



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE – SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

MEMORANDUM

DATE: December 5, 2023

SUBJ: Request for a Removal Action at the Kempton Road Site
Millville, Worcester County, MA - **Action Memorandum**

FROM: Nico Blomerth, On-Scene Coordinator
Emergency Response and Removal Section I

THRU: Michael Cofsky, Acting Chief
Emergency Response and Removal Section I

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Emergency Planning and Response Branch

TO: Bryan Olson, Director
Superfund and Emergency Management Division

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action at the Kempton Road Site (the Site), which is located at 119 and 123 Kempton Road in Millville, Worcester County, Massachusetts. Hazardous substances present in the soil and groundwater at the Site, including trichloroethylene (TCE) and tetrachloroethylene (also known as perchloroethylene or PCE), if not addressed by implementing the response actions selected in this Action Memorandum, will continue to pose a threat to human health and the environment. There are no nationally significant or precedent-setting issues associated with this Site, and there has been no use of the On-Scene Coordinator's (OSC's) \$200,000 warrant authority.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID#: MAD985297563
SITE ID#: 01L3
CATEGORY: Time-Critical

A. Site Description

1. Removal site evaluation

In July 1991, the Massachusetts Department of Environmental Protection (MassDEP) discovered chlorinated volatile organic compound (CVOC) contamination in residential well water after testing wells for several new homes in the area. Investigations found the source of contamination to be illegal dumping at the Site from the 1970s. (A summary of previous state and EPA investigations and actions from 1991 to 2018 is presented below in Section B: Other Actions to Date.)

EPA's most recent preliminary assessment and site investigation was conducted in 2020. Soil gas, subsurface soil, groundwater, surface water, vault, product, and dense nonaqueous phase liquids (DNAPL) data collected during this investigation indicate that CVOC contamination is present in the soil, overburden and bedrock groundwater aquifers, and surface water at the Site and surrounding area. In addition, documented bedrock fractures, contamination in the bedrock monitoring wells, and CVOC contamination in drinking water wells west and south of the Site indicate that there is ongoing migration of CVOCs from the Spill Area that is continuing to impact groundwater. Based on the sampling results, a time-critical removal action was recommended in the Site Investigation Closure Memorandum signed February 3, 2023.

MassDEP updated its request for assistance on May 9, 2023. MassDEP reported that groundwater contamination has migrated beyond the public water line extensions, substantial residential development is unable to be supported by the current waterline, and the Spill Area soil cap has been compromised by age and overgrowth, thus presenting an exposure pathway. MassDEP requested EPA to remove the remaining contaminant soil mass from the Site.

2. Physical location

Located in Millville, Worcester County, Massachusetts, the Kempton Road Site, includes two properties located at 119 and 123 Kempton Road, identified by the Town of Millville's Assessor as Blocks 10 and 11 on Tax Map 112 and by a deed recorded in the Worcester Registry of Deeds in Book 12648 on Page 393.¹ (For previous removals, the Site included not only these Source Properties, but downgradient areas where the contamination migrated.) Investigations have identified a portion of the Site, the Spill Area, where the illegal dumping occurred, and which continues to be the source of existing contamination. The geographical coordinates for the Spill Area are 42°02'5094" north latitude and -71°35'24.3" west longitude

3. Site characteristics

The undeveloped, privately-owned 6.8-acre Site is in a rural residential area of Millville and near the apex of a hill on the north side of the Blackstone River Valley, at an elevation of approximately 250 feet above the valley floor. The Site's terrain slopes gradually to the south and west toward the valley but steepens with greater distance. Bedrock is approximately four-feet deep in the vicinity of the Spill Area but slopes downward to depths of twenty feet to the west of the Spill Area.

While there is no apparent permanent surface water on the Site, low areas east and west often contain ephemeral standing water or a flowing spring of water, especially in the Spring or after periods of high precipitation. The spring water to the west flows southerly along the Millville-Uxbridge town line adjacent to the backyards of the homes along Conestoga Drive. The overburden groundwater flow is west in the immediate Spill Area toward the spring water but is southerly in general toward the Blackstone River basin. The overburden aquifer also flows down into the bedrock aquifer which flows toward the Blackstone River basin.

Private residences are located to the north across Kempton Road, to the east, and to the west and southwest along Conestoga Drive, Uxbridge, MA. At the time of the spill, estimated to be in the 1970s, the area was undeveloped woodland, and Kempton Road dead-ended at the Millville-Uxbridge town line adjacent to the Site. Sometime after May 1988, Kempton Road was extended westward to meet the newly constructed Conestoga Drive (in Uxbridge) and was further extended in 1992 to intersect East Street in Uxbridge. Residences adjacent to or close to the Site located on Kempton Road (Millville) and Conestoga Drive (Uxbridge) were constructed between 1982 and 1995.

¹ Historical site references cite 117 Kempton Road. The postal addresses of 119 and 123 Kempton Road reflect the current designations as provided by the Town of Millville's Assessor. All other legal references remain the same.

The Spill Area is enclosed by a chain-link fence with locked gates to the north along Kempton Road and to the south. Currently, the daytime population within one mile of the Site is 411, and the nighttime population within one mile is 1,553.

According to the EPA Region I ArcGIS mapping tool, within one mile of the Site there are two surface water streams. The nearest surface water body is Still Corner Brook, located approximately 2,000 feet north. Within half a mile is the Alvin W. Irons Memorial Park and Wildlife Sanctuary. The Site is not considered to be in a floodplain.

Based on information in EPA's EJSCREEN environmental justice screening tool, 0 out of 12 Environmental Justice Indexes for the area within a one-mile radius of the site exceed the 80th percentile on a national basis.

Based on information in EPA's Climate Mapping tool for Resilience and Adaptation, for the area within U.S. Census tract 25027748100 in Worcester County, Massachusetts, the National Risk Index Rating for extreme heat and wildfire risk is "very low" and the National Risk Index Rating for flooding is "relatively low" when compared to all other U.S. Census tracts.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

In 2020, EPA conducted a preliminary assessment and site investigation with a groundwater sampling survey. January, June, and September 2020 analytical data obtained from groundwater, surface water, vault², product, and DNAPL samples, detected a total of 17 CVOCs (See Tables 1-4 below). Two CVOCs (TCE and PCE) were detected at concentrations greater than the MassDEP Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 standards, at maximum concentrations of 18,000 micrograms per Liter (µg/L) and 33,000 µg/L, respectively. Four Volatile Organic Compounds (VOCs) were detected in surface water samples, and five CVOCs were detected in the vault samples. Soil gas, subsurface soil, groundwater, surface water, vault, product, and DNAPL data collected during this investigation indicate that CVOC contamination is present in the soil, overburden and bedrock groundwater aquifers, and surface water at the Site and surrounding area. In addition, documented bedrock fractures, contamination in the bedrock monitoring wells, and CVOC contamination in drinking water wells west and south of the Properties indicate that there is ongoing migration of CVOCs from the Spill Area that is continuing to impact groundwater. TCE and PCE are hazardous substances as defined by Section 101(14) of CERCLA, 42 U.S.C. 9601(14).

² When MassDEP installed the groundwater recovery and treatment system, a few concrete subterranean vaults were built. These contained groundwater which EPA sampled.

**Table 1: Summary of Groundwater, Vault, and Surface Water Sampling Results
January 2020**

SAMPLE LOCATION: SAMPLE NUMBER: LAB SAMPLE ID:		MW-102 0239-0104 AB85307	V-04 0239-116 AB85319
VOLATILE ORGANIC COMPOUNDS (VOCs) in µg/L			
COMPOUND	MCP GW7/- 3		
Trichloroethylene	5,000	8,100	5,200
1,1-Dichloroethane	20,000	ND	540.0
cis-1,2-Dichloroethylene	50,000	4,900	13,000
1,1,1-Trichloroethane	20,000	2,300	2,600
Tetrachloroethylene	30,000	16,000	6,100

Results shaded in red exceeded the Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard.

Source document: Removal Program Preliminary Assessment/ Site Investigation Report for the Kempton Road Site Millville, Worcester County, Massachusetts 14 through 16 January 2020, 15 through 16 June 2020, and 1 through 2 September 2020 (Table 1, Appendix B)

**Table 2: Summary of Groundwater, Vault, and Surface Water Sampling Results
January 2020**

SAMPLE LOCATION: SAMPLE NUMBER: LAB SAMPLE ID:		MW-101P 0239-121 AB85324	MW-102P 0239-122 AB85325	MW-102L 0239-124 AB85327
VOLATILE ORGANIC COMPOUNDS (VOCs) in µg/L				
COMPOUND	MCP GW-3			
Trichloroethylene	5,000	5,300	18,000	10,000
1,1-Dichloroethane	20,000	ND	1,000.0	ND
cis-1,2-Dichloroethylene	50,000	4,400	4,700	7,000
1,1,1-Trichloroethane	20,000	1,200	5,200	2,200
Tetrachloroethylene	30,000	31,000	23,000	16,000

Results shaded in red exceeded the Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard.

Source document: Removal Program Preliminary Assessment/ Site Investigation Report for the Kempton Road Site Millville, Worcester County, Massachusetts 14 through 16 January 2020, 15 through 16 June 2020, and 1 through 2 September 2020 (Table 2, Appendix B)

Table 3: Summary of Groundwater and Surface Water Sampling Results June 2020

SAMPLE LOCATION: SAMPLE NUMBER: LAB SAMPLE ID:		MW-102 0239-0139 AB86415
VOLATILE ORGANIC COMPOUNDS (VOCs) in µg/L		
COMPOUND	MCP GW-3	
1,1-Dichloroethane	20,000	ND
cis-1,2-Dichloroethylene	50,000	4,800
1,1,1-Trichloroethane	20,000	1,200
Trichloroethylene	5,000	5,200
Tetrachloroethylene	30,000	8,600

Results shaded in red exceeded the Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard.
Source document: Removal Program Preliminary Assessment/ Site Investigation Report for the Kempton Road Site
Millville, Worcester County, Massachusetts 14 through 16 January 2020, 15 through 16 June 2020, and 1 through 2
September 2020 (Table 3, Appendix B)

**Table 4:
Summary of Groundwater Sampling Results September 2020**

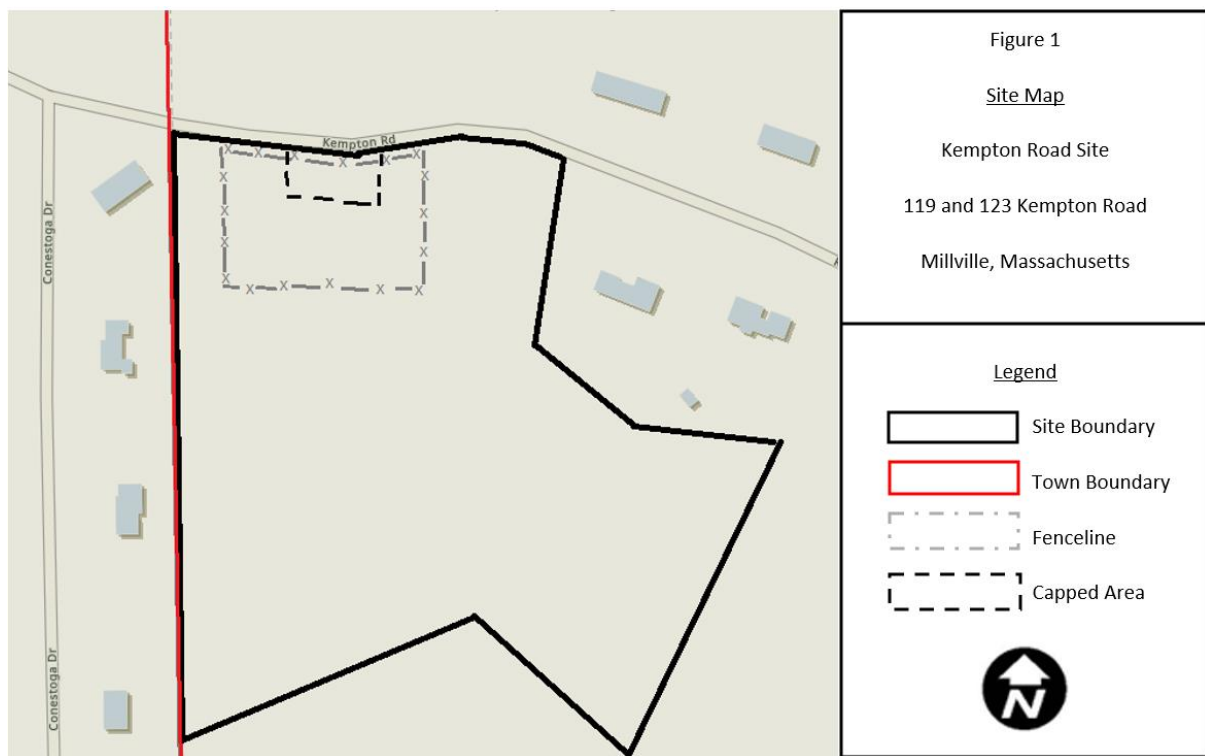
SAMPLE LOCATION: SAMPLE NUMBER: LAB SAMPLE ID:		MW-101 S50023M A-0008 AB87738	MW-101D S50023M A-0009 AB87739	MW-102M S50023M A-0011 AB87741	MW-102D S50023M A-0012 AB87742
VOLATILE ORGANIC COMPOUNDS (VOCs) in µg/L					
COMPOUND	MCP GW-3				
1,1-Dichloroethane	20,000	ND	ND	ND	ND
cis-1,2-Dichloroethylene	50,000	14,000	15,000	3,500	4,000
1,1,1-Trichloroethane	20,000	1,500	1,400	1,300	2,900
Trichloroethylene	5,000	7,400	8,900	5,000	7,500
Tetrachloroethylene	30,000	21,000	33,000	9,800	19,000

Results shaded in red exceeded the Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard.
Source document: Removal Program Preliminary Assessment/ Site Investigation Report for the Kempton Road Site
Millville, Worcester County, Massachusetts 14 through 16 January 2020, 15 through 16 June 2020, and 1 through 2
September 2020 (Table 4, Appendix B)

5. NPL status

The Site is not currently on the National Priorities List and has not received a Hazardous Ranking System rating.

6. Maps, pictures and other graphic representations



B. Other Actions to Date

1. Previous actions

In July 1991, MassDEP discovered over 20 chemicals in residential well water after testing drinking water wells for several new homes in the area. Investigations identified a portion of the Site, the Spill Area, where illegal dumping occurred. Specifically, PCE had been released onto the ground surface and had migrated through the groundwater into nearby private drinking water wells in the area. MassDEP's contractor in 1991 began three rounds of investigations at the Kempton Road Site, including the equivalent of an Initial Site Investigation (Phase IA), a Phase IB, and the initial stage of a Phase II.

During the 1990s, MassDEP removed a significant mass of PCE, using vapor extraction, air sparging, and groundwater extraction and erected a fence around the Spill Area.

On October 18, 1991, an Action Memorandum was signed authorizing an EPA removal action to provide individual water supply systems as a temporary measure and an extension of a town water line to homes on Kempton Road to replace TCE or PCE-impacted private drinking water wells.

In the summer of 1992, MassDEP installed an impervious cover of 6 mil-HDPE plastic liner with a two-foot soil cover over the area identified with the highest CVOC levels in soil and groundwater in the Spill Area near the intersection of Kempton Road and the Millville-Uxbridge town line in Millville.

In 1998, the state of Massachusetts issued a Notice of Intent under the Massachusetts Wetlands Protection Act for the installation of a groundwater treatment system to collect contaminated groundwater, treat on site, and discharge of this groundwater into a nearby catch basin. From 2000 to 2006, MassDEP operated the groundwater recovery and treatment system. By the end of 2005, 131,750 gallons of groundwater were treated.

Geophysical surveys conducted from 2001 to 2003 by EPA and the U.S. Geological Survey delineated the subsurface features which guided soil boring investigations.

From 2002 to 2005, MassDEP operated a soil vapor extraction system to remove PCE from overburden soil. In total, 1600 pounds or 120 gallons of PCE were recovered during this action.

It was determined in 2006 that the plume had spread 18 feet, prompting the extension of prohibiting blasting to remove bedrock ledges.

In 2007, EPA conducted a second removal action which extended the municipal waterline to affected homes on Conestoga Drive in Uxbridge.

MassDEP sampling of monitoring wells proximate to the source area in November 2017 found concentrations of TCE up to 13,000 parts per billion (ppb); PCE up to 16,000 ppb; and 1,1,1-TCA up to 2,500 ppb. In 2018, MassDEP installed three “Point-Of-Entry Treatment” systems in residential homes.

On May 9, 2018, MassDEP again referred the Site to the EPA. In response, EPA conducted a preliminary assessment and site investigation from August 6 to 10, 2018 which included two ambient air samples; 40 soil gas samples from two to three feet; five groundwater and six soil samples. High concentrations of chlorinated volatile organic compounds in soil and groundwater near residential homes were identified.

EPA also conducted a vapor intrusion study in six nearby homes in April 2019 which included indoor air sampling, ambient air sampling, sub-slab soil vapor port installation, and sub-slab soil gas sampling activities to determine if residents were at risk for exposure to Site contaminants through vapor intrusion. Results found that there was no unacceptable risk from vapor intrusion exposure pathway at the sampled locations.

A Site Investigation Closure Memorandum dated May 13, 2019, documented the decision that a removal action was not appropriate at that time because the hazardous substances present in soils on the Site are secured via fencing and capping, and there is no indication of a complete vapor intrusion pathway into nearby residential homes.

In March 2020, EPA attended a Town Meeting with representative from Senator McGovern’s office and MassDEP to discuss the wider area contamination of private drinking water wells and present EPA’s findings.

MassDEP, citing demonstrated groundwater contamination has migrated beyond the public water line extensions, substantial residential development is unable to be supported by the current waterline, and the Spill Area soil cap has been compromised by age and overgrowth, thus presenting an exposure pathway, asked EPA to remove the Site’s remaining contaminant soil mass.

EPA conducted a preliminary assessment and site investigation in 2020 to investigate the changed site conditions. A Site Investigation Closure Memorandum signed on February 3, 2023, based on the data presented above in Section A.4, documented that a time-critical removal action is warranted.

2. Current actions

There are no current EPA activities.

MassDEP continues to monitor water quality in private drinking water wells. Because PCE and TCE continue to be detected at levels that may present a health threat, a local moratorium on new drinking water wells (including restrictions on property development that would rely on private groundwater) has been instituted in the area to limit exposure to CVOC contamination. As decreed by the Millville Board of Health and Well Regulations. “There shall be a moratorium on new wells and blasting within a 5,280-foot radius and for an indefinite period of time, from the junction of Kempton Road and the Uxbridge town line. Blasting performed as part of the process of providing Town water to affected homes within the 5,280-foot radius will be exempt from this moratorium.”

C. State and Local Authorities’ Roles

1. State and local actions to date

An account of state and local actions is discussed above in Section II.B.1 and 2.

Most recently on May 9, 2023, MassDEP, formally requested that EPA consider removing the Site’s source of contamination, thereby reducing contamination flow to the area’s groundwater and subsequently to the drinking water.

2. Potential for continued State/local response

MassDEP and the Town of Millville both lack the resources to undertake the removal action proposed in this Action Memorandum.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Tetrachloroethylene (PCE) – PCE is a hazardous substance as defined by Section 101(14) of CERCLA, 42 U.S.C. 9601(14). The Agency for Toxic Substances and Disease Registry (ATSDR) “Tetrachloroethylene – ToxFAQs” information sheet states: “Breathing high levels of tetrachloroethylene for a brief period may cause dizziness or drowsiness, headache, and incoordination; higher levels may cause unconsciousness and even death. Exposure for longer periods to low levels of tetrachloroethylene may cause changes in mood, memory, attention, reaction time, and vision. Studies in animals exposed to tetrachloroethylene have shown liver and kidney effects, and changes in brain chemistry.”

According to the Toxicological Profile for Tetrachloroethylene published by the U.S. Department of Health and Human Services (HHS) and ATSDR, “Tetrachloroethylene is reasonably anticipated to be a human carcinogen” and “EPA considers tetrachloroethylene likely to be carcinogenic to humans by all routes of exposure. Studies in humans suggest that exposure to tetrachloroethylene might lead to a higher risk of getting bladder cancer, multiple myeloma, or non-Hodgkin’s lymphoma”. HHS considers tetrachloroethylene to be reasonably anticipated to be a human carcinogen. EPA considers tetrachloroethylene likely to be carcinogenic to humans by all routes of exposure. The International Agency for Research on Cancer considers tetrachloroethylene as “probably carcinogenic to humans.”

Trichloroethylene (TCE) – TCE is a hazardous substance as defined by Section 101(14) of CERCLA, 42 U.S.C. 9601(14). ATSDR “Tetrachloroethylene – ToxFAQs” information sheet states:

“The Department of Human Health Services (HHS) has classified trichloroethylene as “known to be a human carcinogen” based on sufficient evidence of carcinogenicity from humans. Similarly, the International Agency for Research on Cancer (IARC) has classified it as “carcinogenic to humans” and EPA has characterized it as “carcinogenic in humans by all routes of exposure.” These agencies concluded that there were sufficient evidence from human studies that trichloroethylene exposure can cause kidney cancer in humans. There is also some evidence of an association between trichloroethylene exposure and non-Hodgkin’s lymphoma in humans.”³

³ATSDR, 2019. Toxicological Profile for Trichloroethylene. ATSDR Division of Toxicology and Human Health Sciences, Atlanta, GA, June 2019

Conditions at the Site meet the general criteria for a removal action, as set forth in 40 C.F.R. §300.415(b)(1) in that “there is a threat to public health or welfare of the United States or the environment,” and in consideration of the factors set forth in 40 C.F.R. §300.415(b)(2) as described below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants; [§300.415(b)(2)(i)];

The contaminants of potential concern at the Site include PCE and TCE. PCE soil gas monitoring indicates that PCE is still present in the Spill Area at elevated levels. Monitoring well concentrations of PCE and TCE exceed the MCP GW-3 Standard and EPA’s Residential Tap Water RMLs Hazard Quotient (HQ) = 3 and Excess Lifetime Cancer Risk (ELCR) = 10^{-4} . Spring water containing PCE is located adjacent to residential back yards where children play. Access to these springs is not restricted.

Actual or potential contamination of drinking water supplies or sensitive ecosystems [§300.415(b)(2)(ii)];

There are private drinking water wells located in Millville and Uxbridge, MA, both southwest and southeast of the Site. MassDEP has reported that PCE has been detected in drinking water wells south of the Site. Remaining contaminated soil mass in the Spill Area remains acts as a potential continuing source of CVOC contamination to groundwater. Groundwater continues to migrate and impact private wells greater than 4,000 feet from the release.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];

Elevated levels of PCE exist in the Spill Area. Access to the Spill Area is restricted by a chain-link fence. However, the soil cap has been compromised. In addition, the PCE contamination is migrating from the Site through overburden aquifer and in two springs located adjacent to the backyards of residential properties where kids play.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)];

Soil gas, subsurface soil, groundwater, surface water, vault, product, and DNAPL data indicate that CVOC contamination is present in the soil that extends from the ground surface to the regional groundwater table, groundwater, and surface water at the Site. Precipitation infiltrates the capped area which is compromised causing additional migration of PCE and other CVOCs into the overburden and bedrock aquifers.

The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)];

Neither MassDEP nor the town have the resources to undertake the proposed removal action at the Site. No other federal or state mechanism exists to respond to the release. Due to the lack of available resources, MassDEP formally requested EPA assistance with the investigation and potential removal activities in a formal request form on May 9, 2023.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances or pollutants or contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment. In accordance with OSWER Directive 9360.0-34 (August 19, 1993), an endangerment determination is made based on "appropriate Superfund policy or guidance, or on collaboration with a trained risk assessor," which is outlined and discussed in Section III above. "Appropriate sources include, but are not limited to, relevant action level or clean-up standards, Agency for Toxic Substances and Disease Registry documents or personnel, or staff toxicologists."

In this case, the endangerment determination was made by relying on the Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard to evaluate the contamination of CVOCs in groundwater. These standards are set at 5,000 µg/L for TCE and 30,000 µg/L for PCE. Sampling data in the 2020 Preliminary Assessment/ Site Investigation Report exceed these levels. In addition, previous soil sampling data from 2018 show exceedances above current EPA Removal Management Levels (RMLs) for a non-cancer child hazard index of 3 for PCE. These EPA RMLs for PCE are 12 mg/kg. The highest concentrations of PCE in soil were found within the capped area (1,200 mg/kg, from 4 feet to 5.7 ft).

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The actions required to mitigate the threats outlined herein are given below. The proposed actions will protect public health, welfare, and the environment by removing the hazardous substances from the source area of the Site. As outlined below, the proposed action will involve the excavation of impacted soil, and transportation and disposal of contaminated materials at an EPA approved off-site facility. It is expected that the specific removal activities will include the following:

- Conducting a Site walk with EPA's cleanup contractor;
- Developing and implementing a work plan and a health and safety plan;
- Preparing and implementing an air monitoring plan to protect workers and the public;
- Using engineering controls to manage dust based on air monitoring and controlling storm water run-off;
- Installing security fencing and/or security as determined necessary by the OSC based on Site conditions;
- Delineating work zones and decontamination area;
- Clearing vegetation along with, if required, general solid waste and debris to access hazardous wastes and hazardous substances;
- Mitigating the PCE/TCE-contamination source via excavation of impacted soil and dewatering as necessary and/or in-situ treatment technologies;
- Disposing hazardous wastes and hazardous substances at an EPA-approved disposal facility;
- Assessing, characterizing, and addressing any additional hazardous wastes and hazardous substances discovered that meet this action's removal criteria, as funding permits;
- Repairing response-related damage; and
- Demobilizing all equipment and personnel.

2. Community relations

EPA will remain involved with the local community over the course of the removal action through press releases, fact sheets, and public meetings, as necessary. The OSC will receive assistance from the EPA Community Involvement Coordinator to assist with all public relations activities. EPA will work closely with the state, town, government, local businesses, and the community.

3. Contribution to remedial performance

The cleanup proposed in this Action Memorandum is designed to mitigate the threats to human health and the environment posed by the Site. The actions taken at the Site would be consistent with and will not impede any future responses.

4. Description of innovative technologies and sustainable approaches

In accordance with the December 23, 2013, Memorandum, updated August 2, 2016, issued by Office of Land and Emergency Management as well as the Region 1 Clean and Greener Policy for Contaminated Sites, greener cleanup practices should be considered for all cleanup projects. Greener cleanup is the practice of incorporating practices that minimize the environmental impacts of cleanup actions and maximize environmental and human benefit. Alternative technologies and sustainable approaches will be considered and incorporated, as appropriate, throughout the implementation of the removal action. Specifically, these include:

- Completing a high-resolution site characterization strategy, which uses high density data sets to define the extent of contamination and minimize excavations;
- Using real-time field measurements to adjust cleanup activities and minimize excavation of uncontaminated soil;
- Reclaiming and stockpiling uncontaminated soil for use as fill or using onsite or nearby sources of topsoil to avoid long-distance transport of clean soil. Options may include salvaging organic debris that is uncontaminated and free of pests or disease, for use as supplemental infill, mulch or compost, or onsite manufacturing of topsoil through use of locally sourced industrial byproducts, such as compost, loam, or concrete;
- Choosing service providers with local offices to minimize the distance of worker commutes and machinery transport;
- Selecting equipment and product vendors with nearby production or distribution centers to minimize delivery-related fuel use;

- Retrieving native, noninvasive plants for later re-planting;
- Implementing an engine idle reduction plan to avoid fuel consumption when machinery is not actively engaged;
- Designating collection points for recycling single-use items such as metal, plastic, and glass containers; paper and cardboard; and other consumable items;
- Avoiding removing trees in staging areas or uncontaminated zones; and
- Revegetating backfilled areas as quickly as possible through use of a diverse mix of grasses, shrubs, and trees supporting many habitat types such as:
 - species that promote colonization of bees and other pollinators;
 - native plantings rather than non-native species, which typically increases the rate of plant survival and minimizes the need for irrigation and soil or plant inputs; and
 - grass species requiring little or no mowing.

Lastly, contractors will meet or exceed green remediation-related contracting requirements under the regional Emergency Removal Response Services contract (EP-S1-16-01) which will be documented in the reports of work, including the monthly progress report and annual reporting.

5. Applicable or relevant and appropriate requirements (ARARs)

Clean Water Act, National Pollutant Discharge Elimination System (NPDES), 40 C.F.R. Parts 122 – 125; 122.26: Establishes the specifications for discharging pollutants from any point source into the waters of the U.S. Also, includes storm water standards for construction sites over one acre. Removal activities will be managed to prevent stormwater discharge from the Site.

Clean Air Act, 40 C.F.R. Part 61, 42 U.S.C. Section 112(b)(1): standards for controlling dust. The regulations establish emissions standards for 187 hazardous air pollutants. Standards set for dust and release sources. If the removal of contaminated soils generate regulated air pollutants, then measures will be implemented to meet these standards. According to EPA's Initial List of Hazardous Air Pollutants with Modifications, both PCE and TCE are hazardous air pollutants.

Clean Water Act, 40 C.F.R. Sections 122.26(c)(ii)(C) and 122.44(k): NPDES regulations for storm water control and management.

Clean Water Act Section 404(b), (40 C.F.R. Parts 230 and 231, 33 C.F.R. Parts 320-323, and 33 C.F.R. Part 332): No activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser impacts is available. The removal action will be conducted in such a manner as to not disturb any wetlands if such exist near the ephemeral stream located off site.

Floodplain Management and Protection of Wetlands, (44 C.F.R. Part 9): Regulations that set forth the policy, procedure, and responsibilities to implement and enforce Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative, and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. Requires the avoidance of impacts associated with the temporary or permanent occupancy and modification of federally-designated 100-year and 500-year floodplain. Waste left in place within a floodplain needs to be protected from flooding so that there is no release of contamination in up to a 500-year flood event. Although the ephemeral stream is not located within the 100-year or 500-year floodplain, this removal action will avoid any adverse impacts to the ephemeral stream.

State ARARs:

Massachusetts:

40 C.F.R. Parts 260-262 and 264 Resource Conservation and Recovery Act, Subtitle C- Hazardous Waste Identification and Listing Regulations; Generator and Handler Requirements, Closure and Post-Closure - Massachusetts has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. Waste generated will be tested to determine whether it exceeds hazardous waste thresholds and, if so, the hazardous waste will be managed on-site and until such time as it is shipped to an EPA-approved off-site disposal location.

310 CMR 10.00: Wetlands Protection Regulations – standards for work within state wetland resource areas (including vegetated wetlands and 100-year floodplain) or buffer zone (200 feet from a waterway and 100 feet from a wetland). Under this requirement, available alternatives must be considered that minimize the extent of adverse impacts, and mitigation including restoration and/or replication is required. Although there are no wetlands on the site, there is an ephemeral stream near the site. The removal action will consider and minimize any potential impacts to the ephemeral stream located near the site.

314 CMR 4.05: Massachusetts Surface Water Quality Standards: These regulations limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. This may pertain to both discharges to surface water as a result of removal activities and any on-site waters affected by

site conditions. On-site discharges to surface waters and adjacent wetlands, shall meet these substantive discharge standards. The removal action will consider and minimize any potential impacts to the ephemeral stream located near the site.

310 CMR 7.00: Massachusetts Air Pollution Control Regulations: stipulates that during construction and/or demolition activities, air emissions (i.e., dust, particulates) must be controlled to prevent air pollution. Construction activities will be managed to meet standards for visible emission (310 CMR Section 7.06): dust, odor, construction. During the removal action, appropriate measures will be taken to comply with these regulations.

The OSC will coordinate with state officials to identify additional state ARARs, if any. In accordance with the National Contingency Plan and EPA Guidance Documents, the OSC will determine the applicability and practicability of complying with each ARAR that is identified in a timely manner.

6. Project schedule

This time critical removal action is planned to start as soon as possible after the signing of this Action Memorandum and acquisition of funding. EPA anticipates completing this action within twelve months of the project start date.

B. Estimated Costs

COST CATEGORY		CEILING
<i>REGIONAL REMOVAL ALLOWANCE COSTS:</i>		
ERRS Contractor		\$1,455,000.00
Interagency Agreement		\$ 0.00
<i>OTHER EXTRAMURAL COSTS NOT FUNDED FROM THE REGIONAL ALLOWANCE:</i>		
START Contractor		\$200,000.00
Extramural Subtotal		\$1,655,000.00
Extramural Contingency	10%	\$165,500.00
TOTAL, REMOVAL ACTION CEILING		\$1,820,500.00

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delayed removal action or the absence of a removal action described herein will cause conditions at the Site to remain unaddressed. This will result in the continued release or threat of release of hazardous substances into the environment, which pose a threat to human health and the environment.

VII. OUTSTANDING POLICY ISSUES

There are no precedent-setting policy issues associated with this Site.

VIII. ENFORCEMENT ... For Internal Distribution Only

See attached Confidential Enforcement Strategy.

The total EPA costs for this removal action that will be eligible for cost recovery are estimated to be \$1,820,500.00 (extramural costs) + \$160,000 (EPA intramural costs) = \$1,980,500.00 X 1.4912 (regional indirect rate) = **\$2,953,321.60**²

IX. RECOMMENDATION

This decision document represents the selected removal action for the Kempton Road Site in Millville, MA, developed in accordance with CERCLA, as amended, and is not inconsistent with the National Contingency Plan. The basis for this decision will be documented in the administrative record to be established for the Site.

² Direct Costs include direct extramural costs \$1,820,500.00 and direct intramural costs \$160,000. Indirect costs are calculated by using regional indirect rate in effect at time cost estimate is prepared, and is expressed as a percentage of the 49.12% (effective January 11, 2023) x \$2,953,321.60, consistent with EPA's full cost accounting methodology. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

Conditions at the Site meet the NCP Section 300.415 (b) (2) criteria for a removal action due to the following:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants [§300.415(b)(2)(i)];

Actual or potential contamination of drinking water supplies or sensitive ecosystems [§300.415(b)(2)(ii)];

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)];

The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)];

I recommend that you approve the proposed removal action. The total extramural removal action project ceiling if approved will be \$1,820,500.00.

APPROVAL:_____

DATE:_____

Appendix A

Tables from Removal Program Preliminary Assessment/ Site Investigation Report for the Kempton Road Site Millville, Worcester County, Massachusetts 14 through 16 January 2020, 15 through 16 June 2020, and 1 through 2 September 2020.

Table 1 - Summary of Groundwater, Vault, and Surface Water Sample Results, January 2020

Table 2 - Summary of Groundwater, Vault, and Surface Water Sample Results, January 2020

Table 3 - Summary of Groundwater, Vault, and Surface Water Sample Results, January 2020

Table 4 - Summary of Groundwater and Surface Water Sample Results, June 2020

Table 5 - Summary of Groundwater Sample Results, September 2020

Table 1

**SUMMARY OF GROUNDWATER, VAULT, AND SURFACE WATER
SAMPLE RESULTS
KEMPTON ROAD SITE
MILLVILLE, MASSACHUSETTS
JANUARY 2020**

COMPOUND	SAMPLE LOCATION:	MW-102	MW-103	MW-999	SW-01	SW-02	SW-03	SW-04
	SAMPLE NUMBER:	0239-0104	0239-0105	0239-0106	0239-0107	0239-0108	0239-109	0239-110
	LAB SAMPLE ID:	AB85307	AB85308	AB85309	AB85310	AB85311	AB85312	AB85313
MCP GW-3								
VOLATILE ORGANIC COMPOUNDS (VOCs) in µg/L		µg/L						
Trichloroethylene	5,000	8,100	ND	1,500	17	39	ND	19
1,1-Dichloroethylene	30,000	ND	ND	230	ND	ND	ND	ND
1,1-Dichloroethane	20,000	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	50,000	4,900	ND	2,400	150	210	6.0	9.5
1,1,1-Trichloroethane	20,000	2,300	ND	940	ND	ND	ND	9.6
Tetrachloroethylene	30,000	16,000	920	710	16	63	5.6	30
Ethylbenzene	5,000	ND	ND	300	ND	ND	ND	ND
m/p Xylene	5,000	ND	ND	720	ND	ND	ND	ND
Ortho Xylene	5,000	ND	ND	290	ND	ND	ND	ND

ANALYTICAL METHODS
Samples analyzed for VOCs by U.S. EPA
Laboratory Services and Applied Sciences
Division as follows: EPA Region I SOP,
LSBSOP-VOAGCMS10, VOAs in Water.
Results are reported in the units noted.

NOTES:
1) µg/L = micrograms per liter
2) ND = Not Detected
3) NL = Not Listed
4) MCP GW-3 = Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard.
5) Values **bolded** and shaded in red indicated compounds exceeding the MCP GW-3 Standard.
6) A compound is listed in the table above only if it was detected in at least one of the samples analyzed. Compounds that were analyzed for, but not detected, have been omitted.

Table 2

**SUMMARY OF GROUNDWATER, VAULT, AND SURFACE WATER
SAMPLE RESULTS
KEMPTON ROAD SITE
MILLVILLE, MASSACHUSETTS
JANUARY 2020**

COMPOUND	SAMPLE LOCATION:	SW-104	SW-05	V-01	V-02	V-03	V-04	V-05
	SAMPLE NUMBER:	0239-111	0239-112	0239-113	0239-114	0239-115	0239-116	0239-117
	LAB SAMPLE ID:	AB85314	AB85315	AB85316	AB85317	AB85318	AB85319	AB85320
MCP GW-3								
VOLATILE ORGANIC COMPOUNDS (VOCs) in µg/L		µg/L						
Trichloroethylene	5,000	18	20	ND	29	ND	5,200	ND
1,1-Dichloroethylene	30,000	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	20,000	ND	ND	ND	ND	ND	540.0	ND
cis-1,2-Dichloroethylene	50,000	9.5	120	12	17	ND	13,000	82
1,1,1-Trichloroethane	20,000	9.4	ND	ND	ND	ND	2,600	ND
Tetrachloroethylene	30,000	29	31	250	58	460	6,100	570
Ethylbenzene	5,000	ND	ND	ND	ND	ND	ND	ND
M/P Xylene	5,000	ND	ND	ND	ND	ND	ND	ND
Ortho Xylene	5,000	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL METHODS

Samples analyzed for VOCs by U.S. EPA
Laboratory Services and Applied Sciences
Division as follows: EPA Region I SOP,
LSBSOP-VOAGCMS10, VOAs in Water.
Results are reported in the units noted.

NOTES:

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- 5) Values **bolded** and shaded in red indicated compounds exceeding the MCP GW-3 Standard.
- 6) A compound is listed in the table above only if it was detected in at least one of the samples analyzed. Compounds that were analyzed for, but not detected, have been omitted.

Table 3
SUMMARY OF GROUNDWATER, VAULT, AND SURFACE WATER
SAMPLE RESULTS
KEMPTON ROAD SITE
MILLVILLE, MASSACHUSETTS
JANUARY 2020

COMPOUND	SAMPLE LOCATION:	V-06	V-07	MW-9P	MW-101P	MW-102P	MW-102L
	SAMPLE NUMBER: LAB SAMPLE ID:	0239-118 AB85321	0239-119 AB85322	0239-120 AB85323	0239-121 AB85324	0239-122 AB85325	0239-124 AB85327
MCP GW-3							
VOLATILE ORGANIC COMPOUNDS (VOCs) in µg/L							
µg/L							
Trichloroethylene	5,000	490	53	1,100	5,300	18,000	10,000
1,1-Dichloroethylene	30,000	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	20,000	ND	ND	130.0	ND	1,000.0	ND
cis-1,2-Dichloroethylene	50,000	2,700	210	2,000	4,400	4,700	7,000
1,1,1-Trichloroethane	20,000	ND	ND	830	1,200	5,200	2,200
Tetrachloroethylene	30,000	1,000	220	500	31,000	23,000	16,000
Ethylbenzene	5,000	ND	ND	160	ND	ND	ND
M/P Xylene	5,000	ND	ND	280	ND	ND	ND
Ortho Xylene	5,000	ND	ND	160	ND	ND	ND

ANALYTICAL METHODS

Samples analyzed for VOCs by U.S. EPA Laboratory Services and Applied Sciences Division as follows: EPA Region I SOP, LBSOP-VOAGCMS10, VOAs in Water. Results are reported in the units noted.

NOTES:

- 1) µg/L = micrograms per liter
- 2) ND = Not Detected
- 3) NL = Not Listed
- 4) MCP GW-3 = Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard.
- 5) Values **bolded** and shaded in red indicated compounds exceeding the MCP GW-3 Standard.
- 6) A compound is listed in the table above only if it was detected in at least one of the samples analyzed. Compounds that were analyzed for, but not detected, have been omitted.

Table 4

SUMMARY OF GROUNDWATER AND SURFACE WATER SAMPLE RESULTS
KEMPTON ROAD SITE
MILLVILLE, MASSACHUSETTS
JUNE 2020

SAMPLE LOCATION: SAMPLE NUMBER: LAB SAMPLE ID:		MW-17 0239-0135 AB86411	MW-18 0239-0136 AB86412	MW-19 0239-0137 AB86413	MW-101 0239-0138 AB86414	MW-102 0239-0139 AB86415	MW-103 0239-0140 AB86416	MW-109 0239-0141 AB86417 DUP MW-09	SW-10 0239-0142 AB86418
COMPOUND	MCP GW-3								
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/L		µg/L							
1,1-Dichloroethylene	30,000	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethylene	50,000	ND	ND	ND	ND	ND	ND	ND	1.2
1,1-Dichloroethane	20,000	ND	ND	ND	ND	ND	ND	ND	2.5
cis-1,2-Dichloroethylene	50,000	260	430	11	4,700	4,800	ND	1,400	70
1,1,1-Trichloroethane	20,000	11	12	ND	1,000	1,200	29	590	2.8
Trichloroethylene	5,000	73	90	5.8	4,600	5,200	53	310	14
Tetrachloroethylene	30,000	270	150	160	14,000	8,600	1,100	200	15
Ethylbenzene	5,000	ND	ND	ND	ND	ND	ND	330	ND
M/P Xylene	5,000	ND	ND	ND	ND	ND	ND	760	ND
Ortho Xylene	5,000	ND	ND	ND	ND	ND	ND	320	ND
1,2,4-Trimethylbenzene	NL	ND	ND	ND	ND	ND	ND	98	ND

ANALYTICAL METHODS

Samples analyzed for VOCs by U.S. EPA Laboratory Services and Applied Sciences Division as follows: EPA Region I SOP, LSBSOP-VOAGCMS10, VOAs in Water. Results are reported in the units noted.

NOTES:

- 1) µg/L = micrograms per liter
- 2) ND = Not Detected
- 3) NL = Not Listed
- 4) MCP GW-3 = Massachusetts Contingency Plan (MCP) Groundwater (GW)-3 Standard.
- 5) Values **bolded** and shaded in red indicated compounds exceeding the MCP GW-3 Standard.
- 6) A compound is listed in the table above only if it was detected in at least one of the samples analyzed. Compounds that were analyzed for, but not detected, have been omitted.

Table 5

SUMMARY OF GROUNDWATER SAMPLE RESULTS
KEMPTON ROAD SITE
MILLVILLE, MASSACHUSETTS
SEPTEMBER 2020

SAMPLE LOCATION: SAMPLE NUMBER: LABORATORY NUMBER:		MW-118 S50023MA-0014 AB87744 DUP MW-18	MW-101 S50023MA-0008 AB87738	MW-101D S50023MA-0009 AB87739	MW-102 S50023MA-0010 AB87740	MW-102M S50023MA-0011 AB87741	MW-102D S50023MA-0012 AB87742	MW-103 S50023MA-0013 AB87743
COMPOUND	MCP GW-3							
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/L		µg/L						
Vinyl Chloride	50,000	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	30,000	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	NL	ND	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethylene	50,000	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	20,000	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	50,000	410	14,000	15,000	3,400	3,500	4,000	180
1,1,1-Trichloroethane	20,000	ND	1,500	1,400	760	1,300	2,900	310
Carbon tetrachloride	5,000	ND	ND	ND	ND	ND	ND	ND
Toluene	40,000	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	5,000	80	7,400	8,900	3,900	5,000	7,500	390
Tetrachloroethylene	30,000	170	21,000	33,000	8,800	9,800	19,000	2,500
Ethylbenzene	5,000	ND	ND	ND	ND	ND	ND	ND
M/P Xylene	5,000	ND	ND	ND	ND	ND	ND	ND
Ortho Xylene	5,000	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	NL	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	NL	ND	ND	ND	ND	ND	ND	ND
Naphthalene	20,000	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL METHODS

Samples analyzed for VOCs by U.S. EPA Laboratory Services and Applied Sciences Division as follows: EPA Region I SOP, LSBSOP-VOAGCMS10, VOAs in Water.
Results are reported in the units noted.

NOTES:

- 1) µg/L = micrograms per liter
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- 6) A compound is listed in the table above only if it was detected in at least one of the samples analyzed. Compounds that were analyzed for, but not detected, have been omitted.