Street (a shared well serving both properties), and 3 Providence Street (see Attachment A, Figure 2) [1; 4].

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA Region I regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State, or local regulations. PAs are intended to provide a preliminary screening of sites to facilitate EPA Region I's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

The street address, coordinates, and contaminant locations presented in this PA report identify the general area in which the site is located. They represent one or more locations EPA considers to be part of the site based upon the screening information collected or generated in the course of this or previous investigation(s). The EPA Site Assessment Program is designed to identify "releases or threats of releases" of hazardous substances, and the focus of this investigation is on the release(s) or potential release(s), rather than precisely delineated site boundaries. A site is defined under the EPA Site Assessment program as where a hazardous substance has been "deposited, stored, placed, or otherwise come to be located." EPA anticipates that the preliminary description of site boundaries will be refined as more information is developed regarding where the contamination has come to be located.

SITE DESCRIPTION

The Millville TCE site has currently been identified by a contamination plume of unknown origin, encompassing a group of private residential drinking water supply wells located along Providence Street, Millville, MA. The contamination plume contains CVOCs, including TCE and PCE, at levels elevated above their respective state drinking water standards [1; 4].

For the purpose of this PA document, the Millville TCE site is considered the general area on and around the 19/25 Providence Street properties where the contamination was first identified and which contain elevated concentrations of TCE and PCE. Elevated levels of contamination have been documented in drinking water samples from residential supply wells on the following

properties: 19 and 25 Providence Street (a shared well serving both properties), and 3 Providence Street (located in the vicinity of 19/25 Providence Street) (see Attachment A, Figure 2).

The site is located in a mixed commercial/residential area of Millville, MA along the Massachusetts-Rhode Island border. The general area in the vicinity of the Millville TCE site consists of portions of the commercial business district and village residential district of Millville, MA, containing mixed residential, light commercial and industrial properties. Providence Street contains several residential units, including single-family homes, duplexes, and condominiums.

EPA has identified three potential areas of concern (AOCs) in the vicinity of the Millville TCE site to be investigated as part of the PA: Mendon Street Automotive (7 Providence Street) (see Attachment A, Figure 3); Louis Iarussi Property (171 Central Street) (see Attachment A, Figure 4); and Rudy's Service Station (190 Central Street) (see Attachment A, Figures 5 and 5A), in Millville, MA.

The properties at 3, 19, and 25 Providence Street are currently listed as a site with the Massachusetts Department of Environmental Protection (MassDEP) as Release Tracking Number (RTN) 02-0019567; and the 190 Central Street (Rudy's Service Station) property is currently listed as a site with MassDEP as RTN 02-0018787 [5; 6]. The 171 Central Street (Louis Iarussi) property is listed as a site under the Superfund Enterprise Management System (SEMS) as Site ID. No. MAN000101702 [2]. START concluded that Mendon Street Automotive (7 Providence Street) was not listed in either EPA or MassDEP tracking databases.

Although the Millville TCE site consists of multiple properties, the field sampling portion of the PA investigation focused on two properties: the 171 Central Street (Louis Iarussi) property and the 7 Providence Street (Mendon Street Automotive) property. The Louis Iarussi Property (171 Central Street) and Mendon Street Automotive Property (7 Providence Street) abut the 19 and 25 Providence Street properties to the south and east. The geographic coordinates for the site, as measured from the approximate center of the Louis Iarussi property, are 42° 00' 53.1" north latitude and 71° 34' 48.8" west longitude [9].

Mendon Street Automotive:

Mendon Street Automotive formerly operated at 7 Providence Street, Millville, MA. The property is currently owned by Ms. Elizabeth Laliberte. The property consists of a portion of a 1.73-acre property identified in the Millville Tax Records as Plat Map 129, Lot 1 [8]. This property is located approximately 300 feet southeast of the 19/25 Providence Street supply well and northwest of the 3 Providence Street well (see Attachment A, Figure 3). Mendon Street Automotive is identified on the internet as a general automotive repair operation.

On 11 April 2016, EPA, MassDEP, and START conducted a site reconnaissance of the Mendon Street Automotive property (7 Providence Street). START personnel observed that the property sloped to the west (rear portion of the lot). Contracting Officer Representative (COR) Bosworth stated that the property owner had mentioned that she is currently renting the property to a landscaping company that uses the property to store equipment and vehicles. START personnel observed through a window that the ground level office space (first floor) appeared to be vacant. The reconnaissance party did not access the building, but proceeded to the rear of the building to observe the remainder of the property. START personnel observed several pieces of assumed landscaping operation equipment, including three pickup trucks, several flatbed utility trailers, several snow plows, two commercial-size salt/sand spreaders, ride-on mowers, a grass catcher

box trailer, and a tree chipper unit. START personnel also observed two garage bay doors within the basement floor of the 7 Providence Street building. Through the garage windows, START observed two vehicles (trucks) parked in a garage area, along with various tools and supplies. START assumed that these items were part of the landscaping operation and were being stored in the garage area. START also observed small piles of rocks and asphalt pieces, along with several large piles of yard waste/compost/mulch material, behind the building, along the southern portion of the property. In addition, START personnel observed four empty 55-gallon polypropylene drums on the rear portion of the property. Three empty drums were located along the southern fence line in the central portion of the property, and there was one empty drum adjacent to a snowplow blade near the southwestern portion of the building. A small, estimated 3-cubic-yard dumpster was also seen on the property. A transmission tower was located in the southwest corner of the property. The tower was located on an elevated platform of soil/land, which was approximately 3-4 feet higher than the surrounding ground surface. The soil around the tower had been excavated to form the new, lower ground surface.

START personnel also observed a 6-foot-high chain-link fence surrounding the rear portion of the property, with swing gates leading to Providence Street and another leading out to the property to the southwest of the 7 Providence Street property.

Louis Iarussi Property:

The Louis Iarussi Property is located at 171 Central Street. According to town property records, the property was purchased in 1997 by Louis Iarussi Jr. [1, 7]. This property abuts the 19 and 25 Providence Street properties to the south and west. This 9.6-acre property is identified in the Millville Tax Records as Plat Map 129, Lot 11 (see Attachment A, Figure 4) [7]. The property generally slopes to the west and southwest [1].

The property currently contains an open/cleared area with several large sand and gravel piles in the northern portion of the property. Two High Tension Transmission Towers are located on the property, one near the Central Street property entrance and one approximately 200 feet west of the property border with 25 Providence Street. An unnamed stream flows southeast across the property, and a small pond is located in the southwestern portion of the property. Wetlands border the stream and pond areas. A woodland area is located in the west and southwestern portion of the property. Trees line the northern, eastern, and southeastern portions of the property [1].

On 11 April 2016, EPA, MassDEP, and START conducted a reconnaissance of the property. During the reconnaissance, the property owner/representative, Mr. Iarussi Sr., stated that when he and his son purchased the property, it had been used as a former gravel pit. Mr. Iarussi Sr. stated that he had been clearing and leveling the property until he received a Cease and Desist Order. Mr. Iarussi Sr. stated that he currently operates a farm on the property, growing wood (trees) and blueberries, along with raising honey bees. START personnel asked about the farm crops, and Mr. Iarussi Sr. noted that he had transplanted a few blueberry bushes, but they did not survive. No blueberry crops were observed by START personnel. Mr. Iarussi Sr. noted that there are two bee houses to the south of the transmission tower in the central portion of the property. START did observe the two active bee houses [1].

START personnel observed that the property includes four main areas: the northern area containing several soil/loam piles and bordering vegetation areas; the central area/operations area containing a transmission tower, heavy equipment (front end loader and excavator), a soil screener unit, a storage trailer, wood/lumber pile, one empty steel 55-gallon drum (adjacent to

the wood/lumber pile), and supplies, as well as additional soil piles; the southern area, consisting of the “open/cleared area”; and the western area, consisting of woodland and wetland areas. Property owner Mr. Iarussi Sr. stated that many of the piles observed on the central and northern portions of the property were on site when he purchased the property. He noted that he has removed or moved many of the piles; and used a screener to screen the material and remove the debris and concrete. Screened soil materials have been used to level the property [1].

There was miscellaneous trash/debris (paper, wood, plastic, metal, auto hoses, sports equipment, yard wastes, partially burned wood and debris, etc.) scattered within the vegetation brush material. Mr. Iarussi Sr. stated that he has not seen much random dumping of materials along the access road or borders to the property, but on occasion something will be dumped on his property. Mr. Iarussi Sr. stated that he is on site approximately 4 hours per day and rarely sees any items that were dumped randomly. However, most recently a leather couch appeared adjacent to the entrance gate; it is now stored near the storage trailer for disposal. Mr. Iarussi Sr. further noted that when he and his son purchased the property, there was a small dump along the northeastern property line on his property near the white house along Providence Street (assumed to be 51 Providence Street). He noted that neighboring residents have been dumping items along the edge of his property for years and it still continues. He has been clearing and hauling these items out with others items found when he clears and levels the property. Mr. Iarussi Sr. noted that he can no longer conduct these activities because of the Cease and Desist order he received. Mr. Iarussi Sr. noted that he had previously brought about 10 loads of concrete debris onto the property. He had planned to use the concrete as fill material. Mr. Iarussi Sr. noted that some of this debris remains on site, but the majority has been removed. Mr. Iarussi Sr. noted that he has not observed drums or containers when excavating or screening the soil material, but he has found metal pieces, hoses, and other debris material [1].

START personnel were later informed by two local residents (during sampling activities) that concrete and brick materials, along with other demolition debris, had been trucked onto the property and buried/piled throughout much of the northern area and the central area/operations area. These residents further alleged that this debris had been transported by the property owner from a contaminated waste site in Milford, Massachusetts [1].

START personnel also observed a 6- to 8-inch corrugated plastic drainage pipe that appeared to extend from an off-site residential property abutting Providence Street and extend onto and discharge to the Iarussi property. A (faded) sign adjacent to the pipe indicates that the pipe drains from the road (Providence Street). START members were able to read the faded sign and noted that it read as follows: “Caution Underground Pipe from Road”. START did not observe any indication of a stormwater drainage grate or pipe along Providence Street in the vicinity of the properties that border the Iarussi property (171 Central Street), where the 6- to 8-inch corrugated plastic drainage pipe emerges. START personnel later spoke with the property owner of the adjacent residence who noted that he installed a drain across his driveway and the corrugated plastic drainage pipe due to runoff flowing onto his property from the street. The property owner also noted that water from his basement sump pump is also connected to the corrugated plastic drainage pipe [1].

START observed a small ponded area and a concrete drainage culvert located adjacent to the property boundary and 25 Providence Street property. Mr. Iarussi Sr. noted that he believes the culvert drains the roadways, Providence Street, and Afonso Way. He noted that in the past year, more water seemed to be draining onto his property from this culvert, creating a small gully on his property. The reconnaissance party observed that a small drainage retention pond exists at the

intersection of Providence Street and Afonso Way. A culvert exits the retention pond and may lead to the discharge culvert adjacent to the border of the 25 Providence Street and 171 Central Street properties [1].

START observed bedrock protruding at the ground surface in the open/cleared area (southeastern section of the property). Mr. Iarussi Sr. noted that bedrock ledge is found in this area, and he has graded the property to slope over and off the ledge in this area toward the central portion of the property [1].

Along the southern property border, START personnel observed four 30-gallon drums carcasses within a tree line. According to Mr. Iarussi, the tree line marks the edge of his property. The 30-gallon drums carcasses appeared rusted and empty. One of the drums was marked on the top along the outer ring circle as "*E.I. DU PONT DE NEMOURS & CO. INC. WILMINGTON DEL.*"; with four lines of center text labeling reading "*DUPONT*"; "*REG. U.S. PAT. OFF.*"; "*MADE IN U.S.A.*"; and lowest line reading "*D-151*". The other three 30-gallon drums did not appear to have labels, but were not moved to determine if labeling was on the undersides. The 30-gallon drums are assumed to be located on an adjacent property (assumed to be 254 Old Great Road, North Smithfield, RI) and not the 171 Central Street property. The drums were observed to be adjacent to (behind/north and northwest of) a reddish garage/barn/shed structure [1].

START observed an approximately 15- to 20-foot-high mound of mixed soil and road construction debris (pieces of asphalt, concrete, lumber, and waste-rock containing blast drill holes) along the southeastern property boundary. The mound appeared to be fairly old based on observation of 20-inch-diameter trees and well-developed patches of moss. According to Mr. Iarussi, this mound is not on his property, but on the adjacent property [1]. Based on the tax assessor's maps and field observations, it appears a portion of this mound is located on the 171 Central Street property [1; 7].

START observed silt fencing and straw bales for erosion control along the edge of the western tree line/wetland areas. Within the central portion of the property, START observed a truck bed storage container (with equipment/supplies and containers of various sizes and content, including de-icer fluid, brake fluid, carburetor cleaner, brake cleaner, hand cleaner, belt dressing, antifreeze, wasp spray, and several unlabeled or unreadable containers), a small tire pile (less than 20 total), six (6) 300-gallon liquid tote containers (reportedly containing vegetable oil/bio-fuel), in excess of 22 5-gallon containers of reported vegetable oil/bio-fuel, six 55-gallon (empty) drums, two 5-gallon containers of hydraulic fluid in a small storage box, four (4) 5-gallon containers of oils/lubricants in a small storage box, an empty 5-gallon container of hypochlorite solution, an estimated 1,000-gallon (empty) Flammable Liquids aboveground storage tank (AST), various pipes, a pile of wooden pallets, a portable refueling tank/container, and a truck trailer used for storage (reportedly containing cloth suspenders). Mr. Iarussi Sr. stated that the totes and 5-gallon containers contained recycled waste vegetable oil to be used as fuel for the on-site heavy equipment (excavator and front end loader). Mr. Iarussi Sr. also stated that he intended to use the AST to hold water for irrigation during farming operations. START observed several small areas of soil staining near the vicinity of the recycled waste vegetable oil containers and portable refueling tank/container [1].

START personnel observed an unnamed stream flowing southeast along the border of the 171 Central Street property and the cemetery property. The stream then flows southwest into the ponded wetland areas on the western portion of the property before continuing to flow southeasterly, exiting the property and continuing downstream into Rhode Island (RI) [1; 107].

Rudy's Service Station (Former):

The former Rudy's Service Station is located at 190 Central Street in Millville, MA (see Attachment A, Figures 5 and 5A). This property is located approximately 1,000 feet west of the 19 and 25 Providence Street properties. The 0.402-acre parcel is identified in the Millville Tax Records as Plat Map 130, Lot 4 and is located in a rural setting of the Town of Millville with nearby properties being primarily residential [1; 88]. The former property owner operated a full service automotive repair business known as Rudy's Garage. Automotive repair equipment included an indoor hydraulic lift and a former external automotive service pit. The property contains a vacant two-bay automotive service garage and is served by a private septic system located southwest of the building and by a private potable water supply well [89].

On 11 April 2016, EPA, MassDEP, and START conducted a reconnaissance of the property. START personnel observed the inactive, former service station building. A small amount of equipment/tools and supplies were observed inside the building through a window. The ground surface and parking area surrounding the service station consisted of soil and gravel cover material. No pavement was observed around the building. START observed an apparently abandoned automobile located behind the service station building, along the northwest corner. START also observed an apparently abandoned former school bus, assumed to be located on the north-northwestern portion of the property; however, the bus may be located on the adjacent property. START personnel noted that the water supply well is located off site, north-northwest of the property. START did not observe the supply well, only the general area in which it was reportedly located. START also observed the general location of the Former Underground Storage Tank Graves Area of Concern (known in MassDEP reports as AOC-1 and AOC-2), the Former Waste Oil Shed (AOC-4), the Outdoor Service Pit (AOC-3), the Former Surficial Oil Station area (AOC-5), and the Cesspool (AOC-6). START observed one flush-mounted groundwater monitoring well in this gravel-covered area within the area of the former underground storage tank (UST) grave location (AOC-1) (assumed to be monitoring well MW-1R). Additional monitoring wells are reportedly located on the property, but START was unable to locate these wells. START observed small/minor spots of what appeared to be vehicle oil stains on the ground surface in front of the service station. These stains appeared to be from vehicles parked on the property recently. Scattered debris and trash were observed along the property boundary, as well as along other non-developed properties along Central Street [1; 88-89].

Based on available information from previous investigation at the 190 Central Street (Rudy's Service Station) property, and discussions with EPA and MassDEP representatives, it was determined that no further sampling activities would be conducted at the 190 Central Street (Rudy's Service Station) property at this time. However, EPA and MassDEP agreed that sampling activities would be conducted on the 171 Central Street (Iarussi) and 7 Providence Street (Mendon Street Automotive) properties as part of the Millville TCE PA.

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

As previously noted, the Millville TCE site has currently been identified by a contamination plume of unknown origin, encompassing a group of private residential drinking water supply wells located along Providence Street, Millville, MA. In addition, EPA has identified three potential AOCs in the vicinity to be investigated as part of the PA: Mendon Street Automotive (7 Providence Street); Louis Iarussi Property (171 Central Street); and Rudy's Service Station (190

Central Street), in Millville, MA. The following sections summarize the operational and regulatory history and waste characteristics for the site and these three AOCs.

On 8 July 2015, MassDEP received a telephone call from the resident at 19B (originally reported erroneously as 19C) Providence Street, Millville, MA, reporting that they had received sample results for their private residential drinking water supply well indicating the well was contaminated with chlorinated solvents at levels elevated above state drinking water standards [5; 10]. TCE was detected at 17 micrograms per Liter ($\mu\text{g/L}$) and PCE at 8.6 $\mu\text{g/L}$ [11]. The state drinking water standard for both TCE and PCE is 5.0 $\mu\text{g/L}$. The resident noted that the well was tested due to concerns regarding activities at a gravel pit located adjacent their common property. The caller also noted that there were detectable levels of radon, nitrates, and coliform bacteria found in the samples. The caller further noted that the contaminated well is shared by 19 residents in eight separate condominium units, located at 19 and 25 Providence Street, Millville, MA. The caller noted that she had no well construction details but believed the pump was set at approximately 300 feet below the ground surface. The MassDEP representative advised the caller to stop drinking the water and switch to bottle water immediately [5].

On 9 July 2015, MassDEP personnel mobilized to the property adjacent to 19 Providence Street, and met with the owner of the 171 Central Street, Millville, MA property and his representative/consultant. Following the meeting, MassDEP conducted a reconnaissance of the property at 171 Central Street, Millville, MA to determine if there were any visible indicators of an oil or hazardous material (OHM) release that may have impacted the adjacent private water well supply. MassDEP observed some solid materials (pallets, concrete, a trailer, etc.), several 300-gallon plastic totes containing cooking oil used to run the construction equipment, along with some 5-gallon plastic jugs of cooking oil. MassDEP noted a few small areas where diesel fuel, gasoline, or cooking oil may have been spilled. MassDEP also observed five drums that appeared to be empty that the property owner said he did not use [12].

Following the reconnaissance, MassDEP personnel met with a representative of the two condominiums, located at 19 and 25 Providence Street. MassDEP personnel reconnoitered the property, and observed the private well that serves both condominiums and water supply storage tank (located in the basement of the condominium). MassDEP personnel noted that the private well that currently serves the two condominium buildings is flush with the ground surface and has a concrete cover. MassDEP personnel noted that the well did not appear to be sealed adequately. The condominium representative confirmed that the septic system from both buildings was located in the front yards, which are elevated higher than the private well. MassDEP noted that runoff from the parking lots also appears likely to flow toward the area of the private well based on the observed topography. The condominium representative stated that the 25 Providence Street building previously had its own well, but it had been abandoned and now shares the well supplying 19 Providence Street. The condominium representative did not know the reason the well at 25 Providence Street had been abandoned [12].

On 14 July 2015, MassDEP representatives oversaw Chicago Bridge & Iron Company (CB&I)/Shaw Group personnel purge and collect private drinking water supply samples from the kitchen taps of condominium units 19C and 25B Providence Street. In addition, CB&I/Shaw Group collected soil samples in the vicinity of the private drinking water well supplying the two condominium buildings [13]. See Attachment A, Figure 6, and Attachment C, Table 1, for drinking water sample locations and analytical results [14].

On 11 August 2015, MassDEP representatives oversaw CB&I personnel collect private drinking

water supply samples from residential units at 22, 47A, 48, 51A, and 59A Providence Street, and 4 Afonso Way [16]. See Attachment A, Figure 6, and Attachment C, Table 1, for drinking water sample locations and analytical results [17-22].

On 12 August 2015, MassDEP representatives oversaw CB&I personnel collect private drinking water supply samples from residential units at 2, 3B, 37A, and 37B Providence Street [23]. See Attachment A, Figure 6, and Attachment C, Table 1, for drinking water sample locations and analytical results [24-27]. In addition, MassDEP and CB&I personnel collected water samples from the bathroom tub faucet (drinking water samples), as well as background indoor air samples and an indoor air sample from a steamy bathroom, within condominium units 19B and 25D Providence Street [23]. See Appendix C, Table 1, for drinking water sample analytical results [28-29]. MassDEP reported that the bathroom faucet sample results in the two units were consistent with previous drinking water samples collected in July 2015. Results of the background indoor air samples in the two units confirmed that background levels inside the condominiums do not pose a significant risk. However, the steamy bathroom samples from both condominium units indicated that venting and minimizing the amount of time spent in the bathroom should continue for showering and bathing to reduce exposure until the point of entry treatment (POET) systems were installed [28-29].

On 21 August 2015, MassDEP representatives also oversaw the collection of liquid samples from the septic systems at 19 and 25 Providence Street. Both of these condominium septic systems are located to the northeast of the condominiums, along the southwest side of Providence Street. The liquid septic samples were analyzed via EPA Method 8260. Both TCE and PCE were detected in the two liquid septic samples (see Attachment C, Table 2). Concentrations detected in the liquid septic samples are significantly lower than the levels detected in the private supply well serving both condominiums. MassDEP noted that the levels detected in the samples were consistent with the concentrations of TCE and PCE detected in the drinking water and processed through the septic system. Other non-chlorinated VOCs (i.e. toluene) were also detected in the liquid septic samples from 19 and 25 Providence Street and are summarized by MassDEP in their files [30-37].

On 21 August 2015, MassDEP representatives oversaw the collection of private drinking water supply samples from residential units at 65 Providence Street and 5 Harkness Road. See Attachment A, Figure 6, and Attachment C, Table 1, for drinking water sample locations and analytical results [38; 39].

On 6 and 8 October 2015, MassDEP completed the installation and activation of the POET systems for the drinking water well serving the condominium units at 19 and 25 Providence Street, respectively. The POET systems are intended to reduce or eliminate the concentrations of PCE and TCE to non-detectable concentrations or concentrations below state drinking water standards. The POET system installed by MassDEP at each location consists of two 300-pound fiberglass pressure vessels installed in series with virgin drinking-water-grade carbon. Valves were installed before and after the treatment system to isolate the equipment for the water supply. A by-pass line and valve were also installed as a contingency should system by-pass be necessary. Influent, mid-fluent, and effluent sample ports were installed for system monitoring. The POET system also included a sediment filter.

MassDEP oversaw the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 19 Providence Street on the first day (6 October 2015), and first and second weeks (13 October 2015 and 20 October 2015) of operation [40-42]. MassDEP

has continued to oversee the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 19 Providence Street once a month following installation through December 2016 (see Appendix C, Table 3, for POET system sample results) [43-53; 116; 130; 135]. Sample results from each of the rounds of sampling indicate that the influent samples contain elevated levels of TCE and PCE above the state standards. However, as the water passes through the treatment system and reaches the midfluent and effluent collection locations, analytical results indicate that no concentrations above the reporting limit of 0.5 µg/L are present [43-53; 116; 130; 135].

MassDEP also oversaw the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 25 Providence Street on the first day (8 October 2015), and first and second weeks (15 October 2015 and 22 October 2015) of operation [54-56]. MassDEP has continued to oversee the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 25 Providence Street once a month following installation through December 2016 (see Attachment C, Table 3, for POET system sample results) [57-67; 117; 131; 134]. Again, sample results from each of the rounds of sampling indicate that the influent samples contained elevated levels of TCE and PCE above the state standards. However, as the water passes through the treatment system and reaches the midfluent and effluent collection locations, analytical results indicate that no concentrations above the reporting limit of 0.5 µg/L are present [57-67; 117; 131; 134].

On 28 October 2015, MassDEP representatives oversaw the collection of private drinking water supply samples from residential units at 33B and 40 Providence Street, 157 Central Street, and 11 Harkness Road [68]. See Attachment A, Figure 6, and Attachment C, Table 1, for sample locations and analytical results [69-72].

On 28 October 2015, MassDEP representatives also oversaw the collection of liquid samples from the septic systems of 3, 7 and 15 Providence Street [68]. The liquid septic samples were analyzed via EPA Method 8260. TCE was detected in the liquid septic samples from 3 Providence Street, but no detectable concentrations (above method detection limit) of TCE were detected in liquid septic samples collected from 7 and 15 Providence Street. PCE was not detected in the liquid septic samples (above method detection limit) in samples from 3, 7, 15 Providence Street (see Attachment C, Table 3) [73]. According to MassDEP, the samples collected from 3 Providence Street were consistent with the concentrations of TCE and PCE found in drinking water and processed through the septic system, prior to the activation of the POET system. The concentrations detected in the liquid septic sample from 3 Providence Street were significantly lower than the levels detected in the private water supply well serving this building. Furthermore, MassDEP noted that the properties at 7 and 15 Providence Street use separate septic systems but are served by a shared drinking water well, which is not known to be impacted by PCE and TCE. The results of liquid septic samples collected from 7 and 15 Providence Street did not show PCE or TCE detections. Other non-chlorinated VOCs (i.e. toluene) were also detected in the liquid septic samples from 3 and 15 Providence Street and are summarized by MassDEP in their files [73].

On 4 November 2015, MassDEP completed the installation and activation of the POET system for the drinking water well serving 3 Providence Street. MassDEP also oversaw the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 3 Providence Street on the first day (4 November 2015), and first and second weeks (11 November 2015 and 18 November 2015) of operation [74]. MassDEP has continued to oversee the collection of the POET system's influent, midfluent, and effluent water samples from the POET

system at 3 Providence Street once a month following installation through December 2016 (see Attachment C, Table 3, for POET system sample results) [75-83; 118; 132; 136]. Sample results from each of the rounds of sampling indicate that the influent samples contained detectable levels of PCE and elevated levels of TCE above the state standards. However, as the water passes through the treatment system and reaches the midfluent and effluent collection locations, analytical results indicate that no concentrations above the reporting limit of 0.5 µg/L are present [75-83; 118; 132; 136].

MassDEP continues to collect data regarding the private drinking water wells in the area and to investigate possible sources of the contamination. Other AOCs in the general vicinity include Mendon Street Automotive (7 Providence Street), the Louis Iarussi Property (171 Central Street), Rudy's Service Station (190 Central Street) in Millville, MA; and Mechanic Street Groundwater Contamination Site (Mechanic Street) in North Smithfield, RI (see Attachment A, Figure 7).

Mendon Street Automotive:

Mendon Street Automotive formerly operated at 7 Providence Street, Millville, MA. According to information provided by the Millville Tax Assessor in December 2014, there was an illegal business of an unknown nature operating on this property, which is partially located in Millville, MA and partially located in North Smithfield, RI. Mendon Street Automotive is listed on the internet as a general automotive repair operation.

Internet searches using the street address have identified several commercial businesses allegedly operating from this property. These include the following commercial businesses: Mendon Street Automotive, a general automotive repair shop; U-Haul/Budget Rental, a truck rental operation; and Berns Small Engine and Auto Repair. Berns Small Engine and Auto Repair previously operated as a small engine repair service shop on site, and included conducting work on lawn mower, chainsaw, and snow blower engines. According to the current property owner, the property is currently rented to a landscaping company to store equipment and vehicles.

On 11 April 2016, EPA, MassDEP, and START conducted an on-site reconnaissance of the 7 Providence Street property as part of this EPA PA [1]. Observations made during the reconnaissance are noted in the above site description section of this report.

Prior to this PA investigation, no known environmental sampling had been conducted on the Mendon Street Automotive property (7 Providence Street, Millville, MA) with the exception of the above-mentioned drinking water (shared drinking water well serving 7 and 15 Providence Street) and septic system sampling activities performed in 2015.

There is no known regulatory history or historical waste characteristics information available for the Mendon Street Automotive property (7 Providence Street, Millville, MA).

Louis Iarussi Property:

The Louis Iarussi Property, located at 171 Central Street, has reportedly been used as an earth excavation operation (sand/gravel pit operation) and is allegedly being developed/used as an agricultural farm currently. According to the current property owner representative, the property is being leveled and prepared for farming activities. The current operation, which uses heavy equipment, has been alleged to have disposed of/buried solid waste on site, to have disturbed the land within 50 feet of the abutters, to have altered adjacent wetlands, and to have potentially stored hazardous waste and oils on the property [1; 85, p. 4].

Since April 2015, several information gathering and regulatory inspection activities have been conducted related to operations at the 171 Central Street property. On or about 16 April 2015, MassDEP received complaints from residents along Providence Street that work was being conducted within 100 feet of a stream and associated bordering vegetative wetland (BVW) without a permit. On 22 April 2015, MassDEP personnel conducted an inspection of the Iarussi property by viewing the property from abutting residential properties and the adjacent cemetery. MassDEP noted that the gravel removal operation had expanded to areas regulated under the Wetlands Protection Act. Observations indicate that work had occurred very close to the BVW boundary. Wetland vegetation was also observed below the area of excavation, indicating that wetland vegetation had been covered/buried on the southeast side of the property. MassDEP noted that their records indicated that this activity was conducted in noncompliance with one or more laws, regulations, orders, licenses, permits, or approvals enforced by MassDEP. Based on this information, on 5 May 2015, MassDEP issued a Notice of Non-Compliance to Louis P. Iarussi Trucking of Holliston, MA for conducting gravel removal operations on the 171 Central Street property within 100 feet of an intermittent stream and associated BVW with no permits from the Millville Conservation Commission or MassDEP [86].

On 5 June 2015, a representative from the Town of Millville Conservation Commission conducted a site visit at 171 Central Street and noted several observations and findings, including the following findings which may be relevant to this PA investigation [86]:

- OHM is being stored within 100 feet of the BVW.
- A point source discharge has been installed, without a permit, which is draining to the BVW. This system consists of five polyvinyl chloride (PVC) pipes grouped together, which act to drain a sump pit. This discharge is approximately 75 feet from the BVW.
- Solid waste is buried on the property.
- It needs to be verified that the landowner has obtained the necessary permits/licenses to conduct earth removal operation and operate equipment on this property. The commission representative noted that there was evidence presented at a Conservation Commission meeting indicating that the owner is not certificated for this type of operation.
- There is no record that this property owner has filed the land as agricultural. The records obtained from the assessor do not indicate that this land use is classified as agricultural; thus, there is no exemption from the required permits.

On 8 July 2015, during discussions between a MassDEP representative and a Millville Board of Health representative, it was noted that multiple residents along Providence Street had raised concerns over the illegal dumping of construction and demolition debris on the 171 Central Street property; and that there were allegations that contamination detected in the drinking water well was likely the result of activities occurring on the 171 Central Street property [15].

On 8 July 2015, a MassDEP representative held discussions with a Millville Board of Health inspector who had conducted an inspection of the 171 Central Street property on 26 June 2015. No summary notes were found in available records reviewed by START regarding the Millville Board of Health inspection on 26 June 2015. The Millville Board of Health inspector noted to MassDEP that there were several allegations recently that 171 Central Street has been burying drums and construction debris. The Millville Board of Health inspector also stated that he did not see any evidence of dumping of hazardous materials during the inspection [15].

On 9 July 2015, MassDEP personnel met with the owner of the 171 Central Street, Millville, MA property and his representative/consultant. Following the meeting, MassDEP conducted a

reconnaissance of the property at 171 Central Street, Millville, MA to determine if there were any visible indicators of an OHM release that may have impacted the adjacent private water well supply. MassDEP observed some solid materials (pallets, concrete, a trailer, etc.). MassDEP also noted several 300-gallon plastic totes containing cooking oil used to run the construction equipment, along with some 5-gallon plastic jugs of cooking oil. MassDEP noted a few small areas where diesel fuel, gasoline, or cooking oil may have been spilled. MassDEP also observed that the five drums located under the trailer, which the property owner stated he did not use, appeared to be empty. The reconnaissance conducted by MassDEP of the property and on-site excavation operation noted a limited number of totes and drums stored on the property but no visible evidence of an immediate oil or hazardous waste release [12].

On 23 September 2015, MassDEP personnel met with the owner of the 171 Central Street, Millville, MA property and his representative/consultant to conduct a reconnaissance of the property to look for any evidence of OHM on the property which may have contributed to the conditions in the private wells on the Providence Street properties; none were observed [86; 87].

On 11 April 2016, EPA, MassDEP, and START conducted an on-site reconnaissance of the 171 Central Street property as part of this EPA PA. Observations made during the reconnaissance are noted in the above site description section of this report.

Prior to this PA investigation, no known environmental sampling had been conducted on the Louis Iarussi Property (171 Central Street, Millville, MA).

There is no known historical waste characteristics information available regarding the 171 Central Street property, Millville, MA.

Rudy's Service Station (Former):

The former Rudy's Service Station is located at 190 Central Street in Millville, MA. The former owner of the site utilized the site to operate a full service automotive repair business known as Rudy's Garage [89].

The former owner of the property purchased the property in 1948 and operated the property as a gasoline service station. According to historical information sources, the site was initially developed as an automotive service station in 1925 and was used to sell gasoline dating back to the 1920s. The property entered into a trust in 2007 and was sold to Mr. Bruce Fernandes in 2011. The site is currently vacant and allegedly has been since the former owner passed away in 2011. Reportedly, the current owner (now the estate of the owner) has tentative plans to make improvements to the building/property and operate an automotive service garage on site in the future [89].

According to historical information sources, motor fuels have not been sold at the site for 30 to 35 years (circa 1985). Prior to the 1920s, the site was undeveloped. The underground storage tanks (USTs) located on site were reportedly excavated at an unknown time in the past, although no UST records exist for the site. Two empty 1,000-gallon steel tanks initially observed on the ground surface in 2012 by Lakeshore Environmental, Inc. (LSE) near the southwest side of the site were assumed to be the site's former USTs; both tanks were subsequently transported off site for recycling by the property owner. No evidence of any remaining UST-related equipment is currently present at the site (other than defunct supply piping) based on a metal detector survey and numerous test pit excavations [89].

The prospective buyer of the former Rudy's Service Station site (190 Central Street in Millville, MA) retained ATC Associates in July 2012 to complete an American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment (ESA) of the site which recommended an ASTM Phase II subsurface investigation. LSE completed the ASTM Phase II investigation based on five soil borings and four monitoring wells. The ASTM Phase II identified exceedances of state standards prompting 72-hour notification to MassDEP on 10 January 2013. Six potential environmental AOCs were identified as potential locations of an OHM release(s). These consist of the following [89]:

- AOC-1: The location of a former gasoline UST located 25 feet northeast of the building [confirmed to be an OHM release according to LSE].
- AOC-2: The location of a second former gasoline UST located 12 feet east of the northernmost overhead garage door [confirmed to not be a source of OHM].
- AOC-3: A filled-in former outdoor automotive service pit [confirmed to not be a source of OHM according to LSE].
- AOC-4: An oil-stained area underlying an outdoor former waste oil drum storage shed [confirmed to be an OHM release according to LSE].
- AOC-5: An oil-stained area located about 10 feet southwest of the 275-gallon waste oil and fuel oil ASTs which are adjacent to the building's southwest exterior wall [confirmed to be an OHM release according to LSE].
- AOC-6: A cesspool constructed of unmortared cinderblocks located outside the southeast corner of garage [confirmed to not be a source of OHM according to LSE].

An off-site private residential well was identified within 500 feet of the site, prompting MassDEP to request an assessment to include sampling of the private well [89].

Environmental investigation activities completed to date include the advancement of 21 soil borings (three of these are located off site) and the installation and sampling of 12 monitoring wells (three of these are located off site). Groundwater elevations have been gauged on four occasions, and groundwater quality samples from each well have been collected between two and four times to date. Groundwater flow at the site has been determined to be to the south-southeast (see Figure 5A). Supplemental investigations have included a ferrous metal detector survey and confirmatory test pit excavations [89].

Analytical testing of environmental media has confirmed that exceedances of state standards (RCS-1) in soil are limited to an area of surficial soil stained by waste oil leakage/disposal. These impacted soils were excavated and removed from the site as a Limited Removal Action in May 2013, and followed up with compliance sampling. Soil sampling at the water table interface in close proximity to the former UST grave indicates that residual impacts from weathered gasoline remain, but laboratory analyses did not detect exceedances of state standards (RCS-1 or Method 1 criteria) [89].

Analytical testing of groundwater has confirmed that exceedances of state standards (RCGW-1) have only been identified in two of the 12 monitoring wells installed. No OHM contaminants have been detected in off-site, downgradient wells. Currently, exceedances of RCGW-1 and applicable GW-1 criteria only exist in MW-1, located within the former UST grave. The weathered gasoline-related constituents that exceed standards include ethylbenzene, xylene, 1,3,5-trimethylbenzene, naphthalene, 2-methylnaphthalene, C9-C18 aliphatic and C11-C22 aromatic carbon ranges, and lead [89].

Sampling and analytical testing of the site's inactive potable supply well on three occasions has

not identified VOCs at concentrations above minimum detection limits, except for traces of toluene which were detected once and were deemed by LSE to be attributable to laboratory error. Sampling and analytical testing of the private residential well located 274 feet south-southeast of the site on two occasions has not identified VOCs at concentrations above minimum detection limits [89].

Based on LSE's conceptual model of the 190 Central Street site, the UST grave located northeast of the building is the source of a historical gasoline release and, although no reportable concentrations in soil at this location were detected, corresponding groundwater samples contain weathered gasoline constituents and dissolved lead that exceeded RCGW-1 criteria and one or more Method 1 criteria. Based on the pattern of groundwater contours, groundwater flows in a south-southeasterly direction which created a low-level dissolved plume up to 143 feet in length. Currently, however, no trace of dissolved hydrocarbons has been detected in off-site monitoring wells; and the only on-site well to contain detectable gasoline constituents is MW-1 located within the former UST grave [89].

According to LSE, there are no current receptors of the recalcitrant gasoline constituents at the former UST grave; and based on the 30-plus years since gasoline was sold at the site, the plume is stable and reducing in size [89].

The LSE 2014 Phase I Initial Site Investigation Report also noted that one non-gasoline constituent volatile organic compound (VOC) was detected on the site. According to LSE, TCE was briefly detected above the state standard (5 µg/L) at a concentration of 0.013 milligram per liter (mg/L) (equal to 13 µg/L) in the UST grave monitoring well (MW-1) on 31 August 2012. However, despite multiple sampling events in this well, TCE was not detected above state standards. Furthermore, TCE has not been detected in any other soil or groundwater samples at the site. As such, the detection of TCE was considered by LSE to be a transient finding; and TCE is not considered to be a contaminant of concern at the site [89].

However, based on the recalcitrant nature of the residual gasoline constituents and lead in UST grave soils, excavation and off-site disposal of soil and debris from the UST grave was completed in October 2014 [90]. On 25 November 2014, monitoring well MW-1 was replaced with MW-1R; and on 2 December 2014, monitoring well MW-1R was sampled. Results indicated that TCE was detected at 3.4 parts per billion (ppb) at the UST grave monitoring well (MW-1R). Although the concentration was below the state standard, TCE was identified at a detectable level. LSE noted that MW-1R was positioned in the same location as MW-1 and was constructed in a similar manner as MW-1 [90].

A groundwater sample collected on 25 February 2015, from monitoring well MW-1R, again indicated a detectable concentration of TCE in the well (2.3 µg/L) below the corresponding state standard [91].

Additional groundwater sampling on 29 May 2015, of monitoring well MW-1R, indicated that TCE was detected at a concentration of 3.8 µg/L. This was below the corresponding state standard for TCE of 5 µg/L. LSE noted that TCE has not been detected at any other monitoring well associated with Rudy's Service Station on or off site. LSE further noted that the detection of TCE was limited to the former UST grave area where miscellaneous automotive debris was observed during the remedial excavation conducted in 2014. Additionally, LSE observed that TCE concentrations have consistently remained below GW-1 Method 1 standards in this well, and TCE is not expected to present a significant risk to potential receptors [91].

However, on 14 August 2015, after receiving the Release Abatement Measure Status Report from LSE, MassDEP Representative Rebecca Woolley requested that LSE specifically address whether or not there is any evidence of an on-site source of TCE prior to filing a permanent solution within the Massachusetts Contingency Plan (MCP). MassDEP representative Woolley also emphasized that although the TCE concentrations are currently below state reportable concentration standards, there appear to be increasing trends in the contaminants. Ms. Woolley further indicated that this situation does not support recommending a permanent solution under the MCP [92].

In December 2015, a Permanent Solution with No Conditions and Release Abatement Measure Completion Report was completed by LSE. It concluded that a Permanent Solution with No Conditions applies to the Site because, as documented herein, a level of No Significant Risk has been achieved, all OHM sources have been eliminated, dissolved OHM and OHM in the vadose zone has been eliminated/controlled, non-aqueous phase liquid (NAPL) is not present, all threats of release have been eliminated, and the levels of OHM have been reduced to as close to background as feasible. Considering that this finding of No Significant Risk does not assume any limitations on current or future Site activities, a Permanent Solution with No Conditions applies to the Site [93].

Summary of Waste Characteristic Information

In summary, since the initial report indicating a release of CVOCs to MassDEP on 8 July 2015, by a condominium unit resident at 19 Providence Street, MassDEP has collected numerous drinking water samples from the area including from 14 properties along Providence Street, two properties along Harkness Road, one property along Central Street, and one property along Afonso Way. In addition, MassDEP has collected samples from five septic systems associated with the residences located at 3, 7, 11, 19 and 25 Providence Street. MassDEP has also collected indoor air samples from two residential units at 19 and 25 Providence Street and installed POET systems on three water supplies [5; 10-83].

The initial MassDEP report (8 July 2015) indicated that a resident of one of the condominium units at 19 Providence Street had a drinking water sample collected and analyzed through a private laboratory. Analytical results of this sample indicated TCE and PCE above state standards at concentrations of 17 µg/L and 8.6 µg/L, respectively (see Attachment C, Table 1) [5; 10; 11].

To date, MassDEP has collected drinking water samples from 18 different residential units. Analytical results of the MassDEP investigation indicated detectable levels of TCE and PCE above applicable state standards at 3, 19, and 25 Providence Street. Concentrations in drinking water samples collected from a shared well that serves 19 and 25 Providence Street have indicated maximum concentrations of 17 µg/L and 8.6 µg/L for TCE and PCE, respectively. Drinking water samples collected from the 3 Providence Street well have indicated a maximum concentration of 10 µg/L and 3.6 µg/L for TCE and PCE, respectively. Drinking water samples collected by MassDEP from the other 15 units sampled to date are reported as not detectable at the reporting limit (or method detection limit, or estimated detection limit, if shown) for both TCE and PCE (see Attachment C, Table 1) [5; 10-83; 116-118; 130-132; 134-136].

MassDEP has collected liquid samples from the septic systems located on the following five properties: 3, 7, 11, 19 and 25 Providence Street. TCE and PCE concentrations were detected in

the liquid septic system samples collected from 3, 19 and 25 Providence Street. The maximum TCE and PCE concentrations detected in the five liquid septic system samples were 3 µg/L and 1.2 µg/L, respectively. The maximum values for both were detected in the 25 Providence Street sample. These concentrations are well below the concentration detected in the drinking water samples. Liquid septic system sample results for 7 and 11 Providence Street were listed as not detectable above the reporting limits (see Attachment C, Table 2 for sample results) [30-37].

On 22 November 2016, a Potential Hazardous Waste Site PA Form was completed for the 7 Providence Street, 171 Central Street, and 190 Central Street properties by START [94-96].

On 6 through 8 September 2016, as part of the Millville TCE PA, START personnel conducted sampling activities on the 171 Central Street (Iarussi) and 7 Providence Street (Mendon Street Automotive) properties. Surface soil/source sampling was conducted on areas of the property to identify potential hazardous substances associated with the on-site source areas (see Attachment A, Figure 8). In addition, sediment samples were collected from an unnamed stream and pond/wetland area located on the 171 Central Street (Iarussi) property, to identify potential hazardous substances associated with the on-site source areas (see Attachment A, Figure 8) [1].

Sampling tasks were conducted in accordance with the PA scope of work outlined in the EPA-approved Site-Specific Quality Assurance Project Plan (QAPP), which was reviewed by MassDEP, and technical specifications provided by EPA Region I [1; 84].

On 6 September 2016, START personnel collected a total of nine sediment samples from eight locations downstream of the 171 Central Street (Louis Iarussi) property. All of the sediment samples were submitted to the EPA Office of Environmental Measurement and Evaluation (OEME) laboratory for VOC analysis. Sediment samples were collected to determine the presence of hazardous substances [1].

Based on analytical results of the sediment samples and comparison to background concentrations, a release of three VOCs to sediments has been documented. Analytical results of sediment samples are discussed in greater detail in the Surface Water Migration Pathway section of this report [119-120].

On 7 and 8 September 2016, START personnel performed surface soil/source sampling on the 171 Central Street (Louis Iarussi) and 7 Providence Street (Mendon Street Automotive) properties. START personnel collected a total of 20 surface soil/source samples, including one field duplicate, from 19 locations on the 171 Central Street (Louis Iarussi) property; and six surface soil/source samples, including one field duplicate, from the 7 Providence Street (Mendon Street Automotive) property. All of the surface soil/source samples were submitted to EPA OEME laboratory for VOC analysis [1].

Based on analytical results of the surface soil/source samples and comparison to background concentrations, a release of eight VOCs, including the CVOCs TCE and PCE, to soils has been documented. The collection and comparison of surface soil/source samples against background concentrations and analytical results of START surface soil/source samples collected as part of this PA are discussed in greater detail in the Waste/Source Sampling section of this report [122-123; 125-126].

Attachment D, Tables 1A through 1D provide a summary of the surface soil/source, sediment, aqueous quality assurance/quality control (QA/QC), and solid performance evaluation (PE)

samples collected by START personnel between 6 and 8 September 2016 as part of the Millville TCE PA.

Table 1 presents identified structures or areas associated with the Millville TCE property that are documented or potential sources of contamination, the containment features associated with each source, and the relative location of each source.

Table 1
Source Evaluation for the Millville TCE property

Source Area	Containment Features	Spatial Location
Contaminated Surface/Subsurface Soils (7 Providence Street)	None	7 Providence Street
Groundwater Plume – No Identified Source	None	19/25 and 3 Providence Street

[122-127]

Table 2 summarizes the types of potentially hazardous substances which have been disposed of, used, or stored on the areas associated with the Millville TCE property.

Table 2
Hazardous Waste Quantity for the Millville TCE property

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
VOCs	Unknown	Unknown	Unknown	Contaminated Surface/Subsurface Soils (7 Providence Street)
VOCs	Unknown	Unknown	Unknown	Groundwater Plume – No Identified Source

VOCs = Volatile Organic Compounds.

[122-127]

There is one other site located in Millville, MA that is listed in the SEMS database [97]. In addition, there is one site located in Millville, MA listed in the Resource Conservation and Recovery Act Information System (RCRIS) [98].

WASTE/SOURCE SAMPLING

Historical Waste/Source Sampling

During the investigation of the unknown source of the groundwater contamination in 2015, MassDEP examined and sampled potential waste sources, including potential contaminated soils

and septic effluent, for elevated concentrations of VOCs to try to identify the source of the PCE and TCE contamination [30-37].

On 14 July 2015, MassDEP representatives oversaw CB&I personnel collect a soil sample from the area around the private drinking water well supply wellhead serving the two condominium buildings (19/25 Providence Street) [13]. Analytical results indicated elevated levels of two VOCs (chloroform and tetrahydrofuran), but no elevated levels of CVOCs (PCE or TCE) above laboratory detection limits [14].

On 21 August 2015 and 28 October 2015, MassDEP collected liquid samples from the septic systems located on the following five properties: 3, 7, 11, 19 and 25 Providence Street. TCE and PCE concentrations were detected in the liquid septic system samples collected from 3, 19 and 25 Providence Street. The maximum TCE and PCE concentrations detected in the five liquid septic system samples were 3 µg/L and 1.2 µg/L, respectively. The maximum values for both compounds were detected in the 25 Providence Street sample. These concentrations are well below the concentration detected in the drinking water samples. Liquid septic system sample results for 7 and 11 Providence Street were listed as not detectable above the reporting limits (see Attachment C, Table 2 for sample results) [30-37; 73].

Review of available file information regarding Rudy's Service Station indicates that source sampling has been completed by LSE. Environmental investigation activities completed to date at Rudy's Service Station include the advancement of 21 soil borings (three of these are located off site) and the installation and sampling of 12 monitoring wells (three of these are located off site) [89-93].

Review of available file information did not indicate that any source samples have been collected from the Louis Iarussi or Mendon Street Automotive properties. However, the primary contaminants of concern associated with the PA are CVOCs including TCE and PCE. TCE and PCE are among the most common chlorinated solvents released to the environment. TCE and PCE are widely used organic solvents which may be contained in commercial, industrial, and residential products. TCE is a colorless, highly volatile liquid that is miscible with water and a number of organic solvents. TCE is mainly used as a solvent to remove grease from metal parts, but is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. TCE does not occur naturally in the environment. However, it has been found in underground water sources and many surface waters as a result of the manufacture, use, and disposal of the chemical.

Rudy's Service Station:

LSE, as part of the ASTM Phase II investigation and subsequent activities, conducted advancement of soil borings and installation of monitoring wells. Environmental investigation activities completed to date, at the former Rudy's Service Station site (190 Central Street in Millville, MA), include the advancement of 21 soil borings (three of these are located off site) and the installation and sampling of 12 monitoring wells (three of these are located off site) [89].

Analytical testing of environmental media has confirmed that exceedances of state standards (RCS-1) in soil are limited to an area of surficial soil stained by waste oil leakage/disposal. These impacted soils were excavated and removed from the site as a Limited Removal Action in May 2013, and followed up with compliance sampling. Soil sampling at the water table interface in close proximity for the former UST grave indicates that residual impacts from weathered

gasoline remain, but laboratory analyses did not detect exceedances of state standards (RCS-1 or Method 1 criteria) [89]. Based on the recalcitrant nature of the residual gasoline constituents and lead in UST grave soils, additional excavation and off-site disposal of soil and debris was completed in October 2014 [90].

The LSE 2014 Phase I Initial Site Investigation Report noted that one non-gasoline constituent VOC was detected on the site. According to LSE, TCE was briefly detected above the state standard (5 µg/L) at a concentration of 0.013 mg/L (equal to 13 µg/L) in the UST grave monitoring well (MW-1) on 31 August 2012. However, despite multiple sampling events in this well, TCE was not detected above state standards. Furthermore, TCE has not been detected in any other soil or groundwater samples at the site. As such, the detection of TCE was considered by LSE to be a transient finding; and TCE is not considered to be a contaminant of concern at the site [89].

However, on 25 November 2014, monitoring well MW-1 was replaced with MW-1R; and on 2 December 2014, monitoring well MW-1R was sampled. Results indicated that TCE was detected at 3.4 ppb at the UST grave monitoring well (MW-1R). Although the concentration was below the state standard, TCE was identified at a detectable level. LSE noted that MW-1R was positioned in the same location as MW-1 and was constructed in a similar manner as MW-1 [90]. A groundwater sample collected on 25 February 2015, from monitoring well MW-1R, again indicated that a detectable concentration of TCE in the monitoring well (2.3 µg/L) was below the corresponding state standard [91].

Additional groundwater sampling on 29 May 2015, of monitoring well MW-1R, indicated that TCE was detected at a concentration of 3.8 µg/L. This was below the corresponding state standard for TCE of 5 µg/L. LSE noted that TCE has not been detected at any other monitoring well associated with Rudy's Service Station on or off site. LSE further noted that the detection of TCE was limited to the former UST grave area where miscellaneous automotive debris was observed during the remedial excavation conducted in 2014. LSE attributed the low concentrations of TCE to automotive debris that was removed from the former UST grave during remedial excavation work in 2014. Additionally, LSE observed that TCE concentrations have consistently remained below GW-1 Method 1 standards in this well, and TCE is not expected to present a significant risk to potential receptors [91].

EPA Preliminary Assessment Waste/Source Sampling

As part of the Millville TCE PA sampling activities, on 7 and 8 September 2016, START personnel performed surface soil/source sampling on the Louis Iarussi (171 Central Street) and Mendon Street Automotive (7 Providence Street) properties. Surface soil/source sampling was conducted throughout the Louis Iarussi and Mendon Street Automotive properties, to identify hazardous substances associated with the potential on-site source areas. Sample locations were proposed based on site observation, proximity to potential items of concern (drums, piles, totes, staining, etc.), and spatial distribution. Input from concerned neighbors on 6 September 2016 regarding alleged previous disposal activities conducted on the Louis Iarussi property was used to refine sample locations and add additional sample locations to provide better representation of alleged source materials disposed of on site previously. START personnel collected a total of 20 surface soil/source samples (SS-01 through SS-16 and SS-23 through SS-26), including one field duplicate (SS-16), from 19 locations on the 171 Central Street (Louis Iarussi) property; and six surface soil/source samples (SS-17 through SS-22), including one field duplicate (SS-22), from five locations on the 7 Providence Street (Mendon Street Automotive) property (see Attachment

A, Figure 8). All 26 samples were submitted to EPA OEME New England Regional Laboratory (NERL) for VOC analysis only [1].

Attachment D, Table 1A, provides a summary/description of the sample location and matrix information for each of the surface soil/source samples collected by START on 7 and 8 September 2016.

Complete analytical results of surface soil/source samples collected by START, including quantitation and reporting limits (RLs), are presented in Attachment E, Table 1 of this report. Sample results qualified with an "ND" on analytical tables indicate the substances were analyzed for, but not detected, and the associated numerical value is the OEME Laboratory RL. Sample results qualified with a "J" on analytical tables are estimated. Sample results qualified with an "E" on analytical tables indicate that the value exceeds the calibration range. The reason for sample qualifiers are provided in the footnotes of the individual data tables included as Attachments E and F of this report. Four of the 26 surface soil/source samples (SS-14, SS-20, SS-21, and SS-22) were diluted by OEME NERL prior to performing the VOC analysis, resulting in high RL for these samples. All VOC substances tested for in these four samples were reported by NERL as ND at the higher RL [1; 122-127].

Complete analytical results of START equipment rinsate, trip, and preservative blank samples, collected by START in accordance with the Site-Specific QAPP for the Region I START IV Contract, are presented in Attachment E, Tables 3A and 3B of this report [1; 84; 124; 127].

Attachment F, Table 1, is a summary of VOCs detected above reference criteria for the surface soil/source samples laboratory analyses results. Surface soil/source sample SS-17, located on the 7 Providence Street property, was selected for use as the reference/background sample for comparison of surface soil/source sample concentrations. For each sample location, a compound is listed if it is detected at a concentration greater than or equal to three times the highest background sample's concentration. However, if a substance was not detected in the background samples, the background sample's RL was used as the comparison value. These substances were listed if they occurred at a value equal to or greater than the background sample's RL and are designated by their approximate relative concentration above these values. Analytical results of surface soil/source samples submitted for VOC analyses were also compared against their respective MassDEP MCP Method 1 S-1/GW-1 Soil Standards.

Eight VOCs were detected above the respective reference criteria, background sample concentration or OEME laboratory RL, in the surface soil/source samples submitted for analysis. The following eight VOCs were detected above reference criteria (background or RL concentration) [maximum concentration in micrograms per Kilogram ($\mu\text{g}/\text{Kg}$) and sample location in parentheses]: 2-propanone (acetone) (200 $\mu\text{g}/\text{Kg}$ in SS-25); 2-butanone [methyl ethyl ketone (MEK)] (34 $\mu\text{g}/\text{Kg}$ in SS-11); tetrahydrofuran (7.9 $\mu\text{g}/\text{Kg}$ in SS-10); TCE (3.7 $\mu\text{g}/\text{Kg}$ in SS-19); PCE (69 $\mu\text{g}/\text{Kg}$ in SS-19); 2-hexanone (98 $\mu\text{g}/\text{Kg}$ in SS-11); para-isopropyltoluene (3.3 $\mu\text{g}/\text{Kg}$ in SS-18); and toluene (1.8 $\mu\text{g}/\text{Kg}$ in SS-13) [122-123; 125-126].

Based on the analytical results of the surface soil/source samples collected during this PA investigation, a release of eight VOCs to surface soil has been documented on the 7 Providence Street (Mendon Street Automotive) and 171 Central Street (Louis Iarussi) properties: acetone, MEK, tetrahydrofuran, TCE, PCE, 2-hexanone, para-isopropyltoluene, and toluene (see Attachment E, Table 1 and Attachment F, Table 1) [122-123; 125-126].

Samples collected from the 7 Providence Street (Mendon Street Automotive) property showed six of the eight compounds above their individual reference criteria, including PCE, TCE, acetone, MEK, tetrahydrofuran, and 2-hexanone. Note that elevated concentrations of VOCs above reference/background levels were detected in only two of the six samples collected on the 7 Providence Street (Mendon Street Automotive) property, samples SS-18 and SS-19. In addition, PCE and TCE were only detected in sample SS-19 at concentrations of 69 ppb and 3.7 ppb, respectively.

Analytical results of samples collected from the 171 Central Street (Louis Iarussi) property showed six of the eight compounds at detections above their individual reference criteria, including acetone, MEK, tetrahydrofuran, para-isopropyltoluene, 2-hexanone, and toluene. No TCE or PCE was detected in the 171 Central Street (Louis Iarussi) property surface soil/source samples. Note that elevated concentrations of VOCs detected above reference/background concentrations were found in 17 of the 19 samples collected on the 171 Central Street (Louis Iarussi) property.

VOCs presented in Attachment F, Table 1, were also compared against their respective MassDEP MCP Method 1 S-1/GW-1 Standard and are bolded if they exceed this standard [122-123; 125-126]. Analytical results of surface soil/source samples indicate that none of the VOCs were detected at concentrations exceeding the MCP Method 1 S-1/GW-1 standards.

GROUNDWATER PATHWAY

The mean annual precipitation of Worcester, MA, which is located approximately 22.4 miles northwest of the property, is 45.8 inches [99]. For the purposes of this report, START assumes that 45.8 inches of rain per year is representative of the mean annual precipitation rate at the Millville TCE property. Depth to groundwater in the area ranges between 7.25 and 12.05 feet below ground surface (bgs), as measured on the 190 Central Street (Rudy's Service Station) property [89, p. 13]. Based on previous investigations and groundwater elevation measurements in the general area, groundwater flow direction is generally toward the south-southeast [89, p. 13].

Based on the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey, there are three major soil classifications found throughout the Millville TCE properties [100]. The northern and eastern portions of the 171 Central Street (Louis Iarussi) property and the entire 7 Providence Street (Mendon Street Automotive) property are classified as Udorthents; the south-central portions of the 171 Central Street (Louis Iarussi) property are classified as Freetown muck (0-1 % slopes) and water; and the western portion of the 171 Central Street (Louis Iarussi) property is classified as Windsor loamy sand (3-5 % slopes) [100].

According to the Bedrock Geology Map of Massachusetts, the bedrock underlying the Millville TCE site is Ponaganset Gneiss, which is a gneissic biotite granite containing megacrysts of microcline (i.e. biotite in coarse streaks and patches), gray to light gray, some pink, generally medium- to coarse-grained, but ranges from fine-grained to porphyritic. Alkali K-feldspar, plagioclase, quartz, and biotite are major minerals. The Ponaganset is interpreted as an intensely deformed phase of the Esmond Plutonic Suite. Strong lineation is defined by elongate aggregates of quartz and feldspar and trains of biotite and hornblende. Age is Late Proterozoic based on correlation with Northbridge Gneiss [89, p. 12; 101]. According to previous reports, bedrock had not been encountered (at the 190 Central Street property) and therefore is estimated to be more

than 20 feet bgs [89, p. 12]. However, bedrock outcrops have been observed on the 171 Central Street (Louis Iarussi) property [1].

The groundwater beneath the Millville TCE property is classified as category GW-1 by MassDEP [128]. Category GW-1 classification indicates groundwater that is within a Current Drinking Water Source Area; or within a Potential Drinking Water Source Area. [128]. The Millville TCE property is not located within a wellhead protection area [102]. According to previous reports, depth to groundwater on the Millville TCE property, as measured on the 190 Central Street (Rudy's Service Station) property, ranges from 7.25 to 12.05 feet bgs [89, p. 13]. According to previous reports, groundwater is estimated to flow south-southeast [89, p. 13].

All or part of the following four MA towns and three RI towns are located within 4 radial miles of the Millville TCE property: Millville, MA (population: 3,190); Mendon, MA (population: 5,839); Uxbridge, MA (population: 13,457); Blackstone, MA (population: 9,026); Burrillville, RI (population: 15,955); North Smithfield, RI (population: 11,967); and Woonsocket, RI (population: 41,186) [3; 103; 137-139].

The nearest public drinking water supply well is one well which constitutes the BJs Wholesale Distribution Center [Public Water System Identification Number (PWS ID No.) MA2304013], located in the Town of Uxbridge, MA, between 1 and 2 radial miles from the Millville TCE property. The BJs Wholesale Distribution Center serves approximately 225 people from one supply well [104]. The BJs Wholesale Distribution Center is a non-transient non-community (NTNC) water system, which supplies water to 25 or more of the same people at least 6 months per year in places other than their residences [105]. Based on Geographic Information System (GIS) products from the EPA, residents within Uxbridge, MA are served by private drinking water supply wells; however, the exact locations are unknown [106].

Residents of the Town of Millville, MA are served by both public and private drinking water supply sources. There is one public drinking water supply well which constitutes the Blackstone/Millville School system (PWS ID No. MA2188004) and is located within 1 to 2 miles of the Millville TCE property. The Blackstone/Millville School system serves approximately 575 people from one supply well [104]. The Blackstone/Millville School system is a NTNC water system, which supplies water to 25 or more of the same people at least 6 months per year in places other than their residences [105]. Based on GIS products from the EPA, residents within Millville, MA are served by private drinking water supply wells; however, the exact locations are unknown [106].

Residents of the Town of Mendon, MA are served only by private drinking water supply sources; however, the exact locations are unknown and the exact number could not be determined [104-106].

Residents of the Town of Blackstone, MA are served by both public and private drinking water supply sources. There are two public drinking water supply wells which constitute the Blackstone Water Department (PWS ID No. MA2032000), located within 2 to 3 radial miles of the Millville TCE property [104]. The Blackstone Water Department is a community water system, which supplies drinking water to 25 or more of the same people year-round [105]. The Blackstone Water District serves approximately 3,553 people from two supply wells. For the purposes of this evaluation, START assumes each well contributes equally to the system and serves 1,776 people [104]. Based on GIS products from the EPA, residents within Blackstone, MA are served by private drinking water supply wells; however, the exact locations are unknown, and the exact number could not be determined [106].

Residents of the Town of Burrillville, RI are served by public and private drinking water supply sources. There is one public drinking water supply well which constitutes the Glendale Water Association (PWS ID No. RI1583825), located within 3 and 4 miles radial miles of the Millville TCE property. The Glendale Water Association serves approximately 100 people from one supply well [104]. The Glendale Water Association is a community water system, which supplies drinking water to 25 or more of the same people year-round [105].

In addition, there are three other public drinking water supply wells located in the Town of Burrillville, RI: Wrights Farm Corp. (PWS ID No. RI2973119); the Bruin Plastics Company Inc. (PWS ID No. RI2980311); and the Burrillville Middle School (PWS ID No. RI1900028) [88]. These three public drinking water supply systems are NTNC water systems, which supply water to 25 or more of the same people for at least 6 months per year in places other than their residences [105]. The Wrights Farm Corp. is located within 2 and 3 radial miles from the Millville TCE property. The Bruin Plastics Company Inc. and the Burrillville Middle School are located within 3 and 4 radial miles of the Millville TCE property. The Wrights Farm Corp. serves approximately 1,200 people from two supply wells. For the purposes of this evaluation, START assumes each well contributes equally to the system and serves 600 people. The Bruin Plastics Company, Inc. serves approximately 50 people from one supply well. The Burrillville Middle School serves approximately 780 people from one supply well [104]. Based on GIS products from the EPA, residents within Burrillville, RI are served by private drinking water supply wells; however, the exact locations are unknown, and the exact number could not be determined [106].

Residents of the Town of North Smithfield, RI are served by public and private drinking water supply sources. There are two NTNC public drinking water supply wells that are part of the North Smithfield 282 Combat Communication system (PWS ID No. RI1900004), located in the Town of North Smithfield, RI, within 3 and 4 radial miles of the Millville TCE property [104]. The North Smithfield 282 Combat Communication system is a NTNC water system, which supplies water to 25 or more of the same people for at least 6 months per year in places other than their residences [105]. The North Smithfield 282 Combat Communication wells serve approximately 25 people from two supply wells. For the purposes of this evaluation, START assumes each well contributes equally to the system and serves 12 people [104].

In addition, there is an emergency water system that serves the residents of the Town of North Smithfield, RI. The Slatersville Public Supply Well (PWS ID No. RI1615614), located in the Town of North Smithfield, RI between 1 and 2 miles from the Millville TCE site [104]. The Slatersville Public Supply well serves approximately 3,000 people from one supply well [104]. The Slatersville Public Supply Well is a community water system, which supplies drinking water to 25 or more of the same people year-round [104]. Based on GIS products from the EPA, residents within North Smithfield, RI are served by private drinking water supply wells; however the exact locations are unknown, and the exact number could not be determined [106].

Residents of the Town of Woonsocket, RI are served by the Woonsocket Water Division and private drinking water supply sources. The Woonsocket Water Division is comprised of surface water sources located between 3 and 4 miles from the Millville TCE property [104]. Based on GIS products from the EPA, residents within Woonsocket, RI are served by private drinking water supply wells; however, the exact locations are unknown, and the exact number could not be determined [104-106].

Table 3 summarizes public groundwater supply sources within 4 radial miles of the Millville TCE property.

Table 3
Public Groundwater Supply Sources
Within 4 Radial Miles of Millville TCE (171 Central Street – Iarussi) Property

Distance from Site (miles)	Source Name	PWS ID No./Type	Location of Source ^a	Estimated Population Served	Source Type ^b
1-2	BJs Wholesale Distribution Center (1 well) Well 1	MA2304013/ NTNC	Uxbridge, MA	225	Unknown
	Blackstone/Millville School (1 well) Well 1	MA2188004/ NTNC	Millville, MA	575	Unknown
	Slatersville Public Supply (1 well) TIFFT Road Well *	RI1615614/ Comm.	North Smithfield, RI	3,000	Unknown
2-3	Wrights Farm Corp. (2 wells) Drilled Well # 4, Well # 2	RI2973119/ NTNC	Harrisville (Burrillville), RI	1,200	Unknown
3-4	Blackstone Water Department (2 wells) Well #2 Park & Summer St, Well 7 Park & Summer St	MA2032000/ Comm.	Blackstone, MA	3,553	Unknown
	Glendale Water Association (1 well) Drilled Rock Well	RI1583825/ Comm.	Burrillville, RI	100	Bedrock
	North Smithfield 282 Combat Communication (2 wells) Drilled Well #1, Drilled Well #2	RI1900004/ NTNC	North Smithfield, RI	25	Unknown
	Burrillville Middle School (1 well) Drilled Well	RI1900028/ NTNC	Burrillville, RI	780	Unknown
	Bruin Plastics Company, Inc. (1 well) Drilled Well #1	RI2980311/ NTNC	Glendale (Burrillville), RI	50	Unknown

^a Indicates Town in which well is located.

^b Overburden, Bedrock, or Unknown.

* Slatersville Public Supply Well is classified as an emergency water system

Comm. = Community water system.

PWS ID No. = Public Water System Identification Number.

No. = Number.

[104]

The EPA New England Geographic Information System (GIS) Center provided START with the following three maps for the Millville TCE (171 Central Street – Iarussi) property: Population by Radius (1990 U.S. Census) within 4 Radial Miles of the Millville TCE (171 Central Street – Iarussi) property; Population by Radius on Private Wells (1990 U.S. Census) within 4 Radial Miles of the Millville TCE (171 Central Street – Iarussi) property; and Population by Radius (2010 U.S. Census) within 4 Radial Miles of the Millville TCE (171 Central Street – Iarussi) property. The EPA GIS Center calculated the population data by using shapefiles of the population block group data from the respective census and overlaying that onto a basemap which contained the property boundary and associated radial rings around the boundary (*i.e.* property boundary to ¼ mile, ¼ mile to ½ mile, ½ to 1 mile, 1 mile to 2 miles, 2 miles to 3 miles, and 3 miles to 4 miles). For block groups that overlapped radial rings, the EPA GIS Center calculated the percentage of the block group which fell within each of the radial rings, which translated to the population within that block group which fell within each of the radial rings [106].

As part of the 1990 U.S. Census, the source of survey participants' drinking water was requested as part of the questionnaire. This information, which was grouped by the U.S. Census Bureau into block groups, was used to determine the number of people within radial rings of the property who relied on private drinking water wells as their source of drinking water. The 2010 U.S. Census questionnaire did not request the source of water; therefore, START utilized the information provided by the three EPA GIS Center maps to determine the approximate population currently served by private drinking water wells. START calculated the percentage change in total population for the entire 4-mile radius (*i.e.* percentage change was not calculated for each individual radial ring). Once the percentage change in total population was calculated, START applied that percentage change to determine the estimated population utilizing private drinking water wells for their drinking water within each radial ring [106].

The nearest off-site private drinking water supply well is located between 0 and 0.25 miles from the property and includes the residences along Providence Street [106]. The total population which relies on groundwater as a drinking water supply source within 4 radial miles of the Millville TCE property is estimated to be 21,097 [104; 106]. Table 4 summarizes estimated drinking water populations served by public and private groundwater sources within 4 radial miles of the Millville TCE property.

Table 4**Estimated Drinking Water Populations Served by Groundwater Sources
Within 4 Radial Miles of the Millville TCE Property**

Radial Distance From Millville TCE (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
0.00 < 0.25	130	0	130
0.25 < 0.50	333	0	333
0.50 < 1.00	1,582	0	1,582
1.00 < 2.00	2,812	3,800	6,612
2.00 < 3.00	3,452	1,200	4,652
3.00 < 4.00	3,280	4,508	7,788
TOTAL	11,589	6,508	21,097

Notes:

< = Less than

[104; 106]

As noted previously, on 8 July 2015, MassDEP received a phone call from the resident at 19B (originally reported erroneously as 19C) Providence Street, Millville, MA reporting that they had received sample results for their private residential drinking water supply well indicating the well was contaminated with chlorinated solvents at levels elevated above state drinking water standards [5; 10]. TCE was detected at 17 µg/L and PCE at 8.6 µg/L [11]. The state drinking water standard for both TCE and PCE is 5.0 µg/L. The caller further noted that the contaminated well is shared by 19 residents in eight separate condominium units, located at 19 and 25 Providence Street, Millville, MA. The MassDEP representative advised the caller to stop drinking the water and switch to bottle water immediately [5].

On 9 July 2015, MassDEP personnel met with a representative of the two condominiums, located at 19 and 25 Providence Street. MassDEP personnel reconnoitered the property, and observed the private well that serves both condominiums and water supply storage tank (located in the basement of the condominium). MassDEP personnel noted that the private well that currently serves the two condominium buildings is flush with the ground surface and has a concrete cover. MassDEP personnel noted that the well did not appear to be sealed adequately. The condominium representative confirmed that the septic system from both buildings was located in the front yards, which are elevated higher than the private well. MassDEP noted that runoff from the parking lots also appears likely to flow toward the area of the private well based on the observed topography. The condominium representative stated that the 25 Providence Street building previously had its own well, but it had been abandoned and now shares the well supplying 19 Providence Street. The condominium representative did not know the reason the well at 25 Providence Street had been abandoned [12].

On 14 July 2015, MassDEP representatives oversaw CB&I/Shaw Group personnel purge and collect private drinking water supply samples from the kitchen taps of condominium units 19C

and 25B Providence Street [13]. Drinking water samples collected from the kitchen taps of condominium units 19C and 25B Providence Street indicated TCE concentrations of 17 µg/L and 15 µg/L, and PCE concentrations of 8.2 µg/L and 7.2 µg/L, respectively. See Attachment A, Figure 6 and Attachment C, Table 1 for drinking water sample locations and analytical results [14].

On 11 August 2015, MassDEP representatives oversaw CB&I personnel collect private drinking water supply samples from residential units at 22, 47A, 48, 51A, and 59A Providence Street, and 4 Afonso Way [16]. The concentrations of TCE and PCE in the drinking water from these homes were not detectable at the analysis reporting limits. See Attachment A, Figure 6 and Attachment C, Table 1 for drinking water sample locations and analytical results [17-22].

On 12 August 2015, MassDEP representatives oversaw CB&I personnel collect private drinking water supply samples from residential units at 2, 3B, 37A, and 37B Providence Street [23]. The concentrations of TCE and PCE in the drinking water from these homes were not detectable at the analysis reporting limits. See Attachment A, Figure 6 and Attachment C, Table 1 for drinking water sample locations and analytical results [24-27]. MassDEP and CB&I personnel also collected water samples from the bathroom tub faucet (drinking water samples) within condominium units 19B and 25D Providence Street [23]. Drinking water samples collected from the bathroom tub faucets of condominium units 19C and 25B Providence Street indicated TCE concentrations of 15 µg/L and PCE concentrations of 6.9 µg/L in both units. See Appendix C, Table 1 for drinking water sample analytical results [28-29]. MassDEP reported that the bathroom faucet sample results in the two units were consistent with previous drinking water samples collected in July 2015 [28-29].

On 21 August 2015, MassDEP representatives oversaw the collection of private drinking water supply samples from residential units at 65 Providence Street and 5 Harkness Road. The concentrations of TCE and PCE in the drinking water from these homes were not detectable at the analysis reporting limits. See Attachment A, Figure 6 and Attachment C, Table 1 for drinking water sample locations and analytical results [38; 39]. On 21 August 2015, MassDEP representatives also oversaw the collection of private drinking water supply sample from the well serving 7 and 15 Providence Street. Analytical results indicated that no TCE or PCE was detected in the drinking water from this shared well. See Attachment A, Figure 6 and Attachment C, Table 1 for drinking water sample locations and analytical results [133].

On 6 and 8 October 2015, MassDEP completed the installation and activation of the POET systems for the drinking water well serving the condominium units at 19 and 25 Providence Street, respectively. The POET systems are intended to reduce or eliminate the concentrations of PCE and TCE to non-detectable concentrations or concentrations below state drinking water standards. The POET system installed by MassDEP at each location consists of two 300-pound fiberglass pressure vessels installed in series with virgin drinking water grade carbon. Valves were installed before and after the treatment system to isolate the equipment for the water supply. A by-pass line and valve were also installed as a contingency should system by-pass be necessary. Influent, mid-fluent, and effluent sample ports were installed for system monitoring. The POET system also included a sediment filter.

MassDEP oversaw the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 19 Providence Street on the first day (6 October 2015), and first and second weeks (13 October 2015 and 20 October 2015) of operation [40-42]. MassDEP has continued to oversee the collection of influent, midfluent, and effluent water samples from

the POET system at 19 Providence Street once a month following installation through December 2016 (see Appendix C, Table 3 for POET system sample results) [43-53; 116; 130]. Sample results from each of the rounds of sampling indicate that the influent samples contain elevated levels of TCE and PCE above the state standards. However, as the water passes through the treatment system and reaches the midfluent and effluent collection locations, analytical results indicate that no concentrations above the reporting limit of 0.5 µg/L are present. Monthly sampling of the influent water samples from the POET system at 19 Providence Street has indicated a maximum concentration of TCE at 29.9 µg/L (August 2016) and PCE at 12.5 µg/L (September 2016) (see Appendix C, Table 3 for POET system sample results) [43-53; 116; 130,135].

MassDEP also oversaw the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 25 Providence Street on the first day (8 October 2015), and first and second weeks (15 October 2015 and 22 October 2015) of operation [54-56]. MassDEP has continued to oversee the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 25 Providence Street once a month following installation through December 2016 (see Attachment C, Table 3 for POET system sample results) [57-67; 117; 131]. Again, sample results from each of the rounds of sampling indicate that the influent samples contained elevated levels of TCE and PCE above the state standards. However, as the water passes through the treatment system and reaches the midfluent and effluent collection locations, analytical results indicate that no concentrations above the reporting limit of 0.5 µg/L are present. Monthly sampling of the influent water samples from the POET system at 25 Providence Street has indicated a maximum concentration of TCE at 28.5 µg/L (August 2016) and PCE at 11.4 µg/L (September 2016) (see Appendix C, Table 3 for POET system sample results) [57-67; 117; 131,134].

On 28 October 2015, MassDEP representatives oversaw the collection of private drinking water supply samples from residential units at 33B and 40 Providence Street, 157 Central Street, and 11 Harkness Road [68]. The concentrations of TCE and PCE in the drinking water from these homes were not detectable at the analysis reporting limits. See Attachment A, Figure 6 and Attachment C, Table 1 for sample locations and analytical results [69-72].

On 4 November 2015, MassDEP completed the installation and activation of the POET system for the drinking water well serving 3 Providence Street. MassDEP also oversaw the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 3 Providence Street on the first day (4 November 2015), and first and second weeks (11 November 2015 and 18 November 2015) of operation [74]. MassDEP has continued to oversee the collection of the POET system's influent, midfluent, and effluent water samples from the POET system at 3 Providence Street once a month following installation through December 2016 (see Attachment C, Table 3 for POET system sample results) [75-83; 118; 132]. Sample results from each of the rounds of sampling indicate that the influent samples contained detectable levels of PCE and elevated levels of TCE above the state standards. However, as the water passes through the treatment system and reaches the midfluent and effluent collection locations, analytical results indicate that no concentrations above the reporting limit of 0.5 µg/L are present. Monthly sampling of the influent water samples from the POET system at 3 Providence Street has indicated a maximum concentration of TCE at 10.6 µg/L (May 2016) and PCE at 3.8 µg/L (May and June 2016) (see Attachment C, Table 3 for POET system sample results) [75-83; 118; 132, 136].

In addition to the detection of TCE and PCE, MassDEP has also encountered detected levels of

1,1,1-Trichloroethane (1,1,1-TCA), 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113), and Chloromethane (Freon/Refrigerant-40) in samples collected from the residential POET systems. The detectable concentrations of these compounds found in the POET samples did not exceed their respective State Standards [43-53; 57-67; 75-83; 116-118; 130-132,134-136].

To date, it has been documented that TCE and PCE concentrations have exceeded state standards in groundwater at the Millville TCE site. TCE and PCE contamination has been detected in two private residential drinking water wells, impacting three residential buildings (with multiple units) containing an estimated 22 people. As a result, MassDEP has installed POET systems at these three residential buildings, and demonstrated the effectiveness of the system. Monthly sampling and analysis indicate that water entering the POET system continues to show elevated concentrations of TCE and PCE above state standards. However, effluent water samples collected following POET system treatment have indicated that TCE and PCE concentrations at the three residences have been reduced to non-detectable concentrations. MassDEP continues to monitor and assess groundwater contamination in the area of the Millville TCE site.

No groundwater pathway samples were collected as part of this EPA PA.

SURFACE WATER PATHWAY

The Millville TCE property is located in the Blackstone Watershed [107]. The drainage area of the Blackstone Watershed basin is 416 square miles (mi²) [108]. The Millville TCE property is not located within a flood plain [109].

Based on surface topography of the property (generally flat with a slight downward slope to the south toward the Unnamed Stream/on-site wetlands) and on-site observations, stormwater runoff/overland flow from the property infiltrates into the surface soils or flows south-southwest toward the Unnamed Stream/on-site wetlands. The most upstream probable point of entry (PPE) to the Millville TCE 15-mile downstream surface water pathway (SWP) is located along the Unnamed Stream, located on the west-central portion of the property (Figure 9).

The 15-mile downstream SWP from the Millville TCE property is located in the Blackstone River Watershed, and includes the following surface water bodies: Unnamed Stream (0.28 miles), Pratt Pond (0.20 miles), Dawley Brook (0.97 miles), the Branch River (2.01 miles), and the Blackstone River (11.54 miles). The 15-mile downstream SWP terminus is located along the Blackstone River along the border of Lincoln and Cumberland, RI [3; 108; 137-139].

There are two U.S. Geological Survey (USGS) gauging stations located along the SWP on the Branch River and the Blackstone River. To include additional flow rates for the Unnamed Stream, Pratt Pond, and Dawley Brook, START utilized the USGS MA and RI StreamStats website [108].

The drainage area at the PPE, located along the Unnamed Stream, is 0.18 mi². The drainage area at the confluence of the Unnamed Stream with Pratt Pond is 0.22 mi². The distance between the PPE and the confluence of the Unnamed Stream with Pratt Pond is approximately 0.28 miles. Using the USGS conversion factor of 1.8 cubic feet per second (cfs)/mi², the flow rate for the Unnamed Stream ranges from 0.324 cfs to 0.396 cfs [108].

The 15-mile SWP continues through Pratt Pond for approximately 0.20 miles before discharging into Dawley Brook. The drainage area at the confluence of Pratt Pond and Dawley Brook,

located approximately 0.48 miles from the PPE, is 0.057 mi². Using the USGS conversion factor of 1.8 cfs/mi², the flow rate for Pratt Pond ranges from 0.396 cfs to 0.103 cfs [108].

The 15-mile SWP continues along Dawley Brook for approximately 0.97 miles before discharging into the Branch River. The drainage area at the confluence of Dawley Brook with the Branch River, approximately 1.45 miles downstream of PPE, is 1.12 mi². Using the USGS conversion factor of 1.8 cfs/mi², the flow rate for Dawley Brook ranges from 0.103 cfs to 2.02 cfs [108].

Flow rates for the Branch River were determined based on flow rate information at a USGS gaging station at Forestdale, RI (USGS No. 01111500), located approximately 1.85 miles downstream from the PPE, and the drainage area at the Branch River confluence with the Blackstone River, approximately 4.73 miles downstream of the PPE. The drainage basin of the Branch River at USGS No. 01111500 is approximately 91.2 mi². Using the USGS conversion factor of 1.8 cfs/mi², the estimated flow rate of the Branch River at USGS No. 01111500 is approximately 164.16 cfs. The drainage basin of the Branch River at its confluence with the Blackstone River is approximately 93.1 mi². Using the USGS conversion factor of 1.8 cfs/mi², the estimated flow rate of the Branch River at the confluence of the Blackstone River is approximately 167.58 cfs. The flow rate for the Branch River ranges from 164.2 cfs. to 167.58 cfs. [108].

Flow rates for the Blackstone River were determined based on flow rate information at a USGS gaging station at Woonsocket, RI (USGS No. 01112500), located approximately 7.45 miles downstream from the PPE, and the drainage area of the Blackstone River at the 15-mile SWP terminus. The drainage basin of the Blackstone River at USGS No. 01112500 is approximately 416 mi². Using the USGS conversion factor of 1.8 cfs/mi², the estimated flow rate of the Blackstone River at USGS No. 01112500 is approximately 748.8 cfs. The drainage basin of the Blackstone River at the 15-mile SWP terminus is approximately 442 mi². Using the USGS conversion factor of 1.8 cfs/mi², the estimated flow rate of the Blackstone River at the 15-mile SWP terminus is approximately 795.6 cfs. The flow rate for the Blackstone River ranges from 748.8 cfs to 795.6 cfs [108].

Table 5 summarizes surface water bodies along the 15-mile downstream SWP from the Millville TCE property.

Table 5

Surface Water Bodies Along the 15-Mile Downstream Surface Water Pathway from the Millville TCE Property

Surface Water Body	Descriptor ^a	Length of Reach (miles)*	Flow Characteristics (cfs) ^b	Length of Wetland Frontage (miles)
Unnamed Stream	Minimal stream	0.28	0.324 to 0.396	0.12
Pratt Pond	Minimal stream	0.20	0.396 to 1.026	0.38
Dawley Brook	Minimal stream	0.97	1.026 to 2.02	1.34
Branch River	Moderate to large stream	2.01	164.2 to 167.58	4.02
Blackstone River	Moderate to large stream	11.54	748.8 to 795.6	23.08

^a Minimal stream <10 cfs. Moderate to large stream (flow = >100 cfs to 1,000 cfs).

^b Cubic feet per second

* Distance measured from PPE.

[108; 110]

The Branch River and Blackstone River are trout-stocked water bodies; however, START is unaware of the status of a fishery within both the Branch River and the Blackstone River [111].

The Branch River is the most upstream Clean Water Act (CWA)-protected water body along the 15-mile downstream SWP. In addition, there are approximately 28.94 miles of wetland frontage located along the SWP [110]. There are four listed priority species habitats along the 15-mile downstream SWP [112]. Information regarding the specific type of priority habitat (State Threatened, State Endangered, Federal Threatened, or Federal Endangered), or the names of the listed threatened or endangered species habitats, was not available during the writing of this report. There are no known drinking water intakes located along the 15-mile downstream SWP from the property [108].

Table 6 summarizes sensitive environments along the 15-mile downstream SWP from the Millville TCE property.

Table 6**Sensitive Environments Along the 15-Mile Downstream Surface Water Pathway from the Millville TCE property**

Sensitive Environment Name	Sensitive Environment Type	Surface Water Body	Downstream Distance from PPE (miles)	Flow Rate at Environment (cfs) ^a
Unnamed Stream - Wetlands	Wetlands	Unnamed Stream	0.21 to 0.28	0.324 to 0.396
Pratt Pond - Wetlands	Wetlands	Pratt Pond	0.28 to 0.47	0.396 to 1.026
Dawley Brook - Clean Water Act	Clean Water Act Water body	Dawley Brook	0.56 to 1.36	1.026 to 2.02
Dawley Brook - Wetlands	Wetlands	Dawley Brook	0.56 to 1.36	1.026 to 2.02
Branch River - Wetlands	Wetlands	Branch River	1.45 to 3.46	164.2 to 167.58
Blackstone River - Wetlands	Wetlands	Blackstone River	3.46 to 11.54	748.8 to 795.6

^a Cubic feet per second

PPE = Probable Point of Entry.

[9-12]

File information does not indicate that any SWP samples have been collected from the property. However, the primary contaminants of concern associated with the PA are CVOCs including TCE and PCE. TCE and PCE are among the most common chlorinated solvents released to the environment. TCE and PCE are widely used organic solvents which may be contained in commercial, industrial, and residential products. TCE and PCE are colorless, highly volatile liquids that are miscible with water and a number of organic solvents. TCE and PCE do not occur naturally in the environment.

As part of the Millville TCE PA, START personnel collected sediment samples associated with the Millville TCE site to determine if the SWP had been impacted by hazardous substances potentially associated with on-site source areas. On 6 September 2016, START personnel collected nine sediment samples (SD-01 through SD-09) from eight locations on the Louis Iarussi (171 Central Street) property (see Attachment A, Figure 8). Six sediment samples (SD-01 through SD-06) were collected from the unnamed stream and ponded wetland areas flowing across the southwestern portion of the 171 Central Street (Louis Iarussi) property. Three of the samples (SD-07 through SD-09) were collected from the north-central portion of the 171 Central Street (Louis Iarussi) property from the small ponded water body, adjacent to a concrete drainage culvert and bordering the 25 Providence Street property. Sediment sample SD-01 was collected as a background sample from the most upstream portion of the unnamed stream. The nine sediment samples were submitted to the EPA OEME NERL laboratory for VOC analysis only [1].

Attachment D, Table 1B, provides a summary/description of the sample location and matrix information for each of the sediment samples collected by START on 6 September 2016.

Complete analytical results of sediment samples collected by START, including quantitation and RLs, are presented in Attachment E, Table 2 of this report [119-120]. Sample results qualified

with an “ND” on analytical tables indicate the substances were analyzed for, but not detected, and the associated numerical value is the OEME Laboratory RL. The reasons for sample qualifiers are provided in the footnotes of the individual data tables included as Attachments E and F of this report. Note that one of the nine sediment samples (SD-04) was diluted by OEME NERL prior to performing the VOC analysis, resulting in higher RLs for this sample. All VOC substances tested for in sample SD-04 were reported by NERL as ND at the higher RL (see Attachment E, Table 2 of this report) [1; 119-121].

Complete analytical results of START equipment rinsate, trip, and preservative blank samples, collected by START in accordance with the Site-Specific QAPP for the Region I START IV Contract, are presented in Attachment E, Table 3B of this report [1; 84; 121].

Attachment F, Table 2, is a summary of VOCs detected above reference criteria for the sediment sample laboratory analyses results. Sediment sample SD-01 was collected to represent background/reference conditions from the most upstream portion of the unnamed stream. Sediment sample SD-01 was selected for use as the reference/background sample for comparison of sediment sample concentrations. For each sample location, a compound is listed if it is detected at a concentration greater than or equal to three times the highest background sample's concentration. However, if a substance was not detected in the background samples, the background sample's RL was used as the comparison value. These substances were listed if they occurred at a value equal to or greater than the background sample's RL and are designated by their approximate relative concentration above these values. NERL analytical results for sediment sample SD-01 indicate that all VOC substances were listed as ND and therefore the remaining sediment samples are compared to their respected SD-01 RL [1; 84; 119-121].

Three VOCs were detected above OEME Laboratory RLs in the sediment samples submitted for analysis. The following three VOCs were detected above RLs (maximum concentration and sample location in parentheses): acetone (23 µg/Kg in SD-05); MEK (4.6 µg/Kg in SD-05); and tetrahydrofuran (1.2 µg/Kg in SD-09) [119-120]. Acetone and MEK were only found in two samples (SD-05 and SD-06) collected from the unnamed stream area, downstream of the operational area and upstream of the property line. Tetrahydrofuran was only detected in sample SD-09, collected from the small ponded water area located in the north-central portion of the Louis Iarussi property, adjacent to a concrete drainage culvert and the boundary with 25 Providence Street property. Note that no TCE or PCE was detected in any of the sediment samples collected from the Louis Iarussi (171 Central Street) property [119-120].

Based on the analytical results of the sediment samples collected during this PA investigation, a release to sediments has been documented on the Millville TCE property, containing the following three VOCs: acetone, MEK, and tetrahydrofuran (see Attachment E, Table 2 and Attachment F, Table 2) [119-120].

For comparison purposes only, analytical results of the sediment samples are compared to National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRTs) Threshold Effects Level (TEL) and/or Probable Effects Level (PEL) values for freshwater sediment. NOAA SQuiRTs have two values for comparison (TELs and PELs), which represent the level at which adverse effects to benthic organisms are expected [129]. TELs represent the concentration below which adverse effects are expected to occur only rarely. PELs represent the level above which adverse effects are frequently expected to occur. Screening with conservative, lower-threshold values (e.g. TELs) ensures, with a high degree of confidence, that any contamination sources eliminated from future consideration pose no potential threat.

Conversely, it does not predict toxicity. Upper threshold values (e.g. PELs) identify compounds which are more probably elevated to toxic levels. NOAA SQuiRTs TELs and PELs were developed for screening purposes only. The NOAA SQuiRT TELs and PELs are not enforceable by law, nor do they constitute criteria or clean-up levels, and are intended for comparison purposes only [129].

As indicated in Attachment E, Table 2 and Attachment F, Table 2, there are no NOAA SQuiRTs TEL and PEL values listed for the VOC substances analyzed for as part of this PA [119-121; 129].

Based on the analytical results of the sediment samples collected during this PA investigation, a release of hazardous substances to the downstream SWP has been documented for the Millville TCE site. Three VOCs (acetone, MEK, and tetrahydrofuran) were detected at concentrations exceeding reference/background sample concentrations in sediment samples along the SWP. These same three compounds were also detected in Surface Soil/Waste Source samples on the Millville TCE site and are therefore considered at least partially attributable to the site (see Attachment E, Tables 1 and 2; and Attachment F, Tables 1 and 2).

SOIL EXPOSURE PATHWAY

The Millville TCE site has currently been identified by a contamination plume of unknown origin, encompassing a group of private residential drinking water supply wells located along Providence Street, Millville, MA.

For the purpose of this PA document, the Millville TCE site is considered the general area on and around the 19/25 Providence Street properties where the contamination was first identified and which contains elevated concentrations of TCE and PCE. Elevated levels of contamination have been documented in drinking water samples from residential supply wells on the following properties: 19 and 25 Providence Street (a shared well serving both properties) and 3 Providence Street (located in the vicinity of 19/25 Providence Street) (see Attachment A, Figure 2).

EPA has identified three potential AOCs in the vicinity of the Millville TCE site to be investigated as part of the PA: Mendon Street Automotive (7 Providence Street) (see Attachment A, Figure 3); Louis Iarussi Property (171 Central Street) (see Attachment A, Figure 4); and Rudy's Service Station (190 Central Street), in Millville, MA (see Attachment A, Figures 5 and 5A).

Residential units are located on 19, 25 and 3 Providence Street. Two apartments, reported occupied by three tenants, are located at 3 Providence Street. A single Quad-Plexes (four condominium units) building is located at both 19 and 25 Providence Street. Some units are owner occupied, but others are occupied by tenants. The eight condominium units occupying 19 and 25 Providence Street house an estimated 19 people [1; 10].

Rudy's Service Station (190 Central Street) property consists of a non-active service station. No on-site workers or residents occupy the 0.402-acre parcel [1; 88; 89]. Reportedly, the current owner (now the estate of the owner) has tentative plans to make improvements to the building/property and operate an automotive service garage on site in the future [89].

The 9.6-acre Louis Iarussi (171 Central Street) property is reportedly an inactive parcel which is being prepared for agricultural farming activities. However, it has also been reported that the

property has previously been used as a gravel operation and as a non-permitted disposal area, alleged to have been used for disposal/burial of solid waste on site. Based on discussions with the owner representative, Mr. Iarussi Sr., there has been generally one part-time on-site worker preparing the property for farming activities (clearing and leveling the property) until recently, when the owner received a Cease and Desist Order [1; 4; 7].

The 1.73-acre Mendon Street Automotive (7 Providence Street) property currently contains an inactive, small (42-foot by 51-foot), light industrial style building. The one-story building was previously used for office space. The building contains a walk-out basement in the rear. According to the property owner, the building is not occupied but the basement garage area and the remaining land is used for outdoor supply storage by a tenant that operates an off-site landscaping business [1; 4; 8]. There are currently no known on-site full-time workers or residents on the property [1].

The nearest residences to the Millville TCE site [considering the Louis Iarussi (171 Central Street) and Mendon Street Automotive (7 Providence Street) properties] are located north and east of the properties, along Providence Street [1]. An estimated 2,963 and 46,184 people reside within 1 radial mile and 4 radial miles of the Millville TCE property, respectively [106]. There are three state and/or federally designated endangered species habitats located on the Millville TCE property [112].

There are no schools or day-care facilities located within 200 feet of known source areas located on the Millville TCE site. The nearest daycare facility, Deb's Daycare, is located approximately 0.5 miles north of the property, along Summit Street, Millville, MA [114]. The nearest school, Halliwell Memorial School, is located approximately 1.6 miles southeast of the property, along Victory Highway, North Smithfield, RI [115].

Vehicle access to the Louis Iarussi (171 Central Street) property is partially restricted by an unlocked rope. Pedestrian access to the property is generally unrestricted. Evidence of trespassing, trash and debris, was observed along the bordering properties to the east (Providence Street) during on-site activities conducted as part of the PA [1].

Vehicle and pedestrian access to the Mendon Street Automotive (7 Providence Street) property is restricted by a locked chain-link fence and gate. No evidence of trespassing was observed during on-site activities conducted as part of the PA [1].

Limited surface soil sampling activities have been conducted previously for the associated Millville TCE properties. Limited surface soil sampling has been conducted on 190 Central Street (Rudy's Service Station) property and in vicinity of the contaminated supply well on the 19 Providence Street property. Review of available file information did not indicate that any previous surface soil samples have been collected on the Louis Iarussi (171 Central Street) or Mendon Street Automotive (7 Providence Street) properties.

As noted previously in the waste source section of this report, LSE, as part of the ASTM Phase II investigation and subsequent activities, conducted limited surface soil sampling activities at 190 Central Street (Rudy's Service Station), Millville MA. During July and August 2012, surface soil samples were collected to investigate historical releases of petroleum and/or gasoline associated with surface spillage of waste oil at the two former waste oil storage areas (AOC-4 and AOC-5) [89; 90; 91; 93]. Analytical testing of environmental media has confirmed that total petroleum hydrocarbons (TPH) exceedances of state standards (RCS-1) in soil are limited to an

area of surficial soil stained by waste oil leakage/disposal [91]. No PCE or TCE was detected in the surface soil samples collected from Rudy's Service Station [93]. These impacted soils were excavated and removed from the site as a Limited Removal Action in May 2013, and followed up with compliance sampling [89; 93].

On 14 July 2015, as part of the MassDEP investigation, the CB&I/Shaw Group collected a soil sample in the vicinity of the private drinking water well supplying the two condominium buildings, 19 and 25 Providence Street [13]. Analytical results indicated elevated levels of two VOCs (chloroform and tetrahydrofuran), but no elevated levels of CVOCs (PCE or TCE) above laboratory detection limits [14].

EPA Preliminary Assessment Surface Soil Sampling

As discussed and summarized previously in the Waste/Source Section of this report, as part of the EPA Millville PA sampling activities, START personnel conducted surface soil sampling on the Louis Iarussi (171 Central Street) and Mendon Street Automotive (7 Providence Street) properties on 7 and 8 September 2016. Surface soil sampling was conducted throughout the Louis Iarussi and Mendon Street Automotive properties, to identify hazardous substances associated with the potential on-site source areas. Sample locations were proposed based on site observation, proximity to potential items of concern (drums, piles, totes, staining, etc.), and spatial distribution. Input from concerned neighbors on 6 September 2016 regarding alleged previous disposal activities conducted on the Louis Iarussi property was used to refine sample locations and add additional sample locations to provide better representation of alleged source materials disposed of on site previously. START personnel collected a total of 20 surface soil samples (SS-01 through SS-15 and SS-23 through SS-26), as well as one field duplicate (SS-16), from 19 locations on the 171 Central Street (Louis Iarussi) property; and six surface soil samples (SS-17 through SS-21), as well as one field duplicate (SS-22), from five locations on the 7 Providence Street (Mendon Street Automotive) property (see Attachment A, Figure 8). All 26 samples collected were submitted to EPA OEME NERL for VOC analysis only [1].

Attachment D, Table 1A, provides a summary/description of the sample location and matrix information for each of the surface soil samples collected by START on 7 and 8 September 2016.

Complete analytical results of surface soil samples collected by START, including quantitation and reporting limits (RLs), are presented in Attachment E, Table 1 of this report [122-123; 125-126]. Sample results qualified with an "ND" on analytical tables indicate the substances were analyzed for, but not detected, and the associated numerical value is the OEME Laboratory RL. Sample results qualified with a "J" on analytical tables are estimated. Sample results qualified with an "E" on analytical tables indicate that the value exceeds the calibration range. The reasons for sample qualifiers are provided in the footnotes of the individual data tables included as Attachments E and F of this report. Note that four of the 26 surface soil samples (SS-14, SS-20, SS-21, and SS-22) were diluted by OEME NERL prior to performing the VOC analysis, resulting in high RLs for these samples. All VOC substances tested for in these four samples were reported by NERL as ND using the higher RLs [1; 122-127].

Complete analytical results of START equipment rinsate, trip, and preservative blank samples, collected by START in accordance with the Site-Specific QAPP for the Region I START IV Contract, are presented in Attachment E, Tables 3A and 3B of this report [1; 84; 124; 127].

Attachment F, Table 1, is a summary of VOCs detected above reference criteria for the surface soil samples laboratory analyses results. Surface soil sample SS-17, located on the 7 Providence Street property, was selected for use as the reference/background sample for comparison of surface soil sample concentrations. Surface soil sample SS-17 was collected from the front portion of the 7 Providence Street property to evaluate the soil exposure pathway (0 - 2 feet). This sample is located topographically upgradient and presumably outside of the influence of contaminants from on-site source areas. For each sample location, a compound is listed if it is detected at a concentration greater than or equal to three times the highest background sample's concentration. However, if a substance was not detected in the background samples, the background sample's RL was used as the comparison value. These substances were listed if they occurred at a value equal to or greater than the background sample's RL and are designated by their approximate relative concentration above these values. Analytical results of surface soil samples submitted for VOC analyses were also compared against their respective MassDEP MCP Method 1 S-1/GW-1 Soil Standards [1; 84; 122-127].

Eight VOCs were detected above the respective reference criteria, background sample concentration or OEME laboratory RL, in the surface soil samples submitted for analysis. The following eight VOCs were detected above reference criteria (background or RL concentration) (maximum concentration and sample location in parentheses): acetone (200 µg/Kg in SS-25); MEK (34 µg/Kg in SS-11); tetrahydrofuran (7.9 µg/Kg in SS-10); TCE (3.7 µg/Kg in SS-19); PCE (69 µg/Kg in SS-19); 2-hexanone (98 µg/Kg in SS-11); para-isopropyltoluene (3.3 µg/Kg in SS-18); and toluene (1.8 µg/Kg in SS-13) [122-123; 125-126].

Based on the analytical results of the surface soil samples collected during this PA investigation, a release of VOCs to surface soil has been documented on the 7 Providence Street (Mendon Street Automotive) and 171 Central Street (Louis Iarussi) properties, containing the following eight VOCs: acetone, MEK, tetrahydrofuran, TCE, PCE, 2-hexanone, para-isopropyltoluene, and toluene (see Attachment E, Table 1 and Attachment F, Table 1) [122-123; 125-126].

Samples collected from the 7 Providence Street (Mendon Street Automotive) property showed six of the eight compounds detected above their individual reference criteria, including PCE, TCE, Acetone, MEK, tetrahydrofuran, and 2-Hexanone. Note that elevated concentrations of VOCs above reference/background levels were detected in only two of the six samples collected on the 7 Providence Street (Mendon Street Automotive) property, samples SS-18 and SS-19. In addition, PCE and TCE were only detected in sample SS-19, and with concentrations of 69 ppb and 3.7 ppb, respectively. Note that sample SS-19 was collected from soils in the vicinity of three empty 55-gallon, polypropylene drums on the rear portion of the property. These drums were located along the southern fenceline in the central portion of the property [1; 122-127].

Samples collected from the 171 Central Street (Louis Iarussi) property indicated detections of six of the eight compounds above their individual reference criteria, including acetone, MEK, tetrahydrofuran, para-isopropyltoluene, 2-hexanone, and toluene. No TCE or PCE was detected in the 171 Central Street (Louis Iarussi) property surface soil samples. Note that elevated concentrations of VOCs detected above reference/background concentrations were found in 17 of the 19 samples collected on the 171 Central Street (Louis Iarussi) property [1; 122-127].

Detected VOCs presented in Attachment F, Table 1, were also compared against their respective MassDEP MCP Method 1 S-1/GW-1 Standards and are bolded if they exceed this standard [122-123; 125-126]. Analytical results of surface soil samples indicate that none of the VOCs were detected at concentrations exceeding the MCP Method 1 S-1/GW-1 standards [122-123; 125-126].

Analytical results of the surface soil samples collected during this PA investigation have documented a release to surface soil, at the 7 Providence Street (Mendon Street Automotive) property, containing six VOCs including PCE and TCE (see Attachment E, Table 1 and Attachment F, Table 1) [122-123; 125-126]. In addition, results have also documented a release to surface soil at the 171 Central Street (Louis Iarussi) property, containing six VOCs. However, no TCE or PCE was detected or documented in the surface soil release at the 171 Central Street (Louis Iarussi) property [1; 122-127].

In summary, based on limited soil sampling, no potential surface soil exposure has been documented on the 19 Providence Street property. Although surface soil contamination was previously detected on the 190 Central Street (Rudy's Service Station) property (note TCE or PCE was not detected), based on the contaminated soils being removed in 2013 and lack of any on-site workers, there appears to be a low chance for potential contaminated soil exposure at this property, at the present time. Furthermore, even though surface soil contamination has been documented on the 7 Providence Street (Mendon Street Automotive) and 171 Central Street (Louis Iarussi) properties, there appears to be no residential population and limited potential worker contact with the contaminated soils on these properties at the present time.

AIR PATHWAY

The site is currently inactive, and there are no on-site workers or residents on the majority of the Millville TCE property [190 Central Street (Rudy's Service Station), 7 Providence Street (Mendon Street Automotive), and 171 Central Street (Louis Iarussi) properties] [1]. The nearest residences are located north and east of the Millville TCE property, along Providence Street [1]. There are no schools or day-care facilities located within 200 feet of known source areas located on the Millville TCE properties [1; 114]. The nearest daycare facility, Deb's Daycare, is located approximately 0.5 miles north of the property, along Summit Street, Millville, MA [114]. The nearest school, Halliwell Memorial School, is located approximately 1.6 miles southeast of the property, along Victory Highway, North Smithfield, RI [115].

Vehicle access to the Louis Iarussi (171 Central Street) property is partially restricted by an unlocked rope. Pedestrian access to the property is generally unrestricted. Evidence of trespassing, trash and debris, was observed along the bordering properties to the east (Providence Street) during on-site activities conducted as part of the PA [1].

Vehicle and pedestrian access to the Mendon Street Automotive (7 Providence Street) property is restricted by a locked chain-link fence and gate. No evidence of trespassing was observed during on-site activities conducted as part of the PA [1].

Vehicle and pedestrian access to the Rudy's Service Station (190 Central Street) property is generally unrestricted. Evidence of trespassing (trash, debris, tire tracks) was observed during on-site reconnaissance activities conducted as part of the PA [1].

An estimated 46,184 people reside within 4 radial miles of the Millville TCE property [106].

Table 7 summarizes the estimated population within 4 radial miles of the Millville TCE property.

Table 8

**Sensitive Environments Located Within 4 Radial Miles of
the Millville TCE Property**

Radial Distance From Millville TCE Property (miles)	Sensitive Environments/Species (status)
On Property	0.57 acres of wetlands
	34.84 acres of wetlands
> 0.25 to < 0.50	20.79 acres of wetlands
> 0.50 to < 1.00	109.7 acres of wetlands
	Clean Water Act-protected water body
> 1.00 to < 2.00	1,209.08 acres of wetlands
	Three listed priority species habitats
> 2.00 to < 3.00	901.34 acres of wetlands
	Four listed priority species habitats
> 3.00 to < 4.00	2,455.87 acres of wetlands
	Six listed priority species habitats

[110; 113]

No quantitative laboratory-analyzed air samples are known to have been collected from the Millville TCE property. START did not conduct Air Pathway sampling as part of this PA. During the 11 April 2016 on-site reconnaissance conducted at the Millville TCE property and subsequent sampling events, START personnel conducted periodic ambient air monitoring using a MultiRAE Plus (LEL, O₂, H₂S, CO, and PID) meter and a Micro R radiation meter. No readings above background levels were detected [1].

Based on the lack of quantitative data, no release of hazardous substances to the ambient air from on-site sources has been documented. No impacts to nearby residential populations or sensitive environments are known.

SUMMARY

The Millville TCE site has currently been identified by a contamination plume of unknown origin, encompassing a group of private residential drinking water supply wells located along Providence Street, Millville, MA. The contamination plume contains CVOCs, including TCE and PCE, at levels elevated above the state's respective drinking water standards [1; 4]. The state drinking water standard for both TCE and PCE is 5.0 µg/L.

For the purpose of this PA document, the Millville TCE site is considered to be the general area on and around the 19/25 Providence Street properties, where the contamination was first identified as containing elevated concentrations of TCE and PCE. Elevated levels of contamination have been documented in drinking water samples from residential supply wells on the following properties: 19 and 25 Providence Street (a shared well serving both properties), and 3 Providence Street (located in the vicinity of 19/25 Providence Street).

EPA has identified three potential AOCs in the vicinity of the Millville TCE site to be investigated as part of the PA: Mendon Street Automotive (7 Providence Street); Louis Iarussi Property (171 Central Street); and Rudy's Service Station (190 Central Street), in Millville, MA.

The properties at 3, 19, and 25 Providence Street are currently listed as one site with the MassDEP as RTN 02-0019567; and the 190 Central Street (Rudy's Service Station) property is currently listed as a site with MassDEP as RTN 02-0018787 [5; 6]. The 171 Central Street (Louis Iarussi) property is listed as a site under the SEMS as Site ID. No. MAN000101702 [2]. Mendon Street Automotive (7 Providence Street) is not listed in either EPA or MassDEP tracking databases.

Although the Millville TCE site consists of multiple properties, the field sampling portion of the PA investigation focused on two of those properties: the 7 Providence Street (Mendon Street Automotive) property, and the 171 Central Street (Louis Iarussi) property. The geographic coordinates for the site, as measured from the approximate center of the Louis Iarussi property, are 42° 00' 53.1" north latitude and 71° 34' 48.8" west longitude [9].

Mendon Street Automotive, a general automotive repair operation, formerly operated at 7 Providence Street, Millville, MA. The property consists of a portion of a 1.73-acre property identified in the Millville Tax Records as Plat Map 129, Lot 1 currently owned by Ms. Elizabeth Laliberte [1; 8]. This property is located approximately 300 feet southeast of the 19/25 Providence Street supply well and northwest of the 3 Providence Street well. START identified other commercial businesses that have allegedly operated from this property including: U-Haul/Budget Rental, a truck rental operation; and Berns Small Engine and Auto Repair, which previously operated as a small engine repair service shop on site, including work on lawn mower, chainsaw, and snow blower engines. According to the current property owner, the property is currently rented to a landscaping company to store equipment and vehicles.

The Louis Iarussi Property is located at 171 Central Street. This 9.6-acre property, identified in the Millville Tax Records as Plat Map 129, Lot 11, was purchased in 1997 by Louis Iarussi Jr. [1, 7]. This property abuts the 19 and 25 Providence Street properties to the south and west. During the April 2016 reconnaissance, the property owner/representative, Mr. Iarussi Sr., stated that when he and his son purchased the property, it had been a former gravel pit. Mr. Iarussi Sr. stated that he currently operates a farm on the property, growing wood (trees) and blueberries,

along with raising honey bees. START personnel observed no crops on-site, but did observe the two active bee houses [1].

The 171 Central Street property reportedly had been used for an earth excavation operation (sand/gravel pit operation), allegedly for disposal/burial of solid waste, and potentially for storage of hazardous waste and oils [85, p. 4].

The former Rudy's Service Station is located at 190 Central Street in Millville, MA. This property is located approximately 1,000 feet west of the 19 and 25 Providence Street properties. The 0.402-acre parcel is identified in the Millville Tax Records as Plat Map 130, Lot 4 [1; 88]. The former property owner operated a full service automotive repair business known as Rudy's Garage on site. Automotive repair equipment included an indoor hydraulic lift and a former external automotive service pit. The property currently houses a vacant two-bay automotive service garage [89]. During the April 2016 reconnaissance of the property, START personnel observed the inactive former service station building and several previously reported Areas of Concern (AOCs), currently being investigated by the property owner under the oversight of MassDEP [1]. Based on available information from previous investigations at Rudy's Service Station property, and discussions with EPA and MassDEP representatives, it was determined that no additional sampling activities would be conducted at the 190 Central Street property at this time.

The reconnaissance and sampling activities conducted did identify several potential waste sources, including the contamination plume of unknown origin, and several potentially contaminated soil piles and areas. Based on the analytical results of the surface soil/source samples collected during this PA investigation, a release of eight VOCs to surface soil/source samples has been documented on the 7 Providence Street (Mendon Street Automotive) and 171 Central Street (Louis Iarussi) properties: acetone, MEK, tetrahydrofuran, TCE, PCE, 2-hexanone, para-isopropyltoluene, and toluene [122-123; 125-126]. However, only one source area contained elevated levels of TCE and PCE: a contaminated soil source area on the 7 Providence Street property. Analytical results of source/soil sample SS-19 showed PCE and TCE concentrations of 69 ppb and 3.7 ppb, respectively. This sample was collected in the vicinity of three empty 55-gallon, polypropylene drums on the rear portion of the 7 Providence Street property [1; 122-123; 125-126].

The groundwater beneath the Millville TCE property is classified as category GW-1 by MassDEP [128]. According to previous reports, depth to groundwater on the Millville TCE property, as measured on the 190 Central Street (Rudy's Service Station) property, ranges from 7.25 to 12.05 feet bgs [89, p. 13]. Groundwater in the area is estimated to flow south-southeast [89, p. 13].

The nearest public drinking water supply well is the BJs Wholesale Distribution Center [Public Water System Identification Number (PWS ID No.) MA2304013], located in the Town of Uxbridge, MA, between 1 and 2 radial miles from the Millville TCE property. The nearest off-site private drinking water supply well is located between 0 and 0.25 miles from the property and includes the residences along Providence Street [106]. The total population which relies on groundwater as a drinking water supply source within 4 radial miles of the Millville TCE property is estimated to be 21,097 [104; 106].

A contamination plume of unknown origin was first identified on 8 July 2015 when MassDEP received a telephone call from the resident at 19B Providence Street, Millville, MA reporting that they had received sample results for their private residential drinking water supply well

indicating the well was contaminated with chlorinated solvents at levels elevated above state drinking water standards [5; 10]. TCE was detected at 17 micrograms per Liter ($\mu\text{g/L}$) and PCE at 8.6 $\mu\text{g/L}$ [11]. The state drinking water standard for both TCE and PCE is 5.0 $\mu\text{g/L}$. The resident noted that the well was tested due to concerns regarding activities at a gravel pit located adjacent to their common property. The caller further noted that the contaminated well is shared by 19 residents in eight separate condominium units, located at 19 and 25 Providence Street, Millville, MA [5].

Since the initial report on 8 July 2015, MassDEP has collected numerous drinking water samples from the area including along Providence Street, Harkness Road, Central Street, and Afonso Way. In addition, MassDEP has collected samples from five septic systems associated with the residences located at 3, 7, 11, 19 and 25 Providence Street.

Analytical results of the MassDEP investigations indicated detectable levels of TCE and PCE above applicable state standards at 3, 19, and 25 Providence Street with a maximum concentration of TCE at 29.9 $\mu\text{g/L}$ (August 2016) and PCE at 12.5 $\mu\text{g/L}$ (September 2016). Drinking water samples collected by MassDEP from the other 15 units sampled to date are reported as not detectable at the reporting limit or below the state standard for both TCE and PCE.

In addition to the detection of TCE and PCE, MassDEP has also encountered detectable levels of 1,1,1-Trichloroethane (1,1,1-TCA), 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113), and Chloromethane (Freon/Refrigerant-40) in samples collected from the residential POET systems. The detectable concentrations of these compounds found in the POET samples did not exceed their respective State Standards [43-53; 57-67; 75-83; 116-118; 130-132,134-136].

To date, it has been documented that TCE and PCE concentrations have exceeded state standards in the groundwater at the Millville TCE site. TCE and PCE contamination has been detected in two private residential drinking water wells, impacting three residential buildings (with multiple units) housing an estimated 22 people. As a result, MassDEP has installed POET systems at these three residential buildings, and has conducted monthly testing demonstrating the effectiveness of the system. Monthly sampling and analysis indicates that water entering the POET system continues to contain elevated concentrations of TCE and PCE above state standards. However, effluent water samples collected following POET system treatment have indicated that TCE and PCE concentrations at the three residences has been reduced to non-detectable concentrations. MassDEP continues to monitor and assess groundwater contamination in the area of the Millville TCE site. No groundwater pathway samples were collected as part of this EPA PA.

The Millville TCE 15-mile downstream SWP begins at the most upstream probable point of entry (PPE). The most upstream PPE is located along the Unnamed Stream, located on the west-central portion of the property as the unnamed stream enters the 171 Central Street property [1]. The SWP is located in the Blackstone River Watershed, and includes the following surface water bodies: Unnamed Stream (0.28 miles), Pratt Pond (0.20 miles), Dawley Brook (0.97 miles), the Branch River (2.01 miles), and the Blackstone River (11.54 miles). The 15-mile downstream SWP terminus is located along the Blackstone River along the border of Lincoln and Cumberland, RI [108]. Flow rates range from less than 1.0 cubic feet per second (cfs) to approximately 780 cfs. [9-12].

No previous known SWP samples have been collected from the Millville TCE properties. On 6 September 2016, as part of the 2016 EPA PA, START personnel collected nine sediment samples (SD-01 through SD-09) from eight locations on the Louis Iarussi (171 Central Street) property. The samples were submitted to the EPA OEME NERL laboratory for VOC analysis only. Based on the analytical results of the sediment samples collected during this PA investigation, a release to sediments has been documented on the Millville TCE property, containing the following three VOCs: 2-propanone (acetone), 2-butanone (methyl ethyl ketone (MEK), and tetrahydrofuran [119-120]. Note that no TCE or PCE was detected in any of the sediment samples collected from the Louis Iarussi (171 Central Street) property.

Soil Exposure for the Millville TCE site is limited due to the limited population and usage of the properties. Residential units are located on 19, 25 and 3 Providence Street. Two apartments, reported occupied by three tenants, are located at 3 Providence Street. A single Quad-Plexes (four condominium units) building is located at both 19 and 25 Providence Street. The eight condominium units occupying 19 and 25 Providence Street house an estimated 19 people [1; 10]. The Rudy's Service Station (190 Central Street) property consists of a non-active service station, with no on-site workers or residents [1; 88; 89]. The Mendon Street Automotive (7 Providence Street) property building is not occupied, but the basement garage area and outdoor area are used for supply storage by a tenant that operates an off-site landscaping business [1; 4; 8]. There are currently no known on-site full-time workers or residents on the 7 Providence Street property. The Louis Iarussi (171 Central Street) property is reportedly an inactive parcel which is being prepared for agricultural farming activities. Based on discussions with the owner representative, Mr. Iarussi Sr., there had generally been one part-time on-site worker preparing the property for farming activities (clearing and leveling the property) until recently, when the owner received a Cease and Desist Order [1; 4; 7].

There are currently no workers or residents on the property [1]. There are no schools or day-care facilities located within 200 feet of known or suspected source areas located on the Millville TCE site [114-115]. The nearest residences to Millville TCE site are located on the adjacent properties, immediately north and east of the site, along Providence Street [1]. An estimated 2,963 and 46,184 people reside within 1 radial mile and 4 radial miles of the Millville TCE property, respectively [106]. There are three state and/or federally designated endangered species habitats located on the Millville TCE property [112].

Limited surface soil sampling activities had been conducted previously for the associated Millville TCE properties: at 190 Central Street (Rudy's Service Station) property and in the vicinity of the contaminated supply well on the 19 Providence Street property [13-14; 89-91; 93]. These investigations did find soil VOC contamination, but no TCE or PCE was detected in the soil samples.

As part of the 2016 EPA PA, surface soil/source sampling was conducted on the Millville TCE property. START personnel collected a total of 26 surface soil/source samples from the 171 Central Street (Louis Iarussi) and 7 Providence Street (Mendon Street Automotive) properties. All 26 samples were submitted to EPA OEME NERL laboratory for VOC analysis only [1].

Analytical results of the surface soil samples collected during this PA investigation have documented a release to surface soil at the 7 Providence Street (Mendon Street Automotive) property, containing six VOCs including PCE and TCE. In addition, results have also documented a release to surface soil at the 171 Central Street (Louis Iarussi) property, containing

six VOCs. However, no TCE or PCE was detected or documented in the surface soil release at the 171 Central Street (Louis Iarussi) property [122-123; 125-126].

No quantitative laboratory-analyzed air samples are known to have been collected from the Millville TCE property. START did not conduct Air Pathway sampling as part of this PA [1]. An estimated 2,963 and 46,184 people reside within 1 radial mile and 4 radial miles of the Millville TCE property, respectively [106]. Approximately 4,732.20 acres of wetlands, CWA-protected water bodies, and eight listed priority species habitats are located within 4 radial miles of the Millville TCE property [110; 113].

Based on the lack of quantitative data, no release of hazardous substances to the ambient air from on-site sources has been documented. No impacts to nearby residential populations or sensitive environments are known.

Analytical results of surface soil and waste source sampling conducted on the Millville TCE properties during previous investigations and this EPA PA has documented that on-site surface soil has been impacted by a release of hazardous substances (PCE, TCE, acetone, MEK, tetrahydrofuran, para-isopropyltoluene, 2-hexanone, and toluene), attributable to on-site sources. These include an area of contaminated surface soil, containing elevated PCE and TCE (69 ppb and 3.7 ppb, respectively), in the vicinity of three empty 55-gallon, polypropylene drums on the rear portion of the 7 Providence Street (Mendon Street Automotive) property [1; 122-127].

In addition, based on the analytical results of the sediment samples collected during this PA investigation, a release of hazardous substances to the downstream SWP has been documented. Three VOCs (acetone, MEK, and tetrahydrofuran) were detected at concentrations exceeding reference/background sample concentrations in sediment samples along the SWP. These same three compounds were also detected in Surface Soil/Waste Source samples on the Millville TCE site and are therefore considered to be at least partially attributable to the site [1; 119-120].

The last known action completed at the Millville TCE property was drinking water/POET system sampling conducted by MassDEP in December 2016.

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ATTACHMENT A

MILLVILLE TCE FIGURES

- Figure 1 Site Location Map**
- Figure 2 General Site Diagram**
- Figure 3 Site Diagram – Mendon Street Automotive, 7 Providence Street**
- Figure 4 Site Diagram – Louis Iarussi Property, 171 Central Street**
- Figure 5 Site Diagram – Rudy’s Service Station, 190 Central Street**
- Figure 5A Monitoring Well Map – Rudy’s Service Station, 190 Central Street**
- Figure 6 MassDEP Residential Drinking Water Sample Locations**
- Figure 7 Area Vicinity Map**
- Figure 8 Soil and Sediment Sample Location Map**
- Figure 9 15-Mile Downstream Surface Water Pathway Map**

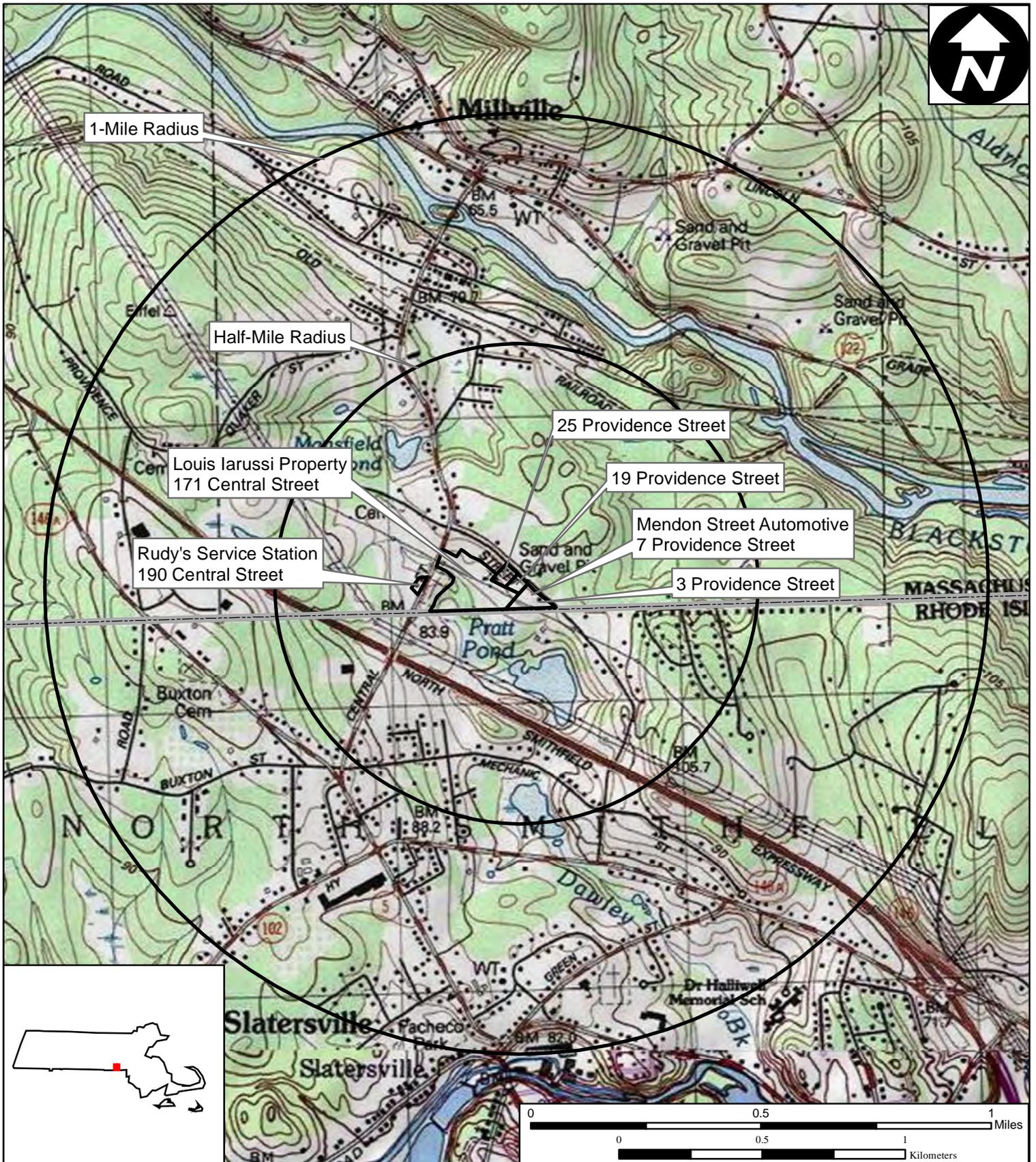


Figure 1

Site Location Map

**Millville TCE
19/25 Providence Street
Millville, Massachusetts**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01**

TDD Number: TO1-01-15-09-0003
Created by: Sara Evarts
Created on: 23 September 2015
Modified by: S. Evarts
Modified on: 30 December 2016

Data Sources:

Topos: MicroPath/USGS/USA Topo Maps
 Quadrangle Names: Blackstone, MA-RI;
 Georgiaville, RI
 All other data: START





Figure 2

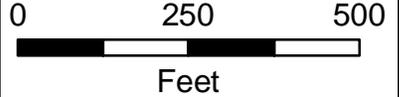
General Site Diagram

**Millville TCE
19/25 Providence Street
Millville, Massachusetts**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01**
TDD Number: TO1-01-15-09-0003
Created by: S. Everts
Created on: 23 September 2015
Modified by: S. Everts
Modified on: 30 December 2016

Legend

-  Approx. Parcel Boundary
-  State Border
-  Approx. Residential Boundary



Data Sources:
 Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo
 Topos: MicroPath/USGS/USA Topo Maps
 All other data: START



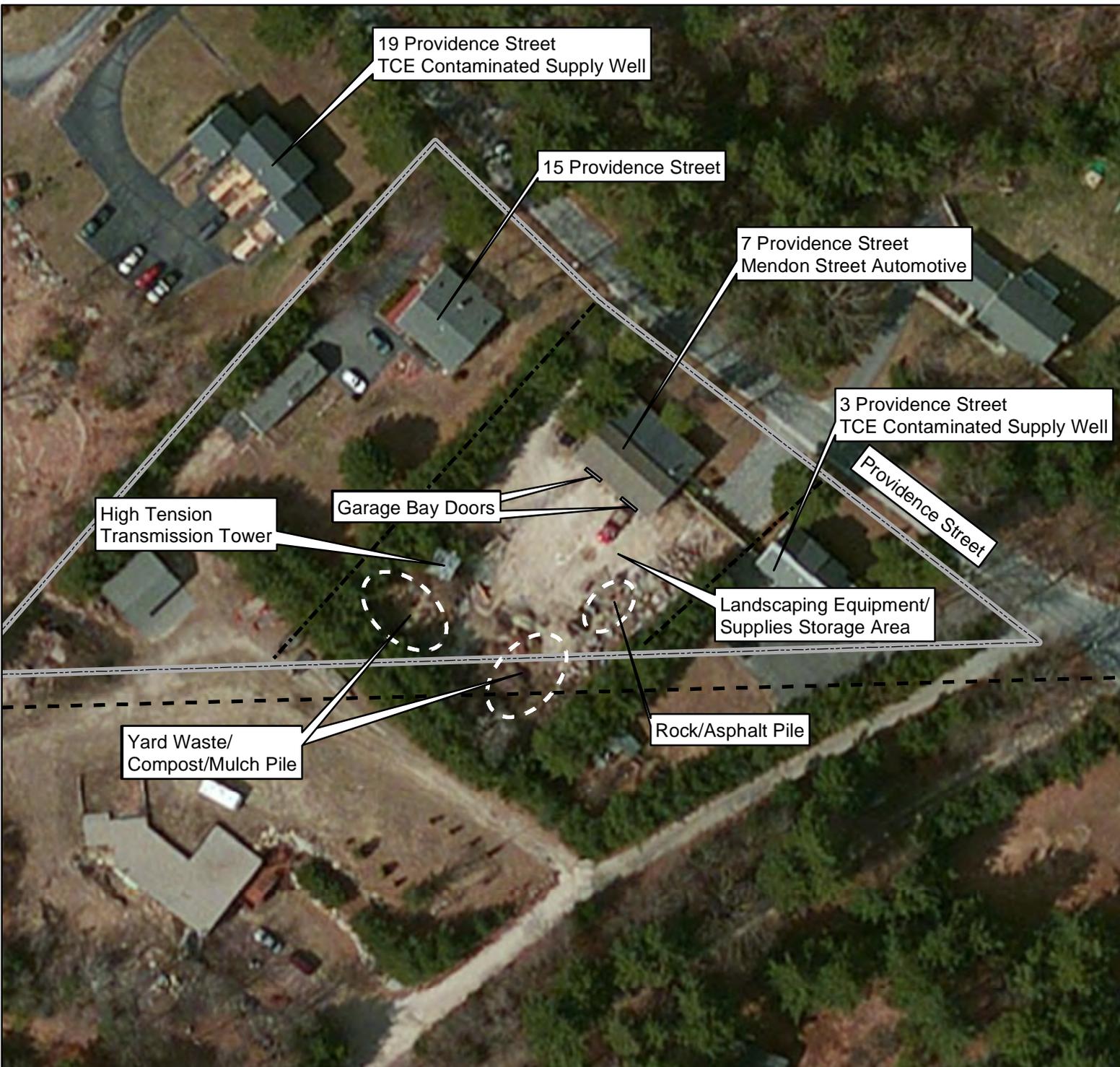


Figure 3

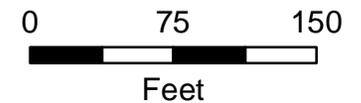
Site Diagram
Mendon Street Automotive
7 Providence Street

Millville TCE
Millville, Massachusetts

EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01
TDD Number: TO1-01-15-09-0003
Created by: S. Everts
Created on: 23 September 2015
Modified by: S. Everts
Modified on: 30 December 2016

Legend

-  Approx. Parcel Boundary
-  State Border
-  Approx. Residential Boundary



Data Sources:
 Imagery: Esri, DigitalGlobe, GeoEye,
 Earthstar Geographics, CNES/Airbus DS,
 USDA, USGS, AEX, Getmapping, Aerogrid,
 IGN, IGP, swisstopo
 Topos: MicroPath/USGS/USA Topo Maps
 All other data: START



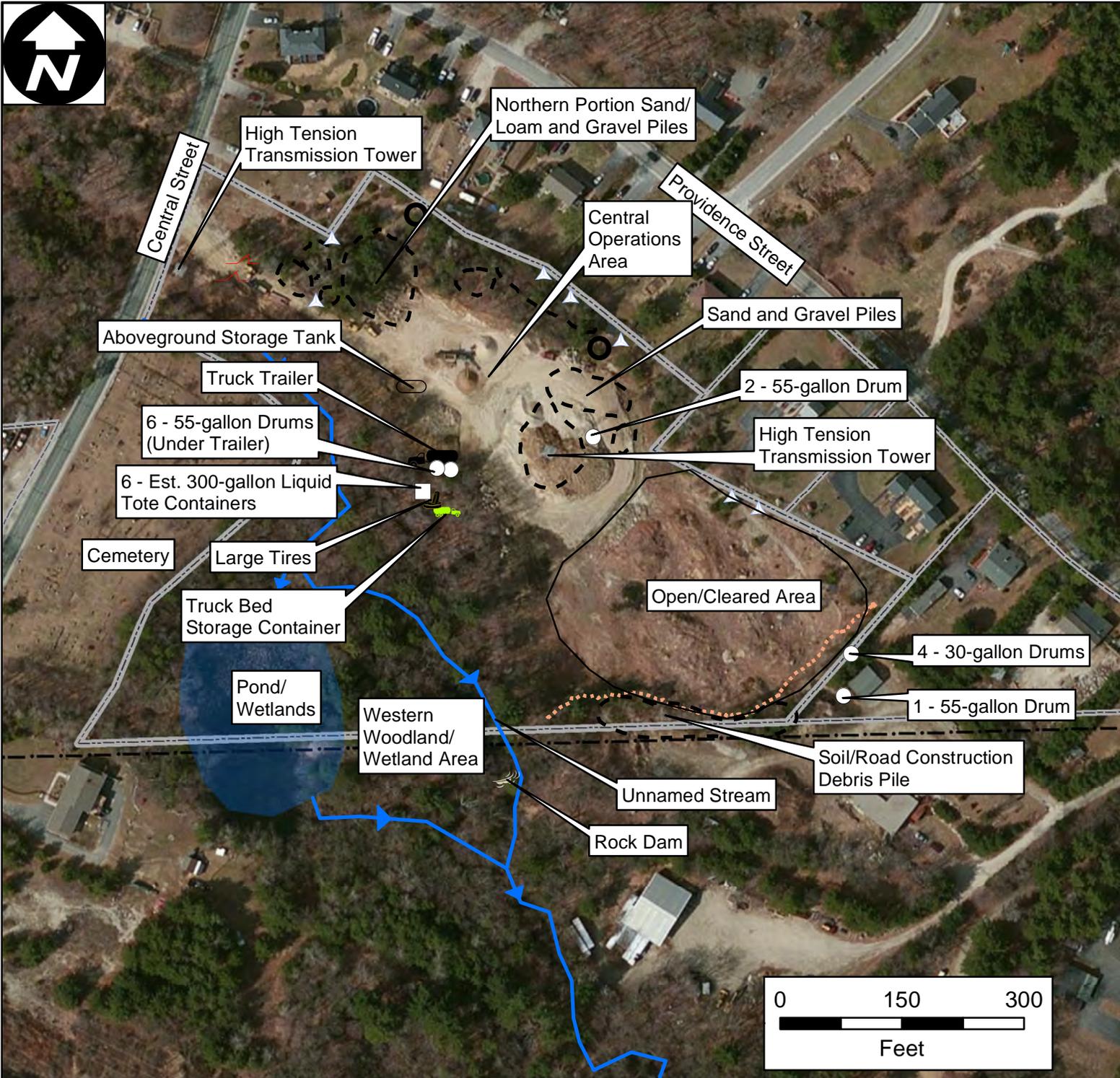


Figure 4

Site Diagram
Louis Iarussi Property
171 Central Street

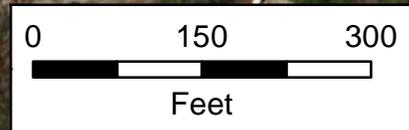
Millville TCE
Millville, Massachusetts

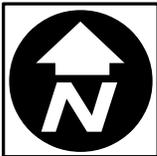
EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01
TDD Number: TO1-01-15-09-0003
Created by: S. Everts
Created on: 23 September 2015
Modified by: S. Everts
Modified on: 30 December 2016

Legend

- Approx. Parcel Boundary
- State Border
- Approximate Unnamed Stream
- Discharge
- Drums
- Gate
- Property Stake
- Rock Dam
- Aboveground Storage Tank
- Tires
- Totes
- Trailer
- Truck
- Pile
- Rock Wall

Data Sources:
 Imagery: Esri, DigitalGlobe, GeoEye,
 Earthstar Geographics, CNES/Airbus DS,
 USDA, USGS, AEX, Getmapping, Aerogrid,
 IGN, IGP, swisstopo
 Topos: MicroPath/USGS/USA Topo Maps
 All other data: START





Potable
Supply
Well

Abandoned School Bus

Former UST Grave
AOC-1

Original
Garage

Abandoned Automobile

Former UST Grave
AOC-2

Most
Recent
Addition

Former
Pump
Island

Oil Stain and
Former Waste Oil
Storage Shed
AOC-4

Hydraulic Lift

Surficial Oil Stain
AOC-5

Former Cesspool
AOC-6

Cemetery

Former Outdoor
Service Pit
AOC-3

Central Street

Figure 5

Site Diagram
Rudy's Service Station
190 Central Street

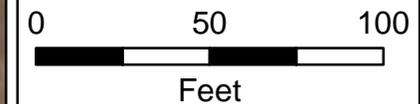
Millville TCE
Millville, Massachusetts

EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01

TDD Number: TO1-01-15-09-0003
Created by: S. Everts
Created on: 23 September 2015
Modified by: S. Everts
Modified on: 30 December 2016

Legend

-  Approx. Parcel Boundary
-  Former Pump Island
-  Former UST
-  Supply Well
-  Former Surficial Oil Stain



Data Sources:
Imagery: Esri, DigitalGlobe, GeoEye,
Earthstar Geographics, CNES/Airbus DS,
USDA, USGS, AEX, Getmapping, Aerogrid,
IGN, IGP, swisstopo
Topos: MicroPath/USGS/USA Topo Maps
All other data: START, Lakeshore
Environmental - 2014 Phase I Initial Site
Investigation Report.



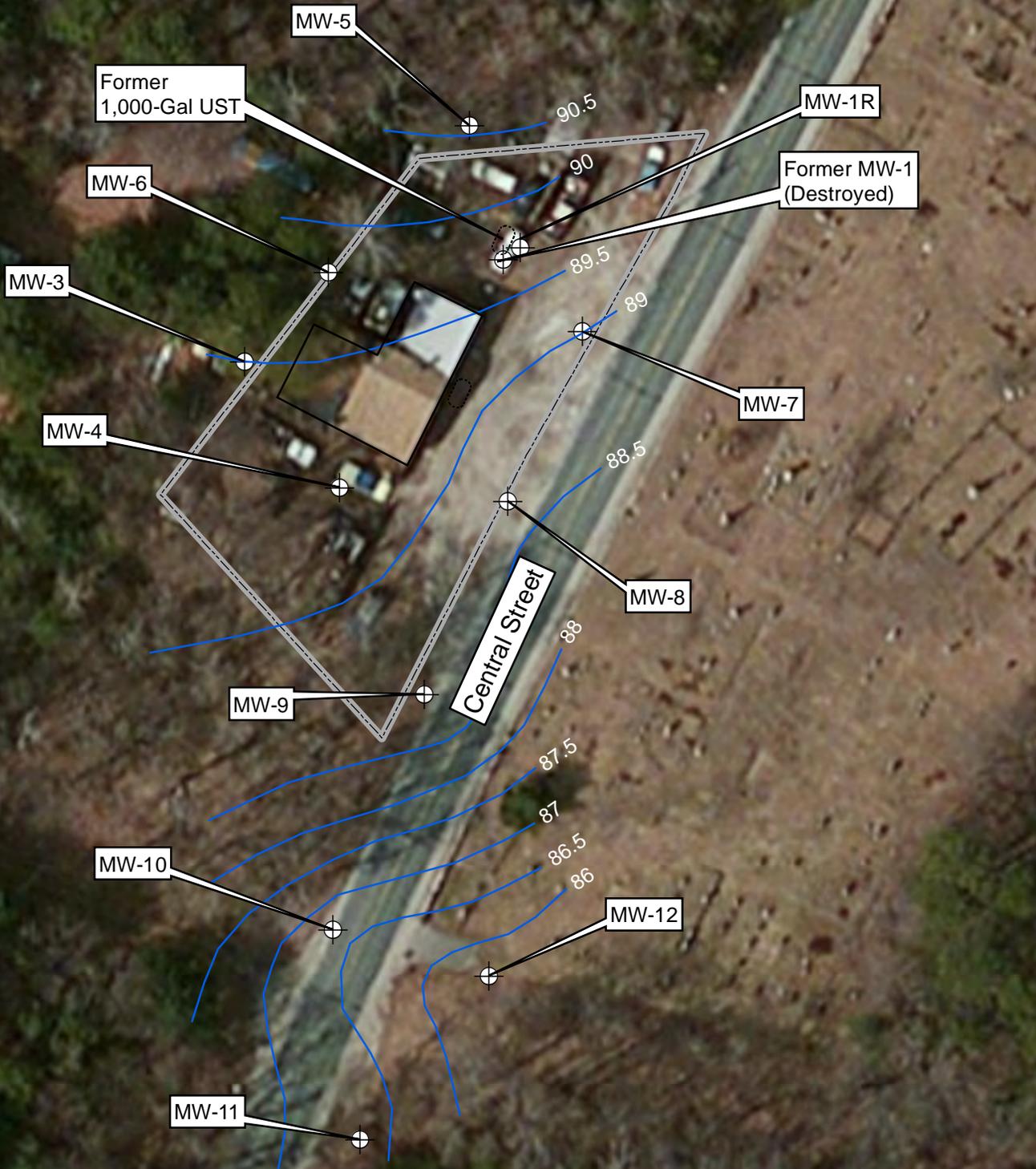


Figure 5A

**Monitoring Well Map
Rudy's Service Station
190 Central Street**

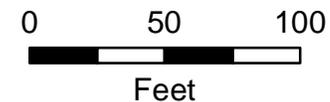
**Millville TCE
Millville, Massachusetts**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01**

TDD Number: TO1-01-15-09-0003
Created by: S. Everts
Created on: 23 September 2015
Modified by: S. Everts
Modified on: 30 December 2016

Legend

- Approx. Parcel Boundary
- Former UST
- Monitoring Well Location
- GW Contour Line



Data Sources:
Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo
Topos: MicroPath/USGS/USA Topo Maps
All other data: START, Lakeshore Environmental - 2014 Phase I Initial Site Investigation Report.



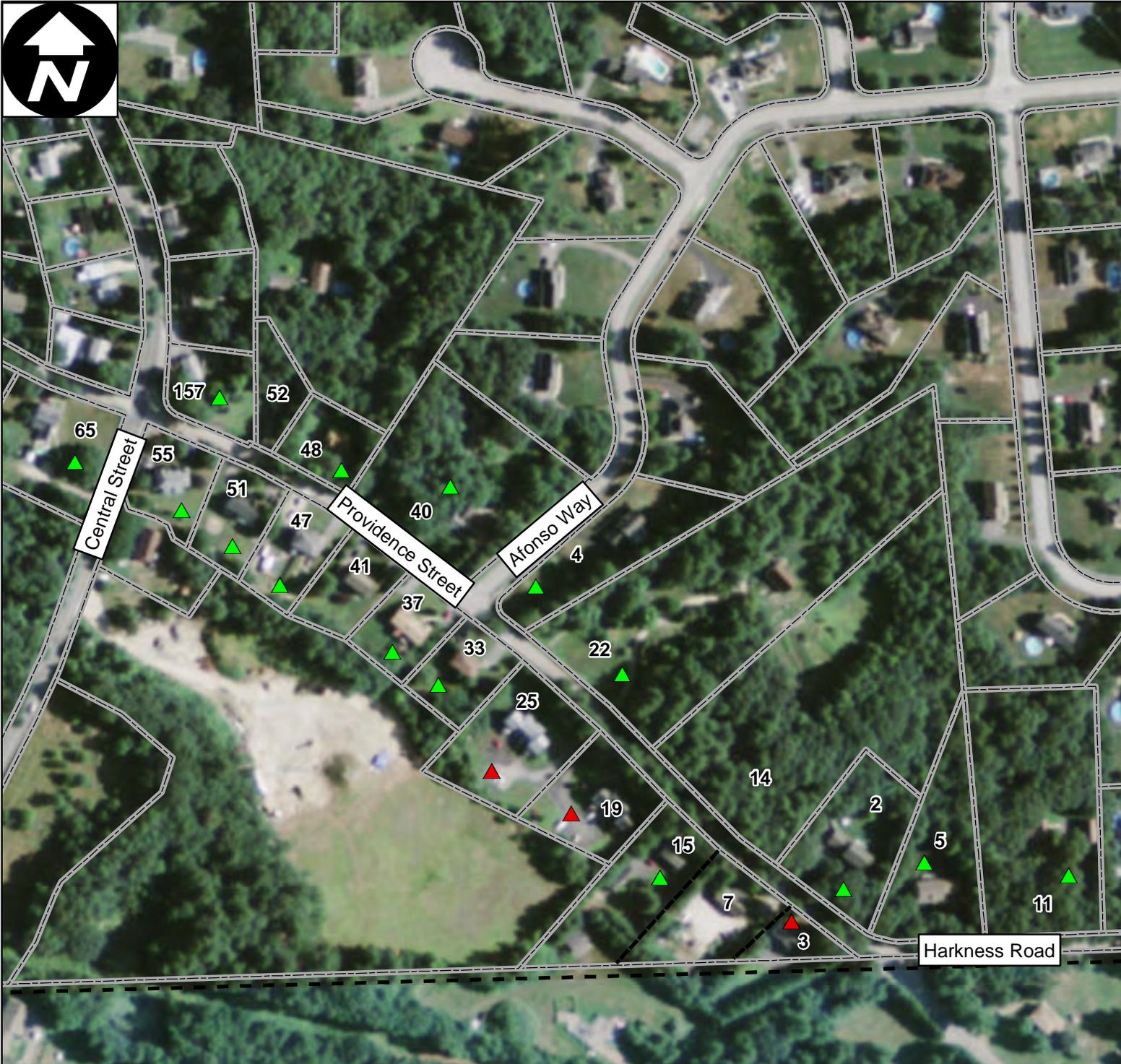


Figure 6

**MassDEP Residential
Drinking Water Sample Locations**

**Millville TCE
19/25 Providence Street
Millville, Massachusetts**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01**
TDD Number: TO1-01-15-09-0003
Created by: S. Everts
Created on: 23 September 2015
Modified by: S. Everts
Modified on: 30 December 2016

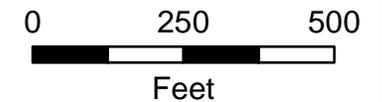
Legend

- State Border
- Approx. Parcel Boundary
- Approx. Residential Boundary

MassDEP DW Sample Locations

- Above DW Standard
- Below DW Standard

MassDEP = Massachusetts Department
of Environmental Protection
DW = Drinking Water



Data Sources:
Imagery: Esri, DigitalGlobe, GeoEye,
Earthstar Geographics, CNES/Airbus DS,
USDA, USGS, AEX, Getmapping, Aerogrid,
IGN, IGP, swisstopo
Topos: MicroPath/USGS/USA Topo Maps
All other data: START, MassDEP



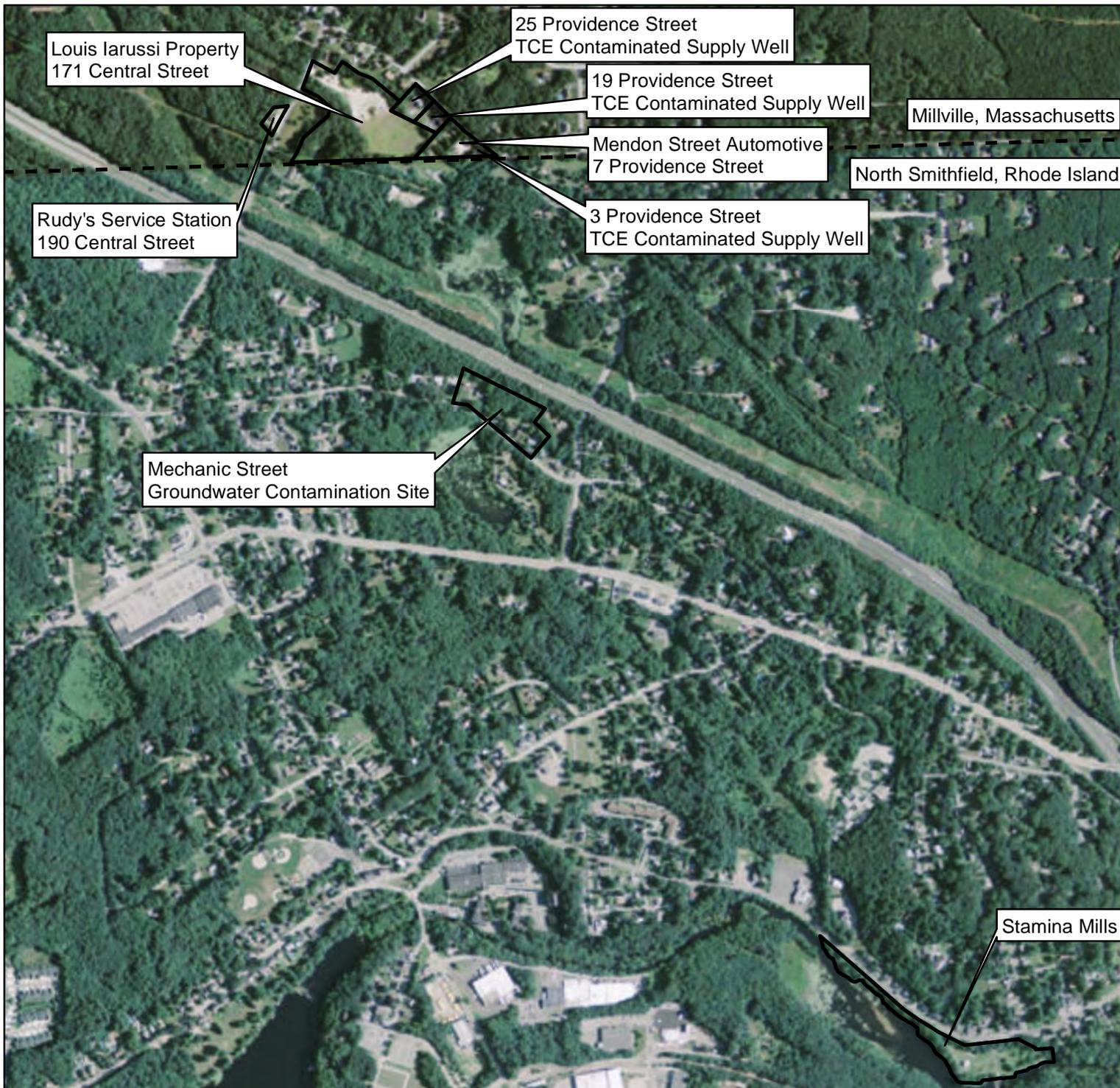


Figure 7

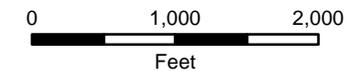
Area Vicinity Map

**Millville TCE
19/25 Providence Street
Millville, Massachusetts**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01**
TDD Number: TO1-01-15-09-0003
Created by: S. Everts
Created on: 23 September 2015
Modified by: S. Everts
Modified on: 30 December 2016

Legend

-  Approx. Property Boundary
-  State Boundary



Data Sources:
 Imagery: Esri, DigitalGlobe, GeoEye,
 Earthstar Geographics, CNES/Airbus DS,
 USDA, USGS, AEX, Getmapping, Aerogrid,
 IGN, IGP, swisstopo
 Topos: MicroPath/USGS/USA Topo Maps
 All other data: START





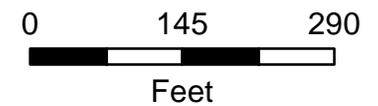
Figure 8
Soil and Sediment
Sample Location Map

Millville TCE
171 Central Street and
7 Providence Street
Millville, Massachusetts

EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01
TDD Number: TO1-01-15-09-0003
Created by: S. Evarts
Created on: 23 September 2015
Modified by: S. Evarts
Modified on: 30 December 2016

Legend

- Soil Sample Locations
- Sediment Sample Locations
- Approximate Unnamed Stream
- Approx. Parcel Boundary
- State Border



Data Sources:
Imagery: Esri, DigitalGlobe, GeoEye,
Earthstar Geographics, CNES/Airbus DS,
USDA, USGS, AEX, Getmapping, Aerogrid,
IGN, IGP, swisstopo
Topos: MicroPath/USGS/USA Topo Maps
All other data: START, MassGIS



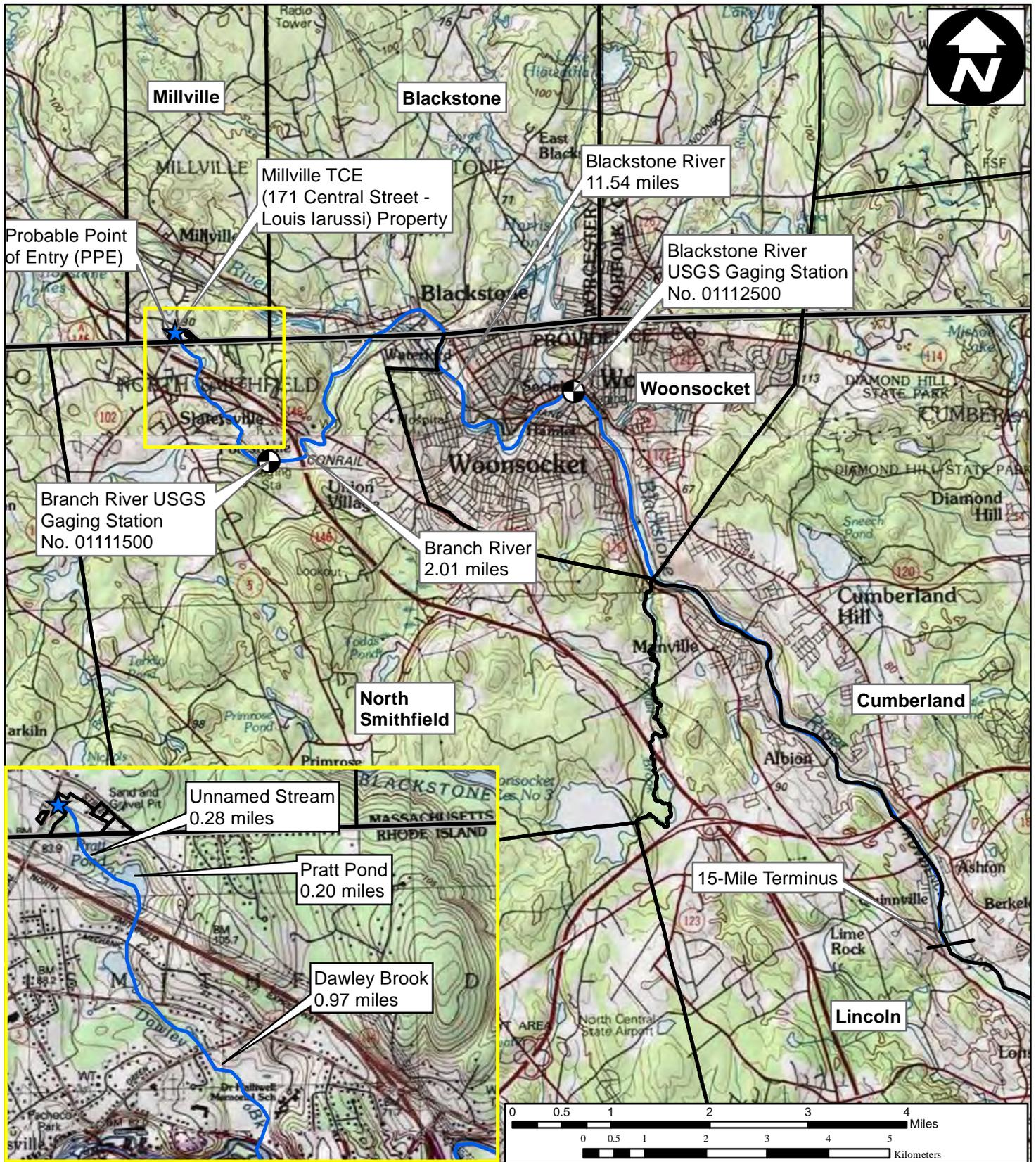


Figure 9
15-Mile Downstream
Surface Water Pathway Map

Millville TCE
19/25 Providence Street
Millville, Massachusetts

EPA Region I
Superfund Technical Assessment and
Response Team (START) IV
Contract No. EP-S3-15-01

TDD Number: TO1-01-15-09-0003
Created by: Sara Evarts
Created on: 23 September 2015
Modified by: S. Evarts
Modified on: 30 December 2016

Data Sources:
 Topos: MicroPath/USGS/USA Topo Maps
 Quadrangle Names: Blackstone, MA-RI;
 Franklin, MA-RI; Pawtucket, RI-MA;
 Georgiaville, RI
 All other data: START, USGS



ATTACHMENT B
MILLVILLE TCE
PHOTODOCUMENTATION LOG

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**

TOP



SCENE: View of a 6- to 8-inch corrugated plastic drainage pipe leading from the adjacent residence's property to the 171 Central Street property. Photograph taken facing northeast.

DATE: 11 April 2016

TIME: 0929 hours

PHOTOGRAPHER: B. Mace

CAMERA: iPhone 6



SCENE: View of faded sign adjacent to corrugated plastic drainage pipe indicating that it drains from the road ("Caution Underground Pipe from Road"). Photograph taken facing northeast.

DATE: 11 April 2016

TIME: 0929 hours

PHOTOGRAPHER: B. Mace

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**

TOP



SCENE: View of a 6- to 8-inch corrugated plastic drainage pipe leading from the adjacent residence's property to the 171 Central Street property. Photograph taken facing north.

DATE: 11 April 2016

TIME: 1310 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6



SCENE: View of yard waste from adjacent residences scattered on the 171 Central Street property. Photograph taken facing northwest.

DATE: 11 April 2016

TIME: 0932 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of household waste from adjacent residences scattered on the 171 Central Street property. Photograph taken facing west.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 0937 hours

CAMERA: iPhone 6



SCENE: View of Central/Operations Area with heavy equipment and sand/gravel piles on the 171 Central Street property. Photograph taken facing southwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 0941 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of Central/Operations Area with heavy equipment and sand/gravel piles on the 171 Central Street property. Photograph taken facing west.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 0941 hours

CAMERA: iPhone 6



SCENE: View of sand/gravel pile and tree line along the northeastern property boundary on the 171 Central Street property. Photograph taken facing northwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 0941 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of shed allegedly encroaching over onto the 171 Central Street property. Photograph taken facing north.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 0942 hours
CAMERA: iPhone 6



SCENE: View of small ponded area and a concrete drainage culvert located adjacent to the 25 Providence Street property boundary and 171 Central Street property. Photograph taken facing northeast.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 0945 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of pallets, wood material, and two 55-gallon drums on the central portion of the 171 Central Street property. Note water flow across property from small ponded area/concrete drainage culvert. Photograph taken facing north.

DATE: 11 April 2016

TIME: 1312 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6



SCENE: View of the high tension transmission tower on the central portion of the 171 Central Street property. Photograph taken facing west.

DATE: 11 April 2016

TIME: 1312 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of beehives adjacent to the high tension transmission tower on the central portion of the 171 Central Street property. Photograph taken facing west.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1312 hours

CAMERA: iPhone 6



SCENE: View of the 19 Providence Street Property from the 171 Central Street property. Note impacted drinking water well in background. Photograph taken facing east.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 0951 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of labeled DuPont 30-gallon drum observed on the property adjacent (southeast) of the 171 Central Street property. Photograph taken facing northeast.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 0954 hours

CAMERA: iPhone 6



SCENE: View of the four 30-gallon drums observed on the adjacent property (assumed to be 15 Providence Street, Millville, MA or 254 Old Great Road, North Smithfield, RI). Note reddish garage/barn/shed structure in background. Photograph taken facing southeast.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 0955 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of a least one 55-gallon drum on the adjacent property (assumed to be 15 Providence Street Millville, MA or 254 Old Great Road, North Smithfield, RI). Photograph taken facing east.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 0956 hours
CAMERA: iPhone 6



SCENE: Close-up view of the 55-gallon drum on the adjacent property. Note reddish garage/barn/shed structure in background. Photograph taken facing east.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 0957 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the partially underground constructed building/residence in background (square objects) on the adjacent property to the east (assumed to be on the 254 Old Great Road property). Photograph taken facing southeast.

DATE: 11 April 2016

TIME: 0957 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6



SCENE: View of the open/cleared area on the eastern portion of the 171 Central Street property. Note the 25 and 19 Providence Street condominium buildings in background (left to right). Photograph taken facing north.

DATE: 11 April 2016

TIME: 1000 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the open/cleared area on the eastern portion of the 171 Central Street property. Note the 25 Providence Street condominium building in background. Photograph taken facing north.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1000 hours
CAMERA: iPhone 6



SCENE: View of open/cleared area on the eastern portion of the 171 Central Street property, looking across property toward Central Street entrance gate. Photograph taken facing northwest.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1000 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of mixed soil and road construction debris (pieces of asphalt, concrete, lumber, and waste-rock containing blast drill holes) on the southeastern boundary of the 171 Central Street property. Photograph taken facing south.

DATE: 11 April 2016

TIME: 1001 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6



SCENE: View of the rock dam and pond area south on the western portion of the 171 Central Street property. Photograph taken facing south.

DATE: 11 April 2016

TIME: 1004 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the pond and wetlands on the southwestern portion of the 171 Central Street property. Photograph taken facing east.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1335 hours

CAMERA: iPhone 6



SCENE: View of the open/cleared area within the southeastern portion of the 171 Central Street property, and the wetlands/woodlands to the southwest. Note erosion control to right (west). Photograph taken facing southeast.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 10131 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the central portion (left) and open/cleared area (right) on the 171 Central Street property. Note the high tension transmission tower and bee house to left-center. Photograph taken facing north.

DATE: 11 April 2016

TIME: 1013 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6



SCENE: View of truck bed storage container, containers of vegetable oil/bio-fuel and portable refueling tank/container on the 171 Central Street property. Note the screener and transmission tower in background. Photograph taken facing northeast.

DATE: 11 April 2016

TIME: 1013 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the inside of the truck bed storage container. Note the containers. Photograph taken facing south.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1350 hours
CAMERA: iPhone 6



SCENE: View of 5-gallon containers of vegetable oil/bio-fuel outside the truck bed storage container. Note oil staining on pallets. Photograph taken facing northwest.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1352 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the truck bed storage container, portable refueling tank/container, and 5-gallon containers on the 171 Central Street property. Photograph taken facing north.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1352 hours

CAMERA: iPhone 6



SCENE: View of the portable refueling tank/container on the 171 Central Street property. Note the surface soil staining. Photograph taken facing north.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1352 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the 300-gallon totes reportedly containing vegetable oil/bio-fuel. Photograph taken facing west.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1014 hours
CAMERA: iPhone 6



SCENE: View of the 300-gallon totes reportedly containing vegetable oil/bio-fuel. Photograph taken facing west.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1353 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of 300-gallon totes of vegetable oil/bio-fuel, pallets, and piping on the 171 Central Street property. Photograph taken facing southwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1401 hours

CAMERA: iPhone 6



SCENE: View of empty 5-gallon container of hypochlorite solution. Photograph taken facing southwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1014 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the six empty 55-gallon drums staged under the storage truck trailer. Photograph taken facing northeast.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1015 hours
CAMERA: iPhone 6



SCENE: View of the empty 55-gallon drums staged under the storage truck trailer. Photograph taken facing northeast.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1015 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of a furnace along the storage truck trailer on the 171 Central Street property. Photograph taken facing southwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1358 hours

CAMERA: iPhone 6



SCENE: View of four (4) 5-gallon containers of oils/lubricants in a small storage box. Photograph taken facing west.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1017 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the estimated 1,000-gallon (empty) Flammable Liquids aboveground storage tank (AST). Photograph taken facing northwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1020 hours

CAMERA: iPhone 6



SCENE: View of the estimated 1,000-gallon (empty) Flammable Liquids AST Label. Photograph taken facing north.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1359 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of pallets, heavy equipment, and sand/loam/gravel piles on the central and northern portions of the property. Photograph taken facing north.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1022 hours

CAMERA: iPhone 6



SCENE: View of the screener on the 171 Central Street property. Photograph taken facing east-southeast.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1358 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the unnamed stream flowing southeast along the border of the 171 Central street property and the cemetery property. Photograph taken facing west-southwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1022 hours

CAMERA: iPhone 6



SCENE: View of the unnamed stream and the cemetery in the background. Photograph taken facing west.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1022 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the unnamed stream. Photograph taken facing southeast.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1022 hours
CAMERA: iPhone 6



SCENE: View of the drinking water supply well on the 19 Providence Street property. Photograph taken facing north-northwest.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1040 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the septic clean-out location (under flower pot) on the 19 Providence Street property. Photograph taken facing south.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1044 hours

CAMERA: iPhone 6



SCENE: View of a storm drain on the 25 Providence Street property. Photograph taken facing south-southwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1045 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**

TOP



SCENE: View of the storm drain location on the 25 Providence Street property (near steps). Photograph taken facing south.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1046 hours

CAMERA: iPhone 6



SCENE: View of 5-gallon containers (driveway sealer, racing fuel) outside a shed on the 19 Providence Street property. Photograph taken facing northeast.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1058 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: Close-up view of 5-gallon containers outside a shed on the 19 Providence Street property. Photograph taken facing north-northwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1058 hours

CAMERA: iPhone 6



SCENE: View of landscaping equipment, vehicles, and yard waste/compost/mulch piles on the 7 Providence Street property. Photograph taken facing east.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1112 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of yard waste/compost/mulch piles on the 7 Providence Street property. Photograph taken facing east.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1112 hours
CAMERA: iPhone 6



SCENE: View of the north side of building parking lot and an abandoned car on the 190 Central Street property. Note soil staining at edge of vegetation/grass. Photograph taken facing southeast.

DATE: 11 April 2016
PHOTOGRAPHER: J. Kelly

TIME: 1143 hours
CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the north gravel parking lot and former underground storage tank (UST) Grave area (AOC-1) on the 190 Central Street property. Photograph taken facing east.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1143 hours

CAMERA: iPhone 6



SCENE: View of the northwestern portion of the 190 Central Street property and potable supply well area on adjacent property. Photograph taken facing north-northwest.

DATE: 11 April 2016

PHOTOGRAPHER: J. Kelly

TIME: 1144 hours

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the southern side of building and dirt parking lot on 190 Central Street property. Location of the Former Surficial Oil Stain area (AOC-5) and the Former Outdoor Service pit (AOC-3). Photograph taken facing east.

DATE: 11 April 2016

TIME: 1145 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6



SCENE: View of the southern portion of the 190 Central Street property. Location of the Former Outdoor Service pit (AOC-3). Photograph taken facing southeast.

DATE: 11 April 2016

TIME: 1145 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

**PHOTODOCUMENTATION LOG - Recon
Millville TCE • Millville, Massachusetts**



SCENE: View of the southern portion of the 190 Central Street property building. Background is location of the Former Waste Oil Storage Shed (AOC-4) (removed). Photograph taken facing northwest.

DATE: 11 April 2016

TIME: 1146 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of sediment sample location SD-01 within unnamed stream bed. Photograph taken facing southeast.

DATE: 6 September 2016

PHOTOGRAPHER: A. Danikas

TIME: 1654 hours

CAMERA: iPhone 6



SCENE: View of sediment sample location SD-02 within unnamed stream bed. Photograph taken facing southwest.

DATE: 6 September 2016

PHOTOGRAPHER: A. Danikas

TIME: 1607 hours

CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of sediment sample location SD-03 within unnamed stream bed. Photograph taken facing southwest.

DATE: 6 September 2016
PHOTOGRAPHER: A. Danikas

TIME: 1554 hours
CAMERA: iPhone 6



SCENE: View of sediment sample location SD-04 within wetland along pond. Photograph taken facing west.

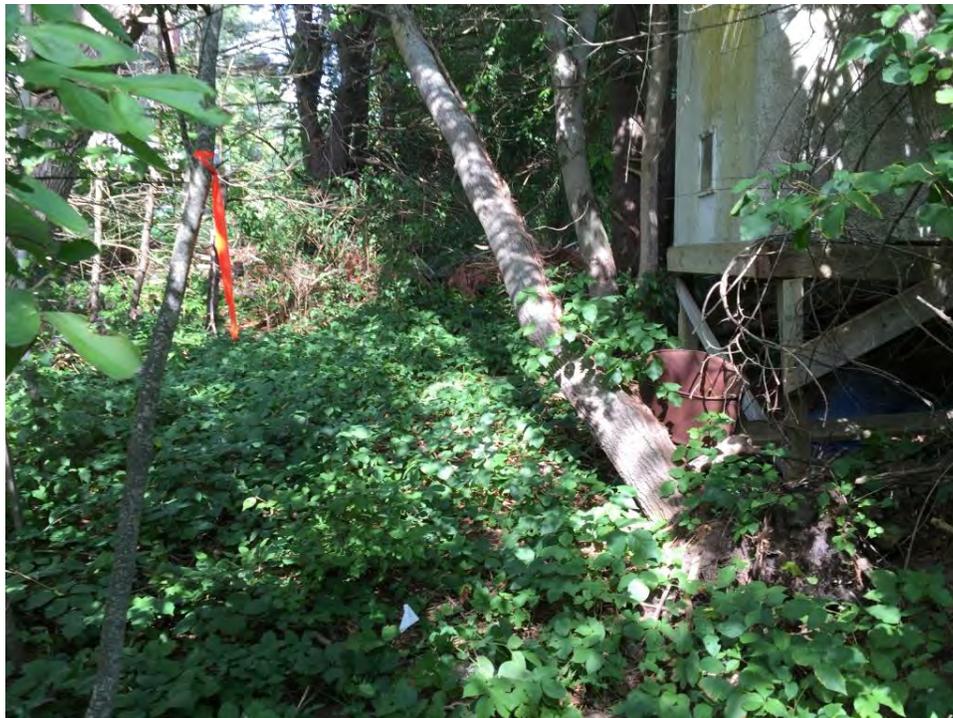
DATE: 6 September 2016
PHOTOGRAPHER: A. Danikas

TIME: 1540 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of sediment sample location SD-05 within wetland along unnamed stream. Photograph taken facing west.
DATE: 6 September 2016 **TIME:** 1550 hours
PHOTOGRAPHER: S. Evarts **CAMERA:** iPhone 6



SCENE: View of sediment sample SD-07 collected from small ponded water body, adjacent to a concrete drainage culvert and the 25 Providence Street property. Note rusted 55-gallon drum to right. Photograph taken facing north.

DATE: 8 September 2016 **TIME:** 1438 hours
PHOTOGRAPHER: J. Kelly **CAMERA:** iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts

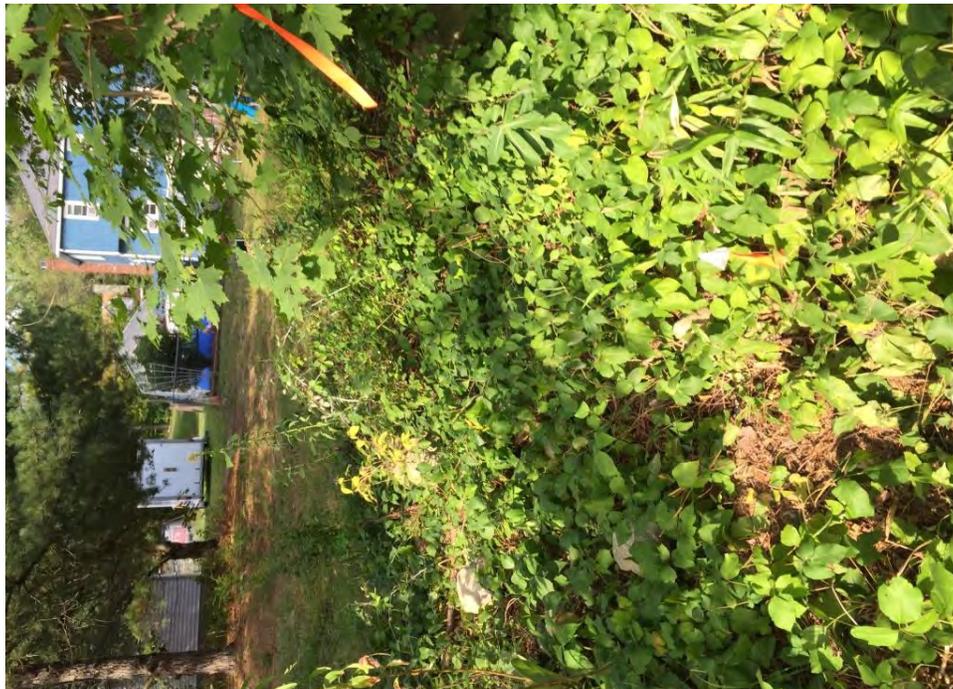


SCENE: View of sediment sample location SD-08/SD-09 collected from small ponded water body, adjacent to a concrete drainage culvert and the 25 Providence Street property. Photograph taken facing east.

DATE: 6 September 2016
PHOTOGRAPHER: B. Mace

TIME: 1653 hours
CAMERA: iPhone 6

TOP



SCENE: View of soil sample location SS-01 near drainage pipe terminus. Photograph taken facing north.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1352 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-02 within alleged off-site waste material. Photograph taken facing north.

DATE: 7 September 2016
PHOTOGRAPHER: A. Danikas

TIME: 1152 hours
CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-03 in center portion of site. Photograph taken facing east.

DATE: 7 September 2016
PHOTOGRAPHER: A. Danikas

TIME: 1104 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil sample location SS-04.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1448 hours
CAMERA: iPhone 6

TOP



SCENE: View of soil sample location SS-04. Note high tension transmission tower. Photograph taken facing northwest.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1448 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil sample location SS-05/SS-16. Note 19 Providence St. in background. Photograph taken facing east.

DATE: 7 September 2016
PHOTOGRAPHER: S. Evarts

TIME: 1320 hours
CAMERA: iPhone 6

TOP



SCENE: View of soil sample location SS-06. Note 19 Providence St. in background. Photograph taken facing north.

DATE: 7 September 2016
PHOTOGRAPHER: B. Mace

TIME: 1155 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: Closer view of soil sample location SS-06. Photograph taken facing north.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1430hours
CAMERA: iPhone 6

TOP



SCENE: View of soil sample location SS-07 collected near 30-gallon drums. Photograph taken facing east.

DATE: 7 September 2016
PHOTOGRAPHER: B. Mace

TIME: 1155 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-08 in soil/road construction debris pile. Photograph taken facing southeast.

DATE: 7 September 2016

TIME: 1133 hours

PHOTOGRAPHER: A. Danikas

CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-09 in soil/road construction debris pile. Photograph taken facing south.

DATE: 8 September 2016

TIME: 1456 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil sample location SS-10 in soil/road construction debris pile. Photograph taken facing south.

DATE: 7 September 2016

TIME: 1124 hours

PHOTOGRAPHER: S. Evarts

CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-11 in stained soil. Photograph taken facing east.

DATE: 7 September 2016

TIME: 1012 hours

PHOTOGRAPHER: A. Danikas

CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-12 adjacent 300-gallon tote. Photograph taken facing southwest.

DATE: 7 September 2016

PHOTOGRAPHER: A. Danikas

TIME: 1016 hours

CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-12 in background. Photograph taken facing southwest.

DATE: 8 September 2016

PHOTOGRAPHER: J. Kelly

TIME: 1534 hours

CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-13 in stained soil and drums under trailer. Photograph taken facing north.

DATE: 7 September 2016

TIME: 1021 hours

PHOTOGRAPHER: A. Danikas

CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-13 and 55-gallon drums under trailer. Photograph taken facing north.

DATE: 8 September 2016

TIME: 1536 hours

PHOTOGRAPHER: J. Kelly

CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-14 adjacent 300-gallon tote. Photograph taken facing west.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1540 hours
CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-14. Photograph taken facing west.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1540 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-15. Photograph taken facing southwest.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1539 hours
CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-15 adjacent 1,000-gallon (empty) Flammable Liquids aboveground storage tank (AST). Photograph taken facing west.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1539 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil sample location SS-17 in front of building. Photograph taken facing southwest.

DATE: 8 September 2016

PHOTOGRAPHER: S. Evarts

TIME: 1102 hours

CAMERA: iPhone 6

TOP



SCENE: View of soil sample SS-18 adjacent to single 55-gallon drum. Photograph taken facing north.

DATE: 8 September 2016

PHOTOGRAPHER: B. Mace

TIME: 1104 hours

CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil sample SS-19 adjacent to three empty 55-gallon drums. Photograph taken facing east.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1136 hours
CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-19 adjacent to three empty 55-gallon drums. Photograph taken facing north.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1136 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-20 in low-lying runoff area. Photograph taken facing south.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1135 hours
CAMERA: iPhone 6

TOP



SCENE: View of soil sample location SS-21/SS-22 in yard waste/composite/mulch pile. Photograph taken facing south.

DATE: 8 September 2016
PHOTOGRAPHER: B. Mace

TIME: 1135 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-23 allegedly within off-site waste material. Photograph taken facing north.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1441 hours
CAMERA: iPhone 6



SCENE: View of soil/source sample location SS-23 allegedly within off-site waste material. Photograph taken facing north.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1441 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-24 allegedly within off-site waste material.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1445 hours
CAMERA: iPhone 6



TOP

SCENE: View of soil/source sample location SS-24 in open, cleared area. Photograph taken facing northeast.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1445 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-25 in stained soil area near screener. Photograph taken facing north.

DATE: 7 September 2016
PHOTOGRAPHER: A. Danikas

TIME: 1032 hours
CAMERA: iPhone 6

TOP



SCENE: View of soil/source sample location SS-25, screener to left. Photograph taken facing northeast.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1346 hours
CAMERA: iPhone 6

PHOTODOCUMENTATION LOG
Millville TCE • Millville, Massachusetts



SCENE: View of soil/source sample location SS-26 allegedly within off-site waste. Photograph taken facing north.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1556 hours
CAMERA: iPhone 6

TOP



SCENE: View of soil/source sample location SS-26 allegedly within off-site waste. Photograph taken facing north.

DATE: 8 September 2016
PHOTOGRAPHER: J. Kelly

TIME: 1556 hours
CAMERA: iPhone 6

ATTACHMENT C

**MILLVILLE TCE
MASSDEP DRINKING WATER SAMPLE RESULTS**

Table 1	TCE/PCE Drinking Water Results, TCE Millville Site
Table 2	Liquid Septic System Sample, TCE/PCE Results, TCE Millville Site
Table 3	POET System TCE/PCE Results, TCE Millville Site

Table 1

**TCE/PCE Drinking Water Results
TCE Millville Site**

Sample Location (Millville Address)	Sampling Date	Trichloroethylene (TCE) (µg/L)	Tetrachloroethylene (PCE) (µg/L)	Comments
MassDEP GW-1 Standards	---	5	5	State Drinking Water Standards
19C Providence Street	7/1/2015	17	8.6	Initial Sampling by Resident.
	7/14/2015	17	8.2	Drinking Water well sample.
	8/12/2015	14	6.5	Bathroom faucet sample.
	8/12/2015	15	6.9	Duplicate sample, Bathroom faucet sample.
	10/6/2015	10.5	5.2	POET System -Influent sample.
	10/13/2015	14.6	7.2	POET System -Influent sample.
	10/20/2015	14.8	6.6	POET System -Influent sample.
	10/30/2015	ND	ND	Bathroom faucet "cold water" sample collected after POET system installed.
	10/30/2015	ND	ND	Duplicate sample, Bathroom faucet "cold water" sample collected after POET system installed.
	10/30/2015	ND	ND	Bathroom faucet "hot water" sample collected after POET system installed.
10/30/2015	ND	ND	Duplicate sample, Bathroom faucet "hot water" sample collected after POET system installed.	
25B Providence Street	7/14/2015	15	7.2	Drinking Water well sample.
	8/12/2015	15	6.9	Bathroom faucet sample.
	8/12/2015	15	6.9	Bathroom faucet sample, Duplicate sample
	10/8/2015	16.7	8.1	POET System -Influent sample.
	10/15/2015	14.6	6.7	POET System -Influent sample.
	10/22/2015	13	5.8	POET System -Influent sample.
2 Providence Street	8/12/2015	ND	ND	Drinking Water well sample.
3B Providence Street	8/12/2015	10	3.9	Drinking Water well sample.
15B Providence Street	8/21/2015	ND	ND	Drinking Water well sample from private well shared with 7 Providence Street.

Table 1

**TCE/PCE Drinking Water Results
TCE Millville Site**

Sample Location (Millville Address)	Sampling Date	Trichloroethylene (TCE) (µg/L)	Tetrachloroethylene (PCE) (µg/L)	Comments
22 Providence Street	8/11/2015	ND	ND	Drinking Water well sample.
33 B Providence Street	10/28/2015	ND	ND	Drinking Water well sample.
37 B Providence Street	8/12/2015	ND	ND	Drinking Water well sample.
40 Providence Street	10/28/2015	ND	ND	Drinking Water well sample.
47A Providence Street	8/11/2015	ND	ND	Drinking Water well sample.
48 Providence Street	8/11/2015	ND	ND	Drinking Water well sample.
51 A Providence Street	8/11/2015	ND	ND	Drinking Water well sample.
59 A&B Providence Street	8/11/2015	ND	ND	Drinking Water well sample.
65 Providence	8/21/2015	ND	ND	Drinking Water well sample.
5 Harkness Road	8/21/2015	ND	ND	Drinking Water well sample.
11 Harkness Road	10/28/2015	ND	ND	Drinking Water well sample.
4 Afonso Way	8/11/2015	ND	ND	Drinking Water well sample.
157 Central Street	10/28/2015	ND	ND	Drinking Water well sample.

NOTES:

Results reported in micrograms per liter (µg/L).

Bold values detected above laboratory detection limits.

Highlighted values are detected above their respective state drinking water standards (MassDEP GW-1 Standard).

ND = Not detectable at the reporting limit (or method detection limit, or estimated detection limit).

POET = Point Of Entry Treatment.

Table 2

**Liquid Septic System Sample TCE/PCE Results
TCE Millville Site**

Sample Location (Millville Address)	Sampling Date	Trichloroethylene (TCE) (µg/L)	Tetrachloroethylene (PCE) (µg/L)	Comments
19 Providence Street	8/21/2015	2.5	1.0	According to MassDEP, the samples were consistent with the concentrations of TCE and PCE found in drinking water and thus processed through the septic system. No anomalous concentrations of PCE or TCE were detected in the septic tank.
25 Providence Street	8/21/2015	3.0	1.0	According to MassDEP, the samples were consistent with the concentrations of TCE and PCE found in drinking water and thus processed through the septic system. No anomalous concentrations of PCE or TCE were detected in the septic tank.
3 Providence Street	10/28/2015	1.8 J	<2.0	According to MassDEP, the samples were consistent with the concentrations of TCE and PCE found in drinking water and thus processed through the septic system, prior to the activation of the Point of Entry Treatment (POET) system.
7 Providence Street	10/28/2015	<2.0	<2.0	Properties at 7 and 15 Providence Street use separate septic systems but are served by a shared drinking water well, which is not known to be impacted by PCE and TCE. Septic liquid sample results did not detect PCE or TCE.
15 Providence Street	10/28/2015	<5.0	<5.0	Properties at 15 and 7 Providence Street use separate septic systems but are served by a shared drinking water well, which is not known to be impacted by PCE and TCE. Septic liquid sample results did not detect PCE or TCE.

NOTES:

Results reported in micrograms per liter (µg/L).

< = Less than.

J = Qualified result is less than the Reporting Limit, but greater than or equal to the method detection limit and the concentration is an approximate value.

Samples were analyzed via EPA Method 8260.

POET = Point of Entry Treatment.

Table 3

**POET System TCE/PCE Results
TCE Millville Site**

Sample Location (Millville Address)	Sampling Date	POET System Sampling Port	Trichloroethylene (TCE) (µg/L)	Tetrachloroethylene (PCE) (µg/L)	Comments
Drinking Water Standards	---		5	5	MassDEP GW-1 Standards
19 Providence Street	10/6/2015	Influent sample - pretreatment.	10.5	5.2	Sampled on first day after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	10/13/2015	Influent sample - pretreatment.	14.6	7.2	Sampled one week after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	10/20/2015	Influent sample - pretreatment.	14.8	6.6	Sampled second week after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	11/4/2015	Influent sample - pretreatment.	15.8	7	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	12/2/2015	Influent sample - pretreatment.	13.8	6.2	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	1/12/2016	Influent sample - pretreatment.	12.5	6.1	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	2/2/2016	Influent sample - pretreatment.	13	6.4	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	3/2/2016	Influent sample - pretreatment.	14	5.7	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	4/6/2016	Influent sample - pretreatment.	18.5	7.5	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	5/2/2016	Influent sample - pretreatment.	21.3	9.2	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	6/8/2016	Influent sample - pretreatment.	21.9	10.1	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	7/8/2016	Influent sample - pretreatment.	21.7	9.9	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	8/8/2016	Influent sample - pretreatment.	29.9	11.2	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	9/14/2016	Influent sample - pretreatment.	26.9	12.5	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	10/10/2016	Influent sample - pretreatment.	21.6	9.6	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	11/8/2016	Influent sample - pretreatment.	21.1	10	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
12/7/2016	Influent sample - pretreatment.	20.8	9.1		
	Midfluent sample - partial treatment.	ND	ND		
	Effluent sample - after treatment.	ND	ND		

Table 3

**POET System TCE/PCE Results
TCE Millville Site**

Sample Location (Millville Address)	Sampling Date	POET System Sampling Port	Trichloroethylene (TCE) (µg/L)	Tetrachloroethylene (PCE) (µg/L)	Comments
Drinking Water Standards	---		5	5	MassDEP GW-1 Standards
25 Providence Street	10/8/2015	Influent sample - pretreatment.	16.7	8.1	Sampled on first day after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	10/15/2015	Influent sample - pretreatment.	14.6	6.7	Sampled one week after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	10/22/2015	Influent sample - pretreatment.	13	5.8	Sampled second week after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	11/4/2015	Influent sample - pretreatment.	15	6.6	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	12/2/2015	Influent sample - pretreatment.	11.6	4.7	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	1/4/2016	Influent sample - pretreatment.	11.7	5.7	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	2/2/2016	Influent sample - pretreatment.	11.6	5.7	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	3/2/2016	Influent sample - pretreatment.	13.4	5.8	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	4/6/2016	Influent sample - pretreatment.	17	7.3	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	5/2/2016	Influent sample - pretreatment.	19	8.8	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	6/8/2016	Influent sample - pretreatment.	19.8	9.1	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	7/8/2016	Influent sample - pretreatment.	21.7	9.7	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	8/8/2016	Influent sample - pretreatment.	28.5	10.3	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	9/14/2016	Influent sample - pretreatment.	25.5	11.4	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	10/10/2016	Influent sample - pretreatment.	23.9	10.6	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	11/8/2016	Influent sample - pretreatment.	22.5	10.5	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
12/7/2016	Influent sample - pretreatment.	17.9	8.1		
	Midfluent sample - partial treatment.	ND	ND		
	Effluent sample - after treatment.	ND	ND		

Table 3

**POET System TCE/PCE Results
TCE Millville Site**

Sample Location (Millville Address)	Sampling Date	POET System Sampling Port	Trichloroethylene (TCE) (µg/L)	Tetrachloroethylene (PCE) (µg/L)	Comments
Drinking Water Standards	---		5	5	MassDEP GW-1 Standards
3 Providence Street	11/4/2015	Influent sample - pretreatment.	13.2	4.4	Sampled on first day after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	11/11/2015	Influent sample - pretreatment.	9	3.3	Sampled one week after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	11/18/2015	Influent sample - pretreatment.	9.4	3.5	Sampled second week after install.
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	12/2/2015	Influent sample - pretreatment.	8.7	2.9	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	1/4/2016	Influent sample - pretreatment.	9.5	3.6	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	2/2/2016	Influent sample - pretreatment.	9.5	3.4	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	3/2/2016	Influent sample - pretreatment.	9.7	3.2	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	4/6/2016	Influent sample - pretreatment.	8.5	3	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	5/2/2016	Influent sample - pretreatment.	10.6	3.8	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	6/8/2016	Influent sample - pretreatment.	10.4	3.8	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	7/8/2016	Influent sample - pretreatment.	9.4	3.3	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
	8/8/2016	Influent sample - pretreatment.	6	1.9	
		Midfluent sample - partial treatment.	ND	ND	
		Effluent sample - after treatment.	ND	ND	
9/14/2016	Influent sample - pretreatment.	9.6	3.6		
	Midfluent sample - partial treatment.	ND	ND		
	Effluent sample - after treatment.	ND	ND		
10/10/2016	Influent sample - pretreatment.	9.8	3.4		
	Midfluent sample - partial treatment.	ND	ND		
	Effluent sample - after treatment.	ND	ND		
11/8/2016	Influent sample - pretreatment.	10.1	3.5		
	Midfluent sample - partial treatment.	ND	ND		
	Effluent sample - after treatment.	ND	ND		
12/7/2016	Influent sample - pretreatment.	9.8	3.3		
	Midfluent sample - partial treatment.	ND	ND		
	Effluent sample - after treatment.	ND	ND		

NOTES:

Results reported in micrograms per liter (µg/L).

Bold values detected above laboratory detection limits.

Highlighted values are detected above their respective state drinking water standards (MassDEP GW-1 Standard).

ND = not detectable at the reporting limit (or method detection limit, or estimated detection limit).

ATTACHMENT D

**MILLVILLE TCE
SAMPLE DESCRIPTION AND RATIONALE TABLES
Samples Collected from 6 to 8 September 2016**

Table 1A	Soil/Source Samples
Table 1B	Sediment Samples
Table 1C	Aqueous Quality Assurance/Quality Control Samples
Table 1D	Performance Evaluation Samples

**TABLE 1A
SOIL/SOURCE AND BACKGROUND SOIL SAMPLES**

Station	Location Description/Rationale	Sample Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Soil/Source						
SS-01	Surface soil/source sample collected from northern property boundary abutting Providence Street residence to the north and adjacent to drainage pipe originating on Providence Street property, to determine the presence of hazardous substances. 42.015596974 North Latitude 71.580891885 West Longitude	8	R01-160906MB-0001	9/7/2016 13:18	VOCs	Sample was collected using a hand auger. Material was described as brown, fine-to-medium SAND, some cobble, trace fine-to-medium gravel. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-02	Soil/source sample collected from soil pile, allegedly containing off-site waste material, along access road and northern property boundary abutting Providence Street residence, to determine the presence of hazardous substances. 42.0151001 North Latitude 71.580109491 West Longitude	24	R01-160906MB-0002	9/7/2016 11:45	VOCs	Sample was collected using a hand auger. Material was described as brown, fine-to-medium SAND, little fine-to-medium gravel. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-03	Soil/source sample collected from the central portion of the property adjacent to 55-gallon drums, to determine the presence of hazardous substances. 42.014827963 North Latitude 71.579962253 West Longitude	18	R01-160906MB-0003	9/7/2016 11:00	VOCs	Sample was collected using a hand auger. Material was described as brown, fine-to-medium SAND, little fine-to-medium gravel. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-04	Soil/source sample collected from the central portion of the property within work area near the base of the high-tension transmission tower, allegedly containing material from a former off-site waste site, to determine the presence of hazardous substances. 42.014481214 North Latitude 71.580203272 West Longitude	28	R01-160906MB-0004	9/7/2016 10:49	VOCs	Sample was collected using a hand auger. Material was described as dark brown, SILT and fine-to-coarse SAND. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.

**TABLE 1A
SOIL/SOURCE AND BACKGROUND SOIL SAMPLES**

Station	Location Description/Rationale	Sample Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Soil/Source						
SS-05	Soil/source sample collected from the northern property boundary abutting 25 Providence Street residence to the north, to determine the presence of hazardous substances. 42.014639229 North Latitude 71.579253928 West Longitude	10	R01-160906MB-0005	9/7/2016 13:15	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine-to-medium SAND, some coarse gravel. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-06	Soil/source sample collected from the northern property boundary abutting 19 Providence Street residence to the north, near the contaminated drinking water supply well, to determine the presence of hazardous substances. 42.014357981 North Latitude 71.578844377 West Longitude	24	R01-160906MB-0006	9/7/2016 11:48	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine-to-medium SAND, little medium gravel. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-07	Soil/source sample collected from the eastern property boundary adjacent to four 30-gallon drums on the adjacent property, to determine the presence of hazardous substances. 42.014198805 North Latitude 71.578868656 West Longitude	6	R01-160906MB-0007	9/7/2016 11:31	VOCs	Sample was collected using a disposable scoop. Material was described as light brown, fine SAND, little medium gravel, trace organics. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-08	Soil/source sample collected from the soil/road construction debris pile along the southeastern property boundary, to determine the presence of hazardous substances. 42.013982009 North Latitude 71.579253128 West Longitude	24	R01-160906MB-0008	9/7/2016 11:30	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine-to-medium SAND, some coarse gravel. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.

**TABLE 1A
SOIL/SOURCE AND BACKGROUND SOIL SAMPLES**

Station Location	Location Description/Rationale	Sample Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Soil/Source						
SS-09	Soil/source sample collected from the soil/road construction debris pile along the southeastern property boundary, to determine the presence of hazardous substances. 42.013949051 North Latitude 71.579610743 West Longitude	24	R01-160906MB-0009	9/7/2016 11:02	VOCs	Sample was collected using a metal scoop. Material was described as light brown, fine-to-medium SAND, some coarse gravel, little debris (asphalt, concrete, and ceramic). CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-10	Soil/source sample collected from the soil/road construction debris pile along the southeastern property boundary, to determine the presence of hazardous substances. 42.013940056 North Latitude 71.580028512 West Longitude	36	R01-160906MB-0010	9/7/2016 11:17	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine-to-medium SAND, some coarse gravel. CGI/O ₂ (LEL/%) = NR; PID = NR.
SS-11	Soil/source sample collected from stained soil on the central portion of the property adjacent to the truck bed storage container, to determine the presence of hazardous substances. 42.01462588 North Latitude 71.580605291 West Longitude	3	R01-160906MB-0011	9/7/2016 9:40	VOCs	Sample was collected using a disposable scoop. Material was described as black-stained medium SAND, little medium gravel. CGI/O ₂ (LEL/%) = NR; PID = NR.
SS-12	Soil/source sample collected from the central portion of the property adjacent to the 300-gallon polyethylene tote, to determine the presence of hazardous substances. 42.014650156 North Latitude 71.580724172 West Longitude	3	R01-160906MB-0012	9/7/2016 9:50	VOCs	Sample was collected using a disposable scoop. Material was described as dark brown, medium SAND, little medium gravel, trace organics. CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.

**TABLE 1A
SOIL/SOURCE AND BACKGROUND SOIL SAMPLES**

Station Location	Location Description/Rationale	Sample Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Soil/Source						
SS-13	Soil/source sample collected from the central portion of the property adjacent to the 55-gallon drums located underneath the truck trailer, to determine the presence of hazardous substances. 42.014755597 North Latitude 71.580715464 West Longitude	3	R01-160906MB-0013	9/7/2016 10:08	VOCs	Sample was collected using a disposable scoop. Material was described as dark brown, medium-to-coarse SAND, little medium gravel, trace organics. CGI/O ₂ (LEL/%) = NR; PID = 0.0 ppm.
SS-14	Soil/source sample collected from the central portion of the property adjacent to the 300-gallon tote containers, to determine the presence of hazardous substances. 42.015094912 North Latitude 71.580875452 West Longitude	6	R01-160906MB-0014	9/7/2016 10:16	VOCs	Sample was collected using a disposable scoop. Material was described as . CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.
SS-15	Soil/source sample collected from the central portion of the property adjacent to the 1,000-gallon above ground storage tank, to determine the presence of hazardous substances. 42.015044805 North Latitude 71.580823628 West Longitude	6	R01-160906MB-0015	9/7/2016 10:10	VOCs	Sample was collected using a disposable scoop. Material was described as . CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.
SS-16	Field duplicate sample of SS-05, collected for quality control .	6	R01-160906MB-0016	9/7/2016 13:15	VOCs	See sample description for SS-05.
SS-17	Soil/source sample collected from the northeastern portion of the Mendon St. Garage property, in front (east) of the on-site building, to determine the presence of hazardous substances. 42.014347332 North Latitude 71.577761233 West Longitude	24	R01-160906MB-0017	9/8/2016 10:57	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine-to-medium SAND, little medium gravel. CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.

**TABLE 1A
SOIL/SOURCE AND BACKGROUND SOIL SAMPLES**

Station Location	Location Description/Rationale	Sample Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Soil/Source						
SS-18	Soil/source sample collected from the eastern portion of the Mendon St. Garage property where vehicles/equipment are stored, adjacent to plow blade and an empty 55-gallon polyethylene drum, to determine the presence of hazardous substances. 42.014048779 North Latitude 71.577729896 West Longitude	18	R01-160906MB-0018	9/8/2016 11:00	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine SAND, little coarse gravel. CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.
SS-19	Soil/source sample collected from the southeastern portion of the Mendon St. Garage property where vehicles/equipment/supplies are stored, adjacent to three 55-gallon polyethylene drums, to determine the presence of hazardous substances. 42.013938734 North Latitude 71.57783086 West Longitude	13	R01-160906MB-0019	9/8/2016 11:00	VOCs	Sample was collected using a hand auger. Material was described as brown, SILT and SAND, little fine-to-coarse gravel. CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.
SS-20	Soil/source sample collected from the southern portion of the Mendon St. Garage property where yard waste/composite/mulch piles were located, in a low areas where water runs/settles from most of the lot, to determine the presence of hazardous substances. 42.013965451 North Latitude 71.577999611 West Longitude	12	R01-160906MB-0020	9/8/2016 11:27	VOCs	Sample was collected using a hand auger. Material was described as brown SILT, trace sand, trace. CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.

**TABLE 1A
SOIL/SOURCE AND BACKGROUND SOIL SAMPLES**

Station Location	Location Description/Rationale	Sample Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Soil/Source						
SS-21	Soil/source sample collected from the southwestern portion of the property from a yard waste/composite/mulch soil pile, to determine the presence of hazardous substances. 42.014000493 North Latitude 71.578234895 West Longitude	30	R01-160906MB-0021	9/8/2016 11:23	VOCs	Sample was collected using a hand auger. Material was described as brown, fine-to-medium SAND, trace medium gravel, trace debris (plastic, brick). CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.
SS-22	Field duplicate sample of SS-21, collected for quality control .	30	R01-160906MB-0022	9/8/2016 11:23	VOCs	See sample description for SS-21.
SS-23	Soil/source sample collected from the central portion of the property, from a soil pile allegedly containing material from a former off-site waste site, to determine the presence of hazardous substances. 42.014972103 North Latitude 71.579893146 West Longitude	36	R01-160906MB-0047	9/7/2016 11:52	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine-to-coarse SAND, little medium gravel. CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.
SS-24	Soil/source sample collected from the central portion of the property, from a soil pile allegedly containing material from a former off-site waste site, to determine the presence of hazardous substances. 42.014628362 North Latitude 71.579713418 West Longitude	24	R01-160906MB-0048	9/7/2016 11:28	VOCs	Sample was collected using a hand auger. Material was described as light brown, medium-to-coarse SAND, little coarse gravel, little cobble. CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.
SS-25	Soil/source sample collected from oil-stained soil located on the south-central portion of the property, adjacent to partially excavated drainage pipes and the soil screener, to determine the presence of hazardous substances. 42.014739185 North Latitude 71.580554971 West Longitude	3	R01-160906MB-0049	9/7/2016 10:30	VOCs	Sample was collected using a disposable scoop. Material was described as dark brown, fine-to-coarse SAND, some medium gravel. CGI/O ₂ (LEL/%) = NR; PID = NR.

**TABLE 1A
SOIL/SOURCE AND BACKGROUND SOIL SAMPLES**

Station Location	Location Description/Rationale	Sample Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Soil/Source						
SS-26	Soil/source sample collected from the central portion of the property, from a soil pile allegedly containing material from a former off-site waste site, to determine the presence of hazardous substances. 42.015271076 North Latitude 71.580542985 West Longitude	24	R01-160906MB-0050	9/7/2016 13:04	VOCs	Sample was collected using a hand auger. Material was described as light brown, fine-to-medium SAND, some coarse gravel, some debris at surface (brick, concrete). CGI/O ₂ (LEL/%) = 0/20.9; PID = 0.0 ppm.

CGI/O₂ (LEL/%) = Combustible Gas Indicator/Oxygen Meter (Lower Explosive Limit/Percent)

PID = Photoionization Detector

COC = Chain of Custody

ppm = parts per million

No. = Number

Analyses: VOCs = Volatile Organic Compounds

**TABLE 1B
SEDIMENT SAMPLES**

Station Location	Location Description/Rationale	Sample Depth* (inches)	Water Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Sediment							
SD-01	Grab sediment sample collected from western portion of property from the unnamed stream as it enters the property, to determine the presence of hazardous substances. 42.01529174 North Latitude 71.581873594 West Longitude	0-12	0	R01-160906MB-0023	9/6/2016 16:40	VOCs	Sample was collected using a hand auger. Material described as dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace organics (leaf debris). No water quality measurements were taken at this location due to lack of water. PID = 0.0 ppm.
SD-02	Grab sediment sample collected from west-central portion of property from the unnamed stream as it flows toward the pond, to determine the presence of hazardous substances. 42.015056862 North Latitude 71.581398456 West Longitude	0-12	0	R01-160906MB-0024	9/6/2016 16:15	VOCs	Sample was collected using a hand auger. Material described as dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace organics (leaf debris). No water quality measurements were taken at this location due to lack of water. PID = 0.0 ppm.
SD-03	Grab sediment sample collected from west-central portion of property from the unnamed stream as it flows toward the pond, to determine the presence of hazardous substances. 42.014722296 North Latitude 71.58114143 West Longitude	0-12	0	R01-160906MB-0025	9/7/2016 15:45	VOCs	Sample was collected using a hand auger at depth > 1 ft. Material described as dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace organics (leaf debris). No water quality measurements were taken at this location due to lack of water. PID = 0.0 ppm.
SD-04	Grab sediment sample collected from southwestern portion of property from wetland along pond, to determine the presence of hazardous substances. 42.01413642 North Latitude 71.581328965 West Longitude	0-12	0	R01-160906MB-0026	9/8/2016 15:40	VOCs	Sample was collected using a hand auger. Material described as wet, dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace organics (leaf debris). No water quality measurements were taken at this location due to lack of water. PID = 0.0 ppm.

**TABLE 1B
SEDIMENT SAMPLES**

Station Location	Location Description/Rationale	Sample Depth* (inches)	Water Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Sediment							
SD-05	Grab sediment sample collected from south-central portion of property from wetland along the unnamed stream downstream of the operational area and upstream of the property line, to determine the presence of hazardous substances. 42.0139719 North Latitude 71.580454888 West Longitude	0-12	6	R01-160906MB-0027	9/9/2016 15:45	VOCs	Sample was collected using a hand auger. Material described as saturated, dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace organics (leaf debris). Specific conductance ($\mu\text{S}/\text{cm}$) = 92.2; Temp. ($^{\circ}\text{C}$) = 19.0; Turbidity (NTU) = 40.1; pH = 6.55; PID = 0.0 ppm.
SD-06	Grab sediment sample collected from central portion of property from the unnamed stream downstream/adjacent to the operational area, to determine the presence of hazardous substances. 42.01428741 North Latitude 71.580988731 West Longitude	0-12	0	R01-160906MB-0028	9/10/2016 1600	VOCs	Sample was collected using a hand auger. Material described as wet, dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace organics (leaf debris). No water quality measurements were taken at this location due to lack of water. PID = 0.0 ppm.
SD-07	Grab sediment sample collected from north-central portion of property from a small ponded water area adjacent to a concrete drainage culvert and the 25 Providence Street property boundary, to determine the presence of hazardous substances. 42.014988854 North Latitude 71.579552959 West Longitude	0-12	0	R01-160906MB-0029	9/11/2016 16:38	VOCs	Sample was collected using a hand auger. Material described as dark brown, fine-to-medium SAND, little coarse gravel, trace organics (leaf debris). No water quality measurements were taken at this location due to lack of water. PID = 0.0 ppm.

**TABLE 1B
SEDIMENT SAMPLES**

Station Location	Location Description/Rationale	Sample Depth* (inches)	Water Depth (inches)	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Sediment							
SD-08	Grab sediment sample collected from north-central portion of property from the small ponded water area adjacent to a concrete drainage culvert and the 25 Providence Street property boundary, to determine the presence of hazardous substances. 42.014943436 North Latitude 71.579556793 West Longitude	0-12	0	R01-160906MB-0030	9/12/2016 1643	VOCs	Sample was collected using a hand auger. Material described as dark brown, fine-to-medium SAND, little coarse gravel, trace organics (leaf debris). No water quality measurements were taken at this location due to lack of water. PID = 0.0 ppm.
SD-09	Field duplicate sample of SD-08, collected for quality control.	0-12	0	R01-160906MB-0031	9/13/2016 1643	VOCs	See sediment sample SD-08 for sample description.

Temp (°C) = Temperature (degrees Celsius)

Spec. Cond. (µS/cm) = Specific conductance (micro Siemens per centimeter)

CGI/O₂ (LEL/%) = Combustible Gas Indicator/Oxygen Meter (Lower Explosive Limit/Percent)

NTU = Nephelometric Turbidity Units

CLP = Contract Laboratory Program

PID = Photoionization Detector

COC = Chain of Custody

ppm = parts per million

No. = Number

NR = Not Recorded.

* = Below the sediment/water interface.

Analyses: VOCs = Volatile Organic Compounds by SOM01.2

TABLE 1C
AQUEOUS QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

Station Location	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Aqueous QA/QC				
RB-02	R01-160906MB-0035	9/6/2016 17:41	VOCs	Soil/Source sampling equipment (hand auger) rinsate blank sample, collected for quality control.
RB-01	R01-160906MB-0034	9/7/2016 18:00	VOCs	Soil/Source sampling equipment (hand auger) rinsate blank sample, collected for quality control.
RB-03	R01-160906MB-0051	9/8/2016 12:05	VOCs	Soil/Source sampling equipment (hand auger) rinsate blank sample, collected for quality control.
PB-03	R01-160906MB-0038	9/6/2016 17:30	VOCs	Ultrapure water preservative blank sample, collected for quality control.
PB-04	R01-160906MB-0039	9/6/2016 17:30	VOCs	Methanol preservative blank sample, collected for quality control.
PB-01	R01-160906MB-0036	9/7/2016 17:00	VOCs	Sodium bisulfate preservative blank sample, collected for quality control.
PB-02	R01-160906MB-0037	9/7/2016 17:00	VOCs	Methanol preservative blank sample, collected for quality control.
PB-05	R01-160906MB-0052	9/7/2016 17:00	VOCs	Sodium bisulfate preservative blank sample, collected for quality control.
PB-06	R01-160906MB-0053	9/7/2016 17:00	VOCs	Methanol preservative blank sample, collected for quality control.
TB-02	R01-160906MB-0033	9/6/2016 17:30	VOCs	Trip blank sample, collected for quality control.
TB-01	R01-160906MB-0032	9/7/2016 17:55	VOCs	Trip blank sample, collected for quality control.

COC = Chain of Custody
 No. = Number
 QA/QC = Quality Assurance/Quality Control

Analyses: VOCs = Volatile Organic Compounds

**TABLE 1D
PERFORMANCE EVALUATION SAMPLES**

Station Location	COC Sample No.	Date and Time (hours)	Analysis	Sample Description
MATRIX: Performance Evaluation Samples				
PE-VS2084	R01-1909-06MB-0042	9/6/16 17:00	VOCs (Low)	Solid PE sample for VOCs (Low) (sediment samples).
PE-MLV0120	R01-1909-06MB-0043	9/6/16 17:00	VOCs (Med)	Solid PE sample for VOCs (Med) (sediment samples).
PE-VS2083	R01-1909-06MB-0044	9/7/16 17:00	VOCs (Low)	Solid PE sample for VOCs (Low) (soil samples).
PE-MLV0119	R01-1909-06MB-0045	9/7/16 17:00	VOCs (Med)	Solid PE sample for VOCs (Med) (soil samples).
PE-VS2117	R01-1909-06MB-0046	9/8/16 17:00	VOCs (Low)	Solid PE sample for VOCs (Low) (soil samples).
PE-MLV0229	R01-1909-06MB-0047	9/8/16 17:00	VOCs (Med)	Solid PE sample for VOCs (Med) (soil samples).

COC = Chain of Custody

No. = Number

Analyses: VOCs = Volatile Organic Compounds.

Low = Low level.

Med. = Medium level.

ATTACHMENT E

**MILLVILLE TCE
ANALYTICAL RESULTS TABLES
Samples Collected from 6 to 8 September 2016**

Table 1	Soil/Source Samples – Volatile Organic Soil Analysis
Table 2	Sediment Samples – Volatile Organic Sediment Analysis
Table 3A	Aqueous Quality Assurance/Quality Control Samples – Volatile Organic Soil Analysis
Table 3B	Aqueous Quality Assurance/Quality Control Samples – Volatile Organic Aqueous Analysis

**ANALYTICAL RESULTS TABLE 1
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
SOIL/SOURCE SAMPLES**

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0001	RO1-160906MB-0002	RO1-160906MB-0003	RO1-160906MB-0004	RO1-160906MB-0005	RO1-160906MB-0006				
	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06				
	AB63395	AB63396	AB63397	AB63398	AB63399	AB63400				
COMPOUND	Concentration	RL	Concentration	RL	Concentration	RL	Concentration	RL		
Chloromethane	ND	86	ND	2.0	ND	2.6	ND	2.4	ND	2.0
Vinyl Chloride	ND	86	ND	2.0	ND	2.6	ND	2.0	ND	2.0
Bromomethane	ND	86	ND	2.0	ND	2.6	ND	2.0	ND	2.0
Chloroethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.0
Trichlorofluoromethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Ethyl Ether	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.0
2-Propanone (acetone)	ND	86	57	1.0	23	1.3	57	1.0	58	1.2
1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	86	ND	2.0	ND	2.6	ND	2.0	ND	2.4
1,1-Dichloroethylene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Carbon Disulfide	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Dichlorodifluoromethane	ND	86	ND	2.0	ND	2.6	ND	2.0	ND	2.4
Methylene Chloride	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Acrylonitrile	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Methyl-t-Butyl Ether	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Trans-1,2-Dichloroethylene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,1-dichloroethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Vinyl Acetate	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
2-Butanone (MEK)	ND	86	3.2	1.0	1.7	1.3	4.6	1.0	3.7	1.2
2,2-Dichloropropane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
cis-1,2-Dichloroethylene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Chloroform	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Bromochloromethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Tetrahydrofuran	ND	86	ND	1.0	2.4	1.3	1.4	1.0	2.4	1.2
1,1,1-Trichloroethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2-Dichloroethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Carbon tetrachloride	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Benzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
c-1,3-dichloropropene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Toluene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
t-1,3-Dichloropropene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,1,2-Trichloroethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Dibromochloromethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Chlorobenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,1-Dichloropropene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Trichloroethylene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2-Dichloropropane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Bromodichloromethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Dibromomethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
4-Methyl-2-Pentanone(MIBK)	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,3-Dichloropropane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Tetrachloroethylene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2-Dibromoethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
2-Hexanone	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,1,1,2-Tetrachloroethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Ethylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
M/P Xylene	ND	170	ND	2.0	ND	2.6	ND	2.0	ND	2.4
Ortho Xylene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Styrene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Bromoform	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,1,2,2-Tetrachloroethane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Isopropylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Bromobenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2,3-Trichloropropane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
N-Propylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
2-Chlorotoluene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
4-Chlorotoluene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Tert-Butylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,3,5-Trimethylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2,4-Trimethylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Sec-Butylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,3-Dichlorobenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Para-Isopropyltoluene	ND	86	ND	1.0	ND	1.3	1.0	1.0	ND	1.2
1,4-Dichlorobenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2-Dichlorobenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
N-Butylbenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2-Dibromo-3-Chloropropane	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2,4-Trichlorobenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Hexachlorobutadiene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
Naphthalene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
1,2,3-Trichlorobenzene	ND	86	ND	1.0	ND	1.3	ND	1.0	ND	1.2
DILUTION FACTOR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED	9/7/2016	9/8/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016
DATE ANALYZED	9/14/2016	9/13/2016	9/13/2016	9/13/2016	9/13/2016	9/13/2016	9/13/2016	9/13/2016	9/14/2016	9/14/2016
SAMPLE WEIGHT (GRAMS)	6.018	5.78	3.83	8.17	4.28	4.894	4.894	4.894	4.894	4.894
% SOLID	94	90.0	92.0	93.0	96.0	97	97	97	97	97

PROJECT: 16090010, 16090020,
16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected above Reporting Limit.
E = Estimated value exceeds the calibration range.
J = Estimated value.
MassDEP = Massachusetts Department of Environmental Protection
MCP Method 1 = Massachusetts Contingency Plan Method 1 Standards
NL = Not Listed
* Value for 1,3-dichloropropene is listed.
** Value for Total Xylene is listed.
Bold Result = Analyte detected.

**ANALYTICAL RESULTS TABLE 1
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
SOIL/SOURCE SAMPLES**

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0007	RO1-160906MB-0008	RO1-160906MB-0009	RO1-160906MB-0010	RO1-160906MB-0011	RO1-160906MB-0012						
	SS-07	SS-08	SS-09	SS-10	SS-11	SS-12						
	AB63401	AB63402	AB63403	AB63404	AB63405	AB63406						
COMPOUND	Concentration	RL	Concentration	RL	Concentration	RL						
Chloromethane	ND	2.6	ND	2.0	ND	2.0	ND	2.0				
Vinyl Chloride	ND	2.6	ND	2.0	ND	2.0	ND	2.0				
Bromomethane	ND	2.6	ND	2.0	ND	2.0	ND	2.0				
Chloroethane	ND	1.3	ND	1.0	ND	1.0	ND	1.0				
Trichlorofluoromethane	ND	1.3	ND	1.0	ND	1.0	ND	1.0				
Ethyl Ether	ND	1.3	ND	1.0	ND	1.0	ND	1.0				
2-Propanone (acetone)	170 E	1.3	65	1.0	43	1.0	140 E	2.6	84	1.1	150 EJ	1.0
1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	2.6	ND	2.0	ND	2.0	ND	2.6	ND	2.2	ND	2.0
1,1-Dichloroethylene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Carbon Disulfide	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Dichlorodifluoromethane	ND	2.6	ND	2.0	ND	2.0	ND	5.3	ND	2.2	ND	2.0
Methylene Chloride	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Acrylonitrile	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Methyl-t-Butyl Ether	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Trans-1,2-Dichloroethylene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,1-dichloroethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Vinyl Acetate	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
2-Butanone (MEK)	9.1	1.3	3.2	1.0	2.9	1.0	9.2	2.6	34	1.1	13	1.0
2,2-Dichloropropane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
cis-1,2-Dichloroethylene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Chloroform	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Bromochloromethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Tetrahydrofuran	4.1	1.3	2.8	1.0	2.8	1.0	7.9	2.6	ND	1.1	ND	1.0
1,1,1-Trichloroethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2-Dichloroethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Carbon tetrachloride	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Benzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
c-1,3-dichloropropene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Toluene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
t-1,3-Dichloropropene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,1,2-Trichloroethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Dibromochloromethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Chlorobenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,1-Dichloropropene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Trichloroethylene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2-Dichloropropane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Bromodichloromethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Dibromomethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
4-Methyl-2-Pentanone(MIBK)	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,3-Dichloropropane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Tetrachloroethylene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2-Dibromoethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
2-Hexanone	ND	1.3	ND	1.0	ND	1.0	ND	2.6	98	1.1	1.2	1.0
1,1,1,2-Tetrachloroethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Ethylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
M/P Xylene	ND	2.6	ND	2.0	ND	2.0	ND	5.3	ND	2.2	ND	2.0
Ortho Xylene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Styrene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Bromoform	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Isopropylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Bromobenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2,3-Trichloropropane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
N-Propylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
2-Chlorotoluene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
4-Chlorotoluene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Tert-Butylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,3,5-Trimethylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2,4-Trimethylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Sec-Butylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,3-Dichlorobenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Para-Isopropyltoluene	2.6	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,4-Dichlorobenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2-Dichlorobenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
N-Butylbenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2-Dibromo-3-Chloropropane	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2,4-Trichlorobenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Hexachlorobutadiene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
Naphthalene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
1,2,3-Trichlorobenzene	ND	1.3	ND	1.0	ND	1.0	ND	2.6	ND	1.1	ND	1.0
DILUTION FACTOR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016
DATE ANALYZED	9/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	9/15/2016	9/15/2016
SAMPLE WEIGHT (GRAMS)	3.74	5.71	6.38	6.38	4.53	4.53	4.53	4.53	4.53	4.53	4.90	4.90
% SOLID	94.0	95.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	89.0	89.0

PROJECT: 16090010, 16090020,
16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected above Reporting Limit.
E = Estimated value exceeds the calibration range.
J = Estimated value.
MassDEP = Massachusetts Department of Environmental Protection
MCP Method 1 = Massachusetts Contingency Plan Method 1 Standards
NL = Not Listed
* Value for 1,3-dichloropropene is listed.
** Value for Total Xylene is listed.
Bold Result = Analyte detected.

**ANALYTICAL RESULTS TABLE 1
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
SOIL/SOURCE SAMPLES**

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0013	RO1-160906MB-0014	RO1-160906MB-0015	RO1-160906MB-0016	RO1-160906MB-0017	RO1-160906MB-0018
	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18
	AB63407	AB63408	AB63409	AB63410	AB63411	AB63412
COMPOUND	Concentration RL					
Chloromethane	ND 2.0	ND 160	ND 4.7	ND 2.5	ND 2.2	ND 2.0
Vinyl Chloride	ND 2.0	ND 160	ND 4.7	ND 2.5	ND 2.2	ND 2.0
Bromomethane	ND 2.0	ND 160	ND 4.7	ND 2.5	ND 2.2	ND 2.0
Chloroethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Trichlorofluoromethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Ethyl Ether	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
2-Propanone (acetone)	170 EJ	ND 160	100 EJ	73 J	15	43
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND 2.0	ND 160	ND 4.7	ND 2.5	ND 2.2	ND 2.0
1,1-Dichloroethylene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Carbon Disulfide	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Dichlorodifluoromethane	ND 2.0	ND 160	ND 2.4	ND 1.2	ND 2.2	ND 2.0
Methylene Chloride	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Acrylonitrile	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Methyl-t-Butyl Ether	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Trans-1,2-Dichloroethylene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,1-dichloroethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Vinyl Acetate	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
2-Butanone (MEK)	7.8	ND 160	6.2	4.4	ND 1.1	2.7
2,2-Dichloropropane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
cis-1,2-Dichloroethylene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Chloroform	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Bromochloromethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Tetrahydrofuran	2.2	ND 160	ND 2.4	ND 1.2	ND 1.1	3.0
1,1,1-Trichloroethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2-Dichloroethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Carbon tetrachloride	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Benzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
c-1,3-dichloropropene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Toluene	1.8	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
t-1,3-Dichloropropene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,1,2-Trichloroethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Dibromochloromethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Chlorobenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,1-Dichloropropene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Trichloroethylene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2-Dichloropropane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Bromodichloromethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Dibromomethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
4-Methyl-2-Pentanone(MIBK)	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,3-Dichloropropane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Tetrachloroethylene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2-Dibromoethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
2-Hexanone	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,1,1,2-Tetrachloroethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Ethylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
M/P Xylene	ND 2.0	ND 320	ND 4.7	ND 2.5	ND 2.2	ND 2.0
Ortho Xylene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Styrene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Bromoform	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,1,2,2-Tetrachloroethane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Isopropylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Bromobenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2,3-Trichloropropane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
N-Propylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
2-Chlorotoluene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
4-Chlorotoluene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Tert-Butylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,3,5-Trimethylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2,4-Trimethylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Sec-Butylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,3-Dichlorobenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Para-Isopropyltoluene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	3.3
1,4-Dichlorobenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2-Dichlorobenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
N-Butylbenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2-Dibromo-3-Chloropropane	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2,4-Trichlorobenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Hexachlorobutadiene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
Naphthalene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
1,2,3-Trichlorobenzene	ND 1.0	ND 160	ND 2.4	ND 1.2	ND 1.1	ND 1.0
DILUTION FACTOR	1.0	50.0	1.0	1.0	1.0	1.0
DATE SAMPLED	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/8/2016	9/8/2016
DATE ANALYZED	9/15/2016	9/15/2016	9/15/2016	9/15/2016	9/13/2016	9/13/2016
SAMPLE WEIGHT (GRAMS)	5.28	3.40	2.12	3.99	4.43	5.76
% SOLID	87.0	79.0	94.0	96.0	98.0	98.0

PROJECT: 16090010, 16090020,
16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected above Reporting Limit.
E = Estimated value exceeds the calibration range.
J = Estimated value.
MassDEP = Massachusetts Department of Environmental Protection
MCP Method 1 = Massachusetts Contingency Plan Method 1 Standards
NL = Not Listed
* Value for 1,3-dichloropropene is listed.
** Value for Total Xylene is listed.
Bold Result = Analyte detected.

**ANALYTICAL RESULTS TABLE 1
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
SOIL/SOURCE SAMPLES**

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0019	RO1-160906MB-0020	RO1-160906MB-0021	RO1-160906MB-0022	RO1-160906MB-0047	RO1-160906MB-0048
	SS-19	SS-20	SS-21	SS-22	SS-23	SS-24
	AB63413	AB63414	AB63415	AB63416	AB63417	AB63418
COMPOUND	Concentration RL					
Chloromethane	ND 2.0	ND 89	ND 130	ND 130	ND 2.4	ND 2.0
Vinyl Chloride	ND 2.0	ND 89	ND 130	ND 130	ND 2.4	ND 2.0
Bromomethane	ND 2.0	ND 89	ND 130	ND 130	ND 2.4	ND 2.0
Chloroethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Trichlorofluoromethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Ethyl Ether	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
2-Propanone (acetone)	110 E 1.0	ND 89	ND 130	ND 130	100 EJ 1.2	50 J 1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND 2.0	ND 89	ND 130	ND 130	ND 2.4	ND 2.0
1,1-Dichloroethylene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Carbon Disulfide	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Dichlorodifluoromethane	ND 2.0	ND 89	ND 130	ND 130	ND 2.4	ND 2.0
Methylene Chloride	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Acrylonitrile	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Methyl-t-Butyl Ether	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Trans-1,2-Dichloroethylene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,1-dichloroethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Vinyl Acetate	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
2-Butanone (MEK)	17 1.0	ND 89	ND 130	ND 130	6.8 1.2	3.1 1.0
2,2-Dichloropropane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
cis-1,2-Dichloroethylene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Chloroform	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Bromochloromethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Tetrahydrofuran	1.2 1.0	ND 89	ND 130	ND 130	3.3 1.2	ND 1.0
1,1,1-Trichloroethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2-Dichloroethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Carbon tetrachloride	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Benzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
c-1,3-dichloropropene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Toluene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
t-1,3-Dichloropropene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,1,2-Trichloroethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Dibromochloromethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Chlorobenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,1-Dichloropropene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Trichloroethylene	3.7 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2-Dichloropropane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Bromodichloromethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Dibromomethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
4-Methyl-2-Pentanone(MIBK)	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,3-Dichloropropane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Tetrachloroethylene	69 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2-Dibromoethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
2-Hexanone	1.6 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,1,1,2-Tetrachloroethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Ethylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
m/p Xylene	ND 2.0	ND 180	ND 270	ND 260	ND 2.4	ND 2.0
Ortho Xylene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Styrene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Bromoform	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,1,2,2-Tetrachloroethane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Isopropylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Bromobenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2,3-Trichloropropane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
N-Propylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
2-Chlorotoluene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
4-Chlorotoluene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Tert-Butylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,3,5-Trimethylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2,4-Trimethylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Sec-Butylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,3-Dichlorobenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Para-Isopropyltoluene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,4-Dichlorobenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2-Dichlorobenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
N-Butylbenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2-Dibromo-3-Chloropropane	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2,4-Trichlorobenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Hexachlorobutadiene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
Naphthalene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
1,2,3-Trichlorobenzene	ND 1.0	ND 89	ND 130	ND 130	ND 1.2	ND 1.0
DILUTION FACTOR	1.0	50.0	50.0	50.0	1.0	1.0
DATE SAMPLED	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/7/2016	9/7/2016
DATE ANALYZED	9/13/2016	9/14/2016	9/14/2016	9/14/2016	9/15/2016	9/15/2016
SAMPLE WEIGHT (GRAMS)	5.88	6.22	3.93	3.99	4.14	5.74
% SOLID	97.0	86.0	88.0	88.0	93.0	95.0

PROJECT: 16090010, 16090020,
16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected above Reporting Limit.
E = Estimated value exceeds the calibration range.
J = Estimated value.
MassDEP = Massachusetts Department of Environmental Protection
MCP Method 1 = Massachusetts Contingency Plan Method 1 Standards
NL = Not Listed
* Value for 1,3-dichloropropene is listed.
** Value for Total Xylene is listed.
Bold Result = Analyte detected.

**ANALYTICAL RESULTS TABLE 1
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
SOIL/SOURCE SAMPLES**

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0049		RO1-160906MB-0050		MassDEP MCP Method 1 S-1/GW-1 Soil Standard (µg/Kg)
	SS-25		SS-26		
	AB63419		AB63420		
COMPOUND	Concentration	RL	Concentration	RL	
Chloromethane	ND	2.0	ND	2.0	NL
Vinyl Chloride	ND	2.0	ND	2.0	900
Bromomethane	ND	2.0	ND	2.0	500
Chloroethane	ND	1.0	ND	1.0	NL
Trichlorofluoromethane	ND	1.0	ND	1.0	NL
Ethyl Ether	ND	1.0	ND	1.0	NL
2-Propanone (acetone)	200 J	1.0	64 J	1.0	6,000
1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	2.0	ND	2.0	NL
1,1-Dichloroethylene	ND	1.0	ND	1.0	3,000
Carbon Disulfide	ND	1.0	ND	1.0	NL
Dichlorodifluoromethane	ND	2.0	ND	2.0	NL
Methylene Chloride	ND	1.0	ND	1.0	100
Acrylonitrile	ND	1.0	ND	1.0	NL
Methyl-t-Butyl Ether	ND	1.0	ND	1.0	100
Trans-1,2-Dichloroethylene	ND	1.0	ND	1.0	NL
1,1-dichloroethane	ND	1.0	ND	1.0	400
Vinyl Acetate	ND	1.0	ND	1.0	NL
2-Butanone (MEK)	33	1.0	3.5	1.0	4,000
2,2-Dichloropropane	ND	1.0	ND	1.0	NL
cis-1,2-Dichloroethylene	ND	1.0	ND	1.0	NL
Chloroform	ND	1.0	ND	1.0	400
Bromochloromethane	ND	1.0	ND	1.0	NL
Tetrahydrofuran	ND	1.0	ND	1.0	NL
1,1,1-Trichloroethane	ND	1.0	ND	1.0	30,000
1,2-Dichloroethane	ND	1.0	ND	1.0	100
Carbon tetrachloride	ND	1.0	ND	1.0	10,000
Benzene	ND	1.0	ND	1.0	2,000
c-1,3-dichloropropene	ND	1.0	ND	1.0	10*
Toluene	ND	1.0	ND	1.0	30,000
t-1,3-Dichloropropene	ND	1.0	ND	1.0	10*
1,1,2-Trichloroethane	ND	1.0	ND	1.0	100
Dibromochloromethane	ND	1.0	ND	1.0	5
Chlorobenzene	ND	1.0	ND	1.0	1,000
1,1-Dichloropropene	ND	1.0	ND	1.0	NL
Trichloroethylene	ND	1.0	ND	1.0	300
1,2-Dichloropropane	ND	1.0	ND	1.0	100
Bromodichloromethane	ND	1.0	ND	1.0	100
Dibromomethane	ND	1.0	ND	1.0	NL
4-Methyl-2-Pentanone(MIBK)	1.6	1.0	ND	1.0	400
1,3-Dichloropropane	ND	1.0	ND	1.0	NL
Tetrachloroethylene	ND	1.0	ND	1.0	1,000
1,2-Dibromoethane	ND	1.0	ND	1.0	100
2-Hexanone	4.8	1.0	ND	1.0	NL
1,1,1,2-Tetrachloroethane	ND	1.0	ND	1.0	100
Ethylbenzene	ND	1.0	ND	1.0	40,000
M/P Xylene	ND	2.0	ND	2.0	400,000**
Ortho Xylene	ND	1.0	ND	1.0	400,000**
Styrene	ND	1.0	ND	1.0	3,000
Bromoform	ND	1.0	ND	1.0	100
1,1,2,2-Tetrachloroethane	ND	1.0	ND	1.0	5
Isopropylbenzene	ND	1.0	ND	1.0	NL
Bromobenzene	ND	1.0	ND	1.0	NL
1,2,3-Trichloropropane	ND	1.0	ND	1.0	NL
N-Propylbenzene	ND	1.0	ND	1.0	NL
2-Chlorotoluene	ND	1.0	ND	1.0	NL
4-Chlorotoluene	ND	1.0	ND	1.0	NL
Tert-Butylbenzene	ND	1.0	ND	1.0	NL
1,3,5-Trimethylbenzene	ND	1.0	ND	1.0	NL
1,2,4-Trimethylbenzene	ND	1.0	ND	1.0	NL
Sec-Butylbenzene	ND	1.0	ND	1.0	NL
1,3-Dichlorobenzene	ND	1.0	ND	1.0	3,000
Para-Isopropyltoluene	ND	1.0	ND	1.0	NL
1,4-Dichlorobenzene	ND	1.0	ND	1.0	700
1,2-Dichlorobenzene	ND	1.0	ND	1.0	9,000
N-Butylbenzene	ND	1.0	ND	1.0	NL
1,2-Dibromo-3-Chloropropane	ND	1.0	ND	1.0	NL
1,2,4-Trichlorobenzene	ND	1.0	ND	1.0	2,000
Hexachlorobutadiene	ND	1.0	ND	1.0	30,000
Naphthalene	ND	1.0	ND	1.0	4,000
1,2,3-Trichlorobenzene	ND	1.0	ND	1.0	NL
DILUTION FACTOR	1.0		1.0		
DATE SAMPLED	9/7/2016		9/7/2016		
DATE ANALYZED	9/15/2016		9/15/2016		
SAMPLE WEIGHT (GRAMS)	4.85		6.29		
% SOLID	97.0		97.0		

PROJECT: 16090010, 16090020,
16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected above Reporting Limit.
E = Estimated value exceeds the calibration range.
J = Estimated value.
MassDEP = Massachusetts Department of Environmental Protection
MCP Method 1 = Massachusetts Contingency Plan Method 1 Standards
NL = Not Listed
* Value for 1,3-dichloropropene is listed.
** Value for Total Xylene is listed.
Bold Result = Analyte detected.

**ANALYTICAL RESULTS TABLE 2
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
SEDIMENT SAMPLES**

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0023		RO1-160906MB-0024		RO1-160906MB-0025		RO1-160906MB-0026		RO1-160906MB-0027	
	SD-01		SD-02		SD-03		SD-04		SD-05	
	Concentration	RL	Concentration	RL	Concentration	RL	Concentration	RL	Concentration	RL
Chloromethane	ND	2.0	ND	2.0	ND	2.0	ND	550	ND	2.0
Vinyl Chloride	ND	2.0	ND	2.0	ND	2.0	ND	550	ND	2.0
Bromomethane	ND	2.0	ND	2.0	ND	2.0	ND	550	ND	2.0
Chloroethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Trichlorofluoromethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Ethyl Ether	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
2-Propanone (acetone)	ND	1.0	ND	1.0	ND	1.0	ND	550	23	1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	2.0	ND	2.0	ND	2.0	ND	550	ND	2.0
1,1-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Carbon Disulfide	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Dichlorodifluoromethane	ND	2.0	ND	2.0	ND	2.0	ND	550	ND	2.0
Methylene Chloride	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Acrylonitrile	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Methyl-t-Butyl Ether	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Trans-1,2-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,1-dichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Vinyl Acetate	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
2-Butanone (MEK)	ND	1.0	ND	1.0	ND	1.0	ND	550	4.6	1.0
2,2-Dichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
cis-1,2-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Chloroform	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Bromochloromethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Tetrahydrofuran	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,1,1-Trichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2-Dichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Carbon tetrachloride	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Benzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
c-1,3-dichloropropene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Toluene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
t-1,3-Dichloropropene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,1,2-Trichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Dibromochloromethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Chlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,1-Dichloropropene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Trichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2-Dichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Bromodichloromethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Dibromomethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
4-Methyl-2-Pentanone(MIBK)	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,3-Dichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Tetrachloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2-Dibromoethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
2-Hexanone	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Ethylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
M/P Xylene	ND	2.0	ND	2.0	ND	2.0	ND	1100	ND	2.0
Ortho Xylene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Styrene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Bromoform	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Isopropylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Bromobenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2,3-Trichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
N-Propylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
2-Chlorotoluene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
4-Chlorotoluene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Tert-Butylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,3,5-Trimethylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2,4-Trimethylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Sec-Butylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,3-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Para-Isopropyltoluene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,4-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
N-Butylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2-Dibromo-3-Chloropropane	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Hexachlorobutadiene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
Naphthalene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	550	ND	1.0
DILUTION FACTOR	1.0		1.0		1.0		50.0		1.0	
DATE SAMPLED	9/6/2016		9/6/2016		9/6/2016		9/6/2016		9/6/2016	
DATE ANALYZED	9/8/2016		9/8/2016		9/8/2016		9/13/2016		9/8/2016	
SAMPLE WEIGHT (GRAMS)	5.418		6.28		11.16		3.85		7.33	
% SOLID	69		88.0		88.0		18.0		67.0	

16090020,
16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
NOAA SQuIRTs = National Oceanic and Atmospheric Administration Screening Quick Reference Tables
TEL = Threshold Effects Levels
PEL = Probable Effects Levels
ND = Not Detected
NL = Not Listed
Bold Result = Analyte detected.

**ANALYTICAL RESULTS TABLE 2
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
SEDIMENT SAMPLES**

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0028		RO1-160906MB-0029		RO1-160906MB-0030		RO1-160906MB-0031		NOAA SquiRTs	
	SD-06		SD-07		SD-08		SD-09		TEL	PEL
	AB63280		AB63281		AB63282		AB63283		(µg/Kg)	(µg/Kg)
COMPOUND	Concentration	RL	Concentration	RL	Concentration	RL	Concentration	RL		
Chloromethane	ND	2.0	ND	2.0	ND	2.0	ND	2.0	NL	NL
Vinyl Chloride	ND	2.0	ND	2.0	ND	2.0	ND	2.0	NL	NL
Bromomethane	ND	2.0	ND	2.0	ND	2.0	ND	2.0	NL	NL
Chloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Trichlorofluoromethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Ethyl Ether	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
2-Propanone (acetone)	17	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	2.0	ND	2.0	ND	2.0	ND	2.0	NL	NL
1,1-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Carbon Disulfide	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Dichlorodifluoromethane	ND	2.0	ND	2.0	ND	2.0	ND	2.0	NL	NL
Methylene Chloride	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Acrylonitrile	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Methyl-t-Butyl Ether	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Trans-1,2-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,1-dichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Vinyl Acetate	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
2-Butanone (MEK)	4.5	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
2,2-Dichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
cis-1,2-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Chloroform	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Bromochloromethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Tetrahydrofuran	ND	1.0	ND	1.0	ND	1.0	1.2	1.0	NL	NL
1,1,1-Trichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2-Dichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Carbon tetrachloride	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Benzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
c-1,3-dichloropropene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Toluene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
t-1,3-Dichloropropene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,1,2-Trichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Dibromochloromethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Chlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,1-Dichloropropene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Trichloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2-Dichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Bromodichloromethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Dibromomethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
4-Methyl-2-Pentanone(MIBK)	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,3-Dichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Tetrachloroethylene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2-Dibromoethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
2-Hexanone	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,1,1,2-Tetrachloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Ethylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
m/p Xylene	ND	2.0	ND	2.0	ND	2.0	ND	2.0	NL	NL
Ortho Xylene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Styrene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Bromoform	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,1,2,2-Tetrachloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Isopropylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Bromobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2,3-Trichloropropane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
N-Propylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
2-Chlorotoluene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
4-Chlorotoluene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Tert-Butylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,3,5-Trimethylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2,4-Trimethylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Sec-Butylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,3-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Para-Isopropyltoluene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,4-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
N-Butylbenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2-Dibromo-3-Chloropropane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2,4-Trichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Hexachlorobutadiene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
Naphthalene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
1,2,3-Trichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NL	NL
DILUTION FACTOR	1.0		1.0		1.0		1.0			
DATE SAMPLED	9/6/2016		9/6/2016		9/6/2016		9/6/2016			
DATE ANALYZED	9/8/2016		9/8/2016		9/8/2016		9/8/2016			
SAMPLE WEIGHT (GRAMS)	5.271		4.95		7.62		7.02			
% SOLID	64		83.0		98.0		98.0			

16090020,
16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
NOAA SquiRTs = National Oceanic and Atmospheric Administration Screening Quick Reference Tables
TEL = Threshold Effects Levels
PEL = Probable Effects Levels
ND = Not Detected
NL = Not Listed
Bold Result = Analyte detected.

ANALYTICAL RESULTS TABLE 3A
VOLATILE ORGANIC SOIL ANALYSIS (µg/Kg)
AQUEOUS QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0036		RO1-160906MB-0038		RO1-160906MB-0052	
	PB-01		PB-03		PB-05	
	AB63413		AB63286		AB63393	
COMPOUND	Concentration	RL	Concentration	RL	Concentration	RL
Chloromethane	ND	2.0	ND	2.0	ND	2.0
Vinyl Chloride	ND	2.0	ND	2.0	ND	2.0
Bromomethane	ND	2.0	ND	2.0	ND	2.0
Chloroethane	ND	1.0	ND	1.0	ND	1.0
Trichlorofluoromethane	ND	1.0	ND	1.0	ND	1.0
Ethyl Ether	ND	1.0	ND	1.0	ND	1.0
2-Propanone (acetone)	11 J	1.0	3.4	1.0	ND	1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	2.0	ND	2.0	ND	2.0
1,1-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0
Carbon Disulfide	ND	1.0	ND	1.0	ND	1.0
Dichlorodifluoromethane	ND	2.0	ND	2.0	ND	2.0
Methylene Chloride	ND	1.0	ND	1.0	ND	1.0
Acrylonitrile	ND	1.0	ND	1.0	ND	1.0
Methyl-t-Butyl Ether	ND	1.0	ND	1.0	ND	1.0
Trans-1,2-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0
1,1-dichloroethane	ND	1.0	ND	1.0	ND	1.0
Vinyl Acetate	ND	1.0	ND	1.0	ND	1.0
2-Butanone (MEK)	ND	1.0	ND	1.0	ND	1.0
2,2-Dichloropropane	ND	1.0	ND	1.0	ND	1.0
cis-1,2-Dichloroethylene	ND	1.0	ND	1.0	ND	1.0
Chloroform	ND	1.0	ND	1.0	ND	1.0
Bromochloromethane	ND	1.0	ND	1.0	ND	1.0
Tetrahydrofuran	ND	1.0	ND	1.0	ND	1.0
1,1,1-Trichloroethane	ND	1.0	ND	1.0	ND	1.0
1,2-Dichloroethane	ND	1.0	ND	1.0	ND	1.0
Carbon tetrachloride	ND	1.0	ND	1.0	ND	1.0
Benzene	ND	1.0	ND	1.0	ND	1.0
c-1,3-dichloropropene	ND	1.0	ND	1.0	ND	1.0
Toluene	ND	1.0	ND	1.0	ND	1.0
t-1,3-Dichloropropene	ND	1.0	ND	1.0	ND	1.0
1,1,2-Trichloroethane	ND	1.0	ND	1.0	ND	1.0
Dibromochloromethane	ND	1.0	ND	1.0	ND	1.0
Chlorobenzene	ND	1.0	ND	1.0	ND	1.0
1,1-Dichloropropene	ND	1.0	ND	1.0	ND	1.0
Trichloroethylene	ND	1.0	ND	1.0	ND	1.0
1,2-Dichloropropane	ND	1.0	ND	1.0	ND	1.0
Bromodichloromethane	ND	1.0	ND	1.0	ND	1.0
Dibromomethane	ND	1.0	ND	1.0	ND	1.0
4-Methyl-2-Pentanone(MIBK)	ND	1.0	ND	1.0	ND	1.0
1,3-Dichloropropane	ND	1.0	ND	1.0	ND	1.0
Tetrachloroethylene	ND	1.0	ND	1.0	ND	1.0
1,2-Dibromoethane	ND	1.0	ND	1.0	ND	1.0
2-Hexanone	ND	1.0	ND	1.0	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0	ND	1.0	ND	1.0
Ethylbenzene	ND	1.0	ND	1.0	ND	1.0
M/P Xylene	ND	2.0	ND	2.0	ND	2.0
Ortho Xylene	ND	1.0	ND	1.0	ND	1.0
Styrene	ND	1.0	ND	1.0	ND	1.0
Bromoform	ND	1.0	ND	1.0	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0	ND	1.0	ND	1.0
Isopropylbenzene	ND	1.0	ND	1.0	ND	1.0
Bromobenzene	ND	1.0	ND	1.0	ND	1.0
1,2,3-Trichloropropane	ND	1.0	ND	1.0	ND	1.0
N-Propylbenzene	ND	1.0	ND	1.0	ND	1.0
2-Chlorotoluene	ND	1.0	ND	1.0	ND	1.0
4-Chlorotoluene	ND	1.0	ND	1.0	ND	1.0
Tert-Butylbenzene	ND	1.0	ND	1.0	ND	1.0
1,3,5-Trimethylbenzene	ND	1.0	ND	1.0	ND	1.0
1,2,4-Trimethylbenzene	ND	1.0	ND	1.0	ND	1.0
Sec-Butylbenzene	ND	1.0	ND	1.0	ND	1.0
1,3-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0
Para-Isopropyltoluene	ND	1.0	ND	1.0	ND	1.0
1,4-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0
1,2-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0
N-Butylbenzene	ND	1.0	ND	1.0	ND	1.0
1,2-Dibromo-3-Chloropropane	ND	1.0	ND	1.0	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0	ND	1.0	ND	1.0
Hexachlorobutadiene	ND	1.0	ND	1.0	ND	1.0
Naphthalene	ND	1.0	ND	1.0	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0	ND	1.0	ND	1.0
DILUTION FACTOR	1.0		1.0		1.0	
DATE SAMPLED	9/7/2016		9/6/2016		9/8/2016	
DATE EXTRACTED	9/15/2016		9/9/2016		9/14/2016	
DATE ANALYZED	9/15/2016		9/9/2016		0.64	
VOLUME PREPARED (mLs)	5.0		5.0		5.0	

PROJECT: 16090010,
16090020, 16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected
Bold Result = Analyte detected.

ANALYTICAL RESULTS TABLE 3B
VOLATILE ORGANIC AQUEOUS ANALYSIS (µg/L)
AQUEOUS QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0032	RO1-160906MB-0033	RO1-160906MB-0034	RO1-160906MB-0035	RO1-160906MB-0051
	TB-01	TB-02	RB-01	RB-02	RB-03
	AB63411	AB63284	AB63412	AB63285	AB3392
COMPOUND	Concentration RL				
Chloromethane	ND 1.0				
Vinyl Chloride	ND 1.0				
Bromomethane	ND 1.0				
Chloroethane	ND 1.0				
Trichlorofluoromethane	ND 1.0				
Ethyl Ether	ND 1.0				
2-Propanone (acetone)	ND 1.0	1.4 1.0	ND 1.0	ND 1.0	ND 1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND 1.0				
1,1-Dichloroethylene	ND 1.0				
Carbon Disulfide	ND 1.0				
Dichlorodifluoromethane	ND 1.0				
Methylene Chloride	ND 1.0				
Acrylonitrile	ND 1.0				
Methyl-t-Butyl Ether	ND 1.0				
Trans-1,2-Dichloroethylene	ND 1.0				
1,1-dichloroethane	ND 1.0				
Vinyl Acetate	ND 1.0				
2-Butanone (MEK)	ND 1.0				
2,2-Dichloropropane	ND 1.0				
cis-1,2-Dichloroethylene	ND 1.0				
Chloroform	ND 1.0				
Bromochloromethane	ND 1.0				
Tetrahydrofuran	ND 1.0				
1,1,1-Trichloroethane	ND 1.0				
1,2-Dichloroethane	ND 1.0				
Carbon tetrachloride	ND 1.0				
Benzene	ND 1.0				
c-1,3-dichloropropene	ND 1.0				
Toluene	ND 1.0				
t-1,3-Dichloropropene	ND 1.0				
1,1,2-Trichloroethane	ND 1.0				
Dibromochloromethane	ND 1.0				
Chlorobenzene	ND 1.0				
1,1-Dichloropropene	ND 1.0				
Trichloroethylene	ND 1.0				
1,2-Dichloropropane	ND 1.0				
Bromodichloromethane	ND 1.0				
Dibromomethane	ND 1.0				
4-Methyl-2-Pentanone(MIBK)	ND 1.0				
1,3-Dichloropropane	ND 1.0				
Tetrachloroethylene	ND 1.0				
1,2-Dibromoethane	ND 1.0				
2-Hexanone	ND 1.0				
1,1,1,2-Tetrachloroethane	ND 1.0				
Ethylbenzene	ND 1.0				
m/p Xylene	ND 2.0				
Ortho Xylene	ND 1.0				
Styrene	ND 1.0				
Bromoform	ND 1.0				
1,1,2,2-Tetrachloroethane	ND 1.0				
Isopropylbenzene	ND 1.0				
Bromobenzene	ND 1.0				
1,2,3-Trichloropropane	ND 1.0				
n-Propylbenzene	ND 1.0				
2-Chlorotoluene	ND 1.0				
4-Chlorotoluene	ND 1.0				
Tert-Butylbenzene	ND 1.0				
1,3,5-Trimethylbenzene	ND 1.0				
1,2,4-Trimethylbenzene	ND 1.0				
Sec-Butylbenzene	ND 1.0				
1,3-Dichlorobenzene	ND 1.0				
Para-Isopropyltoluene	ND 1.0				
1,4-Dichlorobenzene	ND 1.0				
1,2-Dichlorobenzene	ND 1.0				
n-Butylbenzene	ND 1.0				
1,2-Dibromo-3-Chloropropane	ND 1.0				
1,2,4-Trichlorobenzene	ND 1.0				
Hexachlorobutadiene	ND 1.0				
Naphthalene	ND 1.0				
1,2,3-Trichlorobenzene	ND 1.0				
DILUTION FACTOR	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED	9/7/2016	9/6/2016	9/7/2016	9/6/2016	9/8/2016
DATE EXTRACTED	9/15/2016	9/13/2016	9/15/2016	9/13/2016	9/14/2016
DATE ANALYZED	9/15/2016	9/13/2016	9/15/2016	9/13/2016	9/14/2016
VOLUME PREPARED (mLs)	5	5.0	5.0	5.0	5.0

PROJECT: 16090010,
16090020, 16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected
Bold Result = Analyte detected.

ANALYTICAL RESULTS TABLE 3B
VOLATILE ORGANIC AQUEOUS ANALYSIS (µg/L)
AQUEOUS QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

SAMPLE NUMBER SAMPLE LOCATION LABORATORY NUMBER	RO1-160906MB-0037		RO1-160906MB-0039		RO1-160906MB-0053	
	PB-02		PB-04		PB-06	
	AB63414		AB63287		AB63394	
COMPOUND	Concentration	RL	Concentration	RL	Concentration	RL
Chloromethane	ND	50	ND	50	ND	50
Vinyl Chloride	ND	50	ND	50	ND	50
Bromomethane	ND	50	ND	50	ND	50
Chloroethane	ND	50	ND	50	ND	50
Trichlorofluoromethane	ND	50	ND	50	ND	50
Ethyl Ether	ND	50	ND	50	ND	50
2-Propanone (acetone)	ND	50	ND	50	ND	50
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	ND	50	ND	50
1,1-Dichloroethylene	ND	50	ND	50	ND	50
Carbon Disulfide	ND	50	ND	50	ND	50
Dichlorodifluoromethane	ND	50	ND	50	ND	50
Methylene Chloride	ND	50	ND	50	ND	50
Acrylonitrile	ND	50	ND	50	ND	50
Methyl-t-Butyl Ether	ND	50	ND	50	ND	50
Trans-1,2-Dichloroethylene	ND	50	ND	50	ND	50
1,1-dichloroethane	ND	50	ND	50	ND	50
Vinyl Acetate	ND	50	ND	50	ND	50
2-Butanone (MEK)	ND	50	ND	50	ND	50
2,2-Dichloropropane	ND	50	ND	50	ND	50
cis-1,2-Dichloroethylene	ND	50	ND	50	ND	50
Chloroform	ND	50	ND	50	ND	50
Bromochloromethane	ND	50	ND	50	ND	50
Tetrahydrofuran	ND	50	ND	50	ND	50
1,1,1-Trichloroethane	ND	50	ND	50	ND	50
1,2-Dichloroethane	ND	50	ND	50	ND	50
Carbon tetrachloride	ND	50	ND	50	ND	50
Benzene	ND	50	ND	50	ND	50
c-1,3-dichloropropene	ND	50	ND	50	ND	50
Toluene	ND	50	ND	50	ND	50
t-1,3-Dichloropropene	ND	50	ND	50	ND	50
1,1,2-Trichloroethane	ND	50	ND	50	ND	50
Dibromochloromethane	ND	50	ND	50	ND	50
Chlorobenzene	ND	50	ND	50	ND	50
1,1-Dichloropropene	ND	50	ND	50	ND	50
Trichloroethylene	ND	50	ND	50	ND	50
1,2-Dichloropropane	ND	50	ND	50	ND	50
Bromodichloromethane	ND	50	ND	50	ND	50
Dibromomethane	ND	50	ND	50	ND	50
4-Methyl-2-Pentanone(MIBK)	ND	50	ND	50	ND	50
1,3-Dichloropropane	ND	50	ND	50	ND	50
Tetrachloroethylene	ND	50	ND	50	ND	50
1,2-Dibromoethane	ND	50	ND	50	ND	50
2-Hexanone	ND	50	ND	50	ND	50
1,1,1,2-Tetrachloroethane	ND	50	ND	50	ND	50
Ethylbenzene	ND	50	ND	50	ND	50
M/P Xylene	ND	100	ND	100	ND	100
Ortho Xylene	ND	50	ND	50	ND	50
Styrene	ND	50	ND	50	ND	50
Bromoform	ND	50	ND	50	ND	50
1,1,2,2-Tetrachloroethane	ND	50	ND	50	ND	50
Isopropylbenzene	ND	50	ND	50	ND	50
Bromobenzene	ND	50	ND	50	ND	50
1,2,3-Trichloropropane	ND	50	ND	50	ND	50
N-Propylbenzene	ND	50	ND	50	ND	50
2-Chlorotoluene	ND	50	ND	50	ND	50
4-Chlorotoluene	ND	50	ND	50	ND	50
Tert-Butylbenzene	ND	50	ND	50	ND	50
1,3,5-Trimethylbenzene	ND	50	ND	50	ND	50
1,2,4-Trimethylbenzene	ND	50	ND	50	ND	50
Sec-Butylbenzene	ND	50	ND	50	ND	50
1,3-Dichlorobenzene	ND	50	ND	50	ND	50
Para-Isopropyltoluene	ND	50	ND	50	ND	50
1,4-Dichlorobenzene	ND	50	ND	50	ND	50
1,2-Dichlorobenzene	ND	50	ND	50	ND	50
N-Butylbenzene	ND	50	ND	50	ND	50
1,2-Dibromo-3-Chloropropane	ND	50	ND	50	ND	50
1,2,4-Trichlorobenzene	ND	50	ND	50	ND	50
Hexachlorobutadiene	ND	50	ND	50	ND	50
Naphthalene	ND	50	ND	50	ND	50
1,2,3-Trichlorobenzene	ND	50	ND	50	ND	50
DILUTION FACTOR	50.0		50.0		50.0	
DATE SAMPLED	9/7/2016		9/6/2016		9/8/2016	
DATE EXTRACTED	9/15/2016		9/13/2016		9/14/2016	
DATE ANALYZED	0.60		0.69		0.64	
VOLUME PREPARED (mLs)	5.0		5.0		5.0	

PROJECT: 16090010,
16090020, 16090021
LABORATORY: OEME

NOTES:
Results are reported in micrograms per Kilogram (µg/Kg).
RL = Reporting Limit.
ND = Not Detected
Bold Result = Analyte detected.

ATTACHMENT F
MILLVILLE TCE
ANALYTICAL SUMMARY TABLES
Samples Collected from 6 to 8 September 2016

Table 1	Soil/Source Sample Analytical Summary
Table 2	Sediment Sample Analytical Summary

TABLE 1

Soil/Source Sample Analytical Summary

Sample Location	Compound	Sample Concentration	Background Concentration	Comments	MCP Method 1 S-1/GW-1
SS-02	2-Propanone (acetone)	57 µg/Kg	15 µg/Kg	3.80 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	3.2 µg/Kg	1.1 ND µg/Kg	2.91 x RL	4,000 µg/Kg
SS-03	2-Butanone (MEK)	1.7 µg/Kg	1.1 ND µg/Kg	1.55 x RL	6,000 µg/Kg
	Tetrahydrofuran	2.4	1.1 ND µg/Kg	2.18 x RL	NL ---
SS-04	2-Propanone (acetone)	57 µg/Kg	15 µg/Kg	3.80 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	4.6 µg/Kg	1.1 ND µg/Kg	4.18 x RL	4,000 µg/Kg
	Tetrahydrofuran	1 µg/Kg	1.1 ND µg/Kg	1.27 x RL	NL ---
SS-06	2-Propanone (acetone)	58 µg/Kg	15 µg/Kg	3.87 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	3.7 µg/Kg	1.1 ND µg/Kg	3.36 x RL	4,000 µg/Kg
	Tetrahydrofuran	2.4 µg/Kg	1.1 ND µg/Kg	2.18 x RL	NL ---
SS-07	2-Propanone (acetone)	170 µg/Kg	15 µg/Kg	11.33 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	9.1 µg/Kg	1.1 ND µg/Kg	8.27 x RL	4,000 µg/Kg
	Tetrahydrofuran	4.1 µg/Kg	1.1 ND µg/Kg	3.73 x RL	NL ---
	Para-Isopropyltoluene	2.6 µg/Kg	1.1 ND µg/Kg	2.36 x RL	NL ---
SS-08	2-Propanone (acetone)	65 µg/Kg	15 µg/Kg	4.33 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	3.2 µg/Kg	1.1 ND µg/Kg	2.91 x RL	4,000 µg/Kg
	Tetrahydrofuran	2.8 µg/Kg	1.1 ND µg/Kg	2.55 x RL	NL ---
SS-09	2-Butanone (MEK)	2.9 µg/Kg	1.1 ND µg/Kg	2.64 x RL	4,000 µg/Kg
	Tetrahydrofuran	2.8 µg/Kg	1.1 ND µg/Kg	2.55 x RL	NL µg/Kg
SS-10	2-Propanone (acetone)	140 µg/Kg	15 µg/Kg	9.33 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	9.2 µg/Kg	1.1 ND µg/Kg	8.36 x RL	4,000 µg/Kg
	Tetrahydrofuran	7.9 µg/Kg	1.1 ND µg/Kg	7.18 x RL	NL ---
SS-11	2-Propanone (acetone)	84 µg/Kg	15 µg/Kg	5.60 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	34 µg/Kg	1.1 ND µg/Kg	30.91 x RL	4,000 µg/Kg
	2-Hexanone	98 µg/Kg	1.1 ND µg/Kg	89.09 x RL	NL ---
SS-12	2-Propanone (acetone)	150 µg/Kg	15 µg/Kg	10.00 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	13 µg/Kg	1.1 ND µg/Kg	11.82 x RL	4,000 µg/Kg
SS-13	2-Propanone (acetone)	170 µg/Kg	15 µg/Kg	11.33 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	7.8 µg/Kg	1.1 ND µg/Kg	7.09 x RL	4,000 µg/Kg
	Tetrahydrofuran	2.2 µg/Kg	1.1 ND µg/Kg	2.00 x RL	NL ---
	Toluene	1.8 µg/Kg	1.1 ND µg/Kg	1.64 x RL	30,000 µg/Kg

TABLE 1

Soil/Source Sample Analytical Summary

Sample Location	Compound	Sample Concentration	Background Concentration	Comments	MCP Method 1 S-1/GW-1
SS-15	2-Propanone (acetone)	100 µg/Kg	15 µg/Kg	6.67 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	6.2 µg/Kg	1.1 ND µg/Kg	5.64 x RL	4,000 µg/Kg
SS-16	2-Propanone (acetone)	73 µg/Kg	15 µg/Kg	4.87 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	4.4 µg/Kg	1.1 ND µg/Kg	4.00 x RL	4,000 µg/Kg
SS-18	2-Butanone (MEK)	2.7 µg/Kg	1.1 ND µg/Kg	2.45 x RL	4,000 µg/Kg
	Para-Isopropyltoluene	3.3 µg/Kg	1.1 ND µg/Kg	3.00 x RL	NL ---
	Tetrahydrofuran	3.0 µg/Kg	1.1 ND µg/Kg	2.73 x RL	NL µg/Kg
SS-19	2-Propanone (acetone)	110 µg/Kg	15 µg/Kg	7.33 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	17 µg/Kg	1.1 ND µg/Kg	15.45 x RL	4,000 µg/Kg
	Tetrahydrofuran	1 µg/Kg	1.1 ND µg/Kg	1.09 x RL	NL µg/Kg
	Trichloroethylene	3.7 µg/Kg	1.1 ND µg/Kg	3.36 x RL	300 µg/Kg
	Tetrachloroethylene	69 µg/Kg	1.1 ND µg/Kg	62.73 x RL	1,000 µg/Kg
	2-Hexanone	1.6 µg/Kg	1.1 ND µg/Kg	1.45 x RL	NL µg/Kg
SS-23	2-Propanone (acetone)	100 µg/Kg	15 µg/Kg	6.67 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	6.8 µg/Kg	1.1 ND µg/Kg	6.18 x RL	4,000 µg/Kg
	Tetrahydrofuran	3 µg/Kg	1.1 ND µg/Kg	3.00 x RL	NL µg/Kg
SS-24	2-Propanone (acetone)	50 µg/Kg	15 µg/Kg	3.33 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	3.1 µg/Kg	1.1 ND µg/Kg	2.82 x RL	4,000 µg/Kg
SS-25	2-Propanone (acetone)	200 µg/Kg	15 µg/Kg	13.33 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	33 µg/Kg	1.1 ND µg/Kg	30.00 x RL	4,000 µg/Kg
	4-Methyl-2-Pentanone (MIBK)	2 µg/Kg	1.1 ND µg/Kg	1.45 x RL	400 µg/Kg
	2-Hexanone	4.8 µg/Kg	1.1 ND µg/Kg	4.36 x RL	NL µg/Kg
SS-26	2-Propanone (acetone)	64 µg/Kg	15 µg/Kg	4.27 x Bac.	6,000 µg/Kg
	2-Butanone (MEK)	3.5 µg/Kg	1.1 ND µg/Kg	3.18 x RL	4,000 µg/Kg

NOTES:

- 1) Samples analyzed by U.S. Environmental Protection Agency, Office of Environmental Measurement and Evaluation (OEME).
- 2) Results reported in micrograms per kilogram (µg/Kg).
- 3) Bac. = Background Concentration.
- 4) ND = Not Detected above Reporting Limit (RL).
- 5) NL = Not Listed.
- 6) Bolded and shaded values exceed MCP Method 1 S-1/GW-1 Soil Standards.

TABLE 2**Sediment Sample Analytical Summary**

Sample Location	Compound	Sample Concentration		Background Concentration			Comments			NOAA SquiRTs	
										TEL	PEL
SD-05	2-Butanone (MEK)	4.6	µg/Kg	1	ND	µg/Kg	4.60	x	RL	NL	NL
SD-06	2-Propanone (acetone)	17	µg/Kg	1	ND	µg/Kg	17.00	x	RL	NL	NL
	2-Butanone (MEK)	4.5	µg/Kg	1	ND	µg/Kg	4.50	x	RL	NL	NL
SD-09	Tetrahydrofuran	1.2	µg/Kg	1	ND	µg/Kg	1.20	x	RL	NL	NL

NOTES:

- 1) Samples analyzed by U.S. Environmental Protection Agency, Office of Environmental Measurement and Evaluation (OEME).
- 2) Results reported in micrograms per kilogram (µg/Kg).
- 3) ND = Not Detected above Reporting Limit (RL).
- 4) NL = Not Listed.
- 5) NOAA SquiRTs = National Oceanic and Atmospheric Administration Screening Quick Reference Tables.
- 6) TEL = Threshold Effects Levels.
- 7) PEL = Probable Effects Levels.