



**IMMEDIATE RESPONSE ACTION COMPLETION REPORT AND
PERMANENT SOLUTION STATEMENT WITH CONDITIONS**

CSX Intermodal Terminal
271 Franklin Street
Worcester, Massachusetts

Release Tracking Number 2-19355

Prepared for:

CSX Transportation, Inc.
One Bell Crossing Road
Selkirk, New York 12158

Prepared by:

Amec Foster Wheeler Environment & Infrastructure Inc.
271 Mill Road
Chelmsford, Massachusetts 01824

November 2015

Amec Foster Wheeler Project Number: 643005711
CSX Project Number: R000138941
CSX Contract Number: ENV0000118877

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION.....	1
2.0 BACKGROUND INFORMATION AND RELEASE DESCRIPTION.....	3
2.1 Site Location, Description and History	3
2.2 Sensitive Receptors.....	4
2.3 Description of Release.....	4
2.4 OHM Use and Storage	5
2.5 Geology	5
2.6 Hydrogeology	5
2.7 Applicable Soil Categories	6
2.8 Applicable Groundwater Categories	7
3.0 IMMEDIATE RESPONSE ACTIONS.....	8
3.1 November 7, 2014 Activities	8
3.2 November 8, 2014 Activities	9
3.3 November 10, 2014 Activities	10
3.4 November 11, 2014 Activities	10
3.5 November 12, 2015 Activities	11
3.6 November 13, 2014 Activities	12
3.7 November 17, 2014 Activities	13
3.8 November 18, 2014 Activities	14
3.9 November 20, 2014 Activities	14
3.10 November 24, 2014 Activities	14
3.11 November 25, 2014 Activities	15
3.12 November 28, 2014 Activities	15
3.13 December 3, 2014 Activities	15
3.14 December 5, 2014 Activities	15
3.15 December 11, 2014 Activities	15
3.16 December 30, 2014 Activities	15
3.17 January 14, 2015 Activities	18
3.18 May 12, 2015 Activities	19
3.19 May 13, 2015 Activities	19
3.20 June 2, 2015 Activities	20
3.21 June 19, 2015 Activities	20
3.22 June 29, 2015 Activities	20
3.23 September 11, 2015 Activities	20
3.24 September 30, 2015 and October 1, 2015 Activities	20
3.25 October 28 and 29, 2015 Activities	21
4.0 CRITICAL EXPOSURE PATHWAY, SUBSTANTIAL RELEASE MIGRATION, AND IMMINENT HAZARD EVALUATIONS.....	22
4.1 Critical Exposure Pathway Evaluation.....	22
4.2 Condition of Substantial Release Migration Evaluation	22
4.3 Imminent Hazard Evaluation.....	24
4.4 IRA Completion Statement	24

TABLE OF CONTENTS

	Page
5.0 CONCEPTUAL SITE MODEL, NATURE AND EXTENT OF CONTAMINATION, AND POTENTIAL RECEPTORS.....	25
5.1 Contaminants of Concern	25
5.2 Primary Release Mechanism/Source of OHM.....	27
5.3 Nature and Extent of Contamination	27
5.3.1 Soil.....	27
5.3.2 Groundwater	28
5.3.3 Surface Water	28
5.3.4 Indoor Air	28
5.4.1 Underground Utilities.....	28
5.4 Human Receptors Potential	28
5.4.1 Residents	28
5.4.2 Site Workers/Site Visitors.....	29
5.4.3 Utility and Construction Workers	29
5.4.4 Trespassers/Passersby.....	29
5.5 Environmental Receptors.....	29
6.0 METHOD 1 RISK CHARACTERIZATION.....	31
6.1 Purpose and Objectives.....	31
6.2 Risk Characterization Method	31
6.3 Current and Foreseeable Activities and Uses	32
6.4 Method 1 Soil and Groundwater Categories	32
6.5 Hazard Identification	33
6.6 Exposure Assessment	34
6.6.1 Identification of Potential Human Receptors.....	34
6.6.2 Identification of Potential Environmental Receptors.....	34
6.6.3 Identification of Potential Exposure Points and Exposure Point Concentrations (EPCs)	35
6.7 Method 1 Risk Characterization Results	36
6.8 Characterization of Risk of Harm to Safety	37
6.9 Hot Spot Evaluation	37
6.10 Uncertainty Analysis	38
6.11 Summary and Conclusions	38
7.0 REPRESENTATIVENESS EVALUATION AND DATA USABILITY ASSESSMENT (REDUA).....	39
7.1 Sample Analytical Data Usability	39
7.2 Sample Field Data Usability	40
7.3 Representativeness Evaluation.....	41
7.3.1 Conceptual Site Model	41
7.3.2 Use of Field Screening Data.....	41
7.3.3 Sampling Rationale	41
7.3.4 Spatial Distribution, Collection Methods and Handling of Samples	42
7.3.5 Temporal Distribution of Samples	42
7.3.6 Inconsistency and Uncertainty.....	43
7.3.7 Completeness	43

TABLE OF CONTENTS

	Page
7.3.8 Information Considered Unrepresentative	43
7.4 REDUA Summary.....	43
8.0 REMEDIATION WASTE MANAGEMENT.....	44
9.0 FEASIBILITY EVALUATION	45
9.1 Conditions of Categorical Feasibility	45
9.2 Conditions of Categorical Infeasibility	45
9.3 Conditions Approaching Background in Non-Persistent Compounds.....	46
9.4 Feasibility Evaluation Conclusions.....	46
10.0 CONTENTS OF PERMANENT SOLUTION STATEMENT	47
10.1 Disposal Site Name, Address, Disposal Site Boundary Area, and MassDEP Release Tracking Number (310 CMR 40.1056(1 and 2)(A))	47
10.2 Type of Permanent Solution Statement (310 CMR 40.1056(1)(B))	47
10.3 Risk Characterization Method and No Significant Risk Conclusions (310 CMR 40.1056(1 and 2)(F))	47
10.4 Relationship of the Permanent Solution Statement to Any Other Permanent or Temporary Solution Statements and Need for Additional Response Actions at the Disposal Site (310 CMR 40.1056(1)(D)).....	47
10.5 Applicable Activity and Use Limitation (310 CMR 40.1056(1)(E) and (F))	47
10.6 Active Exposure Pathway Mitigation Measure (310 CMR 40.1056(G))	48
10.7 LSP Opinion (310 CMR 40.1056(1)(H) and (I))	48
10.8 Upper Concentration Limit (310 CMR 40.1056(1)(J)).....	48
10.9 Use of MassDEP Compendium of Analytical Methods (310 CMR 40.1056(1)(K))	48
10.10 Conceptual Site Model, Source Elimination or Control, and No Significant Risk Conclusion (310 CMR 40.1056(2)(B), (C) and (F))	48
10.11 A Demonstration of Response Actions Taken to Control the Migration of OHM (310 CMR 40.1056(2)(D)).....	48
10.12 Feasibility Analysis on Restoration to Background (310 CMR 40.1056(2)(G))	48
10.13 Data Usability Assessment (310 CMR 40.1056(2)(K))	48
10.14 Permanent Solution Statement Submittal Fee (310 CMR 40.1056(3))	49
11.0 PUBLIC INVOLVEMENT.....	50
12.0 SUMMARY AND CONCLUSIONS.....	51

LIST OF FIGURES

- Figure 1 Site Location Map
- Figure 2 Facility Plan
- Figure 3 MassDEP Bureau of Waste Site Cleanup Phase I Site Assessment Map
- Figure 4 Locomotive Release Area Sampling Plan
- Figure 5 Retention Pond #2 Confirmatory Soil Sampling Plan

LIST OF TABLES

- Table 1 Summary of Retention Pond #2 Sidewall Soil Analytical Results
- Table 2 Summary of Retention Pond #2 Culvert and Gate Valve Confirmatory Soil Analytical Results
- Table 3 Summary of Locomotive Release Area Soil Analytical Results
- Table 4 Summary of Overflow Retention Pond #3 Storm Water Analytical Results
- Table 5 Locomotive Release Area Soil Exposure Point Concentrations
- Table 6 Retention Pond #2 Soil Exposure Point Concentrations

LIST OF APPENDICES

- Appendix A Transmittal Forms BWSC-104 and BWSC-105
- Appendix B Soil Boring Logs
- Appendix C Laboratory Analytical Report
- Appendix D Bills of Lading, Supporting Documentation, and Attestation of Completion of Shipment
- Appendix E Hazardous Waste Manifests
- Appendix F MCP Presumptive Certainty Data Usability Assessment Tables
- Appendix G Public Notification Letters

1.0 INTRODUCTION

On behalf of CSX Transportation (CSXT), Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) has prepared this Immediate Response Action (IRA) Completion Report and Permanent Solution Statement with Conditions for a diesel fuel release that occurred on the afternoon of November 7, 2014 at the CSX Intermodal Terminal facility located at 271 Franklin Street, Worcester, Massachusetts (hereinafter referred to as "facility"). The area where the diesel fuel release has come to be located is referred to as the "Site" or "Disposal Site".

Due to a faulty filter canister clamp located on the engine of a locomotive, approximately 2,300 gallons of diesel fuel were released onto the surrounding ballast. The majority of the release migrated on top of an impermeable plastic geomembrane that had previously been installed in the subsurface on the north side of the tracks. The geomembrane directed the release to an underground storm water collection system that ultimately discharged into an onsite storm water retention pond.

Per 310 CMR 40.0311(3) of the Massachusetts Contingency Plan (MCP), the release required reporting to the Massachusetts Department of Environmental Protection (MassDEP) because it met the following two hour reporting criteria:

1. a sudden release to the environment;
2. an oil sheen on surface water (this was later deemed storm water, not surface water); and
3. a release to a storm drain.

As required by 310 CMR 40.1056 of the MCP, this Permanent Solution Statement contains information and data to demonstrate that a Condition of No Significant Risk exists for the Site. A Method 1 risk characterization, as defined in 310 CMR 40.0900, was completed by Amec Foster Wheeler to characterize the risk of harm to health, safety, public welfare and the environment for current uses of the Site and to demonstrate a Condition of No Significant Risk.

In accordance with 310 CMR 40.1040(1) and 310 CMR 40.1041(1), a Permanent Solution Statement with Conditions applies to the Disposal Site since:

- A level of No Significant Risk exists or has been achieved;
- All sources of oil and/or hazardous materials (OHM) have been eliminated or controlled;
- The level of OHM in the environment has been reduced as close to background levels as feasible;
- Concentrations of OHM do not exceed the applicable Upper Concentration Limits (UCLs);
- Maintaining a level of No Significant Risk will not require an Activity and Use Limitation (AUL); and
- Limitations or conditions to the Permanent Solution apply because residential Method 1 S-1 standards for future unrestrictive use were not achieved for one volatile petroleum hydrocarbon (VPH) fraction and the Site is located within a railroad right-of-way.

Immediate Response Action Completion Report and
Permanent Solution Statement With Conditions
CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355
November 2015



A copy of the MassDEP Bureau of Waste Site Cleanup (BWSC) Permanent and Temporary Solution Statement (BWSC-104) and Immediate Response Action (BWSC-105) transmittal forms for RTN 2-19355 prior to electronic filing system submission to the MassDEP via eDEP are included in **Appendix A**.

2.0 BACKGROUND INFORMATION AND RELEASE DESCRIPTION

2.1 SITE LOCATION, DESCRIPTION AND HISTORY

The release location has the Zone 19 universal transverse mercator (UTM) coordinates of 4,682,605 meters north and 269,983 meters east. The latitude and longitude are 42.26222 degrees north and 71.78766 degrees west. The address of the CSX facility where the release occurred is 271 Franklin Street, Worcester, Massachusetts. The Site Location Map, **Figure 1**, shows the regional topographic features of the areas located in the vicinity of the Disposal Site. The Facility Plan providing an aerial view of the features in the immediate vicinity of the Disposal Site is shown as **Figure 2**.

According to the City of Worcester property field card for 271 Franklin Street, the facility is comprised of 68 acres that is used primarily for the loading and unloading of intermodal containers from rail cars. The facility encompasses an area that is bounded by industrial, commercial and residential properties. It is secured by fencing and locked gates. Franklin Street bisects the center portion of the facility. The facility underwent major renovations in 2012, when additional property was acquired, the current CSX office was constructed, the layout of the railroad tracks were redesigned and reconfigured, and a self-contained onsite subsurface storm water collection system which includes four on-site retention ponds was constructed. **Figure 2** shows the location of the locomotive at the time the diesel fuel release occurred, the underground storm water drainage system conduit that the majority of the fuel was directed through, and the onsite retention pond that it was released to.

The CSX office building is located in the western portion of the facility and is accessed via Franklin Street. The four unlined storm water retention ponds are located north of Franklin Street, and referred to as retention ponds #1A, #1B, #2 and #3. As shown on **Figure 2**, retention pond #1A is located west of the CSX offices in the far western portion of the facility adjacent to Route I-290. It connects via underground culverts to retention pond #1B which is located immediately north of Franklin Street in the central western portion of the facility. Retention pond #2 is located in the center of the facility immediately north of Franklin Street. Any overflow from retention pond #2 is directed via two underground concrete culverts to retention pond #3 located east of retention pond #2. Entry into the facility to the south of Franklin Street is via Barbara Lane which is accessed by an underpass running under Franklin Street between retention pond #2 and retention pond #3.

The majority of the facility is paved except for the four retention ponds and their associated banks and the railroad tracks, the surface of which contains stone railroad ballast. The facility is topographically flat and located at an elevation of approximately 477 feet above mean sea level. Land located immediately north of the facility is located at a topographically lower elevation. Land located immediately south of the facility is located at a topographically higher elevation. As shown on **Figure 1**, numerous hills are located in the vicinity of the facility to the north, southeast and south.

According to historic Sanborn maps that were reviewed, the facility has been used as a rail yard since sometime prior to 1892.

2.2 SENSITIVE RECEPTORS

According to the MassDEP Bureau of Waste Site Cleanup Phase I Site Assessment Map, provided as **Figure 3**, the Disposal Site is located within a medium yield non-potential drinking water source area. No other sensitive receptors are located within 500 feet of the Disposal Site, including current or potential drinking water source areas as defined by the MCP (i.e. Zone II, Interim Wellhead Protection Areas (IWPA) or Zone A surface water bodies), Federal Emergency Management Act (FEMA) 100-year floodplains, Areas of Critical Environmental Concern (ACEC), rare wetland wildlife habitats, or certified or potential vernal pools. The nearest FEMA 100-year floodplain is located approximately 1,500 feet west of the Disposal Site. The nearest protected open spaces are located approximately 1,000 feet southeast and 1,200 feet north of the Disposal Site. Four onsite man-made storm water retention ponds that were constructed in 2012 are located at the facility. The nearest off-site surface water body is Bell Pond which is located approximately 3,000 feet north of the Disposal Site. The closest sensitive receptor is the Seven Hills Charter School which is located approximately 1,200 feet north of the Disposal Site. No wetland areas are located within one-half mile of the Disposal Site.

2.3 DESCRIPTION OF RELEASE

At approximately 1:00 p.m. on November 7, 2014, a CSX employee observed petroleum staining on the ballast and pavement below an idling locomotive (#5498), recently arrived from Cleveland, Ohio, that was parked at track number SU2. Upon further inspection, it was noted that the filter canister clamp located on the engine of the locomotive was broken, which caused a rapid release of diesel fuel onto the surrounding ballast and pavement. The quantity of fuel that was released was initially unknown, as the volume of fuel that was in the fuel tank prior to the release was not available. The quantity of fuel that was still present inside the fuel tank and sump was also not known. As soon as the release was discovered, the CSX employee immediately shut down the engine of the locomotive and contacted his supervisor who contacted the CSXT Public Safety Coordination Center.

Oral notification of the release was provided with a telefax to the National Response Center by Ms. Alexis Romine of CSXT at 1:15 p.m. on November 7, 2014 which was received by MassDEP. As the approximate release quantity was initially unknown, it was reported by CSXT as being greater than five gallons. CSXT indicated at the time of notification that they had mobilized their emergency response contractor, Global Remediation Services of East Taunton, Massachusetts (Global) to respond to the release and initiate response actions. MassDEP assigned Release Tracking Number (RTN) 2-19355 to the release.

At 2:10 p.m., Mr. Michael Bethge of CSXT contacted the MassDEP and spoke to Mr. Dino Dellechiaie to update him that the quantity of the release, although still unknown, would likely be "greater than ten times the reportable quantity". Mr. Bethge stated that the diesel fuel which was released from the locomotive was directed through the ballast which sloped to an onsite storm water retention pond located at the facility (Retention Pond #2) via a recently designed and constructed self-contained storm water collection system. The storm water system is comprised of a subsurface drain underlain by an impermeable plastic geomembrane liner that was placed below the track ballast on the northern side of track SU2; it directs storm water and petroleum to a concrete conduit that is 30 inches in diameter which discharged to unlined retention pond #2, as shown on **Figure 2**. This system was specifically designed to limit releases to the environment. As soon as the distinctly visible red colored diesel fuel was

observed in the pond, CSX personnel closed the gate valve leading to the pond located in the northern end of the pond, preventing further migration of the fuel oil into the pond.

CSXT retained Susan O'Brien as the Licensed Site Professional (LSP) employed at Amec Foster Wheeler to provide LSP services and direct response actions. Amec Foster Wheeler arrived at the facility on the afternoon of November 7, 2014 to oversee response actions that were being undertaken by Global. CSXT also notified the Worcester Fire Department who arrived to the facility on the afternoon of November 7, 2014 to oversee the response actions.

Based on information that was obtained from CSXT, including the initial volume of diesel fuel that was present in the locomotive when it left Cleveland, Ohio on November 4, 2014 along with several other locomotives, as well as typical fuel usage and the calculated volume of diesel fuel remaining in the tank and sump after the release occurred, the estimated release volume of diesel fuel was determined to be between 2,280 and 2,300 gallons. Ms. O'Brien orally provided a revised estimated volume of diesel fuel released to the MassDEP on November 10, 2014.

2.4 OHM USE AND STORAGE

No OHM is stored within the release area, except for OHM that may be used or stored in trains or locomotives that travel or occupy the tracks. Typical OHM used in trains and locomotives includes diesel fuel and lubricants. Within the facility, the trains are fueled with diesel fuel via tanker trucks which periodically visit the Site on an as needed basis.

2.5 GEOLOGY

According to information obtained from a subsurface investigation conducted in the locomotive release area on December 30, 2015, overburden soil beginning at the ground surface was characterized as ballast consisting of one to two inch diameter angular rocks to a depth ranging from 6 to 12 inches below the ground surface (bgs), followed by dry fill material described as dark brown sand with varying amounts of silt, gravel and cobbles that was encountered to a depth of approximately nine feet bgs. A clay layer was encountered in two soil borings (SB-1 and SB-4) at a depth ranging from 9 to 10 feet bgs, followed by a lens of fine to medium sand to the bottom of each boring. The water table was encountered at a depth of approximately 12 feet bgs. Bedrock was not encountered during the advancement of any soil borings at the Site and no bedrock outcrops were observed either at the Site or in the vicinity of the Site.

2.6 HYDROGEOLOGY

Based on the information obtained from the December 30, 2015 subsurface investigation, groundwater was not affected by the release. The depth to the water table in the locomotive release area is located at a depth of approximately 12 feet bgs. Although no groundwater investigations were performed, it is assumed that groundwater flows in a northerly direction based on the topography elevations and location of the closest off-site surface water body. The depth to the water table is unknown in the area of retention pond #2. The pond is often dry and excavation activities occurred at the bottom of the pond (on both sides of the gate valve) to a depth of approximately three feet bgs, with no groundwater being encountered below the excavation.

2.7 APPLICABLE SOIL CATEGORIES

Applicable soil categories for the Disposal Site are based on the potential for exposure of adult and children receptors for both current and reasonably foreseeable Site activities and uses as outlined in 310 CMR 40.0933.

Intensity of Use: Pursuant to 310 CMR 40.0933(4)(b) of the MCP, intensity of use is described as high for activities and uses which have the potential to disturb the soil such as gardening, digging and recreational sports, resulting in either direct contact with the soil itself or inhalation of soil-derived dust. Passive activities which do not disturb the soil are characterized as low intensity use and include activities such as walking, shopping, and bird watching. Low intensity applies to the Disposal Site, since it is located within an active rail yard where only low intensity activities occur.

Frequency of Use: Pursuant to 310 CMR 40.0933(4)(a), children's frequency of use is described as high if they reside, attend school or day care at the Disposal Site or if large numbers of children visit the Disposal Site, regardless of any one child's frequency of visitation. Adults' frequency of use is considered high when they reside at the Disposal Site or when they work there on a continuing basis. Adults' or children's frequency of use is considered low when they are present at the Disposal Site as infrequent visitors or when workers are present at the Disposal Site only for short periods of time. For this Disposal Site which is located within an active rail yard that is surrounded by secured fencing and locked gates, children are not present at the Disposal Site and the frequency of use for adults who work at the Disposal Site is considered high.

Accessibility: Under current Site conditions, impacted soils at the Disposal Site are considered to be "potentially accessible" at depths ranging from ground surface to 15 feet bgs in all areas of the Disposal Site that are covered with impervious surfaces (asphalt paving, concrete pads), as well as between 3 and 15 feet bgs in those areas of the Disposal Site that are unpaved or improved with landscaping. In the unpaved and landscaped areas, all soil located between ground surface and 3 feet bgs is considered "accessible". Soil located at depths greater than 15 feet bgs or beneath a building considered "isolated subsurface" soil. Under unrestricted future Site uses, all soil located between ground surface and 15 feet bgs is considered to be "accessible" soil and all soil located at depths greater than 15 feet bgs is considered to be "isolated subsurface" soil.

Based on the frequency of use and intensity of activities discussed above, the Soil Category Selection Matrix provided 310 CMR 40.0933(9) of the MCP was used to determine the applicable soil categories for the Disposal Site. According to the matrix, the soil at the Disposal Site is considered "accessible" (the S-2 category applies) in unpaved areas at a depth of 0 to 3 feet bgs. It is also considered "potentially accessible" (the S-3 category applies) in unpaved areas at a depth of 3 to 15 feet bgs or paved areas at a depth of 0 to 15 feet bgs. The soil is considered "isolated" (the S-3 category applies) at a depth greater than 15 feet bgs or below the footprint of a building or permanent structure. For unrestricted future uses of the Disposal Site, all soil between 0 and 15 feet bgs is considered S-1 soil, and all soil located greater than 15 feet bgs is considered S-3 soil. However, because the Disposal Site is located within a railroad right-of-way, Site use and soil categories applicable to the Disposal Site are expected to remain the same in the future.

2.8 APPLICABLE GROUNDWATER CATEGORIES

Groundwater is categorized based on its potential:

- for human consumption (GW-1);
- to act as a source of volatile organic compounds (VOCs) to inhalation of indoor air (GW-2); and
- to affect the aquatic environment after discharge to surface water (GW-3).

GW-1 category is not applicable as the Disposal Site is not located within a current or potential drinking water source area or a municipal aquifer protection district and private potable wells are not located within the vicinity of the Disposal Site.

The GW-2 category, which considers groundwater as a potential source of vapors to indoor air, applies to groundwater that is located within 30 feet of an existing or planned building or structure that is or will be occupied and the average annual depth to groundwater in that area is 15 feet or less. The depth to groundwater at the locomotive release area is approximately 12 feet bgs and is unknown but assumed to be less than 15 feet bgs in the retention pond #2 area. The nearest occupied building from retention pond #2 is the CSX office which is located approximately 600 feet to the west. The nearest occupied building from the locomotive release area is a commercial building located 250 feet to the north. Based on this information, the GW-2 standard is not applicable for the Disposal Site.

All groundwater is considered a potential source of discharge to surface water and is classified as GW-3.

3.0 IMMEDIATE RESPONSE ACTIONS

This section describes the IRA remedial and assessment activities which occurred at the Disposal Site chronologically by date.

3.1 NOVEMBER 7, 2014 ACTIVITIES

Global and Amec Foster Wheeler arrived at the CSX facility at approximately 3:00 p.m. on November 7, 2014 upon being notified of the release. Global mobilized with the necessary equipment, including two vacuum trucks with capacities of 3,000 and 5,000 gallons, to conduct initial response actions. Global initially used a vacuum truck to remove the remaining volume of approximately 700 gallons of diesel fuel from the bottom of the locomotive's fuel tank and sump.

After all the diesel fuel was removed from the locomotive, Global used white paint to mark off the perimeter of the area on the ground that was visually stained with diesel fuel on both sides of track SU2. An impermeable black track pad covered the area between the tracks and extended approximately one foot on the outsides of both tracks. As shown on **Figure 4**, the area located north of track SU2 consisted of ballast that was 3 feet wide (one foot of which was covered by the impermeable track pad) followed by an asphalt paved roadway which was visibly stained. The dimensions of the staining to the north of the tracks measured 68 feet long in total by up to 4 feet wide (one foot of which was on pavement). The area located south of track SU2 (between tracks SU2 and SU3) consisted only of ballast. The diesel fuel staining was present in two areas measuring 22 feet long and 7.5 feet wide (one foot of which was covered by track pad) to the east and 7.5 feet wide and 6 feet long to the west.

Since the diesel fuel was directed via the subsurface storm water system to retention pond #2, Global then mobilized to the retention pond. The prevailing wind was to the east; therefore, the eastern portion of the pond was stained red from the dyed diesel fuel and free product was observed on the surface of the pond as shown on **Figure 5**. Global skimmed the fuel oil layer from the pond using the vacuum truck and also installed 100 feet of hard containment boom in the center of the pond to prevent migration of the diesel fuel to the west. Absorbent booms and pads were also placed on the inside of the containment boom and along the sides of the pond in an effort to contain the fuel oil so that the fuel oil could be easily skimmed from the pond. Global also placed absorbent booms in front of the gate valve leading to the pond.

Two concrete culverts that are each six feet long are located on the eastern portion of retention pond #2 to direct overflows from retention pond #2 and under a CSX roadway to retention pond #3 (see **Figure 2**). Since the surface of the water/oil mixture in retention pond #2 was below the base of the culverts, it was not possible for the oil from retention pond #2 to migrate into retention pond #3. However, as a precaution, Global installed absorbent booms inside of the two concrete culverts.

After approximately 3,000 gallons of the diesel fuel/water mixture was skimmed from the pond, Global removed the booms and pads that were saturated with diesel fuel, placed them in bags and containerized them in 55-gallon drums for disposal. Global also replaced the absorbent booms and pads inside the containment boom and culverts and beside the gate valve.

Global then mobilized to the manhole access to the underdrain conduit located in a paved access road on the edge of retention pond #2 near the gate valve (see **Figure 2**) and pumped diesel fuel from the underdrain. Once all the product and water were removed, absorbent

booms were placed in the manhole and the gate valve was kept closed to prevent further migration of the diesel fuel into the retention pond.

Global returned to the locomotive which had been moved to another track to decontaminate the sides and walkways of the locomotive using absorbent pads, cotton rags, Speedi-dri® and degreasing materials. The impacted pads, rags and Speedi-dri® were then placed in bags and containerized.

Global used oil/water paste and the stick testing method to estimate that of the 3,000 gallons of fuel and water that were removed on November 7, 2014, approximately 1,300 gallons were diesel fuel. However, the stick testing was performed prior to complete settling/separation of the oil and water, and was considered only an estimation. Global also generated seven drums of booms, pads and Speedi-dri® at the retention pond area and one drums of pads, rags and Speedi-dri® at the locomotive release area.

3.2 NOVEMBER 8, 2014 ACTIVITIES

Global and Amec Foster Wheeler, including Susan O'Brien, the LSP-of-Record, arrived to the Site on the morning of November 8, 2014 to continue conducting response actions. Global mobilized with the necessary equipment, including a 5,000-gallon vacuum truck and a 3,000-gallon water truck. They assessed the status of the absorbent booms around the retention pond and observed that they were not stained with diesel fuel and did not need to be replaced. They then opened the manhole near the gate valve and base of the retention pond and observed free product in the drainline conduit. They then used the vacuum truck to pump out an estimated 200 gallons of oil/water mixture from the manhole.

Global then mobilized to track SU2 at the initial location of the diesel fuel release. They applied Speedi-dri® to the paved roadway where fuel oil staining was present; afterwards, they placed it in bags. Global then used shovels and hand dug two test pits on each side of the SU2 tracks in the location of the diesel fuel impacts. Ballast was located to a depth of ten inches bgs followed by soil. A plastic geomembrane liner was encountered at a depth of approximately 11 inches bgs in the northern test pit which was excavated between the SU2 track and the paved roadway. No plastic geomembrane liner was encountered in the southern test pit which was excavated between the SU2 and SU3 tracks to a depth of 1.5 feet bgs. The test pits were then backfilled.

In an effort to flush any remaining diesel fuel remaining in the underlying ballast and soil into the subsurface storm water collection system and toward the retention pond, Global used the on-site fire hydrant to fill a truck-mounted water tank with 1,200 gallons of water. They then slowly released the water onto the ballast area of the locomotive diesel fuel release area. Another Global crew was mobilized at the manhole near the base of the retention pond to vacuum out the oil/water mixture. At the end of the process, they observed that the sheen that was initially present in the water located in the manhole was no longer present and that only water was being captured. On November 8, 2014, Global vacuumed out a total of 1,950 gallons of the oil/water mixture. Stick testing was again performed prior to the complete settling of the oil and water. Approximately 1,050 gallons were measured to be water and an estimated volume of 900 gallons was diesel fuel.

3.3 NOVEMBER 10, 2014 ACTIVITIES

Global arrived on-site on November 10, 2014 with a vacuum truck and proceeded to remove an additional 1,000 to 1,200 gallons of water with a trace of diesel fuel from the manhole at the base of the retention pond gate valve. Global was then shown additional manholes by CSX personnel that were part of the subsurface storm water collection system which led to the manhole at the base of retention pond #2. They proceeded to open each of these manholes and inspect them for the presence of diesel fuel from the release; however, no diesel fuel was noted in any of the manholes. A slight fuel oil odor was present in each of the manholes. Mr. Dino Dellechiaie of MassDEP arrived to the Site to observe the response actions being conducted by Global and assess the condition of the retention pond.

Global then staged a frac tank beside the facility's oil/water separator. They then off-loaded the contents of the two vacuum trucks containing the fuel oil/water mixture from the remedial activities into the frac tank, as CSXT had not yet selected a disposal option for the oily water, and Global needed the vacuum trucks for another project.

Susan O'Brien, the LSP-of-Record, spoke to Mr. Dino Dellechiaie of MassDEP to provide an update on the release quantity and response actions that were in the process of being conducted. Mr. Dellechiaie approved an IRA to remove up to 50 cubic yards of impacted soil from the retention pond.

3.4 NOVEMBER 11, 2014 ACTIVITIES

On November 11, 2014, Global and Amec Foster Wheeler arrived on-site with a vactor truck to excavate impacted soil and peastone from the sides of retention pond #2 as directed by Amec Foster Wheeler. Any soil showing visual and/or olfactory evidence of diesel fuel was removed. Soils were also screened for total volatile organic compounds (TVOCs) using a photoionization detector (PID). Excavations that were completed along the sidewalls of the pond measured approximately 200 feet along the northern, eastern and southern sides of the pond, from the northern end of the boom (at RP-07) to the southern end of the boom (at RP-8).

As shown on **Figure 4**, samples RP-01 through RP-07 were collected on the north and northeast sides of the pond, while samples RP-8 through RP-12 were collected along the southern and southeastern sides of the pond. Samples RP-13 through RP-16 were collected from the southeast corner of the pond to culvert #2. In addition, two samples, Culvert-01 and Culvert-02, were collected at the mouth of the culverts. The sample identifications, sample locations relative to direction, the sampling depths and the headspace readings are provided in the table below:

Sample ID	Sample Location Relative to Direction	Sampling Depth (inches below grade)	Headspace Screening Result (ppm)
North End of Retention Pond #2			
RP-01	2' west of Culvert 1	9	1.4
RP-02	15' west of Culvert 1	8	8.8
RP-03	30' west of Culvert 1	9	1.8
RP-04	40' west of Culvert 1	13	38.8
RP-05	54' west of Culvert 1	8	18.5

Sample ID	Sample Location Relative to Direction	Sampling Depth (inches below grade)	Headspace Screening Result (ppm)
RP-06	79' west of Culvert 1	4	0.1
RP-07	92' west of Culvert 1	4	0.8
South End of Retention Pond #2			
RP-08	92' east of RP-13	4	3.4
RP-09	77' east of RP-13	4	1.4
RP-10	54' east of RP-13	6	0.1
RP-11	30' east of RP-13	6	0.1
RP-12	15' east of RP-13	6	0.4
Southeast End of Retention Pond #2			
RP-13	Southeast corner of pond	4	0.1
RP-14	19' north of RP-13	5	0.0
RP-15	29' north of RP-13	5	0.0
RP-16	outer edge of Culvert 2	4	5.1
Culvert Location Samples			
Culvert-01	northernmost culvert	19	0.3
Culvert-02	southernmost culvert	18	<100

Notes:

ppm = parts per million

With the exception of sample Culvert-02, which exhibited an elevated headspace reading and required further excavation, all the above 17 samples were submitted to Alpha Analytical Laboratories of Westborough, Massachusetts (Alpha) for laboratory analysis of extractable petroleum hydrocarbons (EPH) with diesel range target polycyclic aromatic hydrocarbons (PAHs). The analytical results showed that no EPH fractions or target PAHs analytes were detected above the strictest Method 1 S-1/GW-3 standards. A summary of the analytical results are provided in **Tables 1 and 2**.

Approximately 15 cubic yards of diesel fuel impacted soil and peastone were excavated and then off-loaded into a roll-off container which was labeled, covered with a tarp and staged in the CSX parking lot. Global also initiated the hand removal of the rip rap from the side of the retention pond at the gate valve as directed by Amec Foster Wheeler. The diesel fuel impacted rip rap was stockpiled onsite and placed on top of and covered with poly sheeting.

3.5 NOVEMBER 12, 2015 ACTIVITIES

In an attempt to locate the impermeable geomembrane liner and/or clay substrate in the area of the diesel fuel release, on November 12, 2014, as directed by Amec Foster Wheeler, Global excavated three test pits between tracks SU2 and SU3 by hand using shovels to a depth of approximately two feet bgs. No impermeable geomembrane liner was encountered in any of the test pits. Stone ballast was present to a depth of approximately ten inches bgs followed by soil comprised of black fine to medium sand and silt with some gravel. Soil saturated with diesel fuel and free product was observed to be entering one of the test pits (Testpit-02) located in the westernmost release area. Prior to backfilling the test pits, Amec Foster Wheeler collected a soil sample from the test pit excavated in the easternmost release area, identified as Testpit-01, for headspace screening and laboratory analysis at a depth of two feet bgs. The approximate

location of the test pits is shown on **Figure 5**. The headspace screening result was 25.1 ppm. The sample was submitted to Alpha for laboratory analysis of EPH fractions and diesel range target PAHs. The laboratory report revealed that although all three EPH fractions and two target PAHs were detected above the laboratory reporting limits, no analytes were detected above the strictest Method 1 S-1/GW-3 standards. A summary of the analytical results are provided in **Table 3**.

Because of the lack of precipitation over the preceding several days, standing water was no longer present in retention pond #2. On November 12, 2014, Global and Amec Foster Wheeler then mobilized to the retention pond, and used shovels and a vactor truck to remove approximately 10 cubic yards of diesel fuel impacted rip rap and soil located to the east of the gate valve area based on headspace screening results, as well as visual and olfactory evidence of contamination as directed by Amec Foster Wheeler. After the excavation was completed, the dimensions of the excavation were 14 feet long by ten feet wide by three feet deep (from the bottom of the rip rap). As shown on the inset in **Figure 4**, a total of four sidewall samples (Sidewall-01 through Sidewall-04) and one bottom sample (Bot-01) were collected for headspace screening and laboratory analysis. The sidewall samples were collected approximately 0.5 feet above the bottom of the excavation. As shown on **Table 2**, the highest headspace screening result was 7.5 ppm. The samples from these locations were collected and submitted to Alpha for laboratory analysis of EPH fractions and diesel range target PAHs. The analytical results showed that no analytes were detected in Sidewall-01 above the laboratory reporting limits. No target PAHs were detected in any of the five samples above the laboratory reporting limits. Low concentrations of EPH fractions were detected in the remaining samples well below the strictest Method 1 S-1/GW-3 standards. A summary of the analytical results is provided in **Table 2**.

Global temporarily placed the excavated soil in a stockpile on top of poly sheeting in the bottom of the pond and covered both the stockpile and the excavation area with poly sheeting. Global also changed out the absorbent boom in the manhole near the base of the retention pond gate valve. They also placed a boom at the gate valve outlet.

Amec Foster Wheeler also collected one storm water sample from the concrete dam area of the overflow retention pond #3 using a long pole with a plastic cup to collect the water in order to confirm that there was no diesel fuel impacted storm water entering this retention pond from retention pond #2. The storm water sample, Retention Pond-01, was submitted to Alpha for laboratory analysis of EPH with diesel range target PAHs. The analytical results showed that two of the three EPH fractions and all diesel range target PAHs were not detected above the laboratory reporting limits. Only one EPH fraction was detected slightly above the laboratory reporting limit but well below the Method 1 GW-3 standard that was used as a screening evaluation. A summary of the storm water analytical results is provided in **Table 4**.

3.6 NOVEMBER 13, 2014 ACTIVITIES

On November 13, 2014, Global initially transferred the stockpiled soil from November 12, 2014 retention pond excavation activities to a roll off container.

Global then mobilized to the tracks and re-excavated the test pit, Testpit-02, in the area between tracks SU2 and SU3 that previously exhibited the free product with the intention of removing the free product using a vacuum truck and installing a PVC slotted screen in order to capture the product in that area. A test pit with dimensions of 30 inches by 20 inches and 23

inches deep was excavated. Although oil saturated soil was encountered, there was no free product which entered the excavation; therefore, the PVC screen was not installed. Amec Foster Wheeler collected a soil sample from the bottom of the test pit, identified as Testpit-02, for headspace screening and laboratory analysis. The headspace screening result was 95 ppm. The sample was submitted to Alpha for laboratory analysis of VPH with target VOCs and EPH with diesel range target PAHs. The results showed that one VPH fraction and one EPH fraction were detected above the strictest Method 1 S-1/GW-3 standards. However, no VPH fractions, EPH fractions, target VOCs, or target PAHs were detected in the sample above the applicable Method 1 S-2/GW-3 standards. A summary of the analytical results is provided in **Table 3**.

Global and Amec Foster Wheeler then returned to retention pond #2 to excavate the diesel fuel impacted peastone from below the concrete culverts which lead to retention pond #3. After excavating two feet under the culverts, diesel fuel-impacted peastone was still encountered. A headspace of 58 ppm was obtained from the impacted peastone. Diesel fuel-impacted soil that was encountered below the peastone was also removed. The dimensions of the culvert excavation were 12 feet in length by four feet in width. Two additional feet of soil were further excavated underneath the culvert structure as shown on **Figure 4**. After excavation activities were completed, wooden planks were placed under the concrete base to support the structure. Absorbent booms were placed under the culvert in the excavated area and inside the culvert openings.

Two confirmatory soil samples were collected from the top and bottom of the culvert excavation (Culvert-02 Bottom and Culvert-02 Top) for headspace screening and laboratory analysis. The Culvert-02 Top sample was collected two feet inside the structure from the sidewall at the top of the structure. The headspace readings were 2.1 ppm for Culvert-02 Bottom and 54.1 ppm for Culvert-02 Top. The samples were submitted to Alpha for laboratory analysis of EPH plus diesel range target PAHs. The analytical results showed that no analytes were detected in Culvert-02 Bottom above the laboratory reporting limits. No target PAHs were detected in Culvert-02 Top above the laboratory reporting limits. All three EPH fractions were detected in Culvert-02 Top above the laboratory reporting limits but well below the strictest Method 1 S-1/GW-3 standards. A summary of the soil analytical results is provided in **Table 2**. The gate valve continued to be shut so that no water could enter the retention pond.

3.7 NOVEMBER 17, 2014 ACTIVITIES

Due to a heavy rainfall event, on November 17, 2014, Global mobilized a vacuum truck to pump out the water in the manhole of the storm water collection system at the base of retention pond #2. A total of 12,000 gallons was removed from the manhole. It was off-loaded into the facility's groundwater treatment system located next to the oil/water separator. However, the pumping rate was not sufficient to remove quickly enough the heavy volume of precipitation entering into the manhole. No sheens were noted on the water that was being pumped. Therefore, the gate valve was opened partially to allow water to slowly enter the retention pond in intervals until no water remained in the manhole or culvert. A slight petroleum sheen was noted in the last remaining amount of water in the manhole. Therefore, before that water entered the pond, the gate valve was closed and several sections of absorbent boom were moved to the front of the gate valve to capture any fuel oil that would discharge into the pond.

3.8 NOVEMBER 18, 2014 ACTIVITIES

After the November 17, 2014 rain event ended, on November 18, 2014, Global changed the absorbent boom in the retention pond that was impacted with fuel oil and soil. They utilized absorbent pads to collect the fuel oil sheen that was observed to the east of the gate valve and installed a new boom around the rip rap in the area that had not previously been remediated. Global also replaced the boom inside the manhole and bagged the impacted booms and pads which were placed in three 55-gallon drums. An area of diesel-impacted soil that was approximately 20 feet in length was observed in the southeastern portion of the pond. This area was previously remediated; however, diesel fuel had migrated to this location most likely during the November 17, 2014 rain event.

Amec Foster Wheeler contacted Mr. Dino Dellechiaie of the MassDEP to provide an update as to the sheen that was present in the retention pond and indicated that additional absorbent pads and booms were used to remove the sheen from the retention pond. Mr. Dellechiaie advised Amec Foster Wheeler to collect another sample at the outfall to the other retention pond (#3) to confirm that no petroleum was leaving retention pond #2. Mr. Dellechiaie also approved a request by Susan O'Brien, the LSP-of-Record, to increase the soil removal volume to a total of 100 cubic yards.

To evaluate the impacts in the overflow retention pond #3, Amec Foster Wheeler collected a storm water sample from retention pond #3 at the outfall from retention pond #2. The sample was submitted to Alpha for laboratory analysis of EPH plus diesel range target PAHs. The analytical results showed that only one EPH fraction was detected above the laboratory reporting limits, but well below the Method 1 GW-3 standards that were used as a screening evaluation. A summary of the analytical results is provided in **Table 4**. A storm water sample was also collected on November 12, 2014 (see Section 3.6 above).

3.9 NOVEMBER 20, 2014 ACTIVITIES

On November 20, 2014, Global measured the quantity of fuel and oil that had been collected in the frac tank. A total of 1,730 gallons of oil and 4,000 gallons of water were calculated. Although Global stated that they had previously measured 1,300 gallons of diesel fuel on November 7, 2014 and 900 gallons of diesel fuel on November 9, 2014 (totaling 2,200 gallons), this earlier testing had been performed prior to the diesel fuel completely separating from the water and therefore was deemed to be less accurate than the volume of 1,730 gallons that was measured on November 20, 2014 within the frac tank.

Global processed the oil/water mixture located in the frac tank through the on-site oil/water separator. The fuel oil was transported by Global to Tradebe Treatment & Recycling of Stoughton, Massachusetts on February 19, 2015.

3.10 NOVEMBER 24, 2014 ACTIVITIES

On November 24, 2014, Global mobilized to the Site to inspect the manhole and retention pond for any sheens due to another small rain event that occurred while the gate valve was left open to allow water to flow into the retention pond. Global also replaced the absorbent boom and pads in front of the gate valve and around an area near the gate valve in the pond and moved the containment boom closer to this area to contain a minor fuel oil sheen that was observed in the pond and believed to have originated from the storm water system.

3.11 NOVEMBER 25, 2014 ACTIVITIES

On November 25, 2014, Global replaced the absorbent boom and pads due to a slight fuel oil sheen present in the small contained area located in front of the gate valve and containerized the impacted boom and pads.

3.12 NOVEMBER 28, 2014 ACTIVITIES

On November 28, 2014, Global installed additional absorbent pads as needed due to a minor fuel oil sheen in the small contained area in front of the gate valve and removed and containerized the impacted pads. The majority of the pond was frozen and snow covered.

3.13 DECEMBER 3, 2014 ACTIVITIES

On December 3, 2014, Global removed the impacted rip rap in the area to the east of the gate valve to the top of the storm water. The soil located below the rip rap in the zone above the water level appeared to be impacted with diesel fuel based on visual and olfactory observations. Because the rip rap and soil located below the water was also likely impacted but could not be accessed, no additional activities were performed in that area.

Fuel oil-impacted soil was also observed on the sides of the retention pond in areas that were previously remediated. It was presumed that the impacts were due to snow removal activities at the facility, whereby plowed snow containing residual petroleum was being disposed of inside the pond and re-impacting the pond after it melted. CSX personnel were notified of these activities which were reportedly ceased.

3.14 DECEMBER 5, 2014 ACTIVITIES

On December 5, 2014, Global installed new rip rap in the area located in front of the gate valve. No rip rap was installed in areas west of the gate valve where additional impacted soil was in need of excavation and removal due to the presence of a sheen on top of the rip rap that was observed by Global. All areas containing absorbent boom were inspected, resituated, and replaced, if necessary.

3.15 DECEMBER 11, 2014 ACTIVITIES

On December 11, 2014, Global replaced absorbent booms and pads as needed due to a minor fuel oil sheen present in the small contained area in front of the gate valve, and removed and containerized the impacted booms and pads.

3.16 DECEMBER 30, 2014 ACTIVITIES

On December 30, 2014, Amec Foster Wheeler conducted a subsurface investigation south of track SU2 (between tracks SU2 and SU3) consisting of the advancement of five soil borings, SB-1 through SB-5, to delineate the extent of the diesel fuel release and determine if diesel fuel had migrated to and/or affected groundwater. A soil sample SB-6(0.9") was also collected to the north of track SU2 below the ballast and above the impermeable plastic geomembrane liner between the track and the paved roadway. The borings were initially advanced using a vactor truck to a depth of five feet bgs, and continued using a track-mounted Geoprobe® push probe for SB-1, SB-2, and SB-4, which were advanced to depths up to 20 feet. The vactor truck and

Geoprobe® were owned and operated by Geosearch Environmental, Inc. of Fitchburg, Massachusetts. Soil samples were collected at one-foot intervals using a hand auger beginning below the ballast at a depth of one foot to a depth of five feet bgs.

Amec Foster Wheeler was onsite to direct subsurface investigation activities, collect samples for headspace screening with a PID and/or laboratory analysis, and characterize soil. In addition, samples were also inspected for visual and olfactory evidence of petroleum contamination. In general, the overburden was characterized as ballast consisting of one to two inch diameter angular rocks to a depth ranging from 6 to 12 inches bgs, followed by dry fill material described as dark brown sand with varying amounts of silt, gravel and cobbles that was encountered to a depth of approximately nine feet bgs. A clay layer was encountered in SB-1 and SB-4 at a depth ranging from 9 to 10 feet bgs, followed by a lens of fine to medium sand to the bottom of each boring. The water table was encountered at a depth of approximately 12 feet bgs. A soil sample was collected from soil boring SB-2 at a depth of 11 to 11.5 feet bgs and headspace screened with a PID (the result was 0.4 ppm) to confirm that diesel fuel had not migrated to the water table.

When the Geoprobe® was used to advance the soil borings, soil was collected at five-foot intervals using acetate liners. The soil was logged for lithology. The locations of the soil borings are shown on **Figure 5**. The soil boring logs which provide the soil descriptions, recovery and headspace screening results are provided in **Appendix B**. After the subsurface investigation was completed, the borings were backfilled with soil and ballast.

Because the headspace screening results showed a decreasing trend with increasing depth and because there was no evidence of contamination below a depth of six feet, groundwater was not likely impacted by the diesel fuel release associated with RTN 2-19355. Therefore, no groundwater monitoring wells were installed.

For this subsurface investigation, the table below presents the soil boring IDs, the sampling depth interval, the headspace screening results, and whether the sample was submitted for laboratory analysis of EPH plus target PAHs. Since sample SB-5(1-1.5') exhibited an elevated headspace reading above 100 ppm, it was also submitted for laboratory analysis of VPH plus target VOCs.

Soil Boring ID	Sampling Depth Interval (in feet)	Headspace Screening Result (in ppm)	Sample Submitted for Laboratory Analysis of EPH plus diesel range PAHs
SB-1	1 - 1.5'	88.5	Yes
	2 - 2.5'	17.5	No
	3 - 3.5'	20.0	No
	4 - 4.5'	2.6	No
	5 - 6'	Not obtained due to insufficient recovery	Yes
SB-2	1 - 1.5'	79.0	Yes
	2 - 2.5'	29.4	No
	3 - 3.5'	12.8	No
	4 - 4.5'	17.2	Yes
	11 - 11.5' (above water table)	0.4	No

Soil Boring ID	Sampling Depth Interval (in feet)	Headspace Screening Result (in ppm)	Sample Submitted for Laboratory Analysis of EPH plus diesel range PAHs
SB-3	1 - 1.5'	12.0	Yes
	2 - 2.5'	2.0	No
SB-4	1 - 1.5'	11.1	Yes
	2 - 2.5'	2.2	No
SB-5	1 - 1.5'	107	Yes*
	2 - 2.5'	16.9	No
	3 - 3.5'	7.0	Yes
SB-6	0.9'	80.1	Yes

Note:

*this sample was also submitted for laboratory analysis of VPH with target VOCs.

Based on the headspace screening results, coupled with visual and olfactory observations, diesel fuel did not appear to have migrated past a depth of six feet bgs. Therefore, since groundwater was determined not to be impacted by the release, groundwater monitoring wells were not installed and groundwater samples were not collected from any of the borings.

The laboratory analytical results revealed that only sample SB-06 exhibited exceedences of EPH fractions above any of the Method 1 soil standards. SB-06 was the only sample that was collected on December 30, 2014 to the north of the tracks between track SU2 and the paved roadway. It was collected at a depth of 0.9 feet immediately below the ballast and above the plastic geomembrane liner that was installed between track SU2 and the roadway in that area. The analytical data for SB-06 revealed that C9-C18 Aliphatics was detected above the Method 1 S-1/GW-3 and S-2/GW-3 standards. C11-C22 Aliphatics was detected above the S-1/GW-3 standard. No diesel range target PAHs were detected in SB-06 above any of the Method 1 soil standards. A summary of the analytical results are provided in **Table 3**.

The remaining samples were collected from soil borings that were advanced on the south side of the tracks between tracks SU2 and SU3 in which no plastic geomembrane liner was present at depths ranging from one to six feet bgs. Although all three EPH fractions were detected in all of the eight soil samples collected from the five borings above the laboratory reporting limits, none were detected above any of the Method 1 soil standards. No diesel range target PAHs were detected in three samples above the laboratory reporting limits. The remaining five samples exhibited diesel range target PAH concentrations well below any of the Method 1 soil standards.

One sample, SB-05(1-1.5'), exhibited a headspace reading above 100 ppm and was therefore submitted for laboratory analysis of VPH with target VOCs. The analytical results revealed that all three VPH fractions were detected above the laboratory reporting limits; however, with the exception of C9-C10 Aromatics, no VPH fractions were detected above any of the Method 1 soil standards. C9-C10 Aromatics was detected at a concentration of 118 mg/kg, which is slightly above the Method 1 S-1/GW-3 soil standard of 100 mg/kg. No target VOCs were detected above any of the Method 1 soil standards. A summary of the analytical results are provided in **Table 3**.

In the three soil borings (SB-02, SB-02, and SB-05) in which two samples were collected for laboratory analysis of EPH and diesel range target PAHs, a decreasing trend in concentrations

of both EPH fractions and diesel range target PAHs was observed vertically with increasing depth.

3.17 JANUARY 14, 2015 ACTIVITIES

Due to elevated EPH concentrations from sample SB-06 discussed in the previous section, further horizontal delineation was required between track SU2 and the paved roadway above the plastic geomembrane liner. On January 14, 2015, Amec Foster Wheeler collected an additional three soil samples, SB-7, SB-9 SB-10 immediately above the plastic geomembrane liner and below the ballast at a depth of 0.9 feet bgs utilizing a shovel and ice pick. The soil sample locations are shown on **Figure 5**. Each sample was headspace screened with a PID for TVOCs. In addition, soil samples were also inspected for visual and olfactory evidence of petroleum contamination. The samples were submitted to Alpha for laboratory analysis of EPH fractions and diesel range target PAHs.

Due to extremely cold temperatures at the time of sample collection, PID readings were not deemed to be representative of TVOC levels, as the soil was frozen at the time of collection and was not completely thawed at the time of headspace screening. Therefore, Amec Foster Wheeler had to rely on visual and olfactory evidence to determine if the horizontal extents of contamination had been defined.

In general, the soil samples that were collected consisted of fill material comprised of dark brown sand with varying amounts of silt, gravel and cobbles. The headspace screening results are provided in the following table:

Soil Sample ID	Headspace Screening Result (in ppm)
SB-07	1.2
SB-09	11.3
SB-10	0.4

The laboratory analytical results revealed that no EPH fractions or diesel range target PAHs were detected in sample SB-07 above the laboratory reporting limits. No diesel range target PAHs were detected in sample SB-10 above the laboratory reporting limits. Two EPH fractions were detected in sample SB-10 above the laboratory reporting limits but below all of the Method 1 soil standards. For sample SB-09, which is located between SB-07 and SB-10, only one diesel range target PAH was detected above the laboratory reporting limits; this PAH was detected well below all of the Method 1 soil standards. All three EPH fractions were detected in sample SB-09 above the laboratory reporting limits. Two EPH fractions were detected above at least one Method 1 soil standards. C9-C18 Aliphatics was detected above the Method 1 S-1/GW-3 and S-2/GW-3 standards. C11-C22 Aliphatics was detected above the Method 1 S-1/GW-3 standards. A summary of the soil analytical results are provided in **Table 3**.

Based on the laboratory analytical results, it was determined that the vertical and horizontal extents of the diesel fuel release in the locomotive release area were defined and that no additional sampling or remedial activities were required in this area.

3.18 MAY 12, 2015 ACTIVITIES

On May 12, 2015, Amec Foster Wheeler personnel performed soil headspace screening using a PID in all areas of the pond that were previously believed to have been re-impacted, as described in Section 3.13 above, including the sides of the pond and the area located east of the gate valve below the previous standing water. These areas were also investigated for visual and olfactory evidence of contamination. Additional areas, including the bottom of the pond, were also investigated and soil samples were collected from these areas and headspace screened with a PID. With the exception of the area located west of the gate valve (see Section 3.19 below), no elevated headspace readings (above 5 ppm), visual staining or olfactory evidence of contamination were noted in any areas of the pond.

3.19 MAY 13, 2015 ACTIVITIES

Due to the presence of standing water in the retention pond beginning in mid-November 2014, as well as significant snowfall events beginning in mid-January 2015, the final remediation in retention pond #2 to the west of the gate valve was postponed until the snow melted and the water in the pond evaporated.

On May 13, 2015, Global and Amec Foster Wheeler mobilized to the retention pond. Global used shovels, a skid-steer loader and a mini-excavator to remove approximately four cubic yards of diesel fuel impacted rip-rap and soil from around that area located to the west of the gate valve area. The removal of the impacted material was based on headspace screening results, as well as visual and olfactory evidence of contamination as directed by Amec Foster Wheeler.

Prior to conducting the remediation, Global removed the absorbent booms located in the following areas: 1) on the side of the gate valve, 2) inside the hard boom surrounding the gate valve and 3) next to the culvert. The booms were placed in cubic yard boxes for disposal. Global also temporarily removed the hard boom to perform the remediation.

After the excavation was completed, the dimensions of the excavation were 9 feet long by 5.3 feet wide by 2.5 feet deep (from the bottom of the rip rap). As shown on the inset in **Figure 4**, a total of four sidewall samples (Sidewall-01(W) through Sidewall-04(W)) and one bottom sample (Bott-01(W)) were collected for headspace screening and laboratory analysis. The sidewall samples were collected approximately 0.5 feet above the bottom of the excavation. As indicated on **Table 2**, the highest headspace screening result was 1.3 ppm. The samples from these locations were submitted to Alpha for laboratory analysis of EPH fractions and diesel range target PAHs.

The analytical results showed that no EPH fractions or diesel range target PAH analytes were detected in Sidewall-02(W) and Bott-01(W) above the laboratory reporting limits. No target PAHs were detected in any of the five samples above the laboratory reporting limits. Low concentrations of EPH fractions were detected in the remaining samples well below the strictest Method 1 S-1/GW-3 standards. A summary of the analytical results is provided in **Table 2**.

Global placed the excavated soil directly into a metal roll-off container and on May 20, 2015 transported it to ESMI of Loudon, New Hampshire for thermal treatment under a Bill of Lading.

Prior to leaving the Site for the day, Global placed absorbent booms around the outside the gate valve to absorb any diesel fuel which may be discharged from the concrete culvert during a minor rainfall event. The hard boom was replaced around the gate valve area.

3.20 JUNE 2, 2015 ACTIVITIES

A major rainfall event began on the evening of May 31, 2015 and continued through June 2, 2015. On the morning of June 1, 2015, Amec Foster Wheeler visited the Site and observed a petroleum odor and visible sheen on top of the water to the west of the gate valve area. The sheen was contained within the hard boom that had been placed around the gate valve area.

On June 2, 2015, Global mobilized to the retention pond to capture the sheen using absorbent pads. They also installed a ten foot section of absorbent boom in the area where the impacts were originating. Additionally, they placed an absorbent boom on the inside of the hard boom.

3.21 JUNE 19, 2015 ACTIVITIES

Prior to another major rainfall event which occurred on June 20 and 21, 2015, Global mobilized to the retention pond to change the absorbent booms and reset the hard boom. No signs of a sheen or odor were observed by Global at that time.

3.22 JUNE 29, 2015 ACTIVITIES

Global reinstalled stakes that were used to position the outside absorbent and hard boom, since the western side of the booms had become loose and had shifted inside of the stakes due to a major rainfall event on June 27 and 28, 2015 which caused the water in the pond to be higher than expected. No signs of a sheen or odor were noted by Global when they reinstalled the stakes and repositioned the booms.

3.23 SEPTEMBER 11, 2015 ACTIVITIES

A major rain event occurred overnight and on the morning of September 11, 2015, producing a sheen in the retention pond which was observed inside the inner absorbent boom between the gate valve and the boom. In addition, the innermost absorbent boom and the absorbent booms located left and right of the gate valve were black in color and needed to be replaced. Therefore, in the early afternoon of September 11, 2015, after the rain event had subsided, Global mobilized to the Site and initially used absorbent pads to soak up the sheen. They then removed and replaced the impacted absorbent booms in front of the gate valve and to the immediate left and right of the gate valve. As an added precaution, they also installed one section of absorbent boom inside the manhole that leads to the gate valve and the pond with the intention of absorbing any petroleum prior to reaching the gate valve and retention pond.

3.24 SEPTEMBER 30, 2015 AND OCTOBER 1, 2015 ACTIVITIES

A significant rain event occurred during the day on September 30, 2015. Amec Foster Wheeler visited the Site on the late afternoon of September 30, 2015 and did not observe the presence of a sheen. However, Global mobilized to the Site on the morning of October 1, 2015 after the rain event had subsided to inspect the absorbent booms. Because the booms were either damaged and deteriorated or covered in dirt, mud, and/or oil, they were all replaced, including the booms located in front of and to the sides of the gate valve, as well as the absorbent boom

located further out from the gate valve adjacent to the hard boom. The removed booms were bagged, containerized in a cubic yard box and stored onsite.

3.25 OCTOBER 28 AND 29, 2015 ACTIVITIES

A major rain event occurred in the evening of October 28, 2015 and continued until the early morning of October 29, 2015. Amec Forster Wheeler visited the Site in the morning of October 29, 2015 and did not observe the presence of a sheen. In addition, the booms appeared relatively clean. Global mobilized to the Site to permanently remove the outer absorbent and hard booms from the pond since they were not needed as sheens or oil impacts were no longer being observed. The absorbent booms located near the gate valve will temporarily remain in place, as they were still deemed to be effective in absorbing debris discharging from the concrete culvert into the pond and are hence temporarily being incorporated into the storm water management practices at the facility. They will be removed in January 2016 or immediately prior to the first major snowfall event.

4.0 CRITICAL EXPOSURE PATHWAY, SUBSTANTIAL RELEASE MIGRATION, AND IMMINENT HAZARD EVALUATIONS

4.1 CRITICAL EXPOSURE PATHWAY EVALUATION

Critical Exposure Pathways (CEPs) are defined by the MCP as routes by which OHM released at a site are transported or are likely to be transported to human receptors via:

- vapor-phase emissions of measurable concentrations of OHM into the living or working space of a pre-school, daycare, school or occupied residential dwelling; or
- ingestion, dermal absorption or inhalation of measureable concentrations of OHM from drinking water supply wells located at and servicing a pre-school, daycare, school or occupied residential dwelling.

A CEP does not exist for the ingestion, dermal absorption, or inhalation or OHM from a drinking water supply well because the Site is not located in a Current or Potential Drinking Water Source Area nor are there any private water supply wells located at or in the vicinity of the Site. A CEP does not exist for the vapor-phase emissions of measureable concentrations of OHM into the living or working space of a pre-school, daycare, school or occupied residential dwelling as the release was confined to limited areas which were remediated. Currently the closest pre-school, daycare or dwelling is a residence located approximately 650 feet southeast of the retention pond #2 area and a residence located 500 feet northwest of the locomotive release area.

4.2 CONDITION OF SUBSTANTIAL RELEASE MIGRATION EVALUATION

Pursuant to 310 CMR 40.0006 and 40.0313(4), a Condition of Substantial Release Migration (SRM) is defined by any of the following criteria. An evaluation of the applicability or relevance of each criterion to the Site conditions is given below.

1. Releases that have resulted in the discharge of separate-phase OHM to surface waters, buildings, or underground utilities or conduits.

The majority of the release was directed to the recently constructed on-site subsurface storm water drainage system which directed the diesel fuel to retention pond #2. However, the diesel fuel that discharged to the pond was contained within the pond and was removed by Global, along with associated diesel impacted peastone, rip rap and soil.

2. Releases to the ground surface or to the vadose zone that if not promptly removed or contained are likely to significantly impact the underlying groundwater or significantly exacerbate an existing condition of groundwater pollution.

An impermeable plastic geomembrane liner is located beneath and to the north of the track SU2 and directs contamination to the underground storm water system. A subsurface investigation was performed on December 30, 2014 to evaluate the extent of contamination to the south of the track SU2. The laboratory analytical results indicated that the release did not significantly impact soil past a depth of approximately two feet

bgs. Since groundwater in the locomotive release area is located at a depth of approximately 12 feet bgs in the location of the locomotive release area, it was not likely affected by the release associated with RTN 2-19355. All impacted soil was excavated and removed from retention pond #2 and groundwater was not encountered in the bottoms of the excavations. Therefore, groundwater in the retention pond #2 area was not likely affected by the release associated with RTN 2-19355.

3. Releases to the groundwater that have migrated or are expected to migrate more than 200 feet per year.

Based on the results of the December 30, 2014 subsurface investigation in the locomotive release area and the results of the samples collected from the bottoms of the excavations located in the retention pond #2 area, the release associated with RTN 2-19355 did not likely migrate to groundwater; therefore, this criterion is not applicable to the Site.

4. Releases to the groundwater that have been or are within one year likely to be detected in a public or private water supply well.

Based on the results of the December 30, 2014 subsurface investigation in the locomotive release area and the results of the samples collected from the bottoms of the excavations located in the retention pond #2 area, the release associated with RTN 2-19355 did not likely migrate to groundwater; therefore, this criterion is not applicable to the Site. In addition, no public or private water supply wells are located in the vicinity of the Site.

5. Releases to the groundwater that have been or within one year are likely to be detected in a surface water body, wetland, or public water supply reservoir.

Based on the results of the December 30, 2014 subsurface investigation in the locomotive release area and the results of the samples collected from the bottoms of the excavations located in the retention pond #2 area, the release associated with RTN 2-19355 did not likely migrate to groundwater; therefore, this criterion is not applicable to the Site. In addition, no surface water bodies, wetlands or public water supply reservoirs are located in the vicinity of the Site.

6. Release to the groundwater or to the vadose zone that have resulted or have the potential to result in the discharge of vapors into a school, daycare or child care center or occupied residential dwelling.

No schools, daycares, child care centers or residential dwellings are located in the vicinity of the Site and groundwater was not impacted from the release associated with RTN 2-19355. Therefore, the petroleum release at the Site is not expected to result in the discharge of vapors into school buildings, daycares, child care centers or occupied residential dwellings.

Based on the above information, Amec Foster Wheeler concludes that a Condition of Substantial Release Migration, as defined by the MCP, does not exist at the Site.

4.3 IMMINENT HAZARD EVALUATION

As defined by the MCP, the focus of an Imminent Hazard Evaluation shall be on actual or likely exposures to human and environmental receptors under current Site conditions, considering the current use of the Site and the surrounding environment. An Imminent Hazard does not exist at the Site for the following reasons:

- The release did not result in the presence of vapors within buildings, structures, or underground utility conduits at a concentration equal to or greater than 10% of the Lower Explosive Limit;
- The release did not endanger public safety within a roadway;
- The release did not pose a significant risk to human health when present at the Site for a short period of time;
- The release did not represent a condition that was reactive or explosive and did not threaten human health or safety;
- The release did not produce immediate or acute adverse impacts to freshwater or saltwater fish populations;
- The release did not produce readily apparent effects to human health, including respiratory distress or dermal irritation;
- No private drinking water supply wells are located within 500 feet of the Site; therefore, it is highly unlikely that the release would impact a private drinking water supply well at concentrations ten times the MCP GW-1 Reportable Concentration;
- The diesel impacted soil in the area of the release is covered with stone ballast and is not readily accessible; and,
- The release did not represent long-term risk levels associated with current exposures that are greater than ten times the Cumulative Receptor Risk Limits in 310 CMR 40.0993(6).

Based on this information, Amec Foster Wheeler concludes that an imminent hazard, as defined by the MCP, does not exist at the Site.

4.4 IRA COMPLETION STATEMENT

The IRA was completed in accordance with 310 CMR 40.0427 via the removal of the petroleum impacted soil and ballast located in retention pond #2, as well as the removal of product and oil/water located in the subsurface concrete culvert and retention pond #2. It is the opinion of Amec Foster Wheeler that the IRA associated with RTN 2-19355 is complete, as the IRA was successful in stabilizing Site conditions and, as discussed below in Section 5, achieved a condition of No Significant Risk.

5.0 CONCEPTUAL SITE MODEL, NATURE AND EXTENT OF CONTAMINATION, AND POTENTIAL RECEPTORS

The conceptual site model is a three dimensional picture of site conditions that illustrates contaminant distribution, release mechanisms, exposure pathways, migration routes and potential receptors. The purpose of the conceptual site model is to present an understanding of known and suspect environmental conditions as they currently exist for the Site. The conceptual site model also provides a basis for evaluating the need for implementing additional remedial actions. The conceptual site model is detailed below.

5.1 CONTAMINANTS OF CONCERN

Diesel fuel, a petroleum product, is the contaminant that was released onto the ground surface at the Site. Diesel fuel is a mixture of numerous hydrocarbon compounds; the composition is complex and variable and a function of: 1) the origin and chemistry of the parent crude oil, 2) the refining and blending processes, and 3) the use of performance-enhancing additives. Diesel fuel consists of a complex mixture of aliphatic and aromatic hydrocarbons. The aliphatic alkanes and cycloalkanes such as naphthalenes are hydrogen saturated and comprise approximately 80 to 90 percent of fuel oils. Aromatics comprise between 10 to 20 percent of fuel oils. Diesel fuel is a distillate fuel which consists of distilled process streams and is usually a blended distillate with hydrocarbons in the C₁₁ to C₂₀ range.

As per the MassDEP guidance document entitled: "Characterizing Risks Posed by Petroleum Contaminated Sites: Implementation of the MADEP VPH/EPH Approach", Policy No. WSC-02-411, dated October 31, 2002, the recommended target analyte list for the diesel fuel that was released to soil when headspace readings are over 100 ppm consists of benzene, toluene, ethyl benzene, xylenes (BTEX) and naphthalene (target VOCs). The recommended target analyte list for soil when headspace readings are less than 100 ppm is acenaphthene, 2-methylnaphthalene, naphthalene and phenanthrene (fuel oil range target PAHs). BTEX are considered VOCs and are known to readily volatilize to the air. Acenaphthene, 2-methylnaphthalene, and phenanthrene are considered PAHs, a subset of semi-volatile organic compounds (SVOCs), which are heavier and less volatile than VOCs. Naphthalene is an intermediate between a VOC and PAH, and is therefore considered an analyte in both categories.

During the remedial activities that occurred in retention pond #2, all of the headspace readings for all the post-excavation confirmatory soil samples were less than 100 ppm; therefore, no samples in that area were submitted for laboratory analysis of VPH fractions with target VOCs. In the locomotive release area in the vicinity of track SU2, two soil samples (Testpit-02 and SB-05(1-1.5')) exhibited headspace readings near or above 100 ppm; those samples were submitted for laboratory analysis of VPH fractions with target VOCs.

For the retention pond #2 area, a total of 29 post-excavation confirmatory soil samples were submitted for laboratory analysis of EPH fractions with diesel range target PAHs. The 29 samples include 16 samples collected from the sides of the retention pond, as well as five samples collected from east of the gate valve excavation area, five samples collected from west of the gate valve excavation area and three samples collected from the culvert excavation area. The laboratory results for all 29 post-excavation confirmatory samples revealed that no EPH fractions or diesel range target PAHs were detected above any of the Method 1 standards.

In the locomotive release area, a total of 14 soil samples were submitted for laboratory analysis of EPH fractions with diesel range target PAHs. The sample set include two samples that were collected from two test pits (Testpit-01 and Testpit-02) which were excavated between tracks SU2 and SU3 at a depth of two feet approximately one week after the release occurred. The sample set also consisted of eight soil samples that were collected from five soil borings (SB-01 through SB-05) that were advanced on December 30, 2014 between tracks SU2 and SU3; the sample depths ranged from one to six feet bgs. In addition, four soil samples (SB-06 through SB-10) were collected on January 14, 2015 at a depth of 0.9 feet bgs immediately above the impermeable plastic geomembrane liner that had previously been installed as part of site improvements to the north of track SU2 between the track and the paved roadway. The laboratory results revealed one VPH fraction, C9-C10 Aromatics, was detected above the Method 1 S-1/GW-3 standard in both of the samples that were submitted for VPH analysis. The results were below the applicable Method 1 S-2/GW-3 standards. In addition, for the EPH fraction C9-C18 Aliphatics, three samples (Testpit-02, SB-06, and SB-09) were detected above the Method 1 S-1/GW-3 standard; two samples (SB-06 and SB-09) were also detected above the applicable Method 1 S-2/GW-3 standard. In addition, one EPH fraction, C11-C22 Aromatics, was detected in two samples (SB-06 and SB-09) above the Method 1 S-1/GW-3 standard.

In November 2014, two storm water samples were also collected from retention pond #3 which overflows from retention pond #2 to determine if diesel fuel from the release was migrating to retention pond #3. The samples were submitted for laboratory analysis of EPH fractions plus diesel range target PAHs. Only one EPH fraction, C19-C36 Aliphatics, was detected in each sample at concentrations of 104 and 327 µg/l, slightly above the laboratory reporting limit of 100 µg/l, but well below the Method 1 GW-3 groundwater standard of 50,000 µg/l (this standard was used for screening purposes only). Based on these results, it was determined that since the concentrations were near background, there was no migration of diesel fuel from retention pond #2 to retention pond #3.

MassDEP's "Guidance for Disposal Site Risk Characterization" (WSC/ORS-95-141) was used as a reference in considering which analytes would be selected as Contaminants of Concern. In accordance with this document, each detected analyte should be considered a Contaminant of Concern unless one of the following conditions is true:

- The analytes are present at a low frequency of detection and in low concentration;
- The analytes are present at levels that are consistent with "background" concentrations for the area and there is no evidence that their presence is related to activities at the Site; or
- The chemical are field or laboratory contaminants.

Based on this guidance document, the Contaminants of Concern in soil are all three VPH fractions, the target VOCs consisting of ethyl benzene, xylenes, and toluene, all three EPH fractions and three diesel range target PAH compounds consisting of acenaphthene, 2-methylnaphthalene and phenanthrene, as well as naphthalene which is considered an intermediate between a VOC and PAH.

Based on the December 30, 2014 subsurface investigation performed in the locomotive release area, groundwater in that area is located at a depth of approximately 12 feet bgs. In the retention pond #2 area, the depth to groundwater is unknown; however, it is located at a depth

of at least three feet below the bottom of the pond, since excavation activities were conducted in that area and groundwater was not encountered. Since the headspace readings and soil laboratory analytical results in both locations showed no indications of soil impacts in the vadose zone above the water table, the release did not migrate to groundwater and groundwater was therefore not evaluated.

5.2 PRIMARY RELEASE MECHANISM/SOURCE OF OHM

The primary release mechanism is a release of diesel fuel to the ground surface via a compromised filter canister clamp located on the engine of the locomotive which caused a rapid release of diesel fuel onto the surrounding ballast and pavement. After being released into the ballast, the diesel fuel migrated on top of an impermeable geomembrane liner that was present below the ballast on the northern side of track SU2. The liner was sloped downward so that the diesel fuel was directed through the ballast to a subsurface concrete conduit that is 30 inches in diameter which discharged to unlined retention pond #2.

5.3 NATURE AND EXTENT OF CONTAMINATION

5.3.1 Soil

The release affected two areas at the Site consisting of the location where the release occurred, referred to as the locomotive release area, and retention pond #2, where the release ultimately discharged.

In the locomotive release area, the horizontal extent of contamination is defined as follows:

- to the south of track SU2 between tracks SU2 and SU3 with the collection of sample(s) from boring SB-04 to the west, SB-05 to the southwest, SB-02 to the southeast and SB-03 to the east;
- to the north of track SU2 with the collection of sample SB-07 to the west and SB-10 to the east.

In the locomotive release area, the vertical extent of contamination is defined to the south of track SU2 between tracks SU2 and SU3 with the collection of samples SB-01(5-6'), SB-02(4-5'), and SB-05(3-3.5'). Because of the presence of the impermeable plastic geomembrane liner to the north of track SU2, the release did not migrate below the liner which is located at a depth of 0.9 feet.

At retention pond #2, the horizontal and vertical extents of contamination at the sidewalls are defined with the collection of confirmatory samples RP-1 to RP-16 that were collected along the northern, eastern and southern sidewalls of the pond at distances ranging from every 10 to 20 feet at depths ranging from 4 to 13 inches bgs. In the area located east of the gate valve, the horizontal extent of contamination is defined with the collection of four confirmatory sidewall samples, Sidewall-01 through Sidewall-04; the vertical extent of contamination is defined with the collection of one confirmatory bottom sample, Bot-01, that was collected from a depth of three feet bgs. In the area located west of the gate valve, the horizontal extent of contamination is defined with the collection of four confirmatory sidewall samples, Sidewall-01(W) through Sidewall-04(W); the vertical extent of contamination is defined with the collection of one confirmatory bottom sample, Bott-01(W), that was collected from a depth of 2.5 feet bgs. In

the culvert area, the horizontal extent of contamination is defined with the collection of two confirmatory soil samples, Culvert-01 and Culvert-02-Top; the vertical extent of contamination is defined with the collection of one confirmatory bottom sample, Culvert-02-Bot, that was collected from a depth of two feet bgs.

5.3.2 Groundwater

Groundwater was not affected by the release, as soil impacts did not extend past six feet bgs in the locomotive release and the water table is located at a depth of approximately 12 feet bgs. The depth to the water table below the bottom of retention pond #2 is unknown; however, the retention pond was dry during soil excavation activities and groundwater was not encountered after excavation activities were completed in the lowest areas of the pond, consisting of the areas located east and west of the gate valves, as well as the culvert area.

5.3.3 Surface Water

The nearest off-site surface water body is located approximately 3,000 feet north of the Site. The on-site storm water retention ponds located at the Site were constructed in 2012. No storm water from the ponds is discharged off-site. Retention pond #2 is often dry when there are no rainfall events for any extended period of time. The release did not migrate off-site via subsurface structures, catch basins or storm drains. Therefore, off-site surface water was not likely impacted by the Site release.

Since retention pond #2 does not support or provide habitat for aquatic organisms or wildlife and is not integrated into the natural landscape and local hydrogeologic system, it is not considered a surface water body (See Section 5.5 below).

5.3.4 Indoor Air

No buildings are located within the vicinity of the release areas. The nearest occupied building to retention pond #2 is the CSX office which is located approximately 600 feet to the west. The nearest occupied building to the locomotive release area is a commercial building located 250 feet to the north. In addition, based on the low concentrations of VPH and EPH fractions remaining in soil, it is the opinion of Amec Foster Wheeler that volatilization of diesel fuel constituents to indoor air is not an exposure pathway of concern at the Site.

5.4.1 Underground Utilities

Except for the underground concrete culvert which was constructed to carry storm water and releases to the retention pond, underground utilities were not present within the Disposal Site Boundaries. In addition, groundwater was not affected by the release. Therefore, no preferential pathways with respect to underground utilities or conduits exist as a result of this release.

5.4 HUMAN RECEPTORS POTENTIAL

5.4.1 Residents

The Site is currently utilized as a CSX rail yard. Currently, child/adult residents are not typically present within the boundaries of the Site; however, child/adult residents are present with the

immediate vicinity of the Site as the Site is located in a mixed commercial, industrial and residential area of Worcester, Massachusetts. Under unrestricted future uses of the Site, child/adult residents may be present within the boundaries of the Site. Exposure pathways to Site Contaminants of Concern in soil for residential receptors would potentially include dermal contact, incidental ingestion and inhalation/ingestion of particulate matter derived from Site soil. For groundwater, the potential exposure pathways for residential receptors would include dermal contact with and inhalation of vapors derived from groundwater. However, because the Site is located in a railroad right-of-way on a property that will remain a rail yard for the foreseeable future, the presence of child/adult residents within the Disposal Site Boundary is not expected in the future.

5.4.2 Site Workers/Site Visitors

Site visitors (primarily adults) and/or employees (adults) are present under current activities and are likely to be present at the Site under future foreseeable non-residential uses and activities. Exposure pathways to Site Contaminants of Concern in soil for site workers/site visitors include dermal contact, incidental ingestion and inhalation/ingestion of particulate matter derived from Site soil. There are no potential groundwater exposure pathways for these receptors as groundwater was not impacted and is not used for drinking water in the vicinity of the Site.

5.4.3 Utility and Construction Workers

Utility and construction workers are not likely to be present at the Site under current activities, since the Site is being used as a rail yard and construction/utility work is not likely to occur. Under the foreseeable future Site uses, utility and construction workers may be present for maintenance or installation, construction and/or updating of existing utilities or structures. The primary exposure pathways to Contaminants of Concern in soil for these receptors would include dermal contact, incidental ingestion of and inhalation/ingestion of particulate matter derived from Site soil. Additionally, based on the depth to groundwater of 12 feet bgs in the locomotive release area and the average burial depth of underground utilities (approximately 3 to 8 feet bgs), utility and construction workers are not likely to come into contact with groundwater beneath the Site which was not impacted from the release associated with RTN 2-19355.

5.4.4 Trespassers/Passersby

Trespassers and passersby are not likely to be present at the Site under current and foreseeable future Site conditions, as the entire CSX facility is secured with a fence and locked gates.

5.5 ENVIRONMENTAL RECEPTORS

According to the MassDEP Bureau of Waste Site Cleanup Phase I Site Assessment Map, the Site is located greater than one-half mile from areas designated as Areas of Critical Environmental Concern (ACEC), rare wetland wildlife habitats, wetland areas, and certified and potential vernal pools. Given the urban nature of the Site and surrounding properties, exposures to wildlife in the vicinity of the Site are not expected to occur.

Storm water retention pond #2 is one of four man-made basins that were constructed within the rail yard to manage storm water. The bottom of retention pond #2 consists of soil and is often

dry. Therefore, no aquatic habitats, including aquatic vegetation, are present within retention pond #2. Based on this information, no environmental receptors are present within storm water retention pond #2 and it does not represent an ecological resource (MassDEP, 2006). Since retention pond #2 does not support or provide habitat for aquatic organisms or wildlife and is not integrated into the natural landscape and local hydrogeologic system, it does not need to be evaluated in the risk characterization.

6.0 METHOD 1 RISK CHARACTERIZATION

6.1 PURPOSE AND OBJECTIVES

The characterization of risk of harm to health, safety, public welfare and the environment is required at the Site because the contamination in soil has not been reduced to background levels, as described in 310 CMR 40.1020 of the MCP. A Method 1 risk characterization was used to assess risk to human health, public welfare, and the environment at the Site. The Method 1 risk characterization was performed in a manner consistent with scientifically acceptable risk assessment practices and using MassDEP guidance.

The risk characterization uses quantitative and qualitative information to evaluate the need for additional remedial actions by establishing whether a Condition of No Significant Risk of harm to health, safety, public welfare and the environment exists at the Site. The result of risk characterization is a basis for selection of an appropriate category for closure (i.e. a Permanent Solution Statement with No Conditions, a Permanent Solution Statement with Conditions, or a Temporary Solution).

As per 310 CMR 40.0191 of the MCP, the scope of the risk characterization is commensurate with the complexity of the Site and is sufficient to demonstrate that the Response Action Performance Standard (RAPS) has been met. RAPS, as it applies to risk characterization, is the level of diligence reasonably necessary to obtain the quantity and quality of information adequate to evaluate whether a Condition of No Significant Risk for any foreseeable period of time has been achieved. The employment of RAPS incorporates consideration of relevant policies and guidelines issued by MassDEP and the U.S. Environmental Protection Agency (EPA) and the use of accurate and up-to-date methods, standards, and practices.

6.2 RISK CHARACTERIZATION METHOD

As stated above, a Method 1 risk characterization approach was used to assess risk of harm to health, safety, public welfare and the environment at the Site. The Method 1 risk characterization compares contaminant concentrations detected at the Site to promulgated lists of soil and groundwater standards. It was performed in a manner consistent with scientifically acceptable risk assessment practices and MassDEP guidance and was appropriate to evaluate risk of harm to health, safety, public welfare and the environment at the Site for the following reasons:

- Soil was determined to be the only affected media;
- There is no potential for volatilization to indoor air;
- There are no analytes which bioaccumulate within the top two feet of soil; and
- There was no non-aqueous phase liquid (NAPL) detected in soil or groundwater at the Site.

The Method 1 risk characterization was performed in accordance with 310 CMR 40.0970 of the MCP and the MassDEP guidance document entitled "Guidance for Disposal Site Risk Characterization in Support of the Massachusetts Contingency Plan" dated July 1995. The required MCP components of the risk characterization are presented in this section of the report and include the following:

- Current and reasonably foreseeable site activity and use identified pursuant to 310 CMR 40.0923;
- Soil categories determined for the Site identified pursuant to 310 CMR 40.0933;
- Exposure Point(s) in soil for all current and reasonably foreseeable Site activities and Uses identified pursuant to 310 CMR 40.0924;
- Exposure Point Concentrations as described in 310 CMR 40.0926; and
- Comparison of Exposure Point Concentrations to the appropriate MCP Method 1 standard listed in 310 CMR 40.0975.

A separate evaluation of risk of harm to safety was completed in accordance with 310 CMR 40.0960.

As discussed in Section 5.1 of this report, the Contaminants of Concern for soil at the Site are all three VPH fractions, the target VOCs consisting of ethyl benzene, xylenes and toluene, all three EPH fractions and three diesel range target PAH compounds consisting of acenaphthene, 2-methylnaphthalene and phenanthrene, as well as naphthalene which is considered an intermediate between a VOC and PAH. There are two separate exposure points at the Site consisting of the locomotive release area and the retention pond #2 area. The Contaminants of Concern in the locomotive release area are the three VPH fractions, the target VOCs consisting of ethyl benzene, xylenes and toluene, the three EPH fractions, and two diesel range target PAHs consisting of 2-methylnaphthalene and phenanthrene, as well as naphthalene which is an intermediate between a VOC and PAH. The Contaminants of Concern in the retention pond #2 area consists of the three EPH fractions and all four diesel range target PAHs consisting of acenaphthene, naphthalene, 2-methylnaphthalene and phenanthrene. Because of the low headspace screening results for the confirmatory samples collected in the retention pond area, no samples were collected for VPH and target VOC analysis.

There are no Contaminants of Concern for groundwater at the Site, as groundwater was not impacted.

6.3 CURRENT AND FORESEEABLE ACTIVITIES AND USES

The property comprising the Site is an active CSX rail yard. Container cargo is brought to the CSX facility via rail and transferred to trucks for off-site distribution. Except for the four on-site storm water retention ponds, the CSX facility is either paved or covered by railroad tracks and associated ballast and buildings. The entire facility is secured by fencing and locked gates. The planned future use is also expected to be the same; however, unrestricted future expansion of the current commercial operations, as well as use of the Site for other commercial, residential or institutional use is not precluded from consideration in the Method 1 risk characterization. Because the Site is located in a rail right-of-way, an Activity and Use Limitation is not required per 310 CMR 40.1013(1)(c) of the MCP.

6.4 METHOD 1 SOIL AND GROUNDWATER CATEGORIES

As previously discussed in Sections 2.7, soil at the Site is categorized based on:

- Current and future potential receptors;

- Frequency of use and intensity of activities; and
- Accessibility of the soils.

The soil categories consider ingestion and dermal contact with the soil. All of the soil is considered “accessible” since it is either located below ballast in the locomotive release area or at the unlined retention pond and the Method 1 S-2 category applies at a depth of 0 to 3 feet bgs. The Method 1 S-3 category applies for soil located under pavement or at a depth greater than 3 feet bgs. For unrestricted future use, soil will also be compared to the Method 1 S-1 soil category. Any exposure point concentrations that are above the Method 1 S-1 standards, if not located within a right-of-way, would require the implementation of an Activity and Use Limitation. However, as per 310 CMR 40.1013(1)(c) of the MCP, releases that are located within a railroad right-of-way would not require an Activity and Use Limitation.

As discussed in Section 2.8, groundwater is categorized based on its potential:

- for human consumption;
- to act as a source of VOCs to inhalation of indoor air; and
- to affect the aquatic environment after discharge to surface water.

GW-1 category is not applicable as the Site is not located within a current or potential drinking water source area or a municipal aquifer protection district and private potable wells are not located within the vicinity of the Site.

The GW-2 category is not applicable to the Site. This category which considers groundwater as a potential source of vapors to indoor air, applies to groundwater that is located within 30 feet of an existing or planned building or structure that is or will be occupied and the average annual depth to groundwater in that area is 15 feet or less. The depth to groundwater at the Site is less than 15 feet bgs. However, since the Site is located within an active rail yard, no planned or current buildings are located in proximity to the Site. The nearest occupied building is the CSX office which is located approximately 600 feet west of Retention Pond #2 and 250 feet north of the locomotive release area.

All groundwater is considered a potential source of discharge to surface water and is therefore classified as GW-3.

6.5 HAZARD IDENTIFICATION

The nature of contamination is diesel fuel. The extent of contamination is adequately defined with the number and location of samples, augmented with the Site history information.

Two separate exposure points are being evaluated at the Site since two separate areas were affected. The exposure points are referred to as the “locomotive release area” and “retention pond #2” and are discussed below.

For the locomotive release area, as shown on **Figure 5**, a total of 14 samples were collected for laboratory analysis of EPH fractions with diesel range target PAH compounds. Two of these samples were also submitted for laboratory analysis of VPH fractions with target VOCs. These samples are being used to evaluate the extent of contamination both below the ballast to the south of railroad track SU2 and above the plastic geomembrane liner to the north of track SU2.

Since impermeable matting was present between track SU2, that area was not affected by the diesel fuel release. Other than placing Speedy-dri® above the pavement to the north of track SU2, no remediation activities occurred in the locomotive release area. The samples collected in this area are considered representative of current Site conditions.

For the retention pond #2 area, as shown on **Figure 4**, a total of 29 post-excavation confirmatory samples were collected for laboratory analysis of EPH fractions with diesel range target PAH compounds. Of these samples, 16 samples were collected from the sides of the retention pond; five samples were collected from each side of the gate valve area, and three samples were collected from the culvert area. These samples are being used to evaluate the extent of contamination after soil excavation activities were completed on three sides of the retention pond, as well as on each side of the gate valve and in the culvert area.

Each soil sample was screened for headspace analysis prior to being submitted for laboratory analysis. Details of the screening and sampling events are provided in Section 3 of the report. **Tables 1 through 3** provide a summary of the headspace screening and soil sampling results.

6.6 EXPOSURE ASSESSMENT

6.6.1 Identification of Potential Human Receptors

The potential human receptors were identified in Section 5.4 of this report. Site workers, visitors, utility workers and construction workers could be potentially exposed to soil contamination as a result of dermal contact, incidental ingestion of and inhalation/ingestion of particulate matter derived from Site soil.

The Site is not located within a current or potential drinking water source. Given that the Site is located in a developed area and there is access to municipal potable water, no private potable wells will likely be installed. In addition, groundwater was not impacted by the release associated with RTN 2-19355.

Since diesel fuel has ceased migrating into the retention pond, there is no longer any potential for human exposure with storm water.

6.6.2 Identification of Potential Environmental Receptors

The Site provides a limited habitat for terrestrial species based on its use as a rail yard located in a developed urban area. As described previously, part of the disposal site consists of a man-made storm water retention pond, referred to as retention pond #2. The impacted storm water retention pond is one of four man-made basins as part of the rail yard constructed to manage storm water. The bottom of retention pond #2 consists of soil and is often dry. Therefore, no aquatic habitats, including aquatic vegetation, are present within retention pond #2. Based on this information, the storm water retention pond does not represent an ecological resource (MassDEP, 2006).

Method 1 GW-3 standards were developed to be protective of aquatic environmental receptors following the eventual discharge of groundwater to surface water bodies. The nearest surface water body is located approximately 3,000 feet north of the Site and groundwater was not affected by the release associated with RTN 2-19355. Therefore, there is no risk to ecological receptors in a surface water body.

6.6.3 Identification of Potential Exposure Points and Exposure Point Concentrations (EPCs)

This section contains information on exposure points and how EPCs have been established. EPCs for the Site Contaminants of Concern are estimates of the concentrations of each Contaminant of Concern in the specific medium which a current or potential future human or environmental receptor may contact at an exposure point.

For soil within the Site, exposure points are identified based on the vertical and horizontal distribution of Site Contaminants of Concern in conjunction with the soil categories determined to be applicable (310 CMR 40.0924). Characterizing risk under a Method 1 risk characterization involves comparing EPCs to applicable Method 1 standards. A Condition of No Significant Risk of harm to health, public welfare or the environment exists if no EPC is greater than the applicable MCP Method 1 standard. Two separate exposure points are being evaluated at the Site since two separate areas were affected. As previously stated, the exposure points are referred to as the "locomotive release area" and "retention pond #2".

For the locomotive release area, the average detected concentration of analytes located at an exposure depth ranging from 0.9 to 6 feet bgs within the Disposal Site boundary was used as the EPC. No residual impacts are present at a depth greater than 6 feet bgs. The arithmetic average of Site soil data represents a conservative estimate for the average concentration per 310 CMR 40.0926(3)(b) because the arithmetic average is less than or equal to the applicable standard (Method 1 S-2/GW-3), 75 percent of the data points used are equal to or less than the applicable standards and no data point used in the averaging is ten times greater than the applicable standard. In order to provide a conservative estimate of the potential risks of harm to the current and potential future human receptors that may be present at the Site, for each Contaminant of Concern in soil, the EPC utilized for the estimation of potential risks was set equal to the mean or average of that Contaminant of Concern detected in any of the soil samples analyzed. In calculating the EPCs, when an analyte was not detected above the laboratory reporting limit, one-half of the limit was used in the calculation. Only one sample, SB-07 was located outside the disposal site boundary; therefore, sample SB-07 was not used in calculating the EPCs.

For the retention pond #2 area, the maximum concentration for all analytes detected in the 29 samples were used as the EPC, as no analyte was detected above any of the Method 1 soil standards.

Based on visual and olfactory observations made during the excavation activities, as well as laboratory analytical data for soil samples collected from the Site, residual diesel fuel impacts to soil are not present in either area at depths greater than six feet bgs. The applicable soil category for soil located at depths of 0 to 3 feet is S-2 and the applicable soil category for soil located at depths greater than 3 feet is S-3. The EPCs were also compared to the S-1 soil category for unrestricted future use.

For the locomotive release area, the table showing the soil EPCs, using the average concentration of each analyte, is provided as **Table 5** and also shown on the table below:

EXPOSURE POINT CONCENTRATIONS (EPCs) FOR LOCOMOTIVE RELEASE AREA

Analyte	Units	Exposure Point Concentrations	MCP Method 1 Standards		
			S-1/GW-3	S-2/GW-3	S-3/GW-3
VPH Fractions					
C5-C8 Aliphatics	mg/kg	16.0	100	500	500
C9-C10 Aromatics	mg/kg	264	100	500	500
C9-C12 Aliphatics	mg/kg	160	1,000	3,000	5,000
Target VOCs					
Ethyl benzene	mg/kg	1.47	500	1,000	3,000
Naphthalene	mg/kg	6.01	500	1,000	3,000
Xylenes	mg/kg	7.20	500	1,000	3,000
Toluene	mg/kg	0.64	500	1,000	3,000
EPH Fractions					
C11-C22 Aromatics	mg/kg	589	1,000	3,000	5,000
C19-C36 Aliphatics	mg/kg	363	3,000	5,000	5,000
C9-C18 Aliphatics	mg/kg	816	1,000	3,000	5,000
Diesel Range Target PAHs					
2-Methylnaphthalene	mg/kg	6.38	300	500	500
Naphthalene	mg/kg	0.81	500	1,000	3,000
Phenanthrene	mg/kg	1.22	500	1,000	3,000

Notes: Bolded concentrations were detected above the Method 1 S-1/GW-3 standard.

For the retention pond #2 area, the table showing the soil EPCs, using the maximum concentration for each analyte, is provided as **Table 6** and also shown on the table below:

EPCs FOR RETENTION POND #2 AREA

Analyte	Units	Exposure Point Concentrations	MCP Method 1 Standards	
			S-1/GW-3	S-2/GW-3
EPH Fractions				
C11-C22 Aromatics	mg/kg	71.5	1,000	3,000
C19-C36 Aliphatics	mg/kg	130	3,000	5,000
C9-C18 Aliphatics	mg/kg	43.6	1,000	3,000
Diesel Range Target PAHs				
2-Methylnaphthalene	mg/kg	1.04	300	500
Acenaphthene	mg/kg	0.813	500	1,000
Phenanthrene	mg/kg	6.38	500	1,000

6.7 METHOD 1 RISK CHARACTERIZATION RESULTS

The Method 1 Risk Characterization has evaluated current and foreseeable future Site activities and uses, as well as current and potential future human and environmental receptors. EPCs for each Site Contaminant of Concern in soil have been developed in accordance with the MCP, 310 CMR 40.0926. It is the opinion of Amec Foster Wheeler that the soil EPCs developed for the Site are representative of actual subsurface conditions and need not be modified by other exposure assumptions. A comparison of each soil EPC to its respective, applicable MCP

Method 1 soil standards indicates that for the locomotive release area, with the exception of one VPH fraction, C9-C10 Aromatics, all Site soil EPCs are below the MCP Method 1 S-1/GW-3, S-2/GW-3, and S-3/GW-3 soil standards. The EPC for C9-C10 Aromatics is above the MCP Method 1 S-1/GW-3 standard but below the applicable Method 1 S-2/GW-3 and S-3/GW-3 standards. With respect to the retention pond #2 area, all Site soil EPCs are below the MCP Method 1 S-1/GW-3 and S-2/GW-3 soil standards. Therefore, in accordance with the MCP, 310 CMR 40.0973(7), a condition of No Significant Risk of harm to human health, public welfare and the environment exists for current and unrestricted future use of the retention pond #2 area.

In summary, a condition of No Significant Risk of harm to human health, public welfare and the environment exists for current use of the Site and conditions apply for future site use since residential Method 1 S-1 standards were not achieved for the one VPH fraction in one area of the Site, referred to as the locomotive release area. The entire locomotive release area is located within an active railroad right-of-way and the foreseeable use in that area is not expected to be residential. As per 310 CMR 40.1013(1)(c), an Activity and Use Limitation is not required since the Site is located within a railroad right-of-way.

6.8 CHARACTERIZATION OF RISK OF HARM TO SAFETY

Conditions at the Site related to the release associated with RTN 2-19355 do not currently, and will not in the foreseeable future, pose a threat of physical harm or bodily injury to people. There are no rusted or corroded drums or containers, open pits, lagoons or other dangerous structures at the Site. There is no threat of fire or explosion at the Site as a result of the release of petroleum hydrocarbons detailed in this report. Furthermore, there are no uncontained materials at the Site that exhibit the characteristics of reactivity, corrosively, or flammability described in the MCP, 310 CMR 40.0347. Based on the information presented herein, it is the opinion of Amec Foster Wheeler that a condition of No Significant Risk of harm to safety exists at the Site.

6.9 HOT SPOT EVALUATION

Consistent with the MCP (310 CMR 40.0924) and the Guidance for Disposal Site Risk Characterization (MassDEP, 1995), discrete areas that meet the MCP definition of a Hot Spot (310 CMR 40.0006) must be considered distinct exposure points. A Hot Spot is identified based on concentrations of OHM within a contaminated area and the spatial pattern of the concentrations. In all cases, a discrete area where the average concentration of an OHM is greater than 100 times the average concentration in the immediate surrounding area shall be considered a Hot Spot. Also, a discrete area where levels of constituents are at least 10 times greater than the average level of those constituents in surrounding area and exposure potential to the discrete area is greater than that for surrounding soil shall be considered a Hot Spot. If these criteria are not met, then a Hot Spot does not exist. However, regardless of these criteria, concentrations equal to or below the applicable Method 1 standards cannot be considered indicative of a Hot Spot.

Based on the size of the Site associated with RTN 2-19355, the Site's physical characteristics and the horizontal and vertical distribution of the soil samples located within the boundaries of the Site, exposure potential is consistent throughout the entirety of the Site. Therefore, only discrete areas with concentrations greater than 100 times the surrounding area concentrations shall be considered Hot Spots.

Of the samples that represent the soil data set, only one EPH fraction, C9-C18 Aliphatics, was detected in two samples located in the locomotive release area, SS-06 and SS-09, at 4,220 and 3,080 mg/kg, respectively, slightly above the applicable Method 1 S-2/GW-3 standard of 3,000 mg/kg. This concentration is less than 100 times the concentration of the EPH fraction detected in the surrounding samples; hence, these locations are not considered a Hot Spot. In the retention pond #2 area, no analytes were detected in any of the samples above any of the Method 1 soil standards. Therefore, no Hot Spots are present in soil at the Site.

6.10 UNCERTAINTY ANALYSIS

The MCP Method 1 Standards are based on the current understanding of toxicity at the time of promulgation. Dose-response values for non-carcinogenic health effects are usually based on limited toxicological data. For this reason, a margin of safety of at least an order of magnitude is built into the estimates of non-carcinogenic toxicity values. The MCP standards based on these toxicity values may be at least an order of magnitude lower than actually necessary.

Human dose-response values (used to derive the MCP standards) are often extrapolated, or conservatively estimated, using the results of animal studies. Extrapolation from animals to humans introduces a great deal of uncertainty in the risk assessment because in most instances it is not known how differently a human may react to the chemical compared to the animal species used to test the compound. The procedures used to extrapolate from animals to humans involve conservative assumptions and incorporate several uncertainty factors (explicit factors for species extrapolation, and possible sensitive populations in the case of the reference dose (RfD)) that are more likely to over-estimate than under-estimate no-effect dose in humans. Again, the effect of this is that the MCP standards based on these toxicity values may be substantially lower than actually necessary.

6.11 SUMMARY AND CONCLUSIONS

A Method 1 risk characterization was conducted to evaluate the need for additional remedial actions by establishing whether a Condition of No Significant Risk of harm of health, safety, public welfare and the environment exists at the Site. The result of the risk characterization indicated that a Condition of No Significant Risk of harm to health, public welfare, safety and the environment was achieved at the Site. Therefore, a Permanent Solution with Conditions has been achieved at the Site. This Permanent Solution does not require the implementation of an Activity and Use Limitation per 310 CMR 40.1013(1)(c) of the MCP, as the Site is located within a railroad right-of-way.

7.0 REPRESENTATIVENESS EVALUATION AND DATA USABILITY ASSESSMENT (REDUA)

The following Data Usability Assessment (DUA) has been prepared to document that the data relied upon are scientifically valid, defensible, and of a sufficient level of precision, accuracy, and completeness to support this Permanent Solution Statement with Conditions and Method 1 risk characterization. A Representativeness Evaluation has been included within this DUA to document the adequacy of the spatial data sets used to support the findings of this Permanent Solution Statement with Conditions and Method 1 risk characterization.

Select soil samples collected at the Site from November 2014 to May 2015 and used to support this Permanent Solution Statement with Conditions and Method 1 risk characterization were reviewed as part of this DUA. All of the samples were submitted to Alpha Analytical Laboratories of Westborough, Massachusetts (Alpha) for laboratory analysis. The results of the DUA and Representative Evaluation are discussed below.

Final implementation of the MassDEP Phase I Data Enhancement Program, as documented in the MassDEP Compendium of Analytical Methods (CAM), occurred on August 1, 2003. All state-certified laboratories performing analytical methods listed in the CAM guidelines were required to document in laboratory data packages whether the analytical methods performed and reported met CAM guidelines for "Presumptive Certainty" of the data.

All CAM-compliant laboratory analytical reports document the results of quality assurance/quality control (QA/QC) batch samples such as method blank, laboratory control spike (LCS), laboratory control spike duplicate (LCSD), matrix spike (MS), and matrix spike duplicate (MSD) samples. In addition, the laboratory must meet all equipment calibration, internal standard, and matrix spike quality control requirements to meet the CAM definition of 'Presumptive Certainty,' although CAM does not require this quality control information to be documented in the laboratory report. However, CAM does require that any quality control issues the laboratory has with the data be included within each data package's Case Narrative. All data analyzed under the CAM guidelines were reported by the laboratory as having met Presumptive Certainty requirements.

7.1 SAMPLE ANALYTICAL DATA USABILITY

The following Data Usability Assessment (DUA) has been prepared to document that the data relied upon are scientifically valid, defensible, and of a sufficient level of precision, accuracy, and completeness to support this Permanent Solution Statement. All of the analytical data are subject to the "presumptive certainty" requirements as defined in "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data" (BWSC-CAM-VIIA, rev. 1 dated July 1, 2010). Amec Foster Wheeler utilized the data usability criteria as defined in "MCP Representativeness Evaluations and Data Usability Assessments" (BWSC Policy #WSC-07-350), as well as the individual analytical methods defined in MassDEP's *Compendium of Analytical Methods* (CAM) to assess data quality and data usability.

All CAM-compliant laboratory analytical reports document the results of quality assurance/quality control (QA/QC) such as method blank, laboratory control spike (LCS), laboratory control spike duplicate (LCSD), matrix spike (MS), matrix spike duplicate (MSD) samples, and surrogates. In addition, the laboratory must meet all equipment calibration and internal standard

quality control requirements to meet the CAM definition of 'Presumptive Certainty,' although CAM does not require this quality control information to be documented in the laboratory report. However, CAM does require that any quality control issues the laboratory has with the data be included within each data package's Case Narrative. All data analyzed under the CAM guidelines were reported by the laboratory as having met Presumptive Certainty requirements.

Soil and storm water (water samples collected from retention pond #3) data were provided to Amec Foster Wheeler by Alpha during the sampling events. The tables provided in **Appendix D** list the QA/QC issues. The analytical data usability review elements included, but were not limited to laboratory control samples, surrogate recoveries, matrix spike/matrix spike duplicates, blank results and case narratives. The field data usability review elements included, but were not limited to sample collection, holding times, sample receipt, and sample preservation. Qualifications that may affect the usability of the data are marked with a "J". No data was rejected.

Another important aspect of the Data Usability Assessment is to ensure that the necessary sensitivity has been attained for site data and that the reporting limits achieved the applicable standards. Alpha has reported the lowest dilutions possible following standard protocols. All samples have achieved the necessary sensitivity.

Soil and storm water laboratory analytical data are considered to meet the requirements for defensibility, precision, accuracy and reporting of data of sufficient quality to support decision making in this Permanent Solution Statement.

All soil samples included within this DUA were collected by Amec Foster Wheeler personnel. The review elements included but were not limited to LCS/LCSDs, surrogate recoveries, method blank results and case narratives. All of the data achieved Presumptive Certainty status, but the following Quality Control performance standards and/or recommendations for methods were not achieved:

Sample ID	Parameter	Issue	Use Limitation
CULVERT-02 TOP	EPH	The LCS/LCSD RPDs are above the acceptance criteria for the C9-C18 aliphatics (30%) and C19-C36 aliphatics (34%)	Amec Foster Wheeler J-qualified the detected C9-C18 aliphatics and C19-C36 aliphatics due to the non-directional bias
Sidewall-01(W) Sidewall-03(W) Sidewall-04(W)	EPH	The LCS/LCSD RPD is above the acceptance criteria for C11-C22 aromatics (29%)	Amec Foster Wheeler J-qualified the detected C11-C22 aromatics due the non-directional bias

7.2 SAMPLE FIELD DATA USABILITY

The field component of the Data Usability Assessment evaluates whether the sampling procedure ensures that the samples collected and delivered to the laboratory are representative of the sampling points. The review elements included, but were not limited to appropriate sample collection procedures, holding times, sample receipt, appropriate sample containers, and sample preservation, if applicable. As summarized in Section 3, Amec Foster Wheeler collected soil samples at the Site for laboratory analysis. Soil samples were collected in

laboratory-supplied containers. All samples were stored in a refrigerated cooler or refrigerator at temperatures ranging from 2° C to 6° C in order to aid in sample preservation, transferred to the laboratory under chain-of-custody protocols, and analyzed within the appropriate holding times. The data did not require any qualifications due to field data issues.

Soil data are considered to be usable under the MCP. The data are scientifically valid and defensible, and of a sufficient level of precision, accuracy, and completeness to support this Permanent Solution Statement.

7.3 REPRESENTATIVENESS EVALUATION

7.3.1 Conceptual Site Model

The Conceptual Site Model is discussed within Section 5 of this report.

7.3.2 Use of Field Screening Data

During the soil excavation activities that occurred at retention pond #2, as well as the soil investigation that occurred in the locomotive release area, all soil samples that were collected were field screened for headspace analysis with a PID equipped with a 10.6 electron volt lamp calibrated to a benzene standard to evaluate the extents of the soil impacts. In addition, each soil sample was also examined for visual and olfactory evidence of contamination. The field screening and visual/olfactory inspection data were used to complement the assessment of the Site and aid in the selection of samples submitted for laboratory analysis. In the locomotive release area where soil excavation activities did not occur, soil samples that exhibited headspace screening readings at or near 100 ppm were also submitted for laboratory analysis of VPH with target VOCs.

In the retention pond area, the soil was field screened during excavation activities to assist in evaluating the impacts remaining in soil and determine when sufficient petroleum impacted soil had been removed. The soil exhibiting the highest headspace readings was located in the locomotive release area at a depth less than two feet bgs.

Due to the heavier hydrocarbon fractions and compounds in diesel fuel, field screening data were only moderately consistent with laboratory analytical data. No field screening data were used to determine EPCs or define nature and extent of OHM impacts at the Site.

7.3.3 Sampling Rationale

In the retention pond area, soil excavation activities began on the sides of the pond that were impacted when the diesel fuel was initially discharged to the pond on November 7, 2014 and came in contact with the sides prior to the impacted surface being removed with a vacuum truck. This area was exhibited visual and olfactory evidence of contamination. The peastone located at the culvert and the rip rap located on both sides of the gate valve were also impacted by the diesel fuel release and later excavated for off-site disposal. Confirmatory samples were collected along the northern, eastern and southern sidewalls of the pond at distances ranging from every 10 to 20 feet at depths ranging from 4 to 13 inches bgs. In the two areas located immediately east and west of the gate valve, to confirm that the petroleum impacted soil was removed, four confirmatory sidewall samples and one confirmatory bottom sample, were

collected from each area. In the culvert area, to confirm that the petroleum impacted soil was removed, three confirmatory soil samples, including a bottom sample, were collected.

In the locomotive release area, samples were collected to evaluate the horizontal and vertical extents of contamination and to confirm that groundwater was not impacted. The analytical results of the initial samples collected from test pits showed that additional delineation was necessary. Therefore, a subsurface investigation was performed on both sides of the track where the release initially occurred. Although an impermeable plastic geomembrane was present at a depth of approximately nine inches bgs to the north of the track, several soil samples were collected and submitted for laboratory analysis to determine the extent of impacts remaining in the soil above the plastic geomembrane and below the ballast. Samples collected during the subsurface investigation to the south of the track evaluated the extent of impacts remaining in the soil since no plastic geomembrane was present.

In summary, a total of 29 post-excavation samples were used to represent the extent of the soil impacts remaining in the retention pond after excavation activities were completed. A total of 14 soil samples were collected in the locomotive release area to show that the extents of impacts had been defined. All soil samples were submitted to Alpha for laboratory analysis for EPH fractions with fuel oil range target PAHs. Two samples collected from the locomotive release area were also submitted for VPH fractions with target VOCs. The results of the soil sample laboratory analyses indicate that the lateral extents of petroleum hydrocarbon impacts to the subsurface environment beneath the Site property have been adequately defined.

The sampling locations are deemed sufficient to delineate the Disposal Site Boundary, identify background concentrations, calculate EPCs, identify Hot Spots and exposure pathways and receptors, and demonstrate source elimination or control.

7.3.4 Spatial Distribution, Collection Methods and Handling of Samples

The 29 post-excavation confirmatory soil samples that were collected from the retention pond #2 area were spatially distributed, as they were collected from the horizontal and vertical extents at the Disposal Site Boundary to confirm that the diesel fuel impacted soil was removed. The sidewall samples were collected at distances less than 20 feet apart and the samples collected on both sides of the gate valve, as well as within the culvert, were collected from the bottoms and sides of the excavations to ensure that the impacted soil had been excavated and removed. The 14 soil samples collected via test pit excavation or soil boring advancement were collected within the release area, as well as on the perimeters of the boundary to show that the vertical and horizontal extents of impacts have been defined. All of the soil samples collected in both areas of the Site were discrete grab samples and were collected to be representative of the Site conditions based on field screening and visual and olfactory observations.

Each sample was placed in the prescribed sample collection container and was stored on ice until it could be mechanically refrigerated. During sample collection, samples were collected utilizing MassDEP sampling protocols currently in effect. All media-specific samples submitted for laboratory analysis were derived from grab samples collected from the Site.

7.3.5 Temporal Distribution of Samples

Groundwater was not impacted from this release. Therefore, there is no temporal distribution of samples.

7.3.6 Inconsistency and Uncertainty

No inconsistencies or uncertainties were identified in the soil sample sets used to support this Permanent Solution Statement. The contaminants identified in soil beneath the Site were characteristic of the source of the diesel fuel release. This includes the site assessment data and the field screening data and visual/ olfactory observations which are in general consistent with the analytical data.

7.3.7 Completeness

No data gaps were identified in the sampling and analytical information used to support this Permanent Solution Statement. The information contained herein and the number and locations of soil samples collected are adequate to satisfy the objectives of the Permanent Solution Statement.

Critical samples representative of soil conditions beneath the Site were used to determine representative EPCs to support the findings of this Permanent Solution Statement. All critical samples, those samples without which the Method 1 risk characterization could not be completed, were determined by this evaluation to be usable without qualification.

7.3.8 Information Considered Unrepresentative

For the locomotive release area, sample SB-07 is considered unrepresentative of the Disposal Site Boundary, as no analytes were detected in the sample above the laboratory reporting limits. This sample was not used in calculating the EPCs for the risk assessment or in determining the Disposal Site Boundary.

For the retention pond #2 area, all samples were considered representative and were used in calculating the EPCs for the risk assessment and were used to evaluate the Disposal Site Boundary. Based on the aforementioned Representativeness Evaluation, no data were eliminated from the retention pond #2 area for use in this Permanent Solution Statement due to being non-representative of post-remedial conditions.

7.4 REDUA SUMMARY

All of the laboratory analytical data described in the previous sections is suitable to support a Permanent Solution decision. None of the performance standards and/or recommendations for the methods used for soil has impacted any use of the data.

8.0 REMEDIATION WASTE MANAGEMENT

On December 9, 2014, a total of 37.04 tons of impacted rip rap, peastone, and soil that was excavated from retention pond #2 was transported by Global via a Bill of Lading to ESMI of Loudon, New Hampshire. On May 20, 2015, a total of 5.35 tons of impacted rip rap and soil that was excavated from retention pond #2 on May 13, 2015 was also transported by Global via a Bill of Lading to ESMI of Loudon, New Hampshire. A copy of the Bills of Lading attestation of completion of shipment to ESMI, as well as the waste characterization laboratory report and the weight slips, are provided as **Appendix E**.

The following was disposed of under hazardous waste manifests which are provided in **Appendix F**.

- On December 15, 2014, a total of 22 55-gallon drums of absorbent pads, booms and Speedi-dri® was transported to Northeast, LLC of Newington, New Hampshire.
- On February 19, 2015, 1,015 gallons of a diesel fuel and water mixture which were previously stored in the frac tank and were recovered from the retention pond were transported to Tradebe Treatment and Recycling of Stoughton, Massachusetts. The water that was present in the mixture was generated from cleaning of the frac tank as well as the melting of ice that was inside the frac tank.
- On February 24, 2015, 1,050 gallons of diesel fuel which were previously stored in the frac tank and were recovered from the retention pond were transported to Tradebe Treatment and Recycling of Stoughton, Massachusetts.
- On May 29, 2015, three cubic yard boxes of absorbent pads and booms were transported to Northeast, LLC of Newington, New Hampshire.
- On November 4, 2015, three cubic yard boxes of absorbent pads and booms were transported to Northeast, LLC of Newington, New Hampshire.

9.0 FEASIBILITY EVALUATION

As required by 310 CMR 40.1020(3) of the MCP, the feasibility of reducing OHM in the environment at a Site or a portion of a Site to levels that achieve or approach background must be evaluated. This is accomplished using the criteria outlined in 310 CMR 40.0860 in each case where one or more remedial actions have been taken to achieve a Permanent Solution. Amec Foster Wheeler has prepared this feasibility evaluation in accordance with MassDEP guidance entitled "Conducting Feasibility Evaluations Under the MCP", MassDEP Final Policy #WSC-04-160, July 2004 (the "Policy").

The completed remedial activities were designed to achieve a Permanent Solution at this Site based on the following criteria of 310 CMR 40.0850(4):

- The selected remedial technologies were technically feasible.
- The costs of implementing the alternatives were justified by the benefits.
- Individuals with the expertise required to implement the alternatives were available.
- The selected alternative did not require the land disposal of oil or hazardous materials for which there are no current facilities available to accept such materials.
- The alternative was implemented at the source to reduce and/or eliminate source area contamination.

In accordance with the 310 CMR 40.1020(3) of the MCP and the Policy, Amec Foster Wheeler has performed an evaluation of the feasibility of achieving or approaching background concentrations in soil at the Site.

9.1 CONDITIONS OF CATEGORICAL FEASIBILITY

Conditions of categorical feasibility include Site conditions whereby a Condition of No Significant Risk is achieved and the remaining impacts are limited to 20 cubic yards or less of impacted soil where such soil is:

- Located less than three feet bgs;
- Not covered by pavement or a permanent structure;
- Not located within a sensitive environment (i.e. wetlands); and
- Not located in an area where soil removal would substantially interrupt public service or threaten public safety.

At this Site, conditions of categorical feasibility do not apply for the reason that the remaining impacted soil located adjacent to the railroad tracks is present in an area where additional soil removal would substantially interrupt rail traffic. In both locations, the remaining impacts constitute an volume likely greater than 20 cubic yards.

9.2 CONDITIONS OF CATEGORICAL INFEASIBILITY

Conditions of categorical infeasibility include the following conditions:

- Excavation beneath a permanent structure;
- Remedial actions that would substantially interrupt public service or threaten public safety;
- Remediation of degradable non-persistent contaminants; and
- Remediation of persistent contaminants located in S-2 and S-3 soils.

The Contaminants of Concern in soil at the Site are all petroleum related. According to the Policy, each of these analytes is considered non-persistent and degradable. Therefore, it can be considered categorically infeasible to reduce the concentrations of those Contaminants of Concern to levels that achieve background. In addition, as stated in the previous section, the remaining impacted soil located adjacent to the railroad tracks is present in an area where additional soil removal would substantially interrupt rail traffic.

9.3 CONDITIONS APPROACHING BACKGROUND IN NON-PERSISTENT COMPOUNDS

According to the Policy, “achieving or approaching background can be deemed infeasible for non-persistent contaminants regardless of media classification, except for small quantities of petroleum-contaminated soil. The benefits of additional remedial actions to achieve or approach background for degradable non-persistent contaminants would be considered insufficient to justify the costs of those actions.”

Since the Contaminants of Concern at the Site are all non-persistent compounds, a technological evaluation identifying additional remedial actions to achieve or approach background and a benefit-cost evaluation are not required.

9.4 FEASIBILITY EVALUATION CONCLUSIONS

Based on information contained in the Policy, it is considered infeasible to achieve or approach background because soil remaining at the Site has the following characteristics:

- The soil contains only non-persistent compounds;
- The soil located in both areas constitutes a volume likely greater than 20 cubic yards; and
- Removal of the soil located adjacent to the railroad tracks would substantially interrupt rail traffic.

Current Site conditions meet a Condition of No Significant Risk, as documented in this Permanent Solution Statement, including a Method 1 risk characterization.

10.0 CONTENTS OF PERMANENT SOLUTION STATEMENT

10.1 DISPOSAL SITE NAME, ADDRESS, DISPOSAL SITE BOUNDARY AREA, AND MASSDEP RELEASE TRACKING NUMBER (310 CMR 40.1056(1 AND 2)(A))

The Disposal Site is located at the CSX Intermodal Terminal with an address of 271 Franklin Street, Worcester, Massachusetts. As shown on **Figures 4 and 5**, the Disposal Site Boundary is located in three areas between tracks SU2 and SU3 as well as in retention pond #2. The RTN subject to this Permanent Solution Statement is 2-19355.

10.2 TYPE OF PERMANENT SOLUTION STATEMENT (310 CMR 40.1056(1)(B))

In accordance with 310 CMR 40.1036(2), a Permanent Solution Statement with Conditions applies to the Site since:

- A level of No Significant Risk, as specified in 310 CMR 40.0900, exists or has been achieved;
- All sources of OHM contamination have been eliminated or controlled, as specified in 310 CMR 40.1003(5)(a) and (b);
- The level of OHM in the environment have been reduced to as close to background levels as feasible, as specified at 310 CMR 40.1020;
- Concentrations of OHM do not exceed the applicable Upper Concentration Limits; and
- One or more Activity and Use Limitations are not required pursuant to 310 CMR 40.1012 to maintain a Condition of No Significant Risk.

10.3 RISK CHARACTERIZATION METHOD AND NO SIGNIFICANT RISK CONCLUSIONS (310 CMR 40.1056(1 AND 2)(F))

A Method 1 risk characterization was performed for this Permanent Solution Statement, the results of which indicate that a Condition of No Significant Risk to human health, safety, public welfare and the environment exists at the Site for current use and activity scenarios; an Activity and Use Limitation is not required to limit certain future use and activities.

10.4 RELATIONSHIP OF THE PERMANENT SOLUTION STATEMENT TO ANY OTHER PERMANENT OR TEMPORARY SOLUTION STATEMENTS AND NEED FOR ADDITIONAL RESPONSE ACTIONS AT THE DISPOSAL SITE (310 CMR 40.1056(1)(D))

This Permanent Solution Statement is not related to any previously submitted Permanent or Temporary Solution Statement (previously referred to as Response Action Outcome Statements). Additional response actions at the Site will not be necessary upon the submittal of this Permanent Solution Statement.

10.5 APPLICABLE ACTIVITY AND USE LIMITATION (310 CMR 40.1056(1)(E) AND (F))

This Permanent Solution Statement does not rely on the implementation of an Activity and Use Limitation to eliminate an exposure pathway that would otherwise need to be considered in the evaluation of future site use.

10.6 ACTIVE EXPOSURE PATHWAY MITIGATION MEASURE (310 CMR 40.1056(G))

This Permanent Solution Statement does not rely on the operation of one or more Active Exposure Pathway Mitigation Measures pursuant to 310 CMR 40.1025.

10.7 LSP OPINION (310 CMR 40.1056(1)(H) AND (I))

The LSP Opinion as to whether the requirements of the applicable category of Permanent Solution specified in 310 CMR 40.1000 have been met and the certification of the Permanent Solution Statement as required by 310 CMR 40.0009 are provided in the BWSC-104 transmittal form which is submitted concurrently with this Permanent Solution Statement via electronic submittal to the MassDEP.

10.8 UPPER CONCENTRATION LIMIT (310 CMR 40.1056(1)(J))

All contaminants at the Site are below the Upper Concentration Limits as defined in 310 CMR 40.0996.

10.9 USE OF MASSDEP COMPENDIUM OF ANALYTICAL METHODS (310 CMR 40.1056(1)(K))

The MassDEP Compendium of Analytical Methods has been used for all analytical data that was generated for the Site. As described in Section 5.1 of this Permanent Solution Statement, Contaminants of Concern that are representative of Site conditions were found to be those associated with diesel fuel. A further evaluation of data usability is included in Section 7 of this Permanent Solution Statement.

10.10 CONCEPTUAL SITE MODEL, SOURCE ELIMINATION OR CONTROL, AND NO SIGNIFICANT RISK CONCLUSION (310 CMR 40.1056(2)(B), (C) AND (F))

A summary of the Conceptual Site Model, a demonstration that all sources of OHM contamination have been eliminated or controlled, as specified in 310 CMR 40.1003(5)(a) and (b), and information supporting the conclusion that a level of No Significant Risk has been achieved or exists are provided in Section 5 of this Permanent Solution Statement.

10.11 A DEMONSTRATION OF RESPONSE ACTIONS TAKEN TO CONTROL THE MIGRATION OF OHM (310 CMR 40.1056(2)(D))

A demonstration that response actions have been taken to adequately assess and, if necessary, control the subsurface migration of OHM remaining at the Site as specified in 310 CMR 40.1003(6)(a) is provided in Section 3 of this Permanent Solution Statement.

10.12 FEASIBILITY ANALYSIS ON RESTORATION TO BACKGROUND (310 CMR 40.1056(2)(G))

In accordance with 310 CMR 40.0860 and 40.1056(2)(e), a feasibility analysis has been performed and is included in Section 9 of this Permanent Solution Statement.

10.13 DATA USABILITY ASSESSMENT (310 CMR 40.1056(2)(K))

A Data Usability Assessment is provided in Section 6 of this Permanent Solution Statement.

Immediate Response Action Completion Report and
Permanent Solution Statement With Conditions
CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355
November 2015



10.14 PERMANENT SOLUTION STATEMENT SUBMITTAL FEE (310 CMR 40.1056(3))

In accordance with MassDEP guidelines, a Permanent Solution Statement submittal fee of \$1,470 is applicable since the Permanent Solution Statement was submitted after 120 days of notification but prior to Tier Classification. A check for \$1,470 has been mailed to MassDEP, P.O. Box 4062, Boston, Massachusetts 02211-4062.

11.0 PUBLIC INVOLVEMENT

In accordance with public involvement activities required for comprehensive response actions under the MCP, 310 CMR 40.1403(3)(f), notice of the availability of this Permanent Solution Statement has been mailed to the City of Worcester Mayor and the Public Health Department Commissioner. In addition, a copy of the Release Notification Form has been mailed, along with additional information required per 310 CMR 40.1403(3)(h) to the Mayor and Public Health Department Commissioner. No other properties were affected by conditions associated with RTN 2-19355; thus additional notification is not required. Copies of these public notification letters are provided in **Appendix G**.

12.0 SUMMARY AND CONCLUSIONS

Based upon the results of the Method 1 risk characterization, the requirements for a Permanent Solution Statement with Conditions has been achieved. The results of the subsurface investigations and remedial activities conducted at the Site are outlined below:

- The cause of the release at the Site which occurred on November 7, 2014 was due to a faulty filter canister clamp located on the engine of a locomotive which caused a release of approximately 2,300 gallons of diesel fuel onto the surrounding ballast.
- The majority of the release migrated via an impermeable plastic geomembrane which was constructed on the north side of the tracks to an underground storm water collection system that ultimately discharged into an onsite storm water retention pond.
- Two areas of the Site were affected and included the locomotive release area which is the initial location of the release, as well as retention pond #2, a self-contained unlined storm water retention pond, where the release ultimately discharged. The retention pond is typically dry except during and after rainfall events. At the time of the release, the retention pond was not dry and contained a significant amount of water due to a prior rainfall event.
- Remedial actions consisted of the excavation and off-site disposal of 42.39 tons of petroleum impacted soil, peastone, and rip rap from the retention pond. The soil was transported to ESMI of Loudon, New Hampshire on two occasions for thermal desorption under a Bill of Lading.
- Subsurface investigations were also conducted in the locomotive release area to evaluate the horizontal and vertical extent of impacts on both sides of the tracks and to determine the location of the impermeable geomembrane liner.
- Remedial actions also included the removal of 2,065 gallons of a diesel fuel/water mixture from the retention pond and underground conduit located beside retention pond using a vacuum truck. The diesel fuel/water was stored in two frac tanks and eventually transported under a hazardous waste manifest on two occasions to Tradebe Treatment & Recycling in Stoughton, Massachusetts for fuel blending.
- Soil samples collected by Amec Foster Wheeler in both the retention pond #2 and the locomotive release areas were evaluated in accordance with the requirements of the Massachusetts Department of Environmental Protection's Compendium of Analytical Methods. Presumptive Certainty exists for all of the analytical data.
- Currently there are no known oil and/or hazardous material sources remaining at the Site.
- According to data obtained from the MassDEP Bureau of Waste Site Cleanup Phase 1 Site Assessment Map, the Site does not lie within a Current or Potential Drinking Water Source Area, and according to the City of Worcester, the Site is not located within a municipal aquifer protection district. There are no private potable wells located within the vicinity of the Site.
- The extents of soil impacts have been defined based on the collection of 29 confirmatory post-excavation soil samples in the retention pond area, as well as 14 soil samples collected from test pitting and soil boring advancement in the locomotive release area. All of these samples were submitted for laboratory analysis of EPH fractions with diesel

range target PAHs. Two samples collected in the locomotive release area were also submitted for laboratory analysis of VPH fractions with target VOCs based on the elevated headspace screening results. The soil samples are considered representative of current Site conditions.

- Groundwater was not affected by the release, as soil impacts did not extend past six feet bgs and in the locomotive release area, the water table is located at a depth of approximately 12 feet bgs.
- A Method 1 risk characterization was conducted to evaluate risk. The Method 1 concluded that a Condition of No Significant Risk to human health, safety, public welfare, and the environment exists for current use scenarios.
- Conditions apply for future site use since residential Method 1 S-1 standards were not achieved for the one VPH fraction in the locomotive release area. The entire locomotive release area is located within an active railroad right-of-way and the foreseeable use in that area is not expected to be residential. As per 310 CMR 40.1013(1)(c), an Activity and Use Limitation is not required since the Site is located within a railroad right-of-way.
- A sheen is no longer being generated from residual concentrations of diesel fuel in the locomotive release area that discharges to retention pond #2 based on observations of the storm water that was most recently inspected after two major rainfall. Because the absorbent booms located near the gate valve are effective in capturing debris from the concrete culvert that discharges into the pond, they will temporarily remain in place until January 2016 or until the first major snowfall occurs.
- A Permanent Solution Statement with Conditions has been achieved for the release at the Site.

FIGURES



Site Location Map

CSX Intermodal Terminal
271 Franklin Street
Worcester, MA
RTN 2-19355

Location of Site



FIGURE 1



Topo by ESRI, 2014.

0 2,500
Feet



amec
foster
wheeler
Amec Foster Wheeler
Environment & Infrastructure, Inc.
271 Mill Road
Chelmsford, MA 01824
(978) 692-9090



Facility Plan

CSX Intermodal Terminal
271 Franklin Street
Worcester, MA
RTN 2-19355

Legend

- Area of Impacted Retention Pond
- Locomotive Release Area
- Location and flow direction of subsurface stormwater drainage collection system

Location of Site



FIGURE 2



Aerial by MassGIS, 2013.

0 250
Feet



amec
foster
wheeler
Amec Foster Wheeler
Environment & Infrastructure, Inc.
271 Mill Road
Chelmsford, MA 01824
(978) 692-9090

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

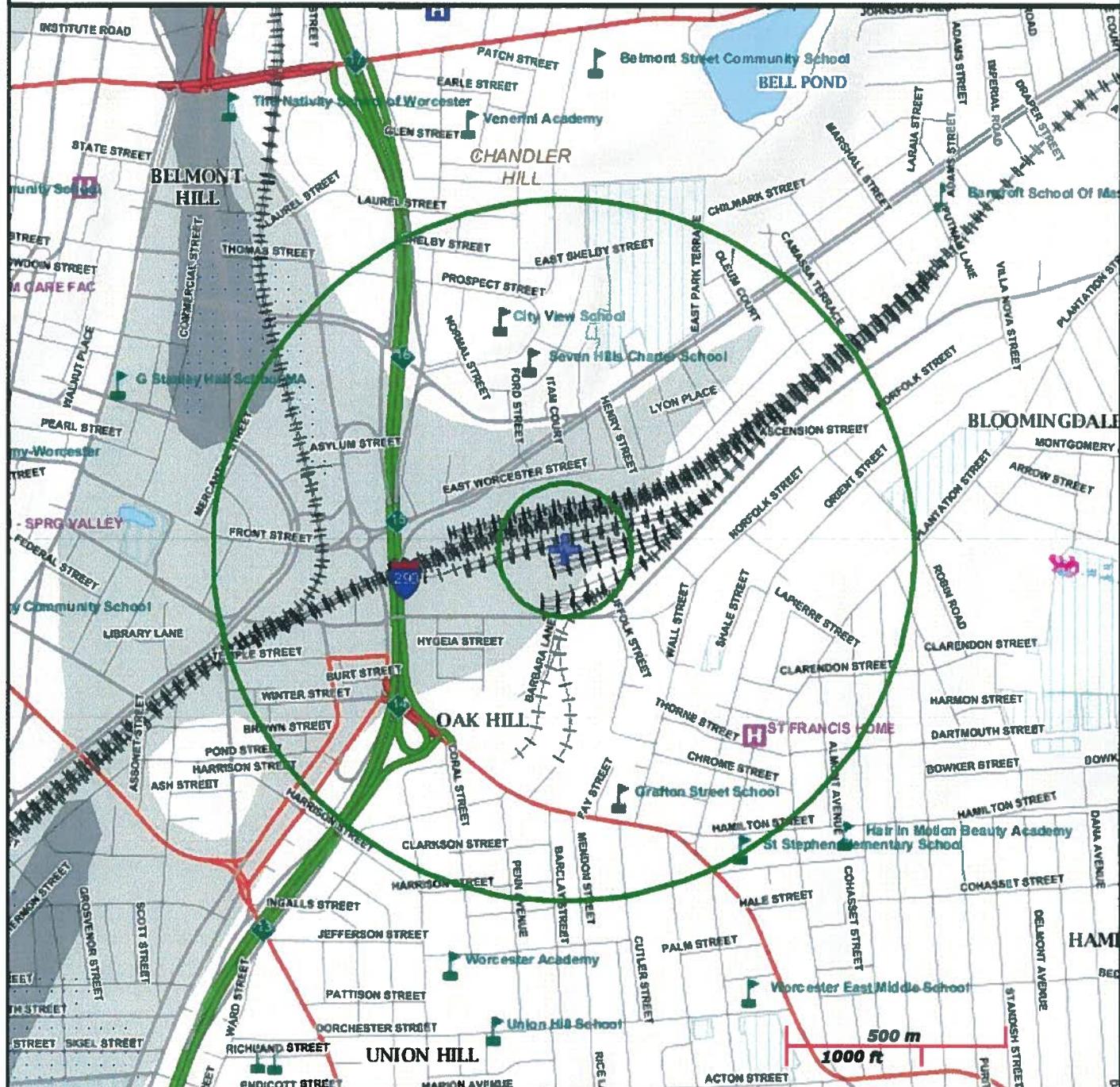
Site Information:
 CSX INTERMODAL
 251 FRANKLIN STREET WORCESTER, MA
NAD83 UTM Meters:
 4682605mN, 269983mE (Zone: 18)
 November 11, 2014

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at:
<http://www.mass.gov/mqis/>.



MassDEP
Commonwealth of Massachusetts
 Department of Environmental Protection

Figure 3



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

PWS Protection Areas: Zone II, IVPA, Zone A

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Hydrology: Open Water, PWS Reservoir, Tidal Flat

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Wetlands: Freshwater, Saltwater, Cranberry Bog

Aquifers: Medium Yield, High Yield, EPA Sole Source.....

FEMA 100yr Floodplain; Protected Open Space; ACEC

Non Potential Drinking Water Source Area: Medium, High (Yield) ...

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com

XX Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com

500 m

1000 ft



amec
foster
wheeler

AMEC FOSTER WHEELER
ENVIRONMENT & INFRASTRUCTURE, INC.
271 MILL ROAD
CHELMSFORD MASSACHUSETTS 01824
TELEPHONE: (978) 692-9090
FAX: (978) 692-6633
WEB: WWW.AMEC.COM

CLIENT:
CSX INTERMODAL TERMINAL
271 FRANKLIN STREET
WORCESTER, MA



PROJECT:
NOVEMBER 7, 2014
DIESEL FUEL RELEASE

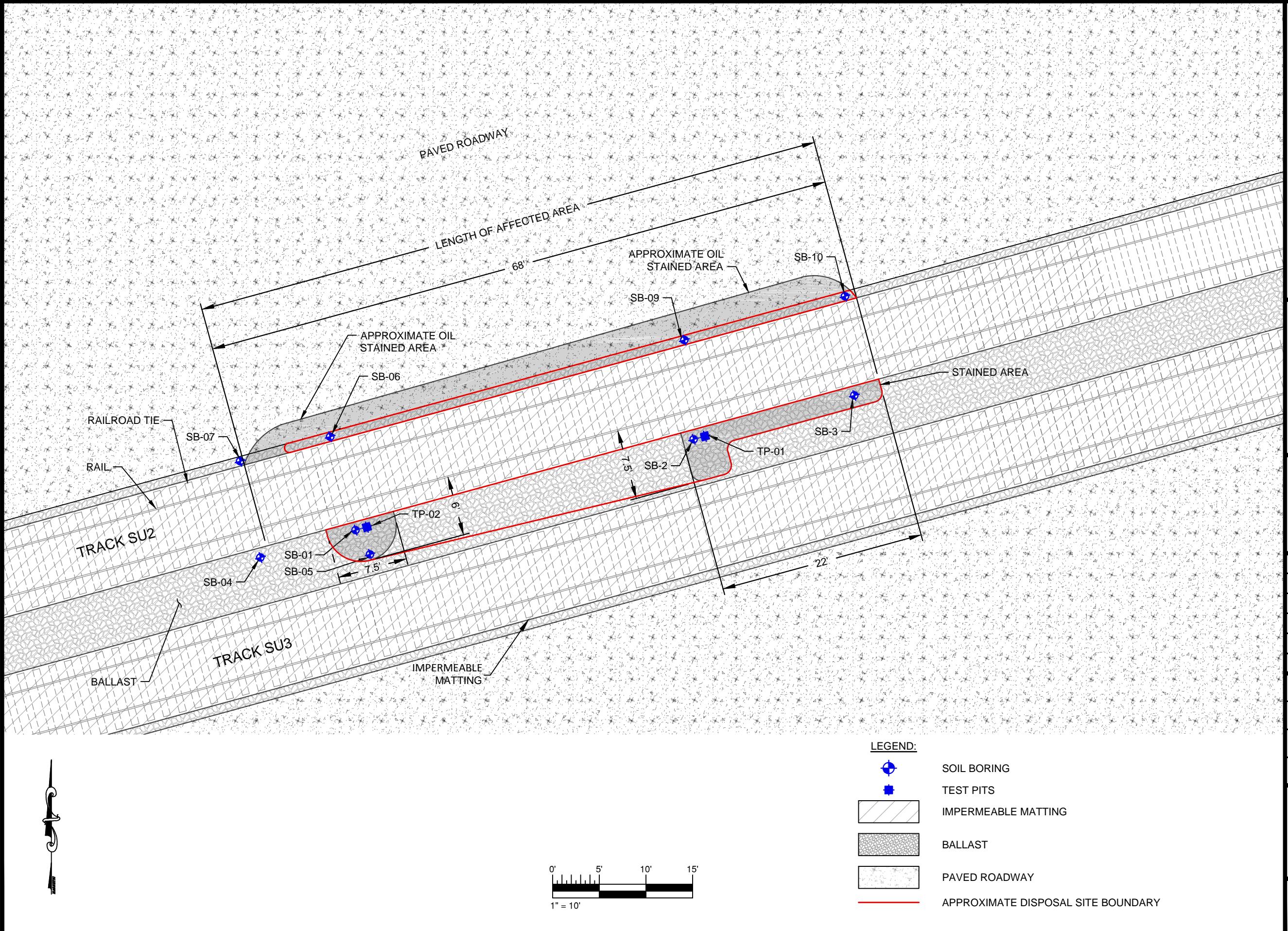
REV	DATE	DESCRIPTION
ISSUE / REVISION:		
DESIGNED BY:	DRAWN BY: DED	
CHECKED BY: MAM	DATE: JANUARY 2014	
SCALE: AS SHOWN	ISSUE / REVISION: 0	

PROJECT NUMBER:
643005711

TITLE:
**LOCOMOTIVE
RELEASE AREA SAMPLING
PLAN**
RTN 2 - 19355

FIGURE NUMBER:

4



Retention Pond No. 2 Confirmatory Soil Sampling Plan

CSX Intermodal Terminal
271 Franklin Street
Worcester, MA
RTN 2-19355

Legend

- Soil Sampling Locations
- Disposal Site Boundary & Diesel Fuel Mitigation Area (on top of surface water)
- Boom

Location of Site



Figure 5

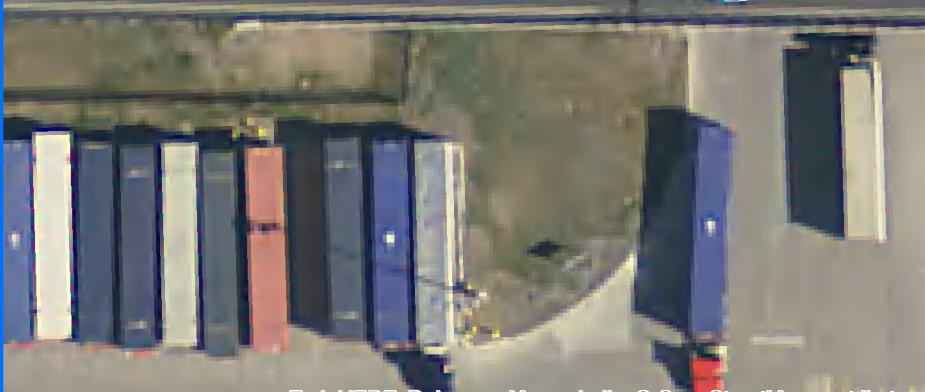
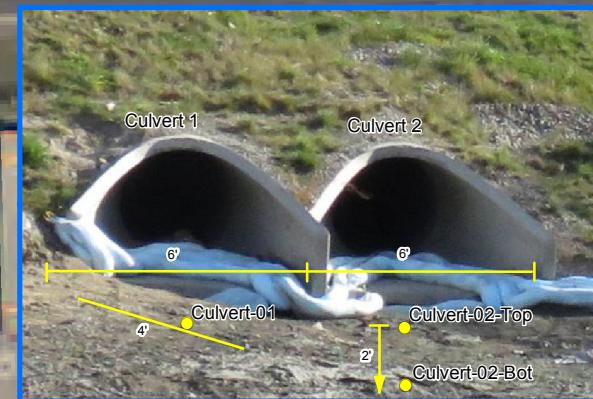
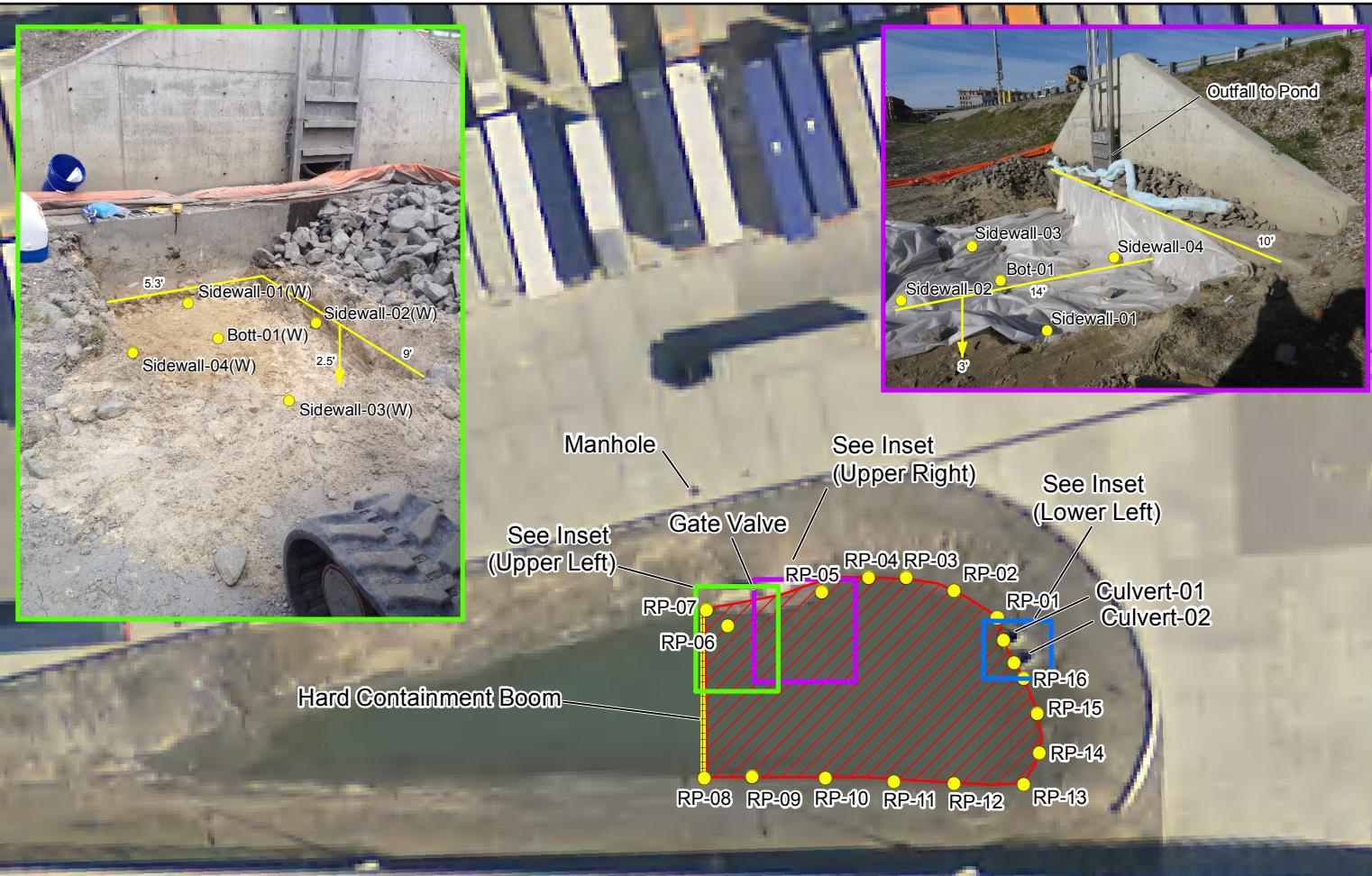


Aerial by MassGIS, 2013.

0 50
Feet



amec
foster
wheeler
Amec Foster Wheeler
Environment & Infrastructure, Inc.
271 Mill Road
Chelmsford, MA 01824
(978) 692-9090



Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

TABLES



Table 1
Summary of Retention Pond #2 Confirmatory Sidewall Soil Analytical Results

CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355

Analytes	MCP Method 1 Soil Standards		Units	Sample ID, Headspace Screening Results (in ppm), Sample Depth (in inches), and Sampling Date																	
				RP-01	RP-02	RP-03	RP-04	RP-05	RP-06	RP-07	RP-08	RP-09	RP-10	RP-11	RP-12	RP-13	RP-14	RP-15	RP-16		
	S-1/GW-3	S-2/GW-3		1.4	8.8	1.8	38.8	18.5	0.1	0.8	3.4	1.4	0.1	0.1	0.4	0.1	0.0	0.0	5.1		
				9"	8"	9"	13"	8"	4"	4"	4"	6"	6"	6"	4"	5"	5"	4"			
				11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014			
Extractable Petroleum Hydrocarbons																					
C9-C18 Aliphatics	1,000	3,000	mg/kg	7.39	U	7.37	U	7.33	U	43.6	15.2	7.35	U	11.6	7.07	U	6.8	U	7.68	U	
C19-C36 Aliphatics	3,000	5,000	mg/kg	7.39	U	22.8		7.33	U	20.4	12.0	10.4		24.8	13.7	6.8	U	18.6	12.0		
C11-C22 Aromatics, Adjusted	1,000	3,000	mg/kg	13.5		20.4		7.33	U	53.6	25.2	16.6		28.5	7.07	U	6.8	U	18.5	9.65	
Diesel Range Target PAHs																					
Naphthalene	500	1,000	mg/kg	0.37	U	0.368	U	0.367	U	0.344	U	0.375	U	0.368	U	0.359	U	0.353	U	0.342	U
2-Methylnaphthalene	300	500	mg/kg	0.37	U	0.368	U	0.367	U	0.485		0.375	U	0.368	U	0.359	U	0.353	U	0.342	U
Acenaphthene	1,000	3,000	mg/kg	0.37	U	0.368	U	0.367	U	0.344	U	0.375	U	0.368	U	0.359	U	0.353	U	0.342	U
Phenanthrene	500	1,000	mg/kg	0.37	U	0.368	U	0.367	U	0.344	U	0.386		0.368	U	0.359	U	0.353	U	0.342	U

Notes:

U = not detected above the laboratory reporting limit given to the left of the "U".



Table 2
Summary of Retention Pond #2 Culvert and Gate Valve Confirmatory Soil Analytical Results

CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355

Analyte	MCP Method 1 Soil Standards		Units	Area, Sample ID, Headspace Screening Results (in ppm), Sampling Depth (in feet), and Sampling Date												
				Culvert Area			East of Gate Valve					West of Gate Valve				
	Culvert-1	Culvert-02 Bottom		Culvert-02 Top	Sidewall-01	Sidewall-02	Sidewall-03	Sidewall-04	Bot-01	Sidewall-01(W)	Sidewall-02(W)	Sidewall-03(W)	Sidewall-04(W)	Bott-01(W)		
	0.3	2.1		54.1	5.3	7.5	2.3	3.2	1.9	0.1	0.2	1.3	0.4	0.1		
	1.5'	2'		0.5'	2.5'	2.5'	2.5'	2.5'	3'	2'	2'	2'	2'	2.5'		
	11/11/2014	11/13/2014		11/13/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015		
Extractable Petroleum Hydrocarbons																
C9-C18 Aliphatics	1,000	3,000	mg/kg	8.57 U	8.32 U	21.1	6.91 U	9.96 U	6.90 U	6.88 U	7.14 U	7.32 U	7.44 U	6.83 U	34.4 U	7.56 U
C19-C36 Aliphatics	3,000	5,000	mg/kg	8.57 U	8.32 U	17.0	6.91 U	7.20 U	16.4	8.39	9.14	29.6	7.44 U	19.0	34.4 U	7.56 U
C11-C22 Aromatics, Adjusted	1,000	3,000	mg/kg	8.57 U	8.32 U	17.7	6.91 U	14.0	27.0	10.3	19.3	12.9	7.44 U	21.3	42.1	7.56 U
Diesel Range Target PAHs																
Naphthalene	500	1,000	mg/kg	0.428 U	0.416 U	0.322 U	0.345 U	0.360 U	0.345 U	0.344 U	0.357 U	0.366 U	0.372 U	0.341 U	1.72 U	0.378 U
2-Methylnaphthalene	300	500	mg/kg	0.428 U	0.416 U	0.322 U	0.345 U	0.360 U	0.345 U	0.344 U	0.357 U	0.366 U	0.372 U	0.341 U	1.72 U	0.378 U
Acenaphthene	1,000	3,000	mg/kg	0.428 U	0.416 U	0.322 U	0.345 U	0.360 U	0.345 U	0.344 U	0.357 U	0.366 U	0.372 U	0.341 U	1.72 U	0.378 U
Phenanthrene	500	1,000	mg/kg	0.428 U	0.416 U	0.322 U	0.345 U	0.360 U	0.345 U	0.344 U	0.357 U	0.366 U	0.372 U	0.341 U	1.72 U	0.378 U

Notes:

ppm = parts per million.

U = not detected above the laboratory reporting limit given to the left of the "U".

mg/kg = milligrams per kilogram.

PAHs = polycyclic aromatic hydrocarbons.



Table 3
Summary of Locomotive Release Area Soil Analytical Results

CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355

Analytes	MCP Method 1 Standards			Units	Test Pit or Soil Boring ID, Sample Depth (in feet), Headspace Screening Result (given in part per million), and Sampling Date													
					Testpit-01	Testpit-02	SB-01		SB-02		SB-03	SB-04	SB-05		SB-06	SB-07	SB-09	SB-10
	S-1/GW-3	S-2/GW-3	S-3/GW-3		2'	2'	1-1.5'	5-6'	1-1.5'	4-5'	1-1.5'	1-1.5'	1-1.5'	3-3.5'	0.9'	0.9'	0.9'	0.9'
					25.1	95.0	88.5	not obtained*	79.0	17.2	12.0	11.1	107	7.0	80.1	1.2**	11.3**	0.4**
					11/12/2014	11/13/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	1/14/2015	1/14/2015	
Volatile Petroleum Hydrocarbons																		
C5-C8 Aliphatics, Adjusted	100	500	500	mg/kg	NS	21.4	NS	NS	NS	NS	NS	NS	10.5	NS	NS	NS	NS	NS
C9-C10 Aromatics	100	500	500	mg/kg	NS	409	NS	NS	NS	NS	NS	NS	118	NS	NS	NS	NS	NS
C9-C12 Aliphatics, Adjusted	1,000	3,000	5,000	mg/kg	NS	264	NS	NS	NS	NS	NS	NS	55.5	NS	NS	NS	NS	NS
Target Volatile Organic Compounds																		
Benzene	40	200	1,000	mg/kg	NS	0.500	U	NS	NS	NS	NS	NS	0.263	U	NS	NS	NS	NS
Ethylbenzene	500	1,000	3,000	mg/kg	NS	1.97	NS	NS	NS	NS	NS	NS	0.968	NS	NS	NS	NS	NS
Methyl tert butyl ether	100	500	500	mg/kg	NS	0.250	U	NS	NS	NS	NS	NS	0.131	U	NS	NS	NS	NS
Naphthalene	500	1,000	3,000	mg/kg	NS	11.2	NS	NS	NS	NS	NS	NS	0.972	NS	NS	NS	NS	NS
o-Xylene	500	1,000	3,000	mg/kg	NS	4.90	NS	NS	NS	NS	NS	NS	2.22	NS	NS	NS	NS	NS
p/m-Xylene	500	1,000	3,000	mg/kg	NS	9.74	NS	NS	NS	NS	NS	NS	4.66	NS	NS	NS	NS	NS
Toluene	500	1,000	3,000	mg/kg	NS	0.792	NS	NS	NS	NS	NS	NS	0.487	NS	NS	NS	NS	NS
Extractable Petroleum Hydrocarbons																		
C9-C18 Aliphatics	1,000	3,000	5,000	mg/kg	739	1,050	221	33.3	448	80	39.6	102	566	26.5	4,220	7.00	U	3,080
C11-C22 Aromatics, Adjusted	1,000	3,000	5,000	mg/kg	957	881	266	148	498	163	330	363	470	98.5	2,260	7.00	U	1,210
C19-C36 Aliphatics	3,000	5,000	5,000	mg/kg	308	389	458	159	357	158	258	201	285	84.6	951	7.00	U	1,100
Target Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	1,000	3,000	5,000	mg/kg	1.81	U	3.47	U	0.344	U	0.352	U	1.68	U	0.348	U	1.7	U
2-Methylnaphthalene	300	500	500	mg/kg	7.62	7.39	2.11	0.352	U	4.27	0.852	1.7	U	0.731	5.13	0.347	U	42.8
Naphthalene	500	1,000	3,000	mg/kg	2.10	3.47	U	0.344	U	0.352	U	1.68	U	0.348	U	1.7	U	0.354
Phenanthrene	500	1,000	3,000	mg/kg	1.81	U	3.47	U	0.647	0.352	U	1.68	U	0.348	U	1.7	U	3.19

Notes:

U = not detected above the laboratory reporting limit given to the left of the "U".

NS = not sampled for corresponding analyte.

Shaded concentrations exceed the Method 1 S-1/GW-3 standards.

Bolded concentrations exceed the Method 1 S-2/GW-3 standards.

*Insufficient recovery - could not perform headspace screening.

**Due to frigid temperatures at the time of sampling, the soil sample was frozen upon collection and only partially defrosted when it was headspace screened; therefore, the headspace screening result may not be accurate.

Table 4
Summary of Overflow Retention Pond #3 Storm Water Analytical Results



**CSX Intermodal Terminal
 271 Franklin Street, Worcester, Massachusetts
 Release Tracking Number 2-19355**

Analytes	MCP Method 1 Groundwater Standards	Units	Sample ID and Sampling Date	
			Retention Pond-01	Retention Pond-02
	GW-3		11/12/2014	11/18/2014
Extractable Petroleum Hydrocarbons				
C9-C18 Aliphatics	50,000	µg/l	100 U	100 U
C19-C36 Aliphatics	50,000	µg/l	104	327
C11-C22 Aromatics, Adjusted	10,000	µg/l	100 U	100 U
Diesel Range Target Polycyclic Aromatic Hydrocarbons				
Naphthalene	20,000	µg/l	10.0 U	10.0 U
2-Methylnaphthalene	20,000	µg/l	10.0 U	10.0 U
Acenaphthene	10,000	µg/l	10.0 U	10.0 U
Phenanthrene	10,000	µg/l	10.0 U	10.0 U

Notes:

U = not detected above the laboratory reporting limit given to the left of the "U".

Table 5
Locomotive Release Area Soil Exposure Point Concentrations



CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355

Analytes	MCP Method 1 Standards			Units	Test Pit or Soil Boring ID, Sample Depth (in feet), Headspace Screening Result (given in part per million), and Sampling Date										Exposure Point Concentrations (EPCs)													
					Testpit-01	Testpit-02	SB-01		SB-02		SB-03	SB-04	SB-05		SB-06	SB-09	SB-10											
	S-1/GW-3	S-2/GW-3	S-3/GW-3		2'	2'	1-1.5'	5-6'	1-1.5'	4-5'	1-1.5'	1-1.5'	1-1.5'	3-3.5'	0.9'	0.9'	0.9'											
					25.1	95.0	88.5	not obtained	79.0	17.2	12.0	11.1	107	7.0	80.1	11.3**	0.4**											
					11/12/2014	11/13/2014	12/30/2014		12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	12/30/2014	1/14/2015	1/14/2015											
Volatile Petroleum Hydrocarbons																												
C5-C8 Aliphatics, Adjusted	100	500	500	mg/kg	NS	21.4		NS	NS	NS	NS	NS	NS	10.5	NS	NS	NS	16.0										
C9-C10 Aromatics	100	500	500	mg/kg	NS	409		NS	NS	NS	NS	NS	NS	118	NS	NS	NS	264										
C9-C12 Aliphatics, Adjusted	1,000	3,000	5,000	mg/kg	NS	264		NS	NS	NS	NS	NS	NS	55.5	NS	NS	NS	160										
Target Volatile Organic Compounds																												
Benzene	40	200	1,000	mg/kg	NS	0.500	U	NS	NS	NS	NS	NS	NS	0.263	U	NS	NS	NS	0.38									
Ethylbenzene	500	1,000	3,000	mg/kg	NS	1.97		NS	NS	NS	NS	NS	NS	0.968	NS	NS	NS	NS	1.47									
Methyl tert butyl ether	100	500	500	mg/kg	NS	0.250	U	NS	NS	NS	NS	NS	NS	0.131	U	NS	NS	NS	0.10									
Naphthalene	500	1,000	3,000	mg/kg	NS	11.2		NS	NS	NS	NS	NS	NS	0.972	NS	NS	NS	NS	6.01									
o-Xylene	500	1,000	3,000	mg/kg	NS	4.90		NS	NS	NS	NS	NS	NS	2.22	NS	NS	NS	NS	3.56									
p/m-Xylene	500	1,000	3,000	mg/kg	NS	9.74		NS	NS	NS	NS	NS	NS	4.66	NS	NS	NS	NS	7.20									
Toluene	500	1,000	3,000	mg/kg	NS	0.792		NS	NS	NS	NS	NS	NS	0.487	NS	NS	NS	NS	0.64									
Extractable Petroleum Hydrocarbons																												
C9-C18 Aliphatics	1,000	3,000	5,000	mg/kg	739	1,050		221	33.3	448	80	39.6	102	566	26.5	4,220	3,080	6.82	U	816								
C11-C22 Aromatics, Adjusted	1,000	3,000	5,000	mg/kg	957	881		266	148	498	163	330	363	470	98.5	2,260	1,210	7.56		589								
C19-C36 Aliphatics	3,000	5,000	5,000	mg/kg	308	389		458	159	357	158	258	201	285	84.6	951	1,100	12.6		363								
Target Polycyclic Aromatic Hydrocarbons																												
Acenaphthene	1,000	3,000	5,000	mg/kg	1.81	U	3.47	U	0.344	U	0.352	U	1.68	U	0.348	U	1.7	U	0.354	U	0.347	U	3.48	U	0.341	U	0.70	
2-Methylnaphthalene	300	500	500	mg/kg	7.62	7.39		2.11	0.352	U	4.27	0.852	1.7	U	0.731	5.13	0.347	U	42.8	11.0	0.341	U	0.341	U	0.341	U	6.38	
Naphthalene	500	1,000	3,000	mg/kg	2.10	3.47	U	0.344	U	0.352	U	1.68	U	0.348	U	1.7	U	0.354	U	0.437	0.347	U	3.68	U	0.341	U	0.81	
Phenanthrene	500	1,000	3,000	mg/kg	1.81	U	3.47	U	0.647	0.352	U	1.68	U	0.348	U	1.7	U	3.19	3.41	0.347	U	3.68	U	0.348	U	0.341	U	1.22

Notes:

U = not detected above the laboratory reporting limit given to the left of the "U".

NS = not sampled for corresponding analyte.

Shaded concentrations exceed the Method 1 S-1/GW-3 standards.

Bolded concentrations exceed the Method 1 S-2/GW-3 standards.

*Insufficient recovery - could not perform headspace screening.

**Due to frigid temperatures at the time of sampling, the soil sample was frozen upon collection and only partially defrosted when it was headspace screened; therefore, the headspace screening result may not be accurate.



Table 6
Retention Pond #2 Soil Exposure Point Concentrations
CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355

Analytes	MCP Method 1 Soil Standards		Units	Area, Sample ID, Headspace Screening Result (in ppm), Sample Depth (in inches or feet bgs), and Sampling Date																Exposure Point Concentrations (EPCs)													
	Retention Pond Sidewalls																Culvert Area			East of Gate Valve													
	RP-01	RP-02	RP-03	RP-04	RP-05	RP-06	RP-07	RP-08	RP-09	RP-10	RP-11	RP-12	RP-13	RP-14	RP-15	RP-16	Culvert-1	Culvert-02 Bottom	Culvert-02 Top	Sidewall-01	Sidewall-02	Sidewall-03	Sidewall-04	Bot-01									
S-1/GW-3	S-2/GW-3																																
	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/11/2014	11/13/2014	11/13/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014	5/13/2015	5/13/2015	5/13/2015							
Extractable Petroleum Hydrocarbons																																	
C9-C18 Aliphatics	1,000	3,000	mg/kg	7.39 U	7.37 U	7.33 U	43.6	15.2	7.35 U	11.6	7.07 U	6.8 U	7.68 U	6.84 U	7.19 U	174	7.23 U	7.3 U	7.68 U	8.57 U	8.32 U	21.1	6.91 U	9.96 U	6.90 U	6.88 U	7.14 U	7.32 U	7.44 U	6.83 U	34.4 U	7.56 U	43.6
C19-C36 Aliphatics	3,000	5,000	mg/kg	7.39 U	22.8	7.33 U	20.4	12.0	10.4	24.8	13.7	6.8 U	18.6	12.0	7.19 U	130	25.8	16.1	8.57 U	8.32 U	17.0	6.91 U	7.20 U	16.4	8.39	9.14	29.6	7.44 U	19.0	34.4 U	7.56 U	130	
C11-C22 Aromatics, Adjusted	1,000	3,000	mg/kg	13.5	20.4	7.33 U	53.6	25.2	16.6	28.5	7.07 U	6.8 U	18.5	9.65	7.19 U	71.5	18.4	22.2	54.9	8.57 U	8.32 U	17.7	6.91 U	14.0	27.0	10.3	19.3	12.9	7.44 U	21.3	42.1	7.56 U	71.5
Diesel Range Target PAHs																																	
2-Methylnaphthalene	300	500	mg/kg	0.37 U	0.368 U	0.367 U	0.485	0.375 U	0.368 U	0.359 U	0.353 U	0.34 U	0.384 U	0.342 U	0.36 U	1.04	0.362 U	0.365 U	0.384 U	0.428 U	0.416 U	0.322 U	0.345 U	0.360 U	0.345 U	0.344 U	0.357 U	0.366 U	0.372 U	0.341 U	1.72 U	0.378 U	1.04
Acenaphthene	1,000	3,000	mg/kg	0.37 U	0.368 U	0.367 U	0.344 U	0.375 U	0.368 U	0.359 U	0.353 U	0.34 U	0.384 U	0.342 U	0.36 U	0.354 U	0.362 U	0.365 U	0.3813	0.428 U	0.416 U	0.322 U	0.345 U	0.360 U	0.345 U	0.344 U	0.357 U	0.366 U	0.372 U	0.341 U	1.72 U	0.378 U	0.813
Phenanthrene	500	1,000	mg/kg	0.37 U	0.368 U	0.367 U	0.344 U	0.386	0.368 U	0.359 U	0.353 U	0.34 U	0.384 U	0.342 U	0.36 U	0.354 U	0.362 U	0.365 U	0.3813	0.428 U	0.416 U	0.322 U	0.345 U	0.360 U	0.345 U	0.344 U	0.357 U	0.366 U	0.372 U	0.341 U	1.72 U	0.378 U	6.38

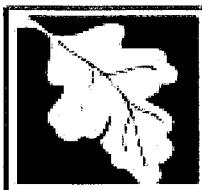
Notes:

U = not detected above the laboratory reporting limit given to the left of the "U".

The maximum concentration of any analyte detected was used to develop the EPCs.

APPENDICES

APPENDIX A



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT
Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

2

- 19355

For sites with multiple RTNs, enter the Primary RTN above.

A. SITE LOCATION:

1. Site Name/Location Aid: CSX RAILYARD

2. Street Address: 271 FRANKLIN STREET

3. City/Town: WORCESTER 4. ZIP Code: _____

5. Coordinates: a. Latitude: N 42.26222 b. Longitude: W 71.78766

e 6. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category:

e a. Tier I e b. Tier II e c. Tier II

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of the Permanent or Temporary Solution Statement, or RAO Statement (if previously submitted): _____ mm/dd/yyyy

b 2. Submit a Permanent or Temporary Solution Statement

- e a. Check here if this Permanent or Temporary Solution Statement covers additional Release Tracking Numbers (RTNs). RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.
b. Provide the additional Release Tracking Number(s) covered by this Permanent or Temporary Solution Statement. - -

e 3. Submit a Revised Permanent or Temporary Solution Statement (or revised RAO Statement)

- e a. Check here if this Revised Permanent or Temporary Solution Statement covers additional Release Tracking Numbers (RTNs), not listed on the Permanent or Temporary Solution Statement or previously submitted Revised Permanent or Temporary Solution Statements. RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.

b. Provide the additional Release Tracking Number(s) covered by this Permanent or Temporary Solution Statement. - -

e 4. Submit a Permanent or Temporary Solution Partial Statement

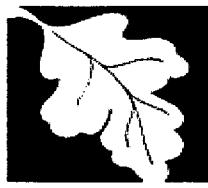
Check above box, if any Response Actions remain to be taken to address conditions associated with this disposal site having the Primary RTN listed in the header section of this transmittal form. This Permanent or Temporary Solution Statement will record only a Permanent or Temporary Solution-Partial Statement for that RTN. A final Permanent or Temporary Solution Statement will need to be submitted that references all Permanent or Temporary Solution-Partial Statements and, if applicable, covers any remaining conditions not covered by the Permanent or Temporary Solution-Partial Statements.

Also, specify if you are an Eligible Person or Tenant pursuant to M.G.L. c. 21 s.2, and have no further obligation to conduct response actions on the remaining portion(s) of the disposal site:

e a. Eligible Person e b. Eligible Tenant

- e 5. Submit a Revised Permanent or Temporary Solution Partial Statement (or revised RAO-Partial Statement)
e 6. Submit an optional Phase I Completion Statement supporting the Permanent or Temporary Solution Statement
e 7. Submit a Periodic Review Opinion evaluating the status of a Temporary Solution, as specified in 310 CMR 40.1051 (Section F is optional)
e 8. Submit a Retraction of a previously submitted Permanent or Temporary Solution Statement (or RAO Statement) (Sections E & F are not required)

(All sections of this transmittal form must be filled out unless otherwise noted above)

**Massachusetts Department of Environmental Protection***Bureau of Waste Site Cleanup***PERMANENT AND TEMPORARY SOLUTION STATEMENT**

Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

2

- 19355

For sites with multiple RTNs, enter the Primary RTN above.

C. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply; for volumes, list cumulative amounts)

- e 1. Assessment and/or Monitoring Only
- e 2. Temporary Covers or Caps
- b 3. Deployment of Absorbent or Containment Materials
- e 4. Treatment of Water Supplies
- e 5. Structure Venting System/HVAC Modification System
- e 6. Engineered Barrier
- b 7. Product or NAPL Recovery
- e 8. Fencing and Sign Posting
- e 9. Groundwater Treatment Systems
- e 10. Soil Vapor Extraction
- e 11. Remedial Additives
- e 12. Air Sparging
- e 13. Active Exposure Pathway Mitigation System
- e 14. Passive Exposure Pathway Mitigation System
- e 15. Monitored Natural Attenuation
- e 16. In-Situ Chemical Oxidation
- b 17. Removal of Contaminated Soils

b a. Re-use, Recycling or Treatment e i. On Site Estimated volume in cubic yards _____

b ii. Off Site Estimated volume in cubic yards 29 _____

iia. Facility Name: ESMI Town: LOUDON State: NH _____

iib. Facility Name: _____ Town: _____ State: _____

iii. Describe: _____

e b. Landfill

e i. Cover Estimated volume in cubic yards _____

Facility Name: _____ Town: _____ State: _____

e ii. Disposal Estimated volume in cubic yards _____

Facility Name: _____ Town: _____ State: _____

e 18. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount:

b. Facility Name: _____ Town: _____ State: _____

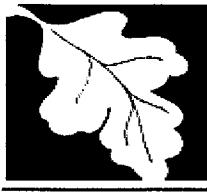
c. Facility Name: _____ Town: _____ State: _____

b 19. Removal of Other Contaminated Media:

a. Specify Type and Volume: 22 55-GALLON DRUMS OF BOOMS, RAGS, ABSORBENT PADS, AND SPEEDY-DRY.
2,065-GALLONS OF OILY WATER MIXTURE; 6 CUBIC YARD BOXES OF BOOMS AND ABSORBENT PAD

b. Facility Name: NORTHEAST, LLC Town: NEWINGTON State: NH _____

c. Facility Name: TRADEBE TREATMENT & RECYCLING Town: STOUGHTON State: MA _____



Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

2

- 19355

For sites with multiple RTNs, enter the Primary RTN above.

C. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply; for volumes, list cumulative amounts)

- e 20. Other Response Actions:

Describe:

- e 21. Use of Innovative Technologies:

Describe:

D. SITE USE:

1. Are the response actions that are the subject of this submittal associated with the *redevelopment, reuse or the major expansion of the current use* of property(ies) impacted by the presence of oil and/or hazardous materials?

e a. Yes b. No e c. Don't know

2. Is the property a *vacant or under-utilized commercial or industrial* property ("a brownfield property")?

e a. Yes b. No e c. Don't know

3. Will funds from a state or federal brownfield incentive program be used on one or more of the property(ies) within the disposal site?

e a. Yes b. No e c. Don't know If Yes, identify program(s): _____

4. Has a Covenant Not to Sue been obtained or sought?

e a. Yes b. No e c. Don't know

5. Check all applicable categories that apply to the person making this submittal: e a. Redevelopment Agency or Authority

e b. Community Development Corporation e c. Economic Development and Industrial Corporation

e d. Private Developer e e. Fiduciary e f. Secured Lender e g. Municipality

e h. Potential Buyer (non-owner) b i. Other, describe: RAILROAD _____

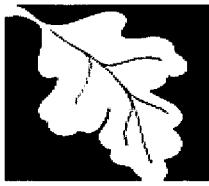
This data will be used by MassDEP for information purposes only, and does not represent or create any legal commitment, obligation or liability on the part of the party or person providing this data to MassDEP.

E. PERMANENT OR TEMPORARY SOLUTION CATEGORY:

Specify the category of Solution that applies to the Disposal Site, or Site of the Threat of Release. Select either 1, 2, or 3.

- e 1. Permanent Solution with No Conditions (check one)

- e a. A threat of release has been eliminated.
e b. All contamination has been reduced to Natural Background levels.
e c. A condition of No Significant Risk exists or has been achieved with no Activity and Use Limitation or other limitations, assumptions, or conditions (310 CMR 40.1013).



Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

2	-	19355
---	---	-------

For sites with multiple RTNs, enter the Primary RTN above.

E. PERMANENT OR TEMPORARY SOLUTION CATEGORY (cont.):

b 2. Permanent Solution with Conditions (check a and/or b):

- e a. An AUL has been implemented pursuant to 310 CMR 1012(2) (check one)
 - e i. Required pursuant to 310 40.1012(2)
 - e ii. Optionally implemented pursuant to 310 40.1012(3)

b b. Limitations or conditions apply pursuant to 310 CMR 40.1013 (check all that apply):

- e i. Gardening Best Management Practices (BMPs) for non-commercial gardening in a residential setting
- e ii. Concentrations of Oil and Hazardous Material consistent with Anthropogenic Background
- b iii. Residual contamination in a Public or Railroad Right-of-Way
- e iv. Groundwater contamination would exceed GW-2 Standards except for the absence of an occupied building or structure

e 3. Temporary Solution (check one)

- e a. Response actions to achieve a Permanent Solution are **not currently feasible**
- e b. Response actions to achieve a Permanent Solution are **feasible** and are being continued toward a Permanent Solution

F. PERMANENT AND TEMPORARY SOLUTION INFORMATION:

1. Specify the Risk Characterization Method(s) used to achieve the Permanent or Temporary Solution, described above:

- b a. Method 1
- e b. Method 2
- e c. Method 3
- e d. Method Not Applicable-Contamination reduced to or consistent with background, or Threat of Release abated

2. Specify all Soil Category(ies) applicable. More than one Soil Category may apply at a Site. Be sure to check off all **APPLICABLE** categories:

- e a. S-1/GW-1
- e d. S-2/GW-1
- e g. S-3/GW-1
- e j. Not Applicable
- e b. S-1/GW-2
- e e. S-2/GW-2
- e h. S-3/GW-2
- e c. S-1/GW-3
- b f. S-2/GW-3
- e i. S-3/GW-3

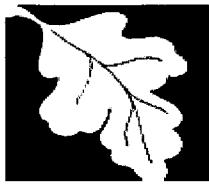
3. Specify all Groundwater Category(ies) impacted. A site may impact more than one Groundwater Category. Be sure to check off all **IMPACTED** categories:

- e a. GW-1
- e b. GW-2
- e c. GW-3
- b d. No Groundwater Impacted

e 4. Check here if the risk assessment includes any changes to the groundwater category pursuant to 310 CMR 40.0932(5)(a) through (e). Check all conditions that apply:

- e a. An Interim Wellhead Protection Area does not apply based on a hydrogeologic evaluation (310 CMR 40.0932(5)(a))
- e b. Groundwater was determined not to be in a Potentially Productive Aquifer or is not feasible to be developed as a drinking water supply (310 CMR 40.0932(5)(b))
- e c. A Non-Potential Drinking Water Source Area determination was made (310 CMR 40.0932(5)(c))
- e d. Existing private wells were permanently closed (310 CMR 40.0932(5)(d))
- e e. Groundwater is located within a Zone A, but is not hydrogeologically connected to a drinking water supply (310 CMR 40.0932(5)(e))

e 5. Check here if the Permanent or Temporary Solution supports a finding of No Significant Risk for petroleum in a GW-1 area pursuant to 310 CMR 40.0924(2)(b)3.



Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

2

- 19355

For sites with multiple RTNs, enter the Primary RTN above.

F. PERMANENT AND TEMPORARY SOLUTION INFORMATION (cont.):

6. Specify whether remediation was conducted:

- a. Check here if soil remediation was conducted.
- b. Check here if groundwater remediation was conducted.
- c. Check here if other remediation was conducted.

Specify:

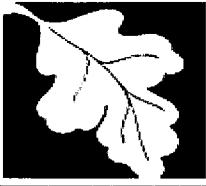
REMOVAL OF DIESEL FUEL FROM SURFACE OF STORMWATER RETENTION POND

7. Specify whether the analytical data used to support the Permanent or Temporary Solution used the Compendium of Analytical Methods (CAM):

- a. CAM used to support all analytical data.
 - b. CAM used to support some of the analytical data.
 - c. CAM not used.
8. Check here to indicate that the Permanent or Temporary Solution Statement includes a Data Usability Assessment and Data Representativeness Evaluation pursuant to 310 CMR 40.1056.

9. Estimate the number of acres this Permanent or Temporary Solution Statement applies to:

0.15



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

2 - 19355

For sites with multiple RTNs, enter the Primary RTN above.

G. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B indicates that either a **Permanent or Temporary Solution Statement**, **Phase I Completion Statement** and/or **Periodic Review Opinion** is being provided, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP#:	9605		
2. First Name:	SUSAN E	3. Last Name:	OBIEN
4. Telephone:	978-392-5361	5. Ext.:	6. Email:
7. Signature:			
8. Date:	mm/dd/yyyy	9. LSP Stamp:	<input checked="" type="checkbox"/>

X

H. PERSON MAKING SUBMITTAL:

1. Check all that apply: e a. change in contact name e b. change of address b c. change in the person undertaking response actions

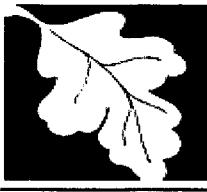
2. Name of Organization: CSX TRANSPORTATION INC

3. Contact First Name: WILLIAM 4. Last Name: PARRY

5. Street: ONE BELLS CROSSING ROAD 6. Title: MANAGER ENV. REMEDIATION

7. City/Town: SELKIRK 8. State: NY 9. ZIP Code: 121580000

10. Telephone: 518-767-6049 11. Ext.: 12. Email: william_parry@csx.com



Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

[2] - [19355]

For sites with multiple RTNs, enter the Primary RTN above.

I. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON MAKING SUBMITTAL:

e Check here to change relationship

b 1. RP or PRP b a. Owner e b. Operator e c. Generator e d. Transporter

e e. Other RP or PRP Specify: _____

e 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

e 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

e 4. Any Other Person Making Submittal Specify Relationship: _____

J. REQUIRED ATTACHMENT AND SUBMITTALS:

b 1. Check here if the Permanent or Temporary Solution on which this opinion is based, if any, are (were) subject to any order(s), permit (s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

e 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of a Permanent or Temporary Solution Statement that relies on the public way/rail right-of-way exemption from the requirements of an AUL.

e 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of a Permanent or Temporary Solution Statement with instructions on how to obtain a full copy of the report.

b 4. Check here to certify that documentation is attached specifying the location of the Site, or the location and boundaries of the Disposal Site subject to this Permanent or Temporary Solution Statement. If submitting a Permanent or Temporary Solution Statement for a PORTION of a Disposal Site, you must document the location and boundaries for both the portion subject to this submittal and, to the extent defined, the entire Disposal Site.

b 5. Check here to certify that, pursuant to 310 CMR 40.1406, notice was provided to the owner(s) of each property within the disposal site boundaries, or notice was not required because the disposal site boundaries are limited to property owned by the party conducting response actions. (check all that apply)

e a. Notice was provided prior to, or concurrent with the submittal of a Phase II Completion Statement to the Department.

e b. Notice was provided prior to, or concurrent with the submittal of this Permanent or Temporary Solution Statement to the Department.

b c. Notice not required. d. Total number of property owners notified, if applicable: _____

e 6. Check here if you are submitting one or more AULs. You must submit an AUL Transmittal Form (BWSC113) and a copy of each implemented AUL related to this Permanent Solution or Temporary Solution Statement. Specify the type of AUL(s) below: (required for Permanent Solution with Conditions Statements where an AUL is being implemented)

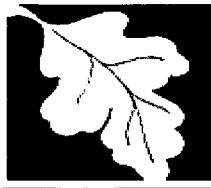
e a. Notice of Activity and Use Limitation b. Number of Notices submitted: _____

e c. Grant of Environmental Restriction d. Number of Grants submitted: _____

b 7. If a Permanent Solution Compliance Fee is required for any of the RTNs listed on this transmittal form, check here to certify that a Permanent Solution Compliance Fee was submitted to DEP, P. O. Box 4062, Boston, MA 02211.

e 8. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Address/Location Aid. Send corrections to bwsc.edep@state.ma.us.

b 9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number

2

- 19355

For sites with multiple RTNs, enter the Primary RTN above.

K. CERTIFICATION OF PERSON MAKING SUBMITTAL:

1. I, _____, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: _____ 3. Title: _____

Signature

4. For: CSX TRANSPORTATION INC 5. Date: _____
(Name of person or entity recorded in Section H) mm/dd/yyyy

e 6. Check here if the address of the person providing certification is different from address recorded in Section H.

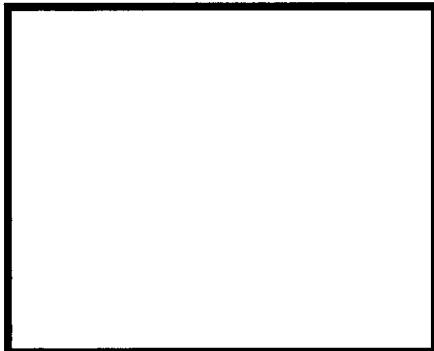
7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. Email: _____

**YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER
BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT
SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU
SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.**

Date Stamp (DEP USE ONLY):





**Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup**

**Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)**

BWSC 105

Release Tracking Number

2

- 19355

A. SITE LOCATION:

1. Release Name/Location Aid: CSX RAILYARD

2. Street Address: 271 FRANKLIN STREET

3. City/Town: WORCESTER 4. Zip Code: _____

e 5. Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114.

- e a. CERCLA e b. HSWA Corrective Action e c. Solid Waste Management
e d. RCRA State Program (21C Facilities)

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of Initial IRA Written Plan (if previously submitted): _____

- e 2. Submit an **Initial IRA Plan**.
e 3. Submit a **Modified IRA Plan** of a previously submitted written IRA Plan.
e 4. Submit an **Imminent Hazard Evaluation**. (check one)
e a. An Imminent Hazard exists in connection with this Release or Threat of Release.
e b. An Imminent Hazard does not exist in connection with this Release or Threat of Release.
e c. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.
e d. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.
e 5. Submit a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard**.
e 6. Submit an **IRA Status Report**
e 7. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)

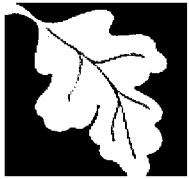
a. Type of Report: (check one) e i. Initial Report e ii. Interim Report e iii. Final Report

b. Frequency of Submittal: (check all that apply)

- e i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.
e ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.
e iii. A Remedial Monitoring Report(s) submitted every six months, concurrent with an IRA Status Report.
e iv. A Remedial Monitoring Report(s) submitted annually, concurrent with an IRA Status Report.

c. Number of Remedial Systems and/or Monitoring Programs: _____

A separate BWSC105A, IRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

BWSC 105

Release Tracking Number
2 - **19355**

b 8. Submit an IRA Completion Statement.

e a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN)

b. Provide Release Tracking Number of Tier Classified Site (Primary RTN): _____

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

e 9. Submit a Revised IRA Completion Statement.

e 10. Submit a Plan for the Application of Remedial Additives near a sensitive receptor, pursuant to 310 CMR 40.0046(3).

(All sections of this transmittal form must be filled out unless otherwise noted above)

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT IRA:

1. Media Impacted and Receptors Affected: (check all that apply)
- | | | | | | |
|----------------------------|------------------------|--------------------------------|-------------------|-----------------|-----------|
| e d. Public Water Supply | b e. Surface Water | e f. Zone 2 | e g. Private Well | e h. Residence | b i. Soil |
| e j. Groundwater | e k. Sediments | e l. Wetland | b m. Storm Drain | e n. Indoor Air | e o. Air |
| e p. Soil Gas | e q. Sub-Slab Soil Gas | e r. Critical Exposure Pathway | b s. NAPL | e t. Unknown | |
| e r. Others Specify: _____ | | | | | |
2. Sources of the Release or TOR: (check all that apply)
- | | | | | | |
|-------------------|-------------------------------------|------------|-------------------|--------------|------------------|
| e d. OHM Delivery | e e. AST | e f. Drums | e g. Tanker Truck | e h. Hose | e i. Line |
| e j. UST | Describe: _____ | | | e k. Vehicle | e l. Boat/Vessel |
| e m. Unknown | b n. Other: LOCOMOTIVE FILTER CLAMP | | | | |
3. Type of Release or TOR: (check all that apply)
- | | | | | | |
|------------------|---------------------------------|-----------|------------|-------------------|---------------|
| e e. Rupture | e f. Vehicle Accident | e g. Leak | e h. Spill | e i. Test failure | e j. TOR Only |
| e k. UST Removal | Describe: _____ | | | | |
| e l. Unknown | b m. Other: BROKEN FILTER CLAMP | | | | |
4. Identify Oils and Hazardous Materials Released: (check all that apply)
- | | | | | | |
|-------------------|-------------|----------------|-----------|---------------------------|--|
| e c. Heavy Metals | e d. Others | Specify: _____ | b a. Oils | e b. Chlorinated Solvents | |
|-------------------|-------------|----------------|-----------|---------------------------|--|

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

- | | |
|--|--|
| e 1. Assessment and/or Monitoring Only | e 2. Temporary Covers or Caps |
| b 3. Deployment of Absorbent or Containment Materials | e 4. Temporary Water Supplies |
| e 5. Structure Venting System/HVAC Modification System | e 6. Temporary Evacuation or Relocation of Residents |
| b 7. Product or NAPL Recovery | e 8. Fencing and Sign Posting |
| e 9. Groundwater Treatment Systems | e 10. Soil Vapor Extraction |
| e 11. Remedial Additives | e 12. Air Sparging |
| e 13. Active Exposure Pathway Mitigation System | e 14. Passive Exposure Pathway Mitigation System |



**Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup**

**Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)**

BWSC 105

Release Tracking Number
2 - 19355

D. DESCRIPTION OF RESPONSE ACTIONS: (cont.)

b 15. Excavation of Contaminated Soils.

b a. Re-use, Recycling or Treatment	e i. On Site	Estimated volume in cubic yards	<hr/>
	b ii. Off Site	Estimated volume in cubic yards	29 <hr/>
iia. Receiving Facility: <u>ESMI</u>	Town: <u>LOUDON</u>	State: <u>NH</u>	<hr/>
iib. Receiving Facility: _____	Town: _____	State: _____	<hr/>
iii. Describe: _____			
e b. Store	e i. On Site	Estimated volume in cubic yards	<hr/>
	e ii. Off Site	Estimated volume in cubic yards	<hr/>
iia. Receiving Facility: _____	Town: _____	State: _____	<hr/>
iib. Receiving Facility: _____	Town: _____	State: _____	<hr/>
e c. Landfill	e i. Cover	Estimated volume in cubic yards	<hr/>
Receiving Facility: _____	Town: _____	State: _____	<hr/>
	e ii. Disposal	Estimated volume in cubic yards	<hr/>
Receiving Facility: _____	Town: _____	State: _____	<hr/>

e 16. Removal of Drums, Tanks, or Containers:

a. Describe Quantity and Amount:	<hr/>		
b. Receiving Facility: _____	Town: _____	State: _____	<hr/>
c. Receiving Facility: _____	Town: _____	State: _____	<hr/>

b 17. Removal of Other Contaminated Media:

a. Specify Type and Volume:	22 55-GALLON DRUMS AND 6 CUBIC YARD BOXES OF BOOMS, RAGS, PADS AND SPEEDY-DRY	<hr/>
------------------------------------	--	-------

b 18. Other Response Actions:

Describe:	REMOVAL OF 2,065 GALLONS OF DIESEL FUEL/WATER MIXTURE	<hr/>
------------------	--	-------

e 19. Use of Innovative Technologies:

Describe:	<hr/>
------------------	-------



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

BWSC 105

Release Tracking Number

2 - 19355

E. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that an **Immediate Response Action Plan** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish thepurposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Action Status Report** and/or a **Remedial Monitoring Report** is(are) being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000,(ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 9605

2. First Name: SUSAN E

3. Last Name: O'BRIEN

4. Telephone: 978-392-5361

5. Ext:

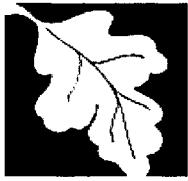
6. Email: susan.obrien@amec.com

7. Signature:

8. Date:

(mm/dd/yyyy)

9. LSP Stamp:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

BWSC 105

Release Tracking Number

2

- 19355

F. PERSON UNDERTAKING IRA:

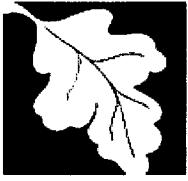
1. Check all that apply: e a. change in contact name e b. change of address b c. change in the person undertaking response actions
2. Name of Organization: CSX TRANSPORTATION INC
3. Contact First Name: WILLIAM 4. Last Name: PARRY
5. Street: ONE BELLS CROSSING ROAD 6. Title: MANAGER ENV. REMEDIATION
7. City/Town: SELKIRK 8. State: NY 9. Zip Code: 121580000
10. Telephone: 518-767-6049 11. Ext: 12. Email: william_parry@csx.com
-

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA:

- e Check here to change relationship
- b 1. RP or PRP b a. Owner e b. Operator e c. Generator e d. Transporter
- c e. Other RP or PRP Specify Relationship: _____
- e 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
- e 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
- e 4. Any Other Person Undertaking Response Actions: Specify Relationship: _____
-

H. REQUIRED ATTACHMENT AND SUBMITTALS:

- e 1. Check here if any Remediation Waste, generated as a result of this IRA, will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement. If this box is checked, you must submit one of the following plans, along with the appropriate transmittal form.
- e a. A Release Abatement Measure (RAM) Plan (BWSC106) e b. Phase IV Remedy Implementation Plan (BWSC108)
- b 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by MassDEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- e 3. Check here to certify that the Chief Municipal Officer and the Local Boardof Health were notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- e 4. Check here to certify that the Chief Municipal Officer and the Local Boardof Health were notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- e 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@state.ma.us.
- b 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

**Massachusetts Department of Environmental Protection***Bureau of Waste Site Cleanup***Immediate Response Action (IRA) Transmittal Form**

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

BWSC 105

Release Tracking Number

2

19355

I. CERTIFICATION OF PERSON UNDERTAKING IRA:

1. I, _____, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form; (ii) that, based on my inquiry of the/those individual(s) immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge, information and belief, true, accurate and complete; (iii) that, to the best of my knowledge, information and belief, I/the person(s) or entity(ies) on whose behalf this submittal is made satisfy(ies) the criteria in 310 CMR 40.0183(2); (iv) that I/the person(s) or entity(ies) on whose behalf this submittal is made have provided notice in accordance with 310 CMR 40.0183(5); and (v) that I am fully authorized to make this attestation on behalf of the person(s) or entity(ies) legally responsible for this submittal. I/the person(s) or entity(ies) on whose behalf this submittal is made is/are aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: _____ 3. Title: MANAGER ENV. REMEDIATION4. For: CSX TRANSPORTATION INC 5. Date: _____ (mm/dd/yyyy)

e 6. Check here if the address of the person providing certification is different from address recorded in Section F.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY): _____

APPENDIX B

		Boring Location:		SB-01	Page 1 of 1
 Soil Boring Log AMEC 271 Mill Rd. Chelmsford, MA	Project Name:	CSX-Worcester Nov 7 Diesel Spill	Geologist:	Mark Maggiore	
	Date Started:	12/30/2014	Drilling Company:	Geosearch	
	Date Completed:	12/30/2014	Drilling Method:	Air Knife Vac, Hand Auger, Direct Push	
	Total Depth:	20'	Depth to Water:	12-13'	
	Comments:	Thin Layer of Clay ~9'. Location (former Test Pit-02)			
Depth (feet)	Stratigraphy Description	Penetration/ Recovery (feet)	Headspace (ppm)	Blows/ 6 inches	Sample ID
0-2'	(0-0.5') - Ballast. Hand Auger - (1.0-1.5'); Moist, dark brown, poorly graded gravel sand, some silt, and cobbles; strong petroleum odor	NA	88.5	NA	SB-01 (1.0-1.5'). Sample Time 0944 for EPH
2'-3'	Hand Auger (2.0-2.5'); Moist, dark brown poorly graded, gravel sand, some silt, no odor	NA	17.5	NA	
3'-4'	Hand Auger - (3.0-3.5'); same as above, no odor	NA	20	NA	
4'-5'	Hand Auger - (4.0-4.5'); same as above, no odor	NA	2.6	NA	
5'-10'	Geoprobe - (5.0-6.0'), little recovery; moist, dark brown, poorly graded sand and gravel, no odor. 9-10' moist grayish clay, no odor	5.0/1.9'	NA	NA	SB-01 (5.0-6.0') Sample Time 1008 for EPH
10'-15'	Geoprobe - No Recovery	5.0/0.0'	NA	NA	
15'-20'	Geoprobe- (15.0-20.0'), Wet, brown, medium to fine sand, no odor. End of Boring	1.5/5.0	< 1	NA	

		Boring Location:		SB-02	Page 1 of 1
 Soil Boring Log AMEC 271 Mill Rd. Chelmsford, MA		Project Name:	CSX-Worcester Nov 7 Diesel Spill	Geologist:	Mark Maggiore
		Date Started:	12/30/2014	Drilling Company:	Geosearch
		Date Completed:	12/30/2014	Drilling Method:	Air Knife Vac, Hand Auger, Direct Push
		Total Depth:	15'	Depth to Water:	11-11.5'
		Comments:	Location (Former Test Pit-01)		
Depth (feet)	Stratigraphy Description	Penetration/ Recovery (feet)	Headspace (ppm)	Blows/ 6 inches	Sample ID
0-2'	(0-0.5') - Ballast. Hand Auger - (1.0-1.5'). Moist, dark brown, poorly graded sand, some gravel very little silt, strong petroleum odor.	NA	79	NA	SB-02 (1.0-1.5'). Sample Time 0953 for EPH
2'-3'	Hand Auger - (2.0-2.5'); Moist, dark brown poorly graded, sand, some gravel, little silt, slight odor	NA	29.4	NA	
3'-4'	Hand Auger - (3.0-3.5'); same as above, no odor	NA	12.8	NA	
4'-5'	Hand Auger - (4.0-4.5'); same as above.	NA	17.2	NA	SB-02 (4.0-4.5') Sample Time 1020 for EPH
5'-10'	Geoprobe - (5.0-10.0'), Moist, light brown med to fine sand at 8.5'.	5.0/2.5'	NA	NA	
10'-15'	Geoprobe - (10.0-15.0'), Moist, light brown medium to fine sand, wet ~11-11.5'. End of Boring at 15'	5.0/3.2'	0.4	NA	

		Boring Location:		SB-03	Page 1 of 1
 Soil Boring Log AMEC 271 Mill Rd. Chelmsford, MA	Project Name:	CSX-Worcester Nov 7 Diesel Spill	Geologist:	Mark Maggiore	
	Date Started:	12/30/2014	Drilling Company:	Geosearch	
	Date Completed:	12/30/2014	Drilling Method:	Air Knife Vac, Hand Auger.	
	Total Depth:	3.5'	Depth to Water:	NA	
	Comments:	Location - Eastern end of spill area			
Depth (feet)	Stratigraphy Description	Penetration/ Recovery (feet)	Headspace (ppm)	Blows/ 6 inches	Sample ID
0-2'	(0-0.5') - Ballast. Hand Auger - (1.0-1.5'); Moist, dark brown, poorly graded sand and gravel, some silt, slight petroleum odor.	NA	12	NA	SB-03 (1.0-1.5'). Sample Time 1147 for EPH
2-3'	Hand Auger - (2.0-2.5'); Moist, dark brown poorly graded sand, some gravel, little silt, slight odor	NA	2	NA	

 <p>Soil Boring Log</p> <p>AMEC 271 Mill Rd. Chelmsford, MA</p>	Boring Location: SB-04 Page 1 of 1				
	Project Name:	CSX-Worcester Nov 7 Diesel Spill	Geologist:	Mark Maggiore	
	Date Started:	12/30/2014	Drilling Company:	Geosearch	
	Date Completed:	12/30/2014	Drilling Method:	Air Knife Vac, Hand Auger.	
	Total Depth:	15'	Depth to Water:	12'	
	Comments:	Location - West of affected area			
Depth (feet)	Stratigraphy Description	Penetration/ Recovery (feet)	Headspace (ppm)	Blows/ 6 inches	Sample ID
0-2'	(0-0.5') - Ballast. Hand Auger - (1.0-1.5'); Moist, dark brown, poorly graded sand, some silt and gravel, slight odor.	NA	11.1	NA	SB-04 (1.0-1.5'). Sample Time 1215 for EPH
2'-3'	Hand Auger - (2.0-2.5'); same as above	NA	2.2	NA	
3'-5'	Vac - (3.0-3.5'); No soil description.	NA	NA	NA	
5'-10'	Geoprobe - (5.0-9.0'): Moist brownish black sand and gravel. Coal pieces observed. (9.0-10.0): grayish clay.	NA	<1.0	NA	
10'-15'	Geoprobe - (10.0-15.0') moist brown medium to fine sand, wet ~12'. No odor. End of Boring at 15'	5.0/2.0'	<1.0	NA	

		Boring Location:	SB-05	Page 1 of 1	
 Soil Boring Log AMEC 271 Mill Rd. Chelmsford, MA	Project Name:	CSX-Worcester Nov 7 Diesel Spill	Geologist:	Mark Maggiore	
	Date Started:	12/30/2014	Drilling Company:	Geosearch	
	Date Completed:	12/30/2014	Drilling Method:	Air Knife Vac, Hand Auger.	
	Total Depth:	3.5'	Depth to Water:	NA	
	Comments:	Location - South of SB-01. Slightly outside affected area. Collect for EPH and VPH at 1.0-1.5' depth interval.			
Depth (feet)	Stratigraphy Description	Penetration/ Recovery (feet)	Headspace (ppm)	Blows/ 6 inches	Sample ID
0-2'	(0-0.5') - Ballast. Hand Auger (1.0-1.5') - Moist, dark brown, poorly graded sand, some gravel, silt, and cobbles, strong petroleum odor.	NA	107	NA	SB-05 (1.0-1.5'). Sample Time 1224 for EPH and VPH
2'-3'	Hand Auger - (2.0-2.5'); Same as above; less odor.	NA	16.9	NA	
3'-4'	Hand Auger - (3.0-3.5'); Same as above, less odor. End of Boring at 3.5'	NA	12.8	NA	SB-05 (3.0-3.5'). Sample Time 1241 for EPH

		Boring Location:		SB-06	Page 1 of 1
 Soil Boring Log AMEC 271 Mill Rd. Chelmsford, MA	Project Name:	CSX-Worcester Nov 7 Diesel Spill	Geologist:	Mark Maggiore	
	Date Started:	12/30/2014	Drilling Company:	Geosearch	
	Date Completed:	12/30/2014	Drilling Method:	Hand dig and used trowel to collect sample	
	Total Depth:	0.9'	Depth to Water:	NA	
	Comments:	Location - Between track SU2 and roadway.			
Depth (feet)	Stratigraphy Description	Penetration/ Recovery (feet)	Headspace (ppm)	Blows/ 6 inches	Sample ID
0-0.9'	(0-0.5') - Ballast. Trowel (0.6-0.9'). Moist, dark brown, poorly graded sand and gravel, strong petroleum odor. Encountered plastic membrane at 0.9'.	NA	80.1	NA	SB-06(0.9'). Sample Time 1300 for EPH.

APPENDIX C



ANALYTICAL REPORT

Lab Number:	L1510388
Client:	AMEC Earth & Environmental 271 Mill Road 3rd Floor Chelmsford, MA 01824
ATTN:	Susan O'Brien
Phone:	(978) 392-5355
Project Name:	CSX WORCESTER NOV 7 SPILL
Project Number:	R000138941-ENV119005
Report Date:	05/21/15

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1510388-01	SIDEWALL-01(W)	SOIL	WORCESTER, MA	05/13/15 12:30	05/13/15
L1510388-02	SIDEWALL-02(W)	SOIL	WORCESTER, MA	05/13/15 12:35	05/13/15
L1510388-03	SIDEWALL-03(W)	SOIL	WORCESTER, MA	05/13/15 12:40	05/13/15
L1510388-04	SIDEWALL-04(W)	SOIL	WORCESTER, MA	05/13/15 12:45	05/13/15
L1510388-05	BOTT-01(W)	SOIL	WORCESTER, MA	05/13/15 12:50	05/13/15

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Case Narrative (continued)

MCP Related Narratives

EPH

L1510388-04 has elevated detection limits due to the dilution required by the sample matrix.

In reference to question G:

L1510388-04: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The WG785565-3 LCS/LCSD RPDs, associated with L1510388-01 through -05, are above the acceptance criteria for C11-C22 aromatics (29%), naphthalene (27%), 2-methylnaphthalene (28%), acenaphthylene (30%), acenaphthene (29%), fluorene (31%), phenanthrene (32%), anthracene (31%), fluoranthene (32%), pyrene (32%), benzo(a)anthracene (32%), chrysene (32%), benzo(b)fluoranthene (34%), benzo(k)fluoranthene (30%), benzo(a)pyrene (33%), indeno(1,2,3-cd)pyrene (34%), dibenzo(a,h)anthracene (32%), and benzo(ghi)perylene (34%).

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 05/21/15

ORGANICS

PETROLEUM HYDROCARBONS



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID:	L1510388-01	Date Collected:	05/13/15 12:30
Client ID:	SIDEWALL-01(W)	Date Received:	05/13/15
Sample Location:	WORCESTER, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/15 06:32
Analytical Date:	05/18/15 18:39	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	05/17/15
Percent Solids:	88%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.32	--	1
C19-C36 Aliphatics	29.6		mg/kg	7.32	--	1
C11-C22 Aromatics	12.9		mg/kg	7.32	--	1
C11-C22 Aromatics, Adjusted	12.9		mg/kg	7.32	--	1
Naphthalene	ND		mg/kg	0.366	--	1
2-Methylnaphthalene	ND		mg/kg	0.366	--	1
Acenaphthene	ND		mg/kg	0.366	--	1
Phenanthrene	ND		mg/kg	0.366	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	84		40-140
2-Fluorobiphenyl	84		40-140
2-Bromonaphthalene	85		40-140

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID:	L1510388-02	Date Collected:	05/13/15 12:35
Client ID:	SIDEWALL-02(W)	Date Received:	05/13/15
Sample Location:	WORCESTER, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/15 06:32
Analytical Date:	05/18/15 19:12	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	05/17/15
Percent Solids:	86%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.44	--	1
C19-C36 Aliphatics	ND		mg/kg	7.44	--	1
C11-C22 Aromatics	ND		mg/kg	7.44	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.44	--	1
Naphthalene	ND		mg/kg	0.372	--	1
2-Methylnaphthalene	ND		mg/kg	0.372	--	1
Acenaphthene	ND		mg/kg	0.372	--	1
Phenanthrene	ND		mg/kg	0.372	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	100		40-140
2-Fluorobiphenyl	100		40-140
2-Bromonaphthalene	101		40-140

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID:	L1510388-03	Date Collected:	05/13/15 12:40
Client ID:	SIDEWALL-03(W)	Date Received:	05/13/15
Sample Location:	WORCESTER, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/15 06:32
Analytical Date:	05/18/15 19:44	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	05/17/15
Percent Solids:	94%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.83	--	1
C19-C36 Aliphatics	19.0		mg/kg	6.83	--	1
C11-C22 Aromatics	21.3		mg/kg	6.83	--	1
C11-C22 Aromatics, Adjusted	21.3		mg/kg	6.83	--	1
Naphthalene	ND		mg/kg	0.341	--	1
2-Methylnaphthalene	ND		mg/kg	0.341	--	1
Acenaphthene	ND		mg/kg	0.341	--	1
Phenanthrene	ND		mg/kg	0.341	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	83		40-140
o-Terphenyl	95		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	93		40-140

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID:	L1510388-04 D	Date Collected:	05/13/15 12:45
Client ID:	SIDEWALL-04(W)	Date Received:	05/13/15
Sample Location:	WORCESTER, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/15 06:32
Analytical Date:	05/18/15 15:58	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	05/17/15
Percent Solids:	93%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	34.4	--	5
C19-C36 Aliphatics	ND		mg/kg	34.4	--	5
C11-C22 Aromatics	42.1		mg/kg	34.4	--	5
C11-C22 Aromatics, Adjusted	42.1		mg/kg	34.4	--	5
Naphthalene	ND		mg/kg	1.72	--	5
2-Methylnaphthalene	ND		mg/kg	1.72	--	5
Acenaphthene	ND		mg/kg	1.72	--	5
Phenanthrene	ND		mg/kg	1.72	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	83		40-140
o-Terphenyl	78		40-140
2-Fluorobiphenyl	73		40-140
2-Bromonaphthalene	73		40-140

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID:	L1510388-05	Date Collected:	05/13/15 12:50
Client ID:	BOTT-01(W)	Date Received:	05/13/15
Sample Location:	WORCESTER, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/15 06:32
Analytical Date:	05/18/15 21:17	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	05/17/15
Percent Solids:	84%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.56	--	1
C19-C36 Aliphatics	ND		mg/kg	7.56	--	1
C11-C22 Aromatics	ND		mg/kg	7.56	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.56	--	1
Naphthalene	ND		mg/kg	0.378	--	1
2-Methylnaphthalene	ND		mg/kg	0.378	--	1
Acenaphthene	ND		mg/kg	0.378	--	1
Phenanthrene	ND		mg/kg	0.378	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	80		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	68		40-140
2-Bromonaphthalene	69		40-140

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV1190C

Lab Number: L1510388
Report Date: 05/21/15

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 05/18/15 10:52
Analyst: SR

Extraction Method: EPA 3546
Extraction Date: 05/16/15 06:32
Cleanup Method: EPH-04-1
Cleanup Date: 05/17/15

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s):	01-05			Batch:	WG785565-1
C9-C18 Aliphatics	ND		mg/kg	6.58	--
C19-C36 Aliphatics	ND		mg/kg	6.58	--
C11-C22 Aromatics	ND		mg/kg	6.58	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.58	--
Naphthalene	ND		mg/kg	0.329	--
2-Methylnaphthalene	ND		mg/kg	0.329	--
Acenaphthene	ND		mg/kg	0.329	--
Phenanthrene	ND		mg/kg	0.329	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	90		40-140
2-Fluorobiphenyl	92		40-140
2-Bromonaphthalene	93		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 Batch: WG785565-2 WG785565-3								
C9-C18 Aliphatics	71		71		40-140	0		25
C19-C36 Aliphatics	91		93		40-140	2		25
C11-C22 Aromatics	86		115		40-140	29	Q	25
Naphthalene	73		96		40-140	27	Q	25
2-Methylnaphthalene	80		106		40-140	28	Q	25
Acenaphthylene	75		101		40-140	30	Q	25
Acenaphthene	82		110		40-140	29	Q	25
Fluorene	83		114		40-140	31	Q	25
Phenanthrene	85		117		40-140	32	Q	25
Anthracene	94		129		40-140	31	Q	25
Fluoranthene	86		119		40-140	32	Q	25
Pyrene	88		121		40-140	32	Q	25
Benzo(a)anthracene	83		115		40-140	32	Q	25
Chrysene	88		122		40-140	32	Q	25
Benzo(b)fluoranthene	84		118		40-140	34	Q	25
Benzo(k)fluoranthene	83		112		40-140	30	Q	25
Benzo(a)pyrene	86		120		40-140	33	Q	25
Indeno(1,2,3-cd)Pyrene	69		97		40-140	34	Q	25
Dibenzo(a,h)anthracene	83		115		40-140	32	Q	25
Benzo(ghi)perylene	81		114		40-140	34	Q	25
Nonane (C9)	58		58		30-140	0		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 Batch: WG785565-2 WG785565-3								
Decane (C10)	67		68		40-140	1		25
Dodecane (C12)	76		76		40-140	0		25
Tetradecane (C14)	82		82		40-140	0		25
Hexadecane (C16)	86		86		40-140	0		25
Octadecane (C18)	91		92		40-140	1		25
Nonadecane (C19)	90		92		40-140	2		25
Eicosane (C20)	91		93		40-140	2		25
Docosane (C22)	91		92		40-140	1		25
Tetracosane (C24)	91		92		40-140	1		25
Hexacosane (C26)	91		92		40-140	1		25
Octacosane (C28)	90		92		40-140	2		25
Triacontane (C30)	91		92		40-140	1		25
Hexatriacontane (C36)	88		89		40-140	1		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	80		85		40-140
o-Terphenyl	96		122		40-140
2-Fluorobiphenyl	79		107		40-140
2-Bromonaphthalene	81		110		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Matrix Spike Analysis

Batch Quality Control

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG785565-4 QC Sample: L1510388-01 Client ID: SIDEWALL-01(W)												
C9-C18 Aliphatics	ND	43.3	39.0	90	-	-	-	-	40-140	-	-	50
C19-C36 Aliphatics	29.6	57.7	75.2	79	-	-	-	-	40-140	-	-	50
C11-C22 Aromatics	12.9	123	136	100	-	-	-	-	40-140	-	-	50
Naphthalene	ND	7.21	5.80	80	-	-	-	-	40-140	-	-	50
2-Methylnaphthalene	ND	7.21	6.29	87	-	-	-	-	40-140	-	-	50
Acenaphthylene	ND	7.21	6.25	87	-	-	-	-	40-140	-	-	50
Acenaphthene	ND	7.21	6.11	85	-	-	-	-	40-140	-	-	50
Fluorene	ND	7.21	6.55	91	-	-	-	-	40-140	-	-	50
Phenanthrene	ND	7.21	6.72	93	-	-	-	-	40-140	-	-	50
Anthracene	ND	7.21	7.58	105	-	-	-	-	40-140	-	-	50
Fluoranthene	ND	7.21	6.88	95	-	-	-	-	40-140	-	-	50
Pyrene	ND	7.21	7.02	97	-	-	-	-	40-140	-	-	50
Benzo(a)anthracene	ND	7.21	6.81	94	-	-	-	-	40-140	-	-	50
Chrysene	ND	7.21	6.79	94	-	-	-	-	40-140	-	-	50
Benzo(b)fluoranthene	ND	7.21	7.11	98	-	-	-	-	40-140	-	-	50
Benzo(k)fluoranthene	ND	7.21	6.78	94	-	-	-	-	40-140	-	-	50
Benzo(a)pyrene	ND	7.21	7.61	106	-	-	-	-	40-140	-	-	50
Indeno(1,2,3-cd)Pyrene	ND	7.21	5.78	80	-	-	-	-	40-140	-	-	50
Dibenz(a,h)anthracene	ND	7.21	5.47	76	-	-	-	-	40-140	-	-	50
Benzo(ghi)perylene	ND	7.21	6.58	91	-	-	-	-	40-140	-	-	50
Nonane (C9)	ND	7.21	3.62	50	-	-	-	-	30-140	-	-	50

Matrix Spike Analysis

Batch Quality Control

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG785565-4 QC Sample: L1510388-01 Client ID: SIDEWALL-01(W)												
Decane (C10)	ND	7.21	4.18	58		-	-	-	40-140	-	-	50
Dodecane (C12)	ND	7.21	4.67	65		-	-	-	40-140	-	-	50
Tetradecane (C14)	ND	7.21	5.07	70		-	-	-	40-140	-	-	50
Hexadecane (C16)	ND	7.21	5.53	77		-	-	-	40-140	-	-	50
Octadecane (C18)	ND	7.21	5.73	79		-	-	-	40-140	-	-	50
Nonadecane (C19)	ND	7.21	5.78	80		-	-	-	40-140	-	-	50
Eicosane (C20)	ND	7.21	5.83	81		-	-	-	40-140	-	-	50
Docosane (C22)	ND	7.21	5.88	82		-	-	-	40-140	-	-	50
Tetracosane (C24)	ND	7.21	5.85	81		-	-	-	40-140	-	-	50
Hexacosane (C26)	ND	7.21	5.84	81		-	-	-	40-140	-	-	50
Octacosane (C28)	ND	7.21	5.91	82		-	-	-	40-140	-	-	50
Triaccontane (C30)	ND	7.21	5.99	83		-	-	-	40-140	-	-	50
Hexatriacontane (C36)	ND	7.21	6.03	84		-	-	-	40-140	-	-	50

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
2-Bromonaphthalene	93				40-140
2-Fluorobiphenyl	91				40-140
Chloro-Octadecane	68				40-140
o-Terphenyl	79				40-140

INORGANICS & MISCELLANEOUS



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID: L1510388-01
Client ID: SIDEWALL-01(W)
Sample Location: WORCESTER, MA
Matrix: Soil

Date Collected: 05/13/15 12:30
Date Received: 05/13/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.2		%	0.100	NA	1	-	05/14/15 02:21	30,2540G	RT

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID: L1510388-02
Client ID: SIDEWALL-02(W)
Sample Location: WORCESTER, MA
Matrix: Soil

Date Collected: 05/13/15 12:35
Date Received: 05/13/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	05/14/15 02:21	30,2540G	RT



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID: L1510388-03
Client ID: SIDEWALL-03(W)
Sample Location: WORCESTER, MA
Matrix: Soil

Date Collected: 05/13/15 12:40
Date Received: 05/13/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	05/14/15 02:21	30,2540G	RT



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID: L1510388-04
Client ID: SIDEWALL-04(W)
Sample Location: WORCESTER, MA
Matrix: Soil

Date Collected: 05/13/15 12:45
Date Received: 05/13/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.8		%	0.100	NA	1	-	05/14/15 02:21	30,2540G	RT



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

SAMPLE RESULTS

Lab ID: L1510388-05
Client ID: BOTT-01(W)
Sample Location: WORCESTER, MA
Matrix: Soil

Date Collected: 05/13/15 12:50
Date Received: 05/13/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	05/14/15 02:21	30,2540G	RT



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV11

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L1510388
Report Date: 05/21/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG784781-1 QC Sample: L1510378-01 Client ID: DUP Sample						
Solids, Total	94.4	94.0	%	0	0	20

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1510388-01A	Plastic 2oz unpreserved for TS	A	N/A	3.9	Y	Absent	TS(7)
L1510388-01B	Glass 100ml unpreserved	A	N/A	3.9	Y	Absent	EPH-DELUX-10(14)
L1510388-02A	Plastic 2oz unpreserved for TS	A	N/A	3.9	Y	Absent	TS(7)
L1510388-02B	Glass 100ml unpreserved	A	N/A	3.9	Y	Absent	EPH-DELUX-10(14)
L1510388-03A	Plastic 2oz unpreserved for TS	A	N/A	3.9	Y	Absent	TS(7)
L1510388-03B	Glass 100ml unpreserved	A	N/A	3.9	Y	Absent	EPH-DELUX-10(14)
L1510388-04A	Plastic 2oz unpreserved for TS	A	N/A	3.9	Y	Absent	TS(7)
L1510388-04B	Glass 100ml unpreserved	A	N/A	3.9	Y	Absent	EPH-DELUX-10(14)
L1510388-05A	Plastic 2oz unpreserved for TS	A	N/A	3.9	Y	Absent	TS(7)
L1510388-05B	Glass 100ml unpreserved	A	N/A	3.9	Y	Absent	EPH-DELUX-10(14)

*Values in parentheses indicate holding time in days

Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

GLOSSARY

Acronyms

- EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
- EPA - Environmental Protection Agency.
- LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
- LCSD - Laboratory Control Sample Duplicate: Refer to LCS.
- LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
- MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
- MSD - Matrix Spike Sample Duplicate: Refer to MS.
- NA - Not Applicable.
- NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
- NI - Not Ignitable.
- NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
- RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
- SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A - Spectra identified as "Aldol Condensation Product".
- B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Report Format: Data Usability Report



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

Data Qualifiers

- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report



Project Name: CSX WORCESTER NOV 7 SPILL
Project Number: R000138941-ENV119005

Lab Number: L1510388
Report Date: 05/21/15

REFERENCES

- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

Last revised December 16, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility

EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 625: 4-Chloroaniline, 4-Methylphenol.

SM4500: Soil: Total Phosphorus, TKN, NO₂, NO₃.

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water

EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7:** Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

EPA 332: Perchlorate.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water

EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;

EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC,

SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, SM4500NO3-F,

EPA 353.2: Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4,

SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

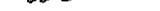
PAGE / OF }

Date Rec'd in Lab:

5/13/15

ALPHA Job #: L1510388

Container Type	Preservative
P= Plastic	A= None
A= Amber glass	B= HCl
V= Vial	C= HNO_3
G= Glass	D= H_2SO_4
B= Bacteria cup	E= NaOH
C= Cube	F= MeOH
O= Other	G= NaHSO_4
E= Encore	H= $\text{Na}_2\text{S}_2\text{O}_3$
D= BOD Bottle	I= Ascorbic Acid
	J= NH_4Cl
	K= Zn Acetate
	Q= Other

	Container Type	G		
	Preservative	N		
Relinquished By:	Date/Time	Received By:	Date/Time	All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
	5-13-15 1511		5/13/15 15 11	FORM NO: 01-01 (rev. 12-Mar-2012)



CHAIN OF CUSTODY

PAGE / OF }

Date Rec'd in Lab:

5/13/15

ALPHA Job #: L1510388

Container Type	Preservative
P= Plastic	A= None
A= Amber glass	B= HCl
V= Vial	C= HNO_3
G= Glass	D= H_2SO_4
B= Bacteria cup	E= NaOH
C= Cube	F= MeOH
O= Other	G= NaHSO_4
E= Encore	H= $\text{Na}_2\text{S}_2\text{O}_3$
D= BOD Bottle	I= Ascorbic Acid
	J= NH_4Cl
	K= Zn Acetate
	Q= Other

Container Type	G				
Preservative	N				
Relinquished By:	Date/Time	Received By:	Date/Time		
	5-13-15 1511		5/13/15 15 11	All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.	FORM NO: 01-01 (rev. 12-Mar-2012)

APPENDIX D

APPENDIX D

MCP Presumptive Certainty Data Usability Assessment

Site Name: CSX – Worcester November 7, 2014 Diesel Release

Project Number: 351001143

Laboratory Name: Alpha Analytical

SDG Numbers: L1427122

AMEC Sample IDs: RP-01, RP-02, RP-03, RP-04, RP-05, RP-06, RP-07, RP-08, RP-09, RP-10, RP-11, RP-12, RP-13, RP-14, RP-15, RP-16 & CULVERT-01

Data Reviewed	Analysis
	EPH
Chain of Custody	√
Sample Receipt (Preservation & Temperature)	√
Holding Time	√
Blanks (Trip or Equipment)	Not submitted
Method Blanks	√
MS/MSD	An MS/MSD was not submitted with this SDG.
LCS/LCSD	The LCS/LCSD RPD is above the method acceptance criteria for nonane (C9) at 26%. The LCS/LCSD ranges and analytes are within acceptance criteria. No qualifications are necessary.
Naphthalene and 2-Methylnaphthalene breakthrough in Aliphatic Fraction <5% (EPH Only)	√
Field Duplicates	A field duplicate was not submitted with this SDG.
Surrogate Recoveries	Chloro-octadecane recovered low in the LCSD at 38%. The LCS/LCSD ranges and analytes are within acceptance criteria. No qualifications are necessary.

Data Reviewed	Analysis
	EPH
Calibration Issues (Deficiencies noted in Narrative)	None
Other Issues	None

Notes:

NA = Not Applicable

ND = Non Detect

RPD = Relative Percent Difference

= Data Reviewed is to be considered acceptable within MCP criteria and without qualification

Qualifiers:

J = Estimated

R = Data is rejected and not suitable for use

UJ = Reporting limit is considered estimated

U = Non-detect

Data Reviewer: Denise King
 Date: 12/11/2014

MCP Presumptive Certainty Data Usability Assessment

Site Name: CSX – Worcester November 7, 2014 Diesel Release

Project Number: 351001143

Laboratory Name: Alpha Analytical

SDG Numbers: L1427285

AMEC Sample IDs: SIDEWALL-01, SIDEWALL-02, SIDEWALL-03, SIDEWALL-04, BOT-01, TESTPIT-01, and RETENTION POND-01

Data Reviewed	Analysis
	EPH
Chain of Custody	
Sample Receipt (Preservation & Temperature)	Samples were received at the laboratory at a temperature of 15.3°C. Samples were delivered to the laboratory directly from the site on ice and had insufficient time to cool. No qualifications are necessary.
Holding Time	
Blanks (Trip or Equipment)	Not submitted
Method Blanks	
MS/MSD	An MS/MSD was not submitted with this SDG.
LCS/LCSD	The LCS/LCSD RPD, associated with RETENTION POND-01 is above the method acceptance criteria for octadecane (C18) at 59%. The LCS/LCSD ranges and analytes are within acceptance criteria. No qualifications are necessary.
Naphthalene and 2-Methylnaphthalene breakthrough in Aliphatic Fraction <5% (EPH Only)	
Field Duplicates	A field duplicate was not submitted with this SDG.
Surrogate Recoveries	o-Terphenyl (172%) and 2-bromonaphthalene (161%) recovered high in sample TESTPIT-01; however the sample was not re-analyzed due to coelution with obvious interferences. No qualifications are necessary.

Data Reviewed	Analysis
	EPH
Calibration Issues (Deficiencies noted in Narrative)	None
Other Issues	None

Notes:

NA = Not Applicable

ND = Non Detect

RPD = Relative Percent Difference

= Data Reviewed is to be considered acceptable within MCP criteria and without qualification

Qualifiers:

J = Estimated

R = Data is rejected and not suitable for use

UJ = Reporting limit is considered estimated

U = Non-detect

Data Reviewer: Denise King

Date: 12/11/2014



MCP Presumptive Certainty Data Usability Assessment

Site Name: CSX – Worcester November 7, 2014 Diesel Release

Project Number: 351001143

Laboratory Name: Alpha Analytical

SDG Numbers: L1427404

AMEC Sample IDs: TESTPIT-02, CULVERT-02 BOTT, and CULVERT-02 TOP

Data Reviewed	Analysis	
	EPH	VPH
Chain of Custody		
Sample Receipt (Preservation & Temperature)		
Holding Time		
Blanks (Trip or Equipment)	Not submitted	Not submitted
Method Blanks		
MS/MSD	An MS/MSD was not submitted with this SDG.	An MS/MSD was not submitted with this SDG.
LCS/LCSD	The LCSD recovery was low for nonane (C9) (29%) and decane (C10) (34%). The LCS/LCSD RPD, associated with CULVERT-02 TOP is above the method acceptance criteria for C9-C18 aliphatics (30%), C19-C36 aliphatics (34%), all of the range marker compounds. The LCS/LCSD ranges and analytes are within acceptance criteria. J-qualify the C9-C18 aliphatics and C19-C36 aliphatics in sample CULVERT-02 TOP due to the non-directional bias. No other qualifications are necessary.	
Naphthalene and 2-Methylnaphthalene breakthrough in Aliphatic Fraction <5% (EPH Only)		NA
Field Duplicates	A field duplicate was not submitted with this SDG.	A field duplicate was not submitted with this SDG.

Data Reviewed	Analysis	
	EPH	VPH
Surrogate Recoveries		2,5-Dibromotoluene-PID (63%) and 2,5-dibromotoluene-FID (41%) recovered below the acceptance criteria in sample TESTPIT-02; however the sample was not re-analyzed due to coelution with obvious interferences. No qualifications are necessary.
Calibration Issues (Deficiencies noted in Narrative)	None	None
Other Issues	None	None

Notes:

NA = Not Applicable

ND = Non Detect

RPD = Relative Percent Difference

= Data Reviewed is to be considered acceptable within MCP criteria and without qualification

Qualifiers:

J = Estimated

R = Data is rejected and not suitable for use

UJ = Reporting limit is considered estimated

U = Non-detect

Data Reviewer: Denise King
 Date: 12/31/2014

MCP Presumptive Certainty Data Usability Assessment

Site Name: CSX – Worcester November 7, 2014 Diesel Release

Project Number: 351001143

Laboratory Name: Alpha Analytical

SDG Numbers: L1427832

AMEC Sample IDs: RETENTION POND-02

Data Reviewed	Analysis
	EPH
Chain of Custody	
Sample Receipt (Preservation & Temperature)	
Holding Time	
Blanks (Trip or Equipment)	Not submitted
Method Blanks	
MS/MSD	An MS/MSD was not submitted with this SDG.
LCS/LCSD	
Naphthalene and 2-Methylnaphthalene breakthrough in Aliphatic Fraction <5% (EPH Only)	
Field Duplicates	A field duplicate was not submitted with this SDG.
Surrogate Recoveries	

Data Reviewed	Analysis
	EPH
Calibration Issues (Deficiencies noted in Narrative)	None
Other Issues	None

Notes:

NA = Not Applicable

ND = Non Detect

RPD = Relative Percent Difference

= Data Reviewed is to be considered acceptable within MCP criteria and without qualification

Qualifiers:

J = Estimated

R = Data is rejected and not suitable for use

UJ = Reporting limit is considered estimated

U = Non-detect

Data Reviewer: Denise King

Date: 12/31/2014

MCP Presumptive Certainty Data Usability Assessment

Site Name: CSX – Worcester November 7, 2014 Diesel Release

Project Number: 643005711

Laboratory Name: Alpha Analytical

SDG Numbers: L1431310

AMEC Sample IDs: SB-01-1.0-1.5, SB-01-5.0-6.0, SB-02-1.0-1.5, SB-02-4.0-4.5, SB-03-1.0-1.5, SB-04-1.0-1.5, SB-05-1.0-1.5, SB-05-3.0-3.5, and SB-06-0.9

Data Reviewed	Analysis	
	EPH	VPH
Chain of Custody		
Sample Receipt (Preservation & Temperature)		
Holding Time		
Blanks (Trip or Equipment)	Not submitted	Not submitted
Method Blanks		
MS/MSD	An MS/MSD was not submitted with this SDG.	An MS/MSD was not submitted with this SDG.
LCS/LCSD		
Naphthalene and 2-Methylnaphthalene breakthrough in Aliphatic Fraction <5% (EPH Only)		NA
Field Duplicates	A field duplicate was not submitted with this SDG.	A field duplicate was not submitted with this SDG.
Surrogate Recoveries		

Data Reviewed	Analysis	
	EPH	VPH
Calibration Issues (Deficiencies noted in Narrative)	None	None
Other Issues	<p>Samples SB-02-1.0-1.5 and SB-03-1.0-1.5 were analyzed on dilution due to interferences from the sample matrix.</p> <p>Sample SB-06-0.9 was analyzed on dilution due to the elevated concentrations of target analytes.</p> <p>Per Amec Foster Wheeler's request only the four diesel target analytes were reported.</p>	None

Notes:

NA = Not Applicable

ND = Non Detect

RPD = Relative Percent Difference

= Data Reviewed is to be considered acceptable within MCP criteria and without qualification

Qualifiers:

J = Estimated

R = Data is rejected and not suitable for use

UJ = Reporting limit is considered estimated

U = Non-detect

Data Reviewer: Denise King

Date: 01/15/2015

MCP Presumptive Certainty Data Usability Assessment

Site Name: CSX – Worcester November 7, 2014 Diesel Release

Project Number: 643005711

Laboratory Name: Alpha Analytical

SDG Numbers: L1500823

AMEC Sample IDs: SB-07-0.9, SB-09-0.9, and SB-10-0.9

Data Reviewed	Analysis
	EPH
Chain of Custody	
Sample Receipt (Preservation & Temperature)	
Holding Time	
Blanks (Trip or Equipment)	Not submitted
Method Blanks	
MS/MSD	An MS/MSD was not submitted with this SDG.
LCS/LCSD	
Naphthalene and 2-Methylnaphthalene breakthrough in Aliphatic Fraction <5% (EPH Only)	
Field Duplicates	A field duplicate was not submitted with this SDG.
Surrogate Recoveries	2-Fluorobiphenyl (227%) and 2-bromonaphthalene (453%) recovered above the acceptance criteria in sample SB-09-0.9; however the sample was not re-analyzed due to coelution with obvious interferences. No qualifications are necessary.

Data Reviewed	Analysis
	EPH
Calibration Issues (Deficiencies noted in Narrative)	None
Other Issues	<p>Sample SB-09-0.9 was analyzed on dilution due to the elevated concentrations of target analytes.</p> <p>Per Amec Foster Wheeler's request samples SB-08-0.9 and SB-11-0.9 were put on hold.</p> <p>Per Amec Foster Wheeler's request only the four diesel target analytes were reported.</p>

Notes:

NA = Not Applicable

ND = Non Detect

RPD = Relative Percent Difference

= Data Reviewed is to be considered acceptable within MCP criteria and without qualification

Qualifiers:

J = Estimated

R = Data is rejected and not suitable for use

UJ = Reporting limit is considered estimated

U = Non-detect

Data Reviewer: Denise King

Date: 01/22/2015

MCP Presumptive Certainty Data Usability Assessment

Site Name: CSX – Worcester November 7, 2014 Diesel Release

Project Number: 643005711

Laboratory Name: Alpha Analytical

SDG Numbers: L1510388

AMEC Sample IDs: Sidewall-01(W), Sidewall-02(W), Sidewall-03(W), Sidewall-04(W), and BOTT-01(W)

Data Reviewed	Analysis
	EPH
Chain of Custody	
Sample Receipt (Preservation & Temperature)	
Holding Time	
Blanks (Trip or Equipment)	Not submitted
Method Blanks	
MS/MSD	Sample Sidewall-01(W) was submitted as the source for the MS.
LCS/LCSD	The LCS/LCSD RPDs were elevated for C11-C22 aromatics (29%), naphthalene (27%), 2-methylnaphthalene (28%), acenaphthene (29%), and phenanthrene (32%). J qualify C11-C22 aromatics in samples Sidewall-01(W), Sidewall-03(W), and Sidewall-04(W) due the imprecision.
Naphthalene and 2-Methylnaphthalene breakthrough in Aliphatic Fraction <5% (EPH Only)	
Field Duplicates	A field duplicate was not submitted with this SDG.
Surrogate Recoveries	

Data Reviewed	Analysis
	EPH
Calibration Issues (Deficiencies noted in Narrative)	None
Other Issues	Sample Sidewall-04(W) was analyzed on a 5X dilution due to matrix interferences.

Notes:

NA = Not Applicable

ND = Non Detect

RPD = Relative Percent Difference

= Data Reviewed is to be considered acceptable within MCP criteria and without qualification

Qualifiers:

J = Estimated

R = Data is rejected and not suitable for use

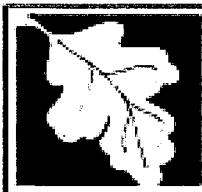
UJ = Reporting limit is considered estimated

U = Non-detect

Data Reviewer: Denise King

Date: 05/27/2015

APPENDIX E



A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

1. Release Name/Location Aid: CSX RAILYARD

2. Street Address: 271 FRANKLIN STREET

3. City/Town: WORCESTER 4. Zip Code:

a. Tier I b. Tier ID c. Tier II

B. THIS FORM IS BEING USED TO: (check one: B1-B4):

1. Submit a **Bill of Lading (BOL)** to transport Remediation Waste to Temporary Storage or a Receiving Facility.

Response Actions associated with this BOL (check all that apply):

- a. Immediate Response Action (IRA)
 - b. Release Abatement Measure (RAM)
 - c. Downgradient Property Status (DPS)
 - d. Utility Release Abatement Measure (URAM)
 - e. Comprehensive Response Actions
 - f. Limited Removal Action (LRA): (must be retained pursuant to 310 CMR 40.0034(6); can't be submitted via eDEP)
 - g. Other

2. Submit an Attestation of Completion of **Shipment to Temporary Storage** (Sections C, F and J are not required):

- 3. Submit an Attestation of Completion of Shipment to a Receiving Facility (Sections C, F and J are not required):**

4. Certify that Remediation Waste Was Not Shipped, and the Bill of Lading is Void. (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department:

b. eDEP Transaction ID:

(mm/dd/yyyy)

6. Period of Generation Associated with this Bill of Lading

11/11/2014 to 11/13/2014

to 11/13/2014

(mm/dd/yyyy)

(All sections of this transmittal form must be filled out unless otherwise noted above)

The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

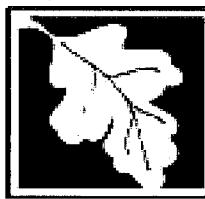
C. DESCRIPTION OF WASTE AND WASTE SOURCE:

- 1. Contaminated Media/Debris (check all that apply):**

- a. Soil b. Groundwater c. Surface Water d. Sediment e. Vegetation or Organic Debris
 f. Demolition/Construction Waste g. Inorganic Absorbent Materials h. Other: STONE RIP RAP

- 2. Uncontainerized Waste (check all that apply):**

- a. Inorganic Absorbent Materials b. Other:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):

3. Containerized Waste (check all that apply):

- a. Tank Bottoms/Sludges b. Containers c. Drums d. Engineered Impoundments
 e. Other: _____

4. Estimated Quantity: 60 _____
 Tons Cu. Yds. Gallons

5. Contaminant Source (check one):

- a. Transportation Accident b. Underground Storage Tank c. Brownfields Redevelopment
 d. Other: LOCOMOTIVE FUEL TANK _____

6. Type of Contaminant (check all that apply):

- a. Gasoline b. Diesel Fuel c. #2 Fuel Oil d. #4 Fuel Oil e. #6 Fuel Oil f. Jet Fuel
 g. Waste Oil h. Kerosene i. Chlorinated Solvents j. Urban Fill k. Other: _____

7. Constituents of Concern (check all that apply):

- a. As b. Cd c. Cr d. Pb e. Hg f. EPH/TPH g. VPH
 h. PCBs i. VOCs j. SVOCs k. Other: _____

8. If applicable, check the box for the Reportable Concentration Category of the site:

- a. RCS-1 b. RCS-2 c. RCGW-1 d. RCGW-2

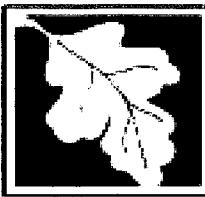
9. Remediation Waste Characterization Documentation (check at least one):

- a. Site History Information b. Sampling Analytical Methods and Procedures c. Laboratory Data
 d. Field Screening Data e. Characterization Documentation previously submitted to the Department

i. Date submitted: _____ ii. Type of Documentation: _____
(mm/dd/yyyy)

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

1. Transporter/Common Carrier Name: GLOBAL REMEDIATION SERVICES
2. Contact First Name: PAUL 3. Last Name: MASTRODOMENICO
4. Street: 700 RICHMOND AVENUE 5. Title: _____
6. City/Town: TAUNTON 7. State: MA 8. Zip Code: 027180000
9. Telephone: 5088281005 10. Ext: _____ 11. Email: pmastro@globalremediation.com



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
[2] - [19355]

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

1. Operator/Facility Name: ESMI OF NEW HAMPSHIRE

2. Contact First Name: MICHAEL 3. Last Name: PHELPS

4. Street: 67 INTERNATIONAL DRIVE 5. Title: _____

6. City/Town: LOUDON 7. State: NH 8. Zip Code: 033070000

9. Telephone: 6037830228 10. Ext: _____ 11. Email: mphelps@esmiofnh.com

12. Type of facility: (check one)

a. Temporary Storage i. Period of Temporary Storage _____
(mm/dd/yyyy) to _____ (mm/dd/yyyy)

ii. Reason for Temporary Storage: _____

b. Asphalt Batch/Hot Mix c. Landfill/Disposal d. Landfill/Structural Fill e. Landfill/Daily Cover

f. Asphalt Batch/Cold Mix g. Thermal Processing h. Incinerator i. Other: _____

13. Division of Hazardous Waste/Class A Permit Number: _____

14. Division of Solid Waste Permit Number: DES-SW-SP-96002

15. EPA Identification Number: NH5986435852

F. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 9605

2. First Name: SUSAN E 3. Last Name: O'BRIEN

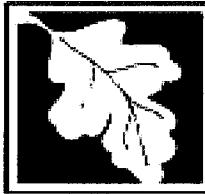
4. Telephone: 9783925361 5. Ext: _____ 6. Email: susan.obrien@amec.com

7. Signature: SUSAN E O'BRIEN

8. Date: 12/8/2014
(mm/dd/yyyy)

9. LSP Stamp:





Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

2 - 19355

G. PERSON SUBMITTING BILL OF LADING:

- | | | | |
|--------------------------|--|---|--|
| 1. Check all that apply: | <input type="checkbox"/> a. change in contact name | <input type="checkbox"/> b. change of address | <input checked="" type="checkbox"/> c. change in the person undertaking response actions |
| 2. Name of Organization: | <u>CSX TRANSPORTATION INC</u> | | |
| 3. Contact First Name: | <u>MICHAEL</u> | 4. Last Name: | <u>BETHGE</u> |
| 5. Street: | <u>1836 BROADWAY</u> | 6. Title: | <u>FIELD SERVICE MANAGER</u> |
| 7. City/Town: | <u>BUFFALO</u> | 8. State: | <u>NY</u> |
| 9. Zip Code: | <u>142120000</u> | | |
| 10. Telephone: | <u>7168916025</u> | 11. Ext.: | <u></u> |
| 12. Email: | <u>michael_bethge@csx.com</u> | | |

H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING:

Check here to change relationship

1. RP or PRP a. Owner b. Operator c. Generator d. Transporter
 e. Other RP or PRP Specify: _____

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Undertaking Response Actions: Specify Relationship: _____

I. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.

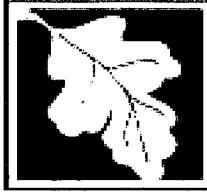
2. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@state.ma.us

3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING:

1. I, MICHAEL BETHGE, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: MICHAEL BETHGE 3. Title: FIELD SERVICE MANAGER
4. For: CSX TRANSPORTATION INC 5. Date: 12/8/2014
(Name of person or entity recorded in Section G) (mm/dd/yyyy)



**Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup**

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

[2] - [19355]

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.):

6. Check here if the address of the person providing certification is different from address recorded in Section G.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (MassDEP USE ONLY):

Received by DEP on 12/8/2014 1:27:52 PM

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Savannah

5102 LaRoche Avenue

Savannah, GA 31404

Tel: (912)354-7858

TestAmerica Job ID: 680-107381-1

Client Project/Site: CSX - Worcester, MA Railyard

For:

Global Remediation

700 Richmond St

East Taunton, Massachusetts 02718

Attn: Paul Mastrodomenico



Authorized for release by:

11/28/2014 2:28:14 PM

Bernard Kirkland, Manager of Project Management

(912)354-7858 e.3238

bernard.kirkland@testamericainc.com

Designee for

Lisa Harvey, Project Manager II

(912)354-7858 e.3221

lisa.harvey@testamericainc.com

LINKS

Review your project
results through

Total Access

Have a Question?

Ask
The
Expert

Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TN1 requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Definitions/Glossary

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

2

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
*	RPD of the LCS and LCSD exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD Recovery exceeds the control limits

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
F2	MS/MSD RPD exceeds control limits

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica Savannah

Sample Summary

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Solid	11/15/14 11:30	11/18/14 10:05



TestAmerica Savannah

Case Narrative

Client: Global Remediation
Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Job ID: 680-107381-1

Laboratory: TestAmerica Savannah

4

Narrative

CASE NARRATIVE

Client: Global Remediation
Project: CSX - Worcester, MA Railyard
Report Number: 680-107381-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 11/18/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.8 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) was analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/23/2014.

For LCSD 680-360110/10, Dichlorodifluoromethane recovered outside the recovery criteria low. Methylcyclohexane recovered outside the recovery criteria high. Also, Dichlorodifluoromethane exceeded the RPD limit.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 360110.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMOVOLATILE ORGANIC COMPOUNDS (SOLID)

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) was analyzed for Semivolatile Organic Compounds (Solid) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 11/19/2014 and analyzed on 11/21/2014.

3,3'-Dichlorobenzidine, 4-Chloroaniline and Caprolactam recovered outside the recovery criteria low for the MS/MSD of sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) in batch 680-359906.

Due to the matrix, the initial volume(s) used for the following sample(s) deviated from the standard procedure: (680-107381-1 MS), (680-107381-1 MSD), Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1). The reporting limits (RLs) have been adjusted proportionately.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PESTICIDES AND PCBs

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) was analyzed for Pesticides and PCBs in accordance with EPA SW-846 Method 8081B_8082A. The samples were prepared on 11/19/2014 and analyzed on 11/20/2014.

This method incorporates 2nd column confirmation. Corrective action is not taken for surrogate/spike compounds unless results from both columns are unacceptable. Results outside criteria are qualified.

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Due to the matrix, the initial volume(s) used for the following sample(s) deviated from the standard procedure: (680-107381-1 MS), (680-107381-1 MSD), Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1). The reporting limits (RLs) have been adjusted proportionately.

Case Narrative

Client: Global Remediation
Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Job ID: 680-107381-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

4

PCB-1016 and PCB-1260 failed the recovery criteria high for the MSD of sample Fuel Oil Impacted Soil, Stone & BallastMSD (680-107381-1) in batch 680-359656.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICP)

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/19/2014 and analyzed on 11/20/2014.

Barium recovered outside the recovery criteria low for the MSD of sample Fuel Oil Impacted Soil, Stone & BallastMSD (680-107381-1) in batch 680-359921.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) was analyzed for total mercury in accordance with EPA SW-846 Method 7471B. The samples were prepared and analyzed on 11/21/2014.

Mercury recovered outside the recovery criteria high for the MS/MSD of sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) in batch 680-360009.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

OIL AND GREASE AND TPH

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) was analyzed for Oil and Grease and TPH in accordance with EPA SW846 Method 9071B. The samples were analyzed on 11/25/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS/MOISTURE

Sample Fuel Oil Impacted Soil, Stone & Ballast (680-107381-1) was analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 11/19/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Lab Sample ID: 680-107381-1

Date Collected: 11/15/14 11:30

Matrix: Solid

Date Received: 11/18/14 10:05

Percent Solids: 86.7

Method: 8260B - Volatile Organic Compounds (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.68	J	2.2	0.49	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Benzene	0.22	U	0.22	0.032	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Bromodichloromethane	0.22	U	0.22	0.043	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Bromoform	0.22	U	0.22	0.067	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Bromomethane	0.22	U	0.22	0.067	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
2-Butanone	0.38	J	1.1	0.11	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Carbon disulfide	0.22	U	0.22	0.049	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Carbon tetrachloride	0.22	U	0.22	0.037	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Chlorobenzene	0.22	U	0.22	0.043	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Chloroethane	0.22	U	0.22	0.12	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Chloroform	0.16	J	0.22	0.049	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Chloromethane	0.22	U	0.22	0.044	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
cis-1,2-Dichloroethene	0.22	U	0.22	0.062	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
cis-1,3-Dichloropropene	0.22	U	0.22	0.037	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Cyclohexane	0.22	U	0.22	0.058	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Dibromochloromethane	0.22	U	0.22	0.075	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,2-Dibromo-3-Chloropropane	0.44	U	0.44	0.20	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,2-Dibromoethane	0.22	U	0.22	0.067	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,2-Dichlorobenzene	0.22	U	0.22	0.058	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,3-Dichlorobenzene	0.22	U	0.22	0.071	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,4-Dichlorobenzene	0.22	U	0.22	0.033	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Dichlorodifluoromethane	0.22	U *	0.22	0.042	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,1-Dichloroethane	0.22	U	0.22	0.049	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,2-Dichloroethane	0.22	U	0.22	0.049	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,1-Dichloroethene	0.22	U	0.22	0.067	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,2-Dichloropropane	0.22	U	0.22	0.038	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Ethylbenzene	0.17	J	0.22	0.058	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
2-Hexanone	1.1	U	1.1	0.15	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Isopropylbenzene	0.097	J	0.22	0.084	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Methyl acetate	1.1	U	1.1	0.22	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Methylcyclohexane	0.089	J *	0.22	0.038	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Methylene Chloride	0.22	U	0.22	0.043	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
4-Methyl-2-pentanone	0.80	J	1.1	0.19	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Methyl tert-butyl ether	0.22	U	0.22	0.044	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Styrene	0.22	U	0.22	0.041	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,1,2,2-Tetrachloroethane	0.22	U	0.22	0.071	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Tetrachloroethene	0.38		0.22	0.084	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Toluene	0.22		0.22	0.037	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
trans-1,2-Dichloroethene	0.22	U	0.22	0.028	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
trans-1,3-Dichloropropene	0.22	U	0.22	0.039	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,2,4-Trichlorobenzene	0.22	U	0.22	0.039	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,1,1-Trichloroethane	0.22	U	0.22	0.026	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,1,2-Trichloroethane	0.22	U	0.22	0.058	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Trichloroethene	0.22	U	0.22	0.058	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Trichlorofluoromethane	0.22	U	0.22	0.053	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
1,1,2-Trichloro-1,2,2-trifluoroethane	0.22	U	0.22	0.058	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Vinyl chloride	0.22	U	0.22	0.067	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40
Xylenes, Total	1.4		0.44	0.049	mg/Kg	*	11/23/14 14:48	11/23/14 22:01	40

5

TestAmerica Savannah

Client Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Date Collected: 11/15/14 11:30

Date Received: 11/18/14 10:05

Lab Sample ID: 680-107381-1

Matrix: Solid

Percent Solids: 86.7

5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		65 - 130	11/23/14 14:48	11/23/14 22:01	40
Dibromoformmethane (Surr)	98		65 - 130	11/23/14 14:48	11/23/14 22:01	40
1,2-Dichloroethane-d4 (Surr)	99		65 - 130	11/23/14 14:48	11/23/14 22:01	40
4-Bromoformbenzene (Surr)	89		65 - 130	11/23/14 14:48	11/23/14 22:01	40

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	2.3	U	2.3	0.28	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Acenaphthylene	2.3	U	2.3	0.25	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Acetophenone	1.5	J	2.3	0.19	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Anthracene	2.3	U	2.3	0.17	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Atrazine	2.3	U	2.3	0.16	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Benzaldehyde	2.3	U	2.3	0.40	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Benzo[a]anthracene	2.3	U	2.3	0.18	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Benzo[a]pyrene	2.3	U	2.3	0.36	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Benzo[b]fluoranthene	2.3	U	2.3	0.26	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Benzo[g,h,i]perylene	2.3	U	2.3	0.15	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Benzo[k]fluoranthene	2.3	U	2.3	0.44	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
1,1'-Biphenyl	12	U	12	12	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Bis(2-chloroethoxy)methane	2.3	U	2.3	0.27	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Bis(2-chloroethyl)ether	2.3	U	2.3	0.31	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
bis (2-chloroisopropyl) ether	2.3	U	2.3	0.21	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Bis(2-ethylhexyl) phthalate	0.40	J	2.3	0.20	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
4-Bromophenyl phenyl ether	2.3	U	2.3	0.25	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Butyl benzyl phthalate	2.3	U	2.3	0.18	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Caprolactam	2.3	U	2.3	0.45	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Carbazole	2.3	U	2.3	0.21	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
4-Chloroaniline	4.5	U	4.5	0.36	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
4-Chloro-3-methylphenol	2.3	U	2.3	0.24	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2-Chloronaphthalene	2.3	U	2.3	0.24	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2-Chlorophenol	2.3	U	2.3	0.27	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
4-Chlorophenyl phenyl ether	2.3	U	2.3	0.30	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Chrysene	2.3	U	2.3	0.14	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Dibenz(a,h)anthracene	2.3	U	2.3	0.27	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Dibenzofuran	2.3	U	2.3	0.23	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
3,3'-Dichlorobenzidine	4.5	U	4.5	0.19	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2,4-Dichlorophenol	2.3	U	2.3	0.24	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Diethyl phthalate	2.3	U	2.3	0.25	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2,4-Dimethylphenol	2.3	U	2.3	0.30	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Dimethyl phthalate	2.3	U	2.3	0.23	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Di-n-butyl phthalate	2.3	U	2.3	0.21	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
4,6-Dinitro-2-methylphenol	12	U	12	1.2	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2,4-Dinitrophenol	12	U	12	5.7	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2,4-Dinitrotoluene	2.3	U	2.3	0.34	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2,6-Dinitrotoluene	2.3	U	2.3	0.29	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Di-n-octyl phthalate	2.3	U	2.3	0.20	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Fluoranthene	2.3	U	2.3	0.22	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Fluorene	2.3	U	2.3	0.25	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Hexachlorobenzene	2.3	U	2.3	0.27	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Hexachlorobutadiene	2.3	U	2.3	0.25	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1

TestAmerica Savannah

Client Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Lab Sample ID: 680-107381-1

Date Collected: 11/15/14 11:30

Matrix: Solid

Date Received: 11/18/14 10:05

Percent Solids: 86.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	2.3	U	2.3	0.28	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Hexachloroethane	2.3	U	2.3	0.19	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Indeno[1,2,3-cd]pyrene	2.3	U	2.3	0.19	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Isophorone	2.3	U	2.3	0.23	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2-Methylnaphthalene	1.8	J	2.3	0.26	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2-Methylphenol	2.3	U	2.3	0.18	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
3 & 4 Methylphenol	2.3	U	2.3	0.29	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Naphthalene	0.91	J	2.3	0.21	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2-Nitroaniline	12	U	12	0.31	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
3-Nitroaniline	12	U	12	0.31	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
4-Nitroaniline	12	U	12	0.34	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Nitrobenzene	2.3	U	2.3	0.18	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2-Nitrophenol	2.3	U	2.3	0.28	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
4-Nitrophenol	12	U	12	2.3	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
N-Nitrosodi-n-propylamine	2.3	U	2.3	0.22	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
N-Nitrosodiphenylamine	2.3	U	2.3	0.23	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Pentachlorophenol	12	U	12	2.3	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Phenanthrene	0.23	J	2.3	0.18	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Phenol	2.3	U	2.3	0.23	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Pyrene	0.27	J	2.3	0.18	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2,4,5-Trichlorophenol	2.3	U	2.3	0.24	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
2,4,6-Trichlorophenol	2.3	U	2.3	0.20	mg/Kg	*	11/19/14 12:04	11/21/14 13:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	76		41 - 116				11/19/14 12:04	11/21/14 13:02	1
2-Fluorophenol (Sur)	72		39 - 114				11/19/14 12:04	11/21/14 13:02	1
Nitrobenzene-d5 (Sur)	74		37 - 115				11/19/14 12:04	11/21/14 13:02	1
Phenol-d5 (Sur)	71		38 - 122				11/19/14 12:04	11/21/14 13:02	1
Terphenyl-d14 (Sur)	79		46 - 126				11/19/14 12:04	11/21/14 13:02	1
2,4,6-Tribromophenol (Sur)	76		45 - 129				11/19/14 12:04	11/21/14 13:02	1

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	0.56	U	0.56	0.19	mg/Kg	*	11/19/14 12:04	11/20/14 12:53	5
PCB-1221	0.56	U	0.56	0.25	mg/Kg	*	11/19/14 12:04	11/20/14 12:53	5
PCB-1232	0.56	U	0.56	0.088	mg/Kg	*	11/19/14 12:04	11/20/14 12:53	5
PCB-1242	0.56	U	0.56	0.084	mg/Kg	*	11/19/14 12:04	11/20/14 12:53	5
PCB-1248	0.56	U	0.56	0.14	mg/Kg	*	11/19/14 12:04	11/20/14 12:53	5
PCB-1254	0.56	U	0.56	0.17	mg/Kg	*	11/19/14 12:04	11/20/14 12:53	5
PCB-1260	0.56	U	0.56	0.16	mg/Kg	*	11/19/14 12:04	11/20/14 12:53	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	94		54 - 133				11/19/14 12:04	11/20/14 12:53	5
Tetrachloro-m-xylene	118		46 - 130				11/19/14 12:04	11/20/14 12:53	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14		2.1	0.61	mg/Kg	*	11/19/14 10:17	11/20/14 17:06	1
Barium	29		1.0	0.31	mg/Kg	*	11/19/14 10:17	11/20/14 17:06	1
Cadmium	0.51	U	0.51	0.10	mg/Kg	*	11/19/14 10:17	11/20/14 17:06	1

TestAmerica Savannah

Client Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Lab Sample ID: 680-107381-1

Date Collected: 11/15/14 11:30

Matrix: Solid

Date Received: 11/18/14 10:05

Percent Solids: 86.7

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	12		1.0	0.51	mg/Kg	*	11/19/14 10:17	11/20/14 17:06	1
Lead	17		1.0	0.55	mg/Kg	*	11/19/14 10:17	11/20/14 17:06	1
Selenium	2.6 U		2.6	1.0	mg/Kg	*	11/19/14 10:17	11/20/14 17:06	1
Silver	1.0 U		1.0	0.099	mg/Kg	*	11/19/14 10:17	11/20/14 17:06	1

5

Method: 7471B - Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.014	J	0.020	0.0082	mg/Kg	*	11/21/14 08:57	11/21/14 14:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Petroleum Hydrocarbons (1664A)	1200		110	22	mg/Kg	*		11/25/14 13:11	1

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-360110/15

Matrix: Solid

Analysis Batch: 360110

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.0	U	2.0	0.44	mg/Kg			11/23/14 18:39	40
Benzene	0.20	U	0.20	0.029	mg/Kg			11/23/14 18:39	40
Bromodichloromethane	0.20	U	0.20	0.039	mg/Kg			11/23/14 18:39	40
Bromoform	0.20	U	0.20	0.060	mg/Kg			11/23/14 18:39	40
Bromomethane	0.20	U	0.20	0.060	mg/Kg			11/23/14 18:39	40
2-Butanone	1.0	U	1.0	0.096	mg/Kg			11/23/14 18:39	40
Carbon disulfide	0.20	U	0.20	0.044	mg/Kg			11/23/14 18:39	40
Carbon tetrachloride	0.20	U	0.20	0.033	mg/Kg			11/23/14 18:39	40
Chlorobenzene	0.20	U	0.20	0.038	mg/Kg			11/23/14 18:39	40
Chloroethane	0.20	U	0.20	0.11	mg/Kg			11/23/14 18:39	40
Chloroform	0.20	U	0.20	0.044	mg/Kg			11/23/14 18:39	40
Chloromethane	0.20	U	0.20	0.040	mg/Kg			11/23/14 18:39	40
cis-1,2-Dichloroethene	0.20	U	0.20	0.056	mg/Kg			11/23/14 18:39	40
cis-1,3-Dichloropropene	0.20	U	0.20	0.033	mg/Kg			11/23/14 18:39	40
Cyclohexane	0.20	U	0.20	0.052	mg/Kg			11/23/14 18:39	40
Dibromochloromethane	0.20	U	0.20	0.068	mg/Kg			11/23/14 18:39	40
1,2-Dibromo-3-Chloropropane	0.40	U	0.40	0.18	mg/Kg			11/23/14 18:39	40
1,2-Dibromoethane	0.20	U	0.20	0.060	mg/Kg			11/23/14 18:39	40
1,2-Dichlorobenzene	0.20	U	0.20	0.052	mg/Kg			11/23/14 18:39	40
1,3-Dichlorobenzene	0.20	U	0.20	0.064	mg/Kg			11/23/14 18:39	40
1,4-Dichlorobenzene	0.20	U	0.20	0.030	mg/Kg			11/23/14 18:39	40
Dichlorodifluoromethane	0.20	U	0.20	0.038	mg/Kg			11/23/14 18:39	40
1,1-Dichloroethane	0.20	U	0.20	0.044	mg/Kg			11/23/14 18:39	40
1,2-Dichloroethane	0.20	U	0.20	0.044	mg/Kg			11/23/14 18:39	40
1,1-Dichloroethene	0.20	U	0.20	0.060	mg/Kg			11/23/14 18:39	40
1,2-Dichloropropane	0.20	U	0.20	0.034	mg/Kg			11/23/14 18:39	40
Ethylbenzene	0.20	U	0.20	0.052	mg/Kg			11/23/14 18:39	40
2-Hexanone	1.0	U	1.0	0.13	mg/Kg			11/23/14 18:39	40
Isopropylbenzene	0.20	U	0.20	0.076	mg/Kg			11/23/14 18:39	40
Methyl acetate	1.0	U	1.0	0.20	mg/Kg			11/23/14 18:39	40
Methylcyclohexane	0.20	U	0.20	0.034	mg/Kg			11/23/14 18:39	40
Methylene Chloride	0.20	U	0.20	0.039	mg/Kg			11/23/14 18:39	40
4-Methyl-2-pentanone	1.0	U	1.0	0.17	mg/Kg			11/23/14 18:39	40
Methyl tert-butyl ether	0.20	U	0.20	0.040	mg/Kg			11/23/14 18:39	40
Styrene	0.20	U	0.20	0.037	mg/Kg			11/23/14 18:39	40
1,1,2,2-Tetrachloroethane	0.20	U	0.20	0.064	mg/Kg			11/23/14 18:39	40
Tetrachloroethene	0.20	U	0.20	0.076	mg/Kg			11/23/14 18:39	40
Toluene	0.20	U	0.20	0.034	mg/Kg			11/23/14 18:39	40
trans-1,2-Dichloroethene	0.20	U	0.20	0.025	mg/Kg			11/23/14 18:39	40
trans-1,3-Dichloropropene	0.20	U	0.20	0.035	mg/Kg			11/23/14 18:39	40
1,2,4-Trichlorobenzene	0.20	U	0.20	0.036	mg/Kg			11/23/14 18:39	40
1,1,1-Trichloroethane	0.20	U	0.20	0.024	mg/Kg			11/23/14 18:39	40
1,1,2-Trichloroethane	0.20	U	0.20	0.052	mg/Kg			11/23/14 18:39	40
Trichloroethene	0.20	U	0.20	0.052	mg/Kg			11/23/14 18:39	40
Trichlorofluoromethane	0.20	U	0.20	0.048	mg/Kg			11/23/14 18:39	40
1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	U	0.20	0.052	mg/Kg			11/23/14 18:39	40
Vinyl chloride	0.20	U	0.20	0.060	mg/Kg			11/23/14 18:39	40
Xylenes, Total	0.40	U	0.40	0.044	mg/Kg			11/23/14 18:39	40

6

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-360110/15

Matrix: Solid

Analysis Batch: 360110

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		65 - 130		11/23/14 18:39	40
Dibromofluoromethane (Surr)	101		65 - 130		11/23/14 18:39	40
1,2-Dichloroethane-d4 (Surr)	101		65 - 130		11/23/14 18:39	40
4-Bromofluorobenzene (Surr)	102		65 - 130		11/23/14 18:39	40

Lab Sample ID: LCS 680-360110/9

Matrix: Solid

Analysis Batch: 360110

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	12.4	14.0		mg/Kg	113	54 - 139	
Benzene	2.49	2.59		mg/Kg	104	76 - 120	
Bromodichloromethane	2.49	2.63		mg/Kg	106	72 - 131	
Bromoform	2.49	2.65		mg/Kg	106	64 - 150	
Bromomethane	2.49	3.42		mg/Kg	138	10 - 174	
2-Butanone	12.4	12.9		mg/Kg	104	66 - 123	
Carbon disulfide	2.49	2.59		mg/Kg	104	74 - 125	
Carbon tetrachloride	2.49	2.70		mg/Kg	109	67 - 140	
Chlorobenzene	2.49	2.55		mg/Kg	103	80 - 120	
Chloroethane	2.49	2.73		mg/Kg	110	10 - 176	
Chloroform	2.49	2.62		mg/Kg	105	80 - 121	
Chloromethane	2.49	2.51		mg/Kg	101	48 - 146	
cis-1,2-Dichloroethene	2.49	2.62		mg/Kg	106	80 - 120	
cis-1,3-Dichloropropene	2.49	2.84		mg/Kg	114	74 - 125	
Cyclohexane	2.49	2.66		mg/Kg	107	70 - 130	
Dibromochloromethane	2.49	2.76		mg/Kg	111	77 - 132	
1,2-Dibromo-3-Chloropropane	2.49	2.75		mg/Kg	111	49 - 152	
1,2-Dibromoethane	2.49	2.74		mg/Kg	110	72 - 129	
1,2-Dichlorobenzene	2.49	2.58		mg/Kg	104	75 - 128	
1,3-Dichlorobenzene	2.49	2.56		mg/Kg	103	76 - 128	
1,4-Dichlorobenzene	2.49	2.54		mg/Kg	102	76 - 128	
Dichlorodifluoromethane	2.49	2.42		mg/Kg	97	72 - 134	
1,1-Dichloroethane	2.49	2.61		mg/Kg	105	80 - 120	
1,2-Dichloroethane	2.49	2.68		mg/Kg	108	61 - 140	
1,1-Dichloroethene	2.49	2.76		mg/Kg	111	64 - 138	
1,2-Dichloropropane	2.49	2.64		mg/Kg	106	73 - 121	
Ethylbenzene	2.49	2.61		mg/Kg	105	78 - 121	
2-Hexanone	12.4	13.8		mg/Kg	111	60 - 126	
Isopropylbenzene	2.49	2.71		mg/Kg	109	79 - 124	
Methyl acetate	12.4	12.4		mg/Kg	100	43 - 135	
Methylcyclohexane	2.49	2.72		mg/Kg	109	77 - 118	
Methylene Chloride	2.49	2.59		mg/Kg	104	80 - 120	
4-Methyl-2-pentanone	12.4	13.9		mg/Kg	112	59 - 127	
Methyl tert-butyl ether	2.49	2.67		mg/Kg	107	80 - 121	
Styrene	2.49	2.63		mg/Kg	106	78 - 123	
1,1,2,2-Tetrachloroethane	2.49	2.61		mg/Kg	105	70 - 123	
Tetrachloroethene	2.49	2.72		mg/Kg	109	77 - 130	
Toluene	2.49	2.71		mg/Kg	109	73 - 122	

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-360110/9							Client Sample ID: Lab Control Sample			
							Prep Type: Total/NA			
							6			
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec.	%Rec. Limits			
trans-1,2-Dichloroethene	2.49	2.58		mg/Kg		104	79 - 120			
trans-1,3-Dichloropropene	2.49	3.06		mg/Kg		123	69 - 133			
1,2,4-Trichlorobenzene	2.49	2.74		mg/Kg		110	77 - 142			
1,1,1-Trichloroethane	2.49	2.61		mg/Kg		105	73 - 132			
1,1,2-Trichloroethane	2.49	2.68		mg/Kg		108	72 - 124			
Trichloroethene	2.49	2.69		mg/Kg		108	78 - 125			
Trichlorofluoromethane	2.49	2.82		mg/Kg		114	60 - 148			
1,1,2-Trichloro-1,2,2-trifluoroethane	2.49	2.75		mg/Kg		111	62 - 141			
Vinyl chloride	2.49	2.74		mg/Kg		110	65 - 133			
Xylenes, Total	4.97	5.31		mg/Kg		107	79 - 121			
Surrogate	LCS %Recovery	LCS Qualifier	Limits							
Toluene-d8 (Surr)	111		65 - 130							
Dibromofluoromethane (Surr)	107		65 - 130							
1,2-Dichloroethane-d4 (Surr)	107		65 - 130							
4-Bromofluorobenzene (Surr)	107		65 - 130							

Lab Sample ID: LCSD 680-360110/10

Matrix: Solid

Analysis Batch: 360110

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec.	%Rec. RPD Limit				
Acetone	12.4	13.9		mg/Kg		112	54 - 139			1	50
Benzene	2.48	2.78		mg/Kg		112	76 - 120			7	30
Bromodichloromethane	2.48	2.84		mg/Kg		114	72 - 131			7	30
Bromoform	2.48	2.57		mg/Kg		104	64 - 150			3	30
Bromomethane	2.48	3.30		mg/Kg		133	10 - 174			3	30
2-Butanone	12.4	12.7		mg/Kg		102	66 - 123			2	30
Carbon disulfide	2.48	2.70		mg/Kg		109	74 - 125			4	30
Carbon tetrachloride	2.48	2.90		mg/Kg		117	67 - 140			7	30
Chlorobenzene	2.48	2.60		mg/Kg		105	80 - 120			2	30
Chloroethane	2.48	2.77		mg/Kg		112	10 - 176			1	30
Chloroform	2.48	2.81		mg/Kg		113	80 - 121			7	30
Chloromethane	2.48	2.16		mg/Kg		87	48 - 146			15	30
cis-1,2-Dichloroethene	2.48	2.81		mg/Kg		113	80 - 120			7	30
cis-1,3-Dichloropropene	2.48	2.94		mg/Kg		118	74 - 125			3	30
Cyclohexane	2.48	2.89		mg/Kg		117	70 - 130			8	30
Dibromochloromethane	2.48	2.85		mg/Kg		115	77 - 132			3	30
1,2-Dibromo-3-Chloropropane	2.48	2.57		mg/Kg		104	49 - 152			7	30
1,2-Dibromoethane	2.48	2.78		mg/Kg		112	72 - 129			2	30
1,2-Dichlorobenzene	2.48	2.62		mg/Kg		105	75 - 128			2	30
1,3-Dichlorobenzene	2.48	2.63		mg/Kg		106	76 - 128			3	30
1,4-Dichlorobenzene	2.48	2.61		mg/Kg		105	76 - 128			2	30
Dichlorodifluoromethane	2.48	1.41 *		mg/Kg		57	72 - 134			52	30
1,1-Dichloroethane	2.48	2.73		mg/Kg		110	80 - 120			5	30
1,2-Dichloroethane	2.48	2.75		mg/Kg		111	61 - 140			3	30
1,1-Dichloroethene	2.48	2.97		mg/Kg		120	64 - 138			7	50

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-360110/10				Client Sample ID: Lab Control Sample Dup						
Matrix: Solid				Prep Type: Total/NA						
Analysis Batch: 360110										
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.	RPD	RPD Limit	Limit
1,2-Dichloropropane	2.48	2.81		mg/Kg	113	73 - 121	6	30		
Ethylbenzene	2.48	2.72		mg/Kg	110	78 - 121	4	30		
2-Hexanone	12.4	13.8		mg/Kg	111	60 - 126	0	30		
Isopropylbenzene	2.48	2.83		mg/Kg	114	79 - 124	4	30		
Methyl acetate	12.4	12.9		mg/Kg	104	43 - 135	4	30		
Methylcyclohexane	2.48	2.99 *		mg/Kg	120	77 - 118	9	30		
Methylene Chloride	2.48	2.66		mg/Kg	107	80 - 120	3	30		
4-Methyl-2-pentanone	12.4	13.6		mg/Kg	109	59 - 127	2	30		
Methyl tert-butyl ether	2.48	2.71		mg/Kg	109	80 - 121	1	30		
Styrene	2.48	2.78		mg/Kg	112	78 - 123	6	30		
1,1,2,2-Tetrachloroethane	2.48	2.46		mg/Kg	99	70 - 123	6	30		
Tetrachloroethene	2.48	2.98		mg/Kg	120	77 - 130	9	30		
Toluene	2.48	2.92		mg/Kg	118	73 - 122	8	30		
trans-1,2-Dichloroethene	2.48	2.73		mg/Kg	110	79 - 120	6	30		
trans-1,3-Dichloropropene	2.48	2.95		mg/Kg	119	69 - 133	4	30		
1,2,4-Trichlorobenzene	2.48	2.77		mg/Kg	112	77 - 142	1	30		
1,1,1-Trichloroethane	2.48	2.88		mg/Kg	116	73 - 132	10	30		
1,1,2-Trichloroethane	2.48	2.79		mg/Kg	112	72 - 124	4	30		
Trichloroethene	2.48	2.89		mg/Kg	116	78 - 125	7	30		
Trichlorofluoromethane	2.48	2.93		mg/Kg	118	60 - 148	4	30		
1,1,2-Trichloro-1,2,2-trifluoroethane	2.48	3.03		mg/Kg	122	62 - 141	10	40		
Vinyl chloride	2.48	2.53		mg/Kg	102	65 - 133	8	30		
Xylenes, Total	4.96	5.56		mg/Kg	112	79 - 121	5	30		
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits							
Toluene-d8 (Sur)	119		65 - 130							
Dibromofluoromethane (Sur)	114		65 - 130							
1,2-Dichloroethane-d4 (Sur)	111		65 - 130							
4-Bromofluorobenzene (Sur)	114		65 - 130							

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-359450/2-A				Client Sample ID: Method Blank						
Matrix: Solid				Prep Type: Total/NA						
Analysis Batch: 359906				Prep Batch: 359450						
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Acenaphthene	0.33	U	0.33	0.041	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Acenaphthylene	0.33	U	0.33	0.036	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Acetophenone	0.33	U	0.33	0.028	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Anthracene	0.33	U	0.33	0.025	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Atrazine	0.33	U	0.33	0.023	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Benzaldehyde	0.33	U	0.33	0.058	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Benzo[a]anthracene	0.33	U	0.33	0.027	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Benzo[a]pyrene	0.33	U	0.33	0.052	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Benzo[b]fluoranthene	0.33	U	0.33	0.038	mg/Kg		11/19/14 12:04	11/21/14 12:37		1
Benzo[g,h,i]perylene	0.33	U	0.33	0.022	mg/Kg		11/19/14 12:04	11/21/14 12:37		1

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-359450/2-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 359906						Prep Batch: 359450			
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	0.33	U	0.33	0.065	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	6
1,1'-Biphenyl	1.7	U	1.7	1.7	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Bis(2-chloroethoxy)methane	0.33	U	0.33	0.039	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Bis(2-chloroethyl)ether	0.33	U	0.33	0.045	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
bis (2-chloroisopropyl) ether	0.33	U	0.33	0.030	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Bis(2-ethylhexyl) phthalate	0.33	U	0.33	0.029	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
4-Bromophenyl phenyl ether	0.33	U	0.33	0.036	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Butyl benzyl phthalate	0.33	U	0.33	0.026	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Caprolactam	0.33	U	0.33	0.066	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Carbazole	0.33	U	0.33	0.030	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
4-Chloroaniline	0.66	U	0.66	0.052	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
4-Chloro-3-methylphenol	0.33	U	0.33	0.035	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2-Chloronaphthalene	0.33	U	0.33	0.035	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2-Chlorophenol	0.33	U	0.33	0.040	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
4-Chlorophenyl phenyl ether	0.33	U	0.33	0.044	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Chrysene	0.33	U	0.33	0.021	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Dibenz(a,h)anthracene	0.33	U	0.33	0.039	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Dibenzofuran	0.33	U	0.33	0.033	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
3,3'-Dichlorobenzidine	0.66	U	0.66	0.028	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2,4-Dichlorophenol	0.33	U	0.33	0.035	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Diethyl phthalate	0.33	U	0.33	0.037	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2,4-Dimethylphenol	0.33	U	0.33	0.044	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Dimethyl phthalate	0.33	U	0.33	0.034	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Di-n-butyl phthalate	0.33	U	0.33	0.030	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
4,6-Dinitro-2-methylphenol	1.7	U	1.7	0.17	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2,4-Dinitrophenol	1.7	U	1.7	0.83	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2,4-Dinitrotoluene	0.33	U	0.33	0.049	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2,6-Dinitrotoluene	0.33	U	0.33	0.042	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Di-n-octyl phthalate	0.33	U	0.33	0.029	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Fluoranthene	0.33	U	0.33	0.032	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Fluorene	0.33	U	0.33	0.036	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Hexachlorobenzene	0.33	U	0.33	0.039	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Hexachlorobutadiene	0.33	U	0.33	0.036	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Hexachlorocyclopentadiene	0.33	U	0.33	0.041	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Hexachloroethane	0.33	U	0.33	0.028	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Indeno[1,2,3-cd]pyrene	0.33	U	0.33	0.028	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Isophorone	0.33	U	0.33	0.033	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2-Methylnaphthalene	0.33	U	0.33	0.038	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2-Methylphenol	0.33	U	0.33	0.027	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
3 & 4 Methylphenol	0.33	U	0.33	0.043	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Naphthalene	0.33	U	0.33	0.030	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2-Nitroaniline	1.7	U	1.7	0.045	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
3-Nitroaniline	1.7	U	1.7	0.046	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
4-Nitroaniline	1.7	U	1.7	0.049	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
Nitrobenzene	0.33	U	0.33	0.026	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
2-Nitrophenol	0.33	U	0.33	0.041	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
4-Nitrophenol	1.7	U	1.7	0.33	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	
N-Nitrosodi-n-propylamine	0.33	U	0.33	0.032	mg/Kg	11/19/14 12:04	11/21/14 12:37	1	

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-359450/2-A

Matrix: Solid

Analysis Batch: 359906

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 359450

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
N-Nitrosodiphenylamine	0.33	U	0.33	0.033	mg/Kg		11/19/14 12:04	11/21/14 12:37	1
Pentachlorophenol	1.7	U	1.7	0.33	mg/Kg		11/19/14 12:04	11/21/14 12:37	1
Phenanthrene	0.33	U	0.33	0.027	mg/Kg		11/19/14 12:04	11/21/14 12:37	1
Phenol	0.33	U	0.33	0.034	mg/Kg		11/19/14 12:04	11/21/14 12:37	1
Pyrene	0.33	U	0.33	0.027	mg/Kg		11/19/14 12:04	11/21/14 12:37	1
2,4,5-Trichlorophenol	0.33	U	0.33	0.035	mg/Kg		11/19/14 12:04	11/21/14 12:37	1
2,4,6-Trichlorophenol	0.33	U	0.33	0.029	mg/Kg		11/19/14 12:04	11/21/14 12:37	1
Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
2-Fluorobiphenyl	86		41 - 116				11/19/14 12:04	11/21/14 12:37	1
2-Fluorophenol (Sur)	84		39 - 114				11/19/14 12:04	11/21/14 12:37	1
Nitrobenzene-d5 (Sur)	82		37 - 115				11/19/14 12:04	11/21/14 12:37	1
Phenol-d5 (Sur)	84		38 - 122				11/19/14 12:04	11/21/14 12:37	1
Terphenyl-d14 (Sur)	93		46 - 126				11/19/14 12:04	11/21/14 12:37	1
2,4,6-Tribromophenol (Sur)	97		45 - 129				11/19/14 12:04	11/21/14 12:37	1

Lab Sample ID: LCS 680-359450/3-A

Matrix: Solid

Analysis Batch: 359906

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 359450

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Acenaphthene	3.33	2.71		mg/Kg		81	47 - 130
Acenaphthylene	3.33	2.81		mg/Kg		84	45 - 130
Acetophenone	3.33	2.48		mg/Kg		74	44 - 130
Anthracene	3.33	2.87		mg/Kg		86	50 - 130
Atrazine	3.33	2.86		mg/Kg		86	47 - 130
Benzaldehyde	3.33	0.385		mg/Kg		12	10 - 130
Benzo[a]anthracene	3.33	2.89		mg/Kg		87	50 - 130
Benzo[a]pyrene	3.33	2.96		mg/Kg		89	47 - 131
Benzo[b]fluoranthene	3.33	2.83		mg/Kg		85	48 - 130
Benzo[g,h,i]perylene	3.33	2.87		mg/Kg		86	42 - 130
Benzo[k]fluoranthene	3.33	3.01		mg/Kg		90	48 - 108
1,1'-Biphenyl	3.33	2.79		mg/Kg		84	48 - 130
Bis(2-chloroethoxy)methane	3.33	2.64		mg/Kg		79	47 - 130
Bis(2-chloroethyl)ether	3.33	2.44		mg/Kg		73	37 - 130
bis (2-chloroisopropyl) ether	3.33	2.43		mg/Kg		73	38 - 130
Bis(2-ethylhexyl) phthalate	3.33	3.02		mg/Kg		91	48 - 130
4-Bromophenyl phenyl ether	3.33	2.90		mg/Kg		87	53 - 130
Butyl benzyl phthalate	3.33	2.99		mg/Kg		90	53 - 134
Caprolactam	3.33	2.96		mg/Kg		89	44 - 130
Carbazole	3.33	2.90		mg/Kg		87	51 - 130
4-Chloroaniline	3.33	0.975		mg/Kg		29	10 - 130
4-Chloro-3-methylphenol	3.33	2.81		mg/Kg		84	51 - 130
2-Chloronaphthalene	3.33	2.77		mg/Kg		83	48 - 130
2-Chlorophenol	3.33	2.66		mg/Kg		80	47 - 130
4-Chlorophenyl phenyl ether	3.33	2.85		mg/Kg		86	49 - 130
Chrysene	3.33	2.85		mg/Kg		85	47 - 130
Dibenz(a,h)anthracene	3.33	2.94		mg/Kg		88	44 - 130

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-359450/3-A		Client Sample ID: Lab Control Sample					
Matrix: Solid		Prep Type: Total/NA					
Analysis Batch: 359906		Prep Batch: 359450					
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec.	Limits
Dibenzofuran	3.33	2.79		mg/Kg	84	49 - 130	
3,3'-Dichlorobenzidine	3.33	1.17		mg/Kg	35	16 - 130	
2,4-Dichlorophenol	3.33	2.78		mg/Kg	84	48 - 130	
Diethyl phthalate	3.33	2.86		mg/Kg	86	49 - 130	
2,4-Dimethylphenol	3.33	2.63		mg/Kg	79	43 - 130	
Dimethyl phthalate	3.33	2.84		mg/Kg	85	50 - 130	
Di-n-butyl phthalate	3.33	2.94		mg/Kg	88	52 - 130	
4,6-Dinitro-2-methylphenol	6.66	4.36		mg/Kg	65	23 - 130	
2,4-Dinitrophenol	6.66	3.36		mg/Kg	50	10 - 130	
2,4-Dinitrotoluene	3.33	2.94		mg/Kg	88	49 - 111	
2,6-Dinitrotoluene	3.33	2.93		mg/Kg	88	49 - 130	
Di-n-octyl phthalate	3.33	2.87		mg/Kg	86	46 - 130	
Fluoranthene	3.33	2.94		mg/Kg	88	51 - 130	
Fluorene	3.33	2.80		mg/Kg	84	52 - 130	
Hexachlorobenzene	3.33	2.77		mg/Kg	83	53 - 130	
Hexachlorobutadiene	3.33	2.58		mg/Kg	77	48 - 130	
Hexachlorocyclopentadiene	3.33	2.72		mg/Kg	82	28 - 130	
Hexachloroethane	3.33	2.47		mg/Kg	74	42 - 130	
Indeno[1,2,3-cd]pyrene	3.33	2.95		mg/Kg	89	41 - 130	
Isophorone	3.33	2.65		mg/Kg	79	48 - 130	
2-Methylnaphthalene	3.33	2.65		mg/Kg	79	48 - 130	
2-Methylphenol	3.33	2.64		mg/Kg	79	46 - 130	
3 & 4 Methylphenol	3.33	2.64		mg/Kg	79	46 - 130	
Naphthalene	3.33	2.64		mg/Kg	79	47 - 130	
2-Nitroaniline	3.33	2.92		mg/Kg	88	44 - 130	
3-Nitroaniline	3.33	1.50 J		mg/Kg	45	21 - 130	
4-Nitroaniline	3.33	2.57		mg/Kg	77	41 - 130	
Nitrobenzene	3.33	2.58		mg/Kg	78	45 - 130	
2-Nitrophenol	3.33	2.85		mg/Kg	85	43 - 130	
4-Nitrophenol	6.66	6.08		mg/Kg	91	40 - 130	
N-Nitrosodi-n-propylamine	3.33	2.55		mg/Kg	76	38 - 130	
N-Nitrosodiphenylamine	3.33	2.84		mg/Kg	85	50 - 130	
Pentachlorophenol	6.66	5.55		mg/Kg	83	41 - 130	
Phenanthrene	3.33	2.81		mg/Kg	84	52 - 130	
Phenol	3.33	2.70		mg/Kg	81	47 - 130	
Pyrene	3.33	2.91		mg/Kg	87	50 - 130	
2,4,5-Trichlorophenol	3.33	2.95		mg/Kg	89	51 - 130	
2,4,6-Trichlorophenol	3.33	2.96		mg/Kg	89	50 - 130	
Surrogate		LCS %Recovery	LCS Qualifier	Limits			
2-Fluorobiphenyl		83		41 - 116			
2-Fluorophenol (Surr)		81		39 - 114			
Nitrobenzene-d5 (Surr)		79		37 - 115			
Phenol-d5 (Surr)		79		38 - 122			
Terphenyl-d14 (Surr)		85		46 - 126			
2,4,6-Tribromophenol (Surr)		94		45 - 129			

6

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107381-1 MS			Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast						
Matrix: Solid			Prep Type: Total/NA						
Analysis Batch: 359906			Prep Batch: 359450						
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Acenaphthene	2.3	U	22.6	18.5		mg/Kg	*	82	58 - 130
Acenaphthylene	2.3	U	22.6	19.3		mg/Kg	*	85	58 - 130
Acetophenone	1.5	J	22.6	20.1		mg/Kg	*	82	42 - 130
Anthracene	2.3	U	22.6	20.0		mg/Kg	*	88	60 - 130
Atrazine	2.3	U	22.6	21.6		mg/Kg	*	96	54 - 141
Benzaldehyde	2.3	U	22.6	6.00		mg/Kg	*	27	10 - 130
Benzo[a]anthracene	2.3	U	22.6	19.4		mg/Kg	*	86	62 - 130
Benzo[a]pyrene	2.3	U	22.6	19.1		mg/Kg	*	85	68 - 131
Benzo[b]fluoranthene	2.3	U	22.6	18.3		mg/Kg	*	81	53 - 130
Benzo[g,h,i]perylene	2.3	U	22.6	18.2		mg/Kg	*	80	54 - 130
Benzo[k]fluoranthene	2.3	U	22.6	19.8		mg/Kg	*	87	57 - 130
1,1'-Biphenyl	12	U	22.6	19.5		mg/Kg	*	86	57 - 130
Bis(2-chloroethoxy)methane	2.3	U	22.6	19.2		mg/Kg	*	85	56 - 130
Bis(2-chloroethyl)ether	2.3	U	22.6	16.2		mg/Kg	*	72	42 - 130
bis (2-chloroisopropyl) ether	2.3	U	22.6	16.0		mg/Kg	*	71	44 - 130
Bis(2-ethylhexyl) phthalate	0.40	J	22.6	22.2		mg/Kg	*	96	62 - 132
4-Bromophenyl phenyl ether	2.3	U	22.6	21.0		mg/Kg	*	93	65 - 130
Butyl benzyl phthalate	2.3	U	22.6	21.5		mg/Kg	*	95	65 - 134
Caprolactam	2.3	U	22.6	2.2	UF1	mg/Kg	*	0	52 - 130
Carbazole	2.3	U	22.6	19.7		mg/Kg	*	87	60 - 130
4-Chloroaniline	4.5	U	22.6	7.64	F1	mg/Kg	*	34	36 - 130
4-Chloro-3-methylphenol	2.3	U	22.6	20.2		mg/Kg	*	89	52 - 130
2-Chloronaphthalene	2.3	U	22.6	19.2		mg/Kg	*	85	55 - 130
2-Chlorophenol	2.3	U	22.6	17.5		mg/Kg	*	77	51 - 130
4-Chlorophenyl phenyl ether	2.3	U	22.6	19.4		mg/Kg	*	86	61 - 130
Chrysene	2.3	U	22.6	19.2		mg/Kg	*	85	62 - 130
Dibenz(a,h)anthracene	2.3	U	22.6	18.2		mg/Kg	*	81	56 - 130
Dibenzofuran	2.3	U	22.6	19.4		mg/Kg	*	86	56 - 130
3,3'-Dichlorobenzidine	4.5	U	22.6	9.61	F1	mg/Kg	*	42	45 - 130
2,4-Dichlorophenol	2.3	U	22.6	20.0		mg/Kg	*	88	53 - 130
Diethyl phthalate	2.3	U	22.6	20.3		mg/Kg	*	90	62 - 130
2,4-Dimethylphenol	2.3	U	22.6	18.6		mg/Kg	*	82	47 - 130
Dimethyl phthalate	2.3	U	22.6	19.7		mg/Kg	*	87	63 - 130
Di-n-butyl phthalate	2.3	U	22.6	20.8		mg/Kg	*	92	65 - 130
4,6-Dinitro-2-methylphenol	12	U	45.2	33.6		mg/Kg	*	74	14 - 137
2,4-Dinitrophenol	12	U	45.2	20.8		mg/Kg	*	46	10 - 154
2,4-Dinitrotoluene	2.3	U	22.6	20.3		mg/Kg	*	90	55 - 130
2,6-Dinitrotoluene	2.3	U	22.6	20.1		mg/Kg	*	89	57 - 130
Di-n-octyl phthalate	2.3	U	22.6	21.3		mg/Kg	*	94	59 - 146
Fluoranthene	2.3	U	22.6	20.2		mg/Kg	*	89	62 - 130
Fluorene	2.3	U	22.6	20.0		mg/Kg	*	88	58 - 130
Hexachlorobenzene	2.3	U	22.6	19.9		mg/Kg	*	88	59 - 130
Hexachlorobutadiene	2.3	U	22.6	18.6		mg/Kg	*	82	47 - 130
Hexachlorocyclopentadiene	2.3	U	22.6	17.6		mg/Kg	*	78	35 - 130
Hexachloroethane	2.3	U	22.6	17.7		mg/Kg	*	78	44 - 130
Indeno[1,2,3-cd]pyrene	2.3	U	22.6	18.7		mg/Kg	*	83	52 - 130
Isophorone	2.3	U	22.6	19.1		mg/Kg	*	84	48 - 130
2-Methylnaphthalene	1.8	J	22.6	21.8		mg/Kg	*	88	55 - 130

6



TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107381-1 MS				Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast									
Matrix: Solid				Prep Type: Total/NA									
Analysis Batch: 359906				Prep Batch: 359450									
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	%Rec.			
2-Methylphenol	2.3	U	22.6	18.0		mg/Kg	*	80	49 - 130				
3 & 4 Methylphenol	2.3	U	22.6	18.3		mg/Kg	*	81	50 - 130				
Naphthalene	0.91	J	22.6	20.2		mg/Kg	*	85	54 - 130				
2-Nitroaniline	12	U	22.6	21.3		mg/Kg	*	94	52 - 130				
3-Nitroaniline	12	U	22.6	11.5	J	mg/Kg	*	51	42 - 130				
4-Nitroaniline	12	U	22.6	16.3		mg/Kg	*	72	49 - 130				
Nitrobenzene	2.3	U	22.6	18.8		mg/Kg	*	83	43 - 130				
2-Nitrophenol	2.3	U	22.6	20.6		mg/Kg	*	91	45 - 130				
4-Nitrophenol	12	U	45.2	41.0		mg/Kg	*	91	30 - 130				
N-Nitrosodi-n-propylamine	2.3	U	22.6	16.7		mg/Kg	*	74	48 - 130				
N-Nitrosodiphenylamine	2.3	U	22.6	20.9		mg/Kg	*	92	62 - 130				
Pentachlorophenol	12	U	45.2	27.9		mg/Kg	*	62	38 - 131				
Phenanthrene	0.23	J	22.6	20.8		mg/Kg	*	91	61 - 130				
Phenol	2.3	U	22.6	18.0		mg/Kg	*	79	46 - 130				
Pyrene	0.27	J	22.6	20.6		mg/Kg	*	90	59 - 130				
2,4,5-Trichlorophenol	2.3	U	22.6	19.2		mg/Kg	*	85	60 - 130				
2,4,6-Trichlorophenol	2.3	U	22.6	20.3		mg/Kg	*	90	53 - 130				
Surrogate	MS %Recovery		MS Qualifier	Limits									
2-Fluorobiphenyl	83			41 - 116									
2-Fluorophenol (Surr)	76			39 - 114									
Nitrobenzene-d5 (Surr)	78			37 - 115									
Phenol-d5 (Surr)	78			38 - 122									
Terphenyl-d14 (Surr)	85			46 - 126									
2,4,6-Tribromophenol (Surr)	92			45 - 129									

Lab Sample ID: 680-107381-1 MSD				Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 359906				Prep Batch: 359450							
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Acenaphthene	2.3	U	22.7	18.4		mg/Kg	*	81	58 - 130	0	50
Acenaphthylene	2.3	U	22.7	18.9		mg/Kg	*	84	58 - 130	2	50
Acetophenone	1.5	J	22.7	18.8		mg/Kg	*	76	42 - 130	6	50
Anthracene	2.3	U	22.7	19.5		mg/Kg	*	86	60 - 130	2	50
Atrazine	2.3	U	22.7	21.0		mg/Kg	*	92	54 - 141	3	50
Benzaldehyde	2.3	U	22.7	6.88		mg/Kg	*	30	10 - 130	14	50
Benzo[a]anthracene	2.3	U	22.7	18.3		mg/Kg	*	81	62 - 130	6	50
Benzo[a]pyrene	2.3	U	22.7	18.2		mg/Kg	*	80	68 - 131	5	50
Benzo[b]fluoranthene	2.3	U	22.7	18.0		mg/Kg	*	79	53 - 130	2	50
Benzo[g,h,i]perylene	2.3	U	22.7	17.6		mg/Kg	*	78	54 - 130	3	50
Benzo[k]fluoranthene	2.3	U	22.7	18.2		mg/Kg	*	80	57 - 130	8	50
1,1'-Biphenyl	12	U	22.7	18.7		mg/Kg	*	83	57 - 130	4	50
Bis(2-chloroethoxy)methane	2.3	U	22.7	18.6		mg/Kg	*	82	56 - 130	3	50
Bis(2-chloroethyl)ether	2.3	U	22.7	16.4		mg/Kg	*	73	42 - 130	1	50
bis (2-chloroisopropyl) ether	2.3	U	22.7	16.4		mg/Kg	*	73	44 - 130	2	50
Bis(2-ethylhexyl) phthalate	0.40	J	22.7	21.8		mg/Kg	*	95	62 - 132	2	50
4-Bromophenyl phenyl ether	2.3	U	22.7	20.2		mg/Kg	*	89	65 - 130	4	50

TestAmerica Savannah

6

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107381-1 MSD				Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 359906				Prep Batch: 359450							
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Butyl benzyl phthalate	2.3	U	22.7	20.8		mg/Kg	*	92	65 - 134	3	50
Caprolactam	2.3	U	22.7	2.2	UF1	mg/Kg	*	0	52 - 130	NC	50
Carbazole	2.3	U	22.7	19.6		mg/Kg	*	87	60 - 130	0	50
4-Chloroaniline	4.5	U	22.7	7.74	F1	mg/Kg	*	34	36 - 130	1	50
4-Chloro-3-methoxyphenol	2.3	U	22.7	21.0		mg/Kg	*	92	52 - 130	4	50
2-Chloronaphthalene	2.3	U	22.7	18.5		mg/Kg	*	81	55 - 130	4	50
2-Chlorophenol	2.3	U	22.7	18.3		mg/Kg	*	81	51 - 130	4	50
4-Chlorophenyl phenyl ether	2.3	U	22.7	18.9		mg/Kg	*	83	61 - 130	2	50
Chrysene	2.3	U	22.7	17.9		mg/Kg	*	79	62 - 130	7	50
Dibenz(a,h)anthracene	2.3	U	22.7	17.6		mg/Kg	*	78	56 - 130	4	50
Dibenzofuran	2.3	U	22.7	18.9		mg/Kg	*	84	56 - 130	2	50
3,3'-Dichlorobenzidine	4.5	U	22.7	8.90	F1	mg/Kg	*	39	45 - 130	8	50
2,4-Dichlorophenol	2.3	U	22.7	20.5		mg/Kg	*	90	53 - 130	3	50
Diethyl phthalate	2.3	U	22.7	19.8		mg/Kg	*	87	62 - 130	3	50
2,4-Dimethylphenol	2.3	U	22.7	19.1		mg/Kg	*	84	47 - 130	3	50
Dimethyl phthalate	2.3	U	22.7	19.0		mg/Kg	*	84	63 - 130	4	50
Di-n-butyl phthalate	2.3	U	22.7	20.1		mg/Kg	*	89	65 - 130	4	50
4,6-Dinitro-2-methylphenol	12	U	45.3	34.2		mg/Kg	*	76	14 - 137	2	50
2,4-Dinitrophenol	12	U	45.3	23.3		mg/Kg	*	52	10 - 154	12	50
2,4-Dinitrotoluene	2.3	U	22.7	19.5		mg/Kg	*	86	55 - 130	4	50
2,6-Dinitrotoluene	2.3	U	22.7	19.9		mg/Kg	*	88	57 - 130	1	50
Di-n-octyl phthalate	2.3	U	22.7	21.0		mg/Kg	*	93	59 - 146	1	50
Fluoranthene	2.3	U	22.7	19.0		mg/Kg	*	84	62 - 130	7	50
Fluorene	2.3	U	22.7	19.4		mg/Kg	*	85	58 - 130	3	50
Hexachlorobenzene	2.3	U	22.7	19.5		mg/Kg	*	86	59 - 130	2	50
Hexachlorobutadiene	2.3	U	22.7	18.6		mg/Kg	*	82	47 - 130	0	50
Hexachlorocyclopentadiene	2.3	U	22.7	18.2		mg/Kg	*	72	35 - 130	8	50
Hexachloroethane	2.3	U	22.7	17.4		mg/Kg	*	77	44 - 130	1	50
Indeno[1,2,3-cd]pyrene	2.3	U	22.7	17.5		mg/Kg	*	77	52 - 130	7	50
Isophorone	2.3	U	22.7	18.9		mg/Kg	*	83	48 - 130	1	50
2-Methylnaphthalene	1.8	J	22.7	21.9		mg/Kg	*	89	55 - 130	0	50
2-Methylphenol	2.3	U	22.7	19.0		mg/Kg	*	84	49 - 130	5	50
3 & 4 Methylphenol	2.3	U	22.7	18.9		mg/Kg	*	83	50 - 130	3	50
Naphthalene	0.91	J	22.7	19.8		mg/Kg	*	84	54 - 130	2	50
2-Nitroaniline	12	U	22.7	20.4		mg/Kg	*	90	52 - 130	4	50
3-Nitroaniline	12	U	22.7	11.7	J	mg/Kg	*	52	42 - 130	2	50
4-Nitroaniline	12	U	22.7	16.4		mg/Kg	*	73	49 - 130	1	50
Nitrobenzene	2.3	U	22.7	18.0		mg/Kg	*	80	43 - 130	4	50
2-Nitrophenol	2.3	U	22.7	19.7		mg/Kg	*	87	45 - 130	4	50
4-Nitrophenol	12	U	45.3	40.5		mg/Kg	*	89	30 - 130	1	50
N-Nitrosodi-n-propylamine	2.3	U	22.7	17.4		mg/Kg	*	77	48 - 130	4	50
N-Nitrosodiphenylamine	2.3	U	22.7	20.2		mg/Kg	*	89	62 - 130	4	50
Pentachlorophenol	12	U	45.3	30.6		mg/Kg	*	68	38 - 131	9	50
Phenanthrene	0.23	J	22.7	19.1		mg/Kg	*	83	61 - 130	8	50
Phenol	2.3	U	22.7	18.6		mg/Kg	*	82	46 - 130	4	50
Pyrene	0.27	J	22.7	19.3		mg/Kg	*	84	59 - 130	6	50
2,4,5-Trichlorophenol	2.3	U	22.7	19.4		mg/Kg	*	86	60 - 130	1	50
2,4,6-Trichlorophenol	2.3	U	22.7	19.7		mg/Kg	*	87	53 - 130	3	50

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107381-1 MSD

Matrix: Solid

Analysis Batch: 359906

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Prep Type: Total/NA

Prep Batch: 359450

6

Surrogate	MSD	MSD	%Recovery	Qualifier	Limits
2-Fluorobiphenyl			81		41 - 116
2-Fluorophenol (Surr)			78		39 - 114
Nitrobenzene-d5 (Surr)			76		37 - 115
Phenol-d5 (Surr)			81		38 - 122
Terphenyl-d14 (Surr)			83		46 - 126
2,4,6-Tribromophenol (Surr)			91		45 - 129

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Lab Sample ID: MB 680-359452/3-A

Matrix: Solid

Analysis Batch: 359656

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 359452

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016			0.033	U	0.033	0.011	mg/Kg		11/19/14 12:04	11/20/14 12:07	1
PCB-1221			0.033	U	0.033	0.015	mg/Kg		11/19/14 12:04	11/20/14 12:07	1
PCB-1232			0.033	U	0.033	0.0052	mg/Kg		11/19/14 12:04	11/20/14 12:07	1
PCB-1242			0.033	U	0.033	0.0050	mg/Kg		11/19/14 12:04	11/20/14 12:07	1
PCB-1248			0.033	U	0.033	0.0082	mg/Kg		11/19/14 12:04	11/20/14 12:07	1
PCB-1254			0.033	U	0.033	0.010	mg/Kg		11/19/14 12:04	11/20/14 12:07	1
PCB-1260			0.033	U	0.033	0.0096	mg/Kg		11/19/14 12:04	11/20/14 12:07	1

Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl			113		54 - 133	11/19/14 12:04	11/20/14 12:07	1
Tetrachloro-m-xylene			105		46 - 130	11/19/14 12:04	11/20/14 12:07	1

Lab Sample ID: LCS 680-359452/4-A

Matrix: Solid

Analysis Batch: 359656

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 359452

Analyte	Spike	LCS	LCS	%Rec.
	Added	Result	Qualifier	Unit
PCB-1016	0.665	0.666		mg/Kg
PCB-1260	0.665	0.729		mg/Kg

Surrogate	LCS	LCS	%Recovery	Qualifier	Limits
DCB Decachlorobiphenyl			112		54 - 133
Tetrachloro-m-xylene			94		46 - 130

Lab Sample ID: 680-107381-1 MS

Matrix: Solid

Analysis Batch: 359656

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Prep Type: Total/NA

Prep Batch: 359452

Analyte	Sample	Sample	Spike	MS	MS	%Rec.
	Result	Qualifier	Added	Result	Qualifier	Unit
PCB-1016	0.56	U	2.27	2.90		mg/Kg
PCB-1260	0.56	U	2.27	2.46		mg/Kg

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

Lab Sample ID: 680-107381-1 MS

Matrix: Solid

Analysis Batch: 359656

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Prep Type: Total/NA

Prep Batch: 359452

6

Surrogate	MS	MS	%Recovery	Qualifier	Limits
DCB Decachlorobiphenyl	67				54 - 133
Tetrachloro-m-xylene	111				46 - 130

Lab Sample ID: 680-107381-1 MSD

Matrix: Solid

Analysis Batch: 359656

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Prep Type: Total/NA

Prep Batch: 359452

Analyte	Sample	Sample	Spike	MSD	MSD	%Rec.	RPD
	Result	Qualifier	Added	Result	Qualifier	Unit	Limit
PCB-1016	0.56	U	2.24	3.17	F1	mg/Kg	*
PCB-1260	0.56	U	2.24	2.95	F1	mg/Kg	*
Surrogate		%Recovery	Qualifier	Limits			
DCB Decachlorobiphenyl		92		54 - 133			
Tetrachloro-m-xylene		123		46 - 130			

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-359467/1-A

Matrix: Solid

Analysis Batch: 359921

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 359467

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier					Prepared	Analyzed	Dil Fac
Arsenic	1.8	U	1.8	0.52	mg/Kg		11/19/14 10:17	11/20/14 16:49	1
Barium	0.88	U	0.88	0.27	mg/Kg		11/19/14 10:17	11/20/14 16:49	1
Cadmium	0.44	U	0.44	0.088	mg/Kg		11/19/14 10:17	11/20/14 16:49	1
Chromium	0.88	U	0.88	0.44	mg/Kg		11/19/14 10:17	11/20/14 16:49	1
Lead	0.88	U	0.88	0.47	mg/Kg		11/19/14 10:17	11/20/14 16:49	1
Selenium	2.2	U	2.2	0.88	mg/Kg		11/19/14 10:17	11/20/14 16:49	1
Silver	0.88	U	0.88	0.085	mg/Kg		11/19/14 10:17	11/20/14 16:49	1

Lab Sample ID: LCS 680-359467/2-A

Matrix: Solid

Analysis Batch: 359921

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 359467

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Arsenic	9.17	9.84		mg/Kg		107	80 - 120
Barium	9.17	9.92		mg/Kg		108	80 - 120
Cadmium	4.59	5.07		mg/Kg		110	80 - 120
Chromium	9.17	10.3		mg/Kg		112	80 - 120
Lead	45.9	47.5		mg/Kg		104	80 - 120
Selenium	9.17	8.95		mg/Kg		98	80 - 120
Silver	4.59	4.93		mg/Kg		108	80 - 120

TestAmerica Savannah

QC Sample Results

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 680-107381-1 MS				Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 359921				Prep Batch: 359467							
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.		
Arsenic	14		10.5	26.3		mg/Kg	*	120	75 - 125		
Barium	29		10.5	36.5		mg/Kg	*	76	75 - 125		
Cadmium	0.51	U	5.24	5.63		mg/Kg	*	107	75 - 125		
Chromium	12		10.5	24.2		mg/Kg	*	117	75 - 125		
Lead	17		52.4	67.9		mg/Kg	*	97	75 - 125		
Selenium	2.6	U	10.5	10.2		mg/Kg	*	97	75 - 125		
Silver	1.0	U	5.24	5.47		mg/Kg	*	104	75 - 125		

6

Lab Sample ID: 680-107381-1 MSD				Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 359921				Prep Batch: 359467							
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.	RPD	Limit
Arsenic	14		10.3	26.2		mg/Kg	*	122	75 - 125	0	20
Barium	29		10.3	35.3	F1	mg/Kg	*	66	75 - 125	3	20
Cadmium	0.51	U	5.15	5.35		mg/Kg	*	104	75 - 125	5	20
Chromium	12		10.3	21.8		mg/Kg	*	96	75 - 125	10	20
Lead	17		51.5	67.4		mg/Kg	*	98	75 - 125	1	20
Selenium	2.6	U	10.3	8.97		mg/Kg	*	87	75 - 125	13	20
Silver	1.0	U	5.15	5.10		mg/Kg	*	99	75 - 125	7	20

Method: 7471B - Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Lab Sample ID: MB 680-359884/13-A				Client Sample ID: Method Blank							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 360009				Prep Batch: 359884							
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac		
Mercury	0.017	U	0.017	0.0071	mg/Kg	*	11/21/14 08:57	11/21/14 14:10	1		

Lab Sample ID: LCS 680-359884/14-A				Client Sample ID: Lab Control Sample							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 360009				Prep Batch: 359884							
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.				
Mercury	0.227	0.231		mg/Kg	*	102	80 - 120				

Lab Sample ID: 680-107381-1 MS				Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 360009				Prep Batch: 359884							
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.		
Mercury	0.014	J	0.0994	0.343	F1	mg/Kg	*	331	80 - 120		

TestAmerica Savannah

QC Sample Results

Client: Global Remediation
 Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method: 7471B - Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique) (Continued)

Lab Sample ID: 680-107381-1 MSD				Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 360009				Prep Batch: 359884							
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.	RPD	RPD
Mercury	0.014	J	0.109	0.134	F2	mg/Kg	*	110	80 - 120	88	20

Method: 9071B - HEM and SGT-HEM

Lab Sample ID: MB 680-360425/3				Client Sample ID: Method Blank							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 360425											
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac		
Total Petroleum Hydrocarbons (1664A)	100	U	100	19	mg/Kg			11/25/14 13:11			1

Lab Sample ID: LCS 680-360425/4

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Matrix: Solid
 Analysis Batch: 360425

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
Total Petroleum Hydrocarbons (1664A)	668	651		mg/Kg		98	60 - 140

Lab Sample ID: 680-107381-B-1 MS

Client Sample ID: 680-107381-B-1 MS
 Prep Type: Total/NA

Matrix: Solid
 Analysis Batch: 360425

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.
Total Petroleum Hydrocarbons (1664A)	1200		767	1990		mg/Kg	*	99	60 - 140

Lab Sample ID: 680-107381-B-1 MSD

Client Sample ID: 680-107381-B-1 MSD
 Prep Type: Total/NA

Matrix: Solid
 Analysis Batch: 360425

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.
Total Petroleum Hydrocarbons (1664A)	1200		765	2490		mg/Kg	*	165	60 - 140

TestAmerica Savannah

6

QC Association Summary

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

GC/MS VOA

Analysis Batch: 360110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	8260B	360112
LCS 680-360110/9	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-360110/10	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-360110/15	Method Blank	Total/NA	Solid	8260B	

Prep Batch: 360112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	5030B	

GC/MS Semi VOA

Prep Batch: 359450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3546	
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3546	
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3546	
LCS 680-359450/3-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-359450/2-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 359906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	8270D	359450
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	8270D	359450
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	8270D	359450
LCS 680-359450/3-A	Lab Control Sample	Total/NA	Solid	8270D	359450
MB 680-359450/2-A	Method Blank	Total/NA	Solid	8270D	359450

GC Semi VOA

Prep Batch: 359452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3546	
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3546	
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3546	
LCS 680-359452/4-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-359452/3-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 359656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	8081B/8082A	359452
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	8081B/8082A	359452
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	8081B/8082A	359452
LCS 680-359452/4-A	Lab Control Sample	Total/NA	Solid	8081B/8082A	359452
MB 680-359452/3-A	Method Blank	Total/NA	Solid	8081B/8082A	359452

Metals

Prep Batch: 359467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3050B	

TestAmerica Savannah

7

QC Association Summary

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Metals (Continued)

Prep Batch: 359467 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3050B	
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	3050B	
LCS 680-359467/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 680-359467/1-A	Method Blank	Total/NA	Solid	3050B	

Prep Batch: 359884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	7471B	
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	7471B	
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	7471B	
LCS 680-359884/14-A	Lab Control Sample	Total/NA	Solid	7471B	
MB 680-359884/13-A	Method Blank	Total/NA	Solid	7471B	

Analysis Batch: 359921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	6010C	359467
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	6010C	359467
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	6010C	359467
LCS 680-359467/2-A	Lab Control Sample	Total/NA	Solid	6010C	359467
MB 680-359467/1-A	Method Blank	Total/NA	Solid	6010C	359467

Analysis Batch: 360009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	7471B	359884
680-107381-1 MS	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	7471B	359884
680-107381-1 MSD	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	7471B	359884
LCS 680-359884/14-A	Lab Control Sample	Total/NA	Solid	7471B	359884
MB 680-359884/13-A	Method Blank	Total/NA	Solid	7471B	359884

General Chemistry

Analysis Batch: 359447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	Moisture	

Analysis Batch: 360425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107381-1	Fuel Oil Impacted Soil, Stone & Ballast	Total/NA	Solid	9071B	
680-107381-B-1 MS	680-107381-B-1 MS	Total/NA	Solid	9071B	
680-107381-B-1 MSD	680-107381-B-1 MSD	Total/NA	Solid	9071B	
LCS 680-360425/4	Lab Control Sample	Total/NA	Solid	9071B	
MB 680-360425/3	Method Blank	Total/NA	Solid	9071B	

TestAmerica Savannah

Lab Chronicle

Client: Global Remediation
 Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Client Sample ID: Fuel Oil Impacted Soil, Stone & Ballast

Lab Sample ID: 680-107381-1

Date Collected: 11/15/14 11:30

Matrix: Solid

Date Received: 11/18/14 10:05

Percent Solids: 86.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.20 g	5 mL	360112	11/23/14 14:48	TAR	TAL SAV
Total/NA	Analysis	8260B Instrument ID: CMSC		40	5.20 g	5 mL	360110	11/23/14 22:01	TAR	TAL SAV
Total/NA	Prep	3546			5.06 g	1 mL	359450	11/19/14 12:04	JMV	TAL SAV
Total/NA	Analysis	8270D Instrument ID: CMSE		1	5.06 g	1 mL	359906	11/21/14 13:02	LEG	TAL SAV
Total/NA	Prep	3546			5.13 g	10 mL	359452	11/19/14 12:04	JMV	TAL SAV
Total/NA	Analysis	8081B/8082A Instrument ID: CSGZ		5	5.13 g	10 mL	359656	11/20/14 12:53	JCK	TAL SAV
Total/NA	Prep	3050B			1.12 g	100 mL	359467	11/19/14 10:17	CRW	TAL SAV
Total/NA	Analysis	6010C Instrument ID: ICPE		1	1.12 g	100 mL	359921	11/20/14 17:06	BCB	TAL SAV
Total/NA	Prep	7471B			0.58 g	50 mL	359884	11/21/14 08:57	JKL	TAL SAV
Total/NA	Analysis	7471B Instrument ID: LEEMAN2		1	0.58 g	50 mL	360009	11/21/14 14:16	JKL	TAL SAV
Total/NA	Analysis	9071B Instrument ID: NOEQUIP		1	30.13 g	30 mL	360425	11/25/14 13:11	ALC	TAL SAV
Total/NA	Analysis	Moisture Instrument ID: NOEQUIP		1			359447	11/19/14 09:24	HML	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



8

TestAmerica Savannah

Certification Summary

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Massachusetts	State Program	1	M-GA006	06-30-15



9

TestAmerica Savannah

Method Summary

Client: Global Remediation

Project/Site: CSX - Worcester, MA Railyard

TestAmerica Job ID: 680-107381-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
8081B/8082A	Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography	SW846	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
7471B	Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)	SW846	TAL SAV
9071B	HEM and SGT-HEM	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Chain of Custody Record

Form No. CA-C-WI-002, dated 04/07/2011

Login Sample Receipt Checklist

Client: Global Remediation

Job Number: 680-107381-1

Login Number: 107381

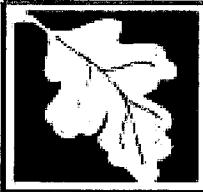
List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

12



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

2

- 19355

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

1. Release Name/Location Aid: CSX RAILYARD

2. Street Address: 271 FRANKLIN STREET

3. City/Town: WORCESTER

4. Zip Code: _____

5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category.
 a. Tier I b. Tier ID c. Tier II

B. THIS FORM IS BEING USED TO: (check one: B1-B4):

1. Submit a **Bill of Lading (BOL)** to transport Remediation Waste to Temporary Storage or a Receiving Facility.

Response Actions associated with this BOL (check all that apply):

- a. Immediate Response Action (IRA) e. Comprehensive Response Actions
 b. Release Abatement Measure (RAM) f. Limited Removal Action (LRA): (must be
 c. Downgradient Property Status (DPS) retained pursuant to 310 CMR 40.0034(6); can't be
 d. Utility Release Abatement Measure (URAM) submitted via eDEP)
 g. Other _____

2. Submit an Attestation of Completion of Shipment to Temporary Storage (Sections C, F and J are not required):

3. Submit an Attestation of Completion of Shipment to a Receiving Facility (Sections C, F and J are not required):

4. Certify that Remediation Waste Was Not Shipped, and the Bill of Lading is Void. (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department: 12/8/2014 b. eDEP Transaction ID: 706936
(mm/dd/yyyy)

6. Period of Generation Associated with this Bill of Lading 11/11/2014 to 11/13/2014
(mm/dd/yyyy) (mm/dd/yyyy)

(All sections of this transmittal form must be filled out unless otherwise noted above)

The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

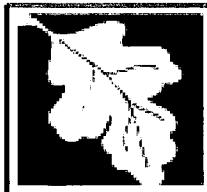
C. DESCRIPTION OF WASTE AND WASTE SOURCE:

1. Contaminated Media/Debris (check all that apply):

- a. Soil b. Groundwater c. Surface Water d. Sediment e. Vegetation or Organic Debris
 f. Demolition/Construction Waste g. Inorganic Absorbent Materials h. Other: _____

2. Uncontainerized Waste (check all that apply):

- a. Inorganic Absorbent Materials b. Other: _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):

3. Containerized Waste (check all that apply):

- a. Tank Bottoms/Sludges b. Containers c. Drums d. Engineered Impoundments
 e. Other: _____

4. Estimated Quantity: _____ Tons Cu. Yds. Gallons

5. Contaminant Source (check one):

- a. Transportation Accident b. Underground Storage Tank c. Brownfields Redevelopment
 d. Other: _____

6. Type of Contaminant (check all that apply):

- a. Gasoline b. Diesel Fuel c. #2 Fuel Oil d. #4 Fuel Oil e. #6 Fuel Oil f. Jet Fuel
 g. Waste Oil h. Kerosene i. Chlorinated Solvents j. Urban Fill k. Other: _____

7. Constituents of Concern (check all that apply):

- a. As b. Cd c. Cr d. Pb e. Hg f. EPH/TPH g. VPH
 h. PCBs i. VOCs j. SVOCs k. Other: _____

8. If applicable, check the box for the Reportable Concentration Category of the site:

- a. RCS-1 b. RCS-2 c. RCGW-1 d. RCGW-2

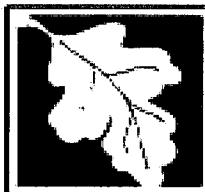
9. Remediation Waste Characterization Documentation (check at least one):

- a. Site History Information b. Sampling Analytical Methods and Procedures c. Laboratory Data
 d. Field Screening Data e. Characterization Documentation previously submitted to the Department

i. Date submitted: _____ ii. Type of Documentation: _____
(mm/dd/yyyy)

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

1. Transporter/Common Carrier Name: GLOBAL REMEDIATION SERVICES
2. Contact First Name: PAUL 3. Last Name: MASTRODOMENICO
4. Street: 700 RICHMOND AVENUE 5. Title: _____
6. City/Town: TAUNTON 7. State: MA 8. Zip Code: 027180000
9. Telephone: 5088281005 10. Ext: 104 11. Email: pmastro@globalremediation.com



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

1. Operator/Facility Name: ESMI OF NEW HAMPSHIRE

2. Contact First Name: MICHAEL 3. Last Name: PHELPS

4. Street: 67 INTERNATIONAL DRIVE 5. Title: _____

6. City/Town: LOUDON 7. State: NH 8. Zip Code: 033070000

9. Telephone: 6037830228 10. Ext: _____ 11. Email: mphelps@esmiofnh.com

12. Type of facility: (check one)

a. Temporary Storage i. Period of Temporary Storage _____ to _____
(mm/dd/yyyy) (mm/dd/yyyy)

ii. Reason for Temporary Storage: _____

b. Asphalt Batch/Hot Mix c. Landfill/Disposal d. Landfill/Structural Fill e. Landfill/Daily Cover

f. Asphalt Batch/Cold Mix g. Thermal Processing h. Incinerator i. Other: _____

13. Division of Hazardous Waste/Class A Permit Number: _____

14. Division of Solid Waste Permit Number: DES-SW-SP-96002

15. EPA Identification Number: NH5986435852

F. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: _____

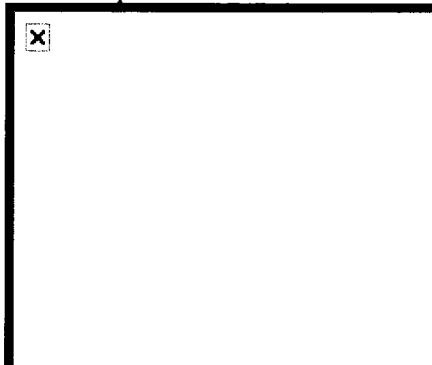
2. First Name: _____ 3. Last Name: _____

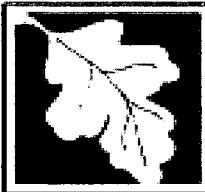
4. Telephone: _____ 5. Ext: _____ 6. Email: _____

7. Signature: _____

8. Date: _____
(mm/dd/yyyy)

9. LSP Stamp:





Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

G. PERSON SUBMITTING BILL OF LADING:

1. Check all that apply: a. change in contact name b. change of address c. change in the person undertaking response actions
2. Name of Organization: CSX TRANSPORTATION INC
3. Contact First Name: MICHAEL 4. Last Name: BETHGE
5. Street: 1836 BROADWAY 6. Title: FIELD SERVICE MANAGER
7. City/Town: BUFFALO 8. State: NY 9. Zip Code: 142120000
10. Telephone: 7168916025 11. Ext: _____ 12. Email: michael_bethge@csx.com

H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING: Check here to change relationship

1. RP or PRP a. Owner b. Operator c. Generator d. Transporter

e. Other RP or PRP Specify: _____

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Undertaking Response Actions: Specify Relationship: _____

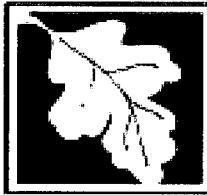
I. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.
2. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@state.ma.us
3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING:

1. I, _____, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: _____
3. Title: FIELD SERVICE MANAGER
4. For: CSX TRANSPORTATION INC
- (Name of person or entity recorded in Section G)
5. Date: _____
- (mm/dd/yyyy)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

2 - 19355

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.):

6. Check here if the address of the person providing certification is different from address recorded in Section G.

7. Street:

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

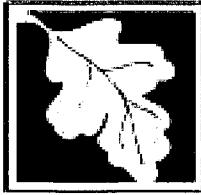
8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (MassDEP USE ONLY):

Received by DEP on 12/10/2014 10:30:24 AM



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC 112A

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

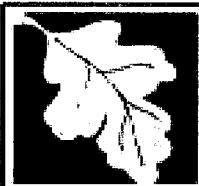
2 - 19355

SUMMARY OF SHIPMENT SHEET 1 OF 1

A. SUMMARY OF SHIPMENT (To be filled out by the receiving facility upon receipt of Remediation Waste):

1. Date of Shipment: (mm/dd/yyyy)	2. Date of Receipt: (mm/dd/yyyy)	3. Number of Loads Shipped:	4. Daily Volume Shipped: <input type="checkbox"/> yds ³ <input checked="" type="checkbox"/> tons <input type="checkbox"/> gals
12/9/2014	12/9/2014	2	37.04
5. Totals Recorded on this Summary of Shipment Sheet:		2	37.04

Check here if additional BWSC112A BOL Summary of Shipment Sheets are needed.



**Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup**

**BILL OF LADING (pursuant to 310 CMR 40.0030)
SUMMARY SHEET SIGNATURE PAGE**

BWSC 112B

Release Tracking Number

2

- 19355

A. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:

1. I, STEVE BENNITT, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: STEVE BENNITT 3. Title: _____
4. For: ESMI OF NEW HAMPSHIRE 5. Date: 12/10/2014
(mm/dd/yyyy)

6. Date of Final Shipment associated with this Bill of lading: 12/9/2014
(mm/dd/yyyy)

B. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTIONS ASSOCIATED WITH THIS BILL OF LADING:

1. I, MICHAEL BETHGE, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: MICHAEL BETHGE 3. Title: _____
4. For: CSX TRANSPORTATION INC 5. Date: 12/10/2014
(Name of person or entity recorded in Section G) (mm/dd/yyyy)

6. Check here if the address of the person providing certification is different from address recorded in BWSC112 Section G.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

14. Check here if attaching optional supporting documentation such as copies of Load Information Summary Sheets



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING Transport Log Sheet

Page

OF

Release Tracking Number

2 - 19355

I. LOAD INFORMATION: Signature of Transporter Representative:

Load 1:

Date of Shipment:

12-9-11

Time of Shipment:

9:00

AM PM

Truck/Tractor Registration:

56691

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

ESville TA Holloway

Date of Receipt:

10/07

Time of Receipt:

11:07

AM PM

Load Size (cu. yds./tons):

215.42

Load 2: Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

AM PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

AM PM

Load Size (cu. yds./tons):

Load 3: Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

AM PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

AM PM

Load Size (cu. yds./tons):

Load 4: Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

AM PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

AM PM

Load Size (cu. yds./tons):

Load 5: Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

AM PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

AM PM

Load Size (cu. yds./tons):

Load 6: Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

AM PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

AM PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons)

Total Carried Forward (cu. yds./tons):

Total Carried Forward and This Page (cu. yds./tons):

ESMI of N.H.
67 International Drive

Loudon, NH 03307

Ticket No :299373
Date :12/9/14
Phone :(603)783-0228
Fax :(603)783-0104

Customer:	GRS20	Order No :	9872	Loads :	1
GLOBAL REMEDIATION SVCS., INC.			CSXT fuel oil release	Miles :	0
700 Richmond Street			271 Franklin St.	Tons :	15.62
East Taunton, MA 02718		Worcester	MA		

Truck :	GLOBALR5 Global R-5	Gross :	65640 lb	MAN WT	In 11:07 am
Location:	MA MASSACHUSETTS	Tare :	34400 lb	MAN WT	Out 11:44 am

Weigh Master: ANGELA
Angela Holub

Remarks: Thank You For Your Business

Material \$
Delivery \$
Misc \$
Tax \$

Total \$

Signature:

MATERIAL	QTY	UNIT-\$	DELIVERY-\$	MISC-\$	TAX-\$	TOTAL-\$
#2 FUEL OIL	15.620 tn					



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

#140009

BWSC-112

Release Tracking Number

2 - 19355

BILL OF LADING Transport Log Sheet

Page _____

OF _____

I. LOAD INFORMATION:		Signature of Transporter Representative: <i>WJ Brown</i>	Receiving Facility/Temporary Storage Representative: <i>ESME (A) Holley</i>
Load 1:	Date of Shipment: <i>12-09-14</i>	Time of Shipment: <i>0830</i>	<input checked="" type="checkbox"/> AM <input type="checkbox"/> PM
Truck/Tractor Registration: <i>MA 9C663</i>	Trailer Registration (if any):	Date of Receipt: <i>10/11/14</i> Time of Receipt: <i>11:00</i> <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	
		Load Size (cu. yds./tons): <i>21.42</i>	
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment:	Date of Receipt:	Time of Receipt:
Truck/Tractor Registration:	Trailer Registration (if any):	<input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	
		Load Size (cu. yds./tons):	
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment:	Date of Receipt:	Time of Receipt:
Truck/Tractor Registration:	Trailer Registration (if any):	<input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	
		Load Size (cu. yds./tons):	
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment:	Date of Receipt:	Time of Receipt:
Truck/Tractor Registration:	Trailer Registration (if any):	<input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	
		Load Size (cu. yds./tons):	
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment:	Date of Receipt:	Time of Receipt:
Truck/Tractor Registration:	Trailer Registration (if any):	<input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	
		Load Size (cu. yds./tons):	
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment:	Date of Receipt:	Time of Receipt:
Truck/Tractor Registration:	Trailer Registration (if any):	<input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	
		Load Size (cu. yds./tons):	
J. LOG SHEET VOLUME INFORMATION:		Total Volume Recorded This Page (cu. yds./tons)	
		Total Carried Forward (cu. yds./tons):	
		Total Carried Forward and This Page (cu. yds./tons):	

ESMI of N.H.
67 International Drive
Loudon, NH 03307

Ticket No :299372
Date :12/9/14
Phone :(603)783-0228
Fax :(603)783-0104

Customer: GRS20 Order No : 9872 Loads : 2
GLOBAL REMEDIATION SVCS., INC. CSXT fuel oil release Miles : 0
700 Richmond Street 271 Franklin St. Tons : 37.04
East Taunton, MA 02718 Worcester MA

Truck : GLOBALR21 Global R21 Gross : 78140 lb MAN WT In 11:06 am
Location: MA MASSACHUSETTS Tare : 35300 lb Scale 1 Out 12:02 pm

Weigh Master: ANGELA Net : 42840 lb
Angela Holub 21.420 tn

Remarks: Thank You For Your Business

Material \$
Delivery \$
Misc \$
Tax \$

Total \$

Signature: *WJ Brown*

MATERIAL	QTY	UNIT-\$	DELIVERY-\$	MISC-\$	TAX-\$	TOTAL-\$
#2 FUEL OIL	21.420 tn					



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

2 - 19355

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

1. Release Name/Location Aid: CSX RAILYARD

2. Street Address: 271 FRANKLIN STREET

3. City/Town: WORCESTER 4. Zip Code:

5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category.

B. THIS FORM IS BEING USED TO: (check one: B1-B4):

1. Submit a **Bill of Lading (BOL)** to transport Remediation Waste to Temporary Storage or a Receiving Facility.

Response Actions associated with this BOL (check all that apply):

- a. Immediate Response Action (IRA)
 - b. Release Abatement Measure (RAM)
 - c. Downgradient Property Status (DPS)
 - d. Utility Release Abatement Measure (URAM)
 - e. Comprehensive Response Actions
 - f. Limited Removal Action (LRA): (must be retained pursuant to 310 CMR 40.0034(6); can't be submitted via eDEP)
 - g. Other

2. Submit an Attestation of Completion of Shipment to Temporary Storage (Sections C, F and J are not required):

3. Submit an Attestation of **Completion of Shipment to a Receiving Facility** (Sections C, F and J are not required):

4. Certify that Remediation Waste Was Not Shipped, and the Bill of Lading is Void. (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department: _____ b. eDEP Transaction ID: _____
(mm/dd/yyyy)

(All sections of this transmittal form must be filled out unless otherwise noted above)

The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

C. DESCRIPTION OF WASTE AND WASTE SOURCE:

1. Contaminated Media/Debris (check all that apply):

- a. Soil b. Groundwater c. Surface Water d. Sediment e. Vegetation or Organic Debris
 f. Demolition/Construction Waste g. Inorganic Absorbent Materials h. Other: STONE RIP RAP

2. Uncontainerized Waste (check all that apply):

- a. Inorganic Absorbent Materials b. Other:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):

3. Containerized Waste (check all that apply):

- a. Tank Bottoms/Sludges b. Containers c. Drums d. Engineered Impoundments
 e. Other: _____

4. Estimated Quantity: 10 _____ Tons Cu. Yds. Gallons

5. Contaminant Source (check one):

- a. Transportation Accident b. Underground Storage Tank c. Brownfields Redevelopment
 d. Other: LOCOMOTIVE FUEL TANK

6. Type of Contaminant (check all that apply):

- a. Gasoline b. Diesel Fuel c. #2 Fuel Oil d. #4 Fuel Oil e. #6 Fuel Oil f. Jet Fuel
 g. Waste Oil h. Kerosene i. Chlorinated Solvents j. Urban Fill k. Other: _____

7. Constituents of Concern (check all that apply):

- a. As b. Cd c. Cr d. Pb e. Hg f. EPH/TPH g. VPH
 h. PCBs i. VOCs j. SVOCs k. Other: _____

8. If applicable, check the box for the Reportable Concentration Category of the site:

- a. RCS-1 b. RCS-2 c. RCGW-1 d. RCGW-2

9. Remediation Waste Characterization Documentation (check at least one):

- a. Site History Information b. Sampling Analytical Methods and Procedures c. Laboratory Data
 d. Field Screening Data e. Characterization Documentation previously submitted to the Department

i. Date submitted: _____ ii. Type of Documentation: _____
(mm/dd/yyyy)

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

1. Transporter/Common Carrier Name: GLOBAL REMEDIATION SERVICES
2. Contact First Name: PAUL 3. Last Name: MASTRODOMENICO
4. Street: 700 RICHMOND AVENUE 5. Title: _____
6. City/Town: TAUNTON 7. State: MA 8. Zip Code: 027180000
9. Telephone: 5088281005 10. Ext: 104 11. Email: pmastro@globalremediation.com



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

1. Operator/Facility Name: ESMI OF NEW HAMPSHIRE

2. Contact First Name: MICHAEL 3. Last Name: PHELPS

4. Street: 67 INTERNATIONAL DRIVE 5. Title: _____

6. City/Town: LOUDON 7. State: NH 8. Zip Code: 033070000

9. Telephone: 6037830228 10. Ext: _____ 11. Email: mphelps@esmiofnh.com

12. Type of facility: (check one)

a. Temporary Storage i. Period of Temporary Storage _____
(mm/dd/yyyy) to _____
(mm/dd/yyyy)

ii. Reason for Temporary Storage: _____

b. Asphalt Batch/Hot Mix c. Landfill/Disposal d. Landfill/Structural Fill e. Landfill/Daily Cover

f. Asphalt Batch/Cold Mix g. Thermal Processing h. Incinerator i. Other: _____

13. Division of Hazardous Waste/Class A Permit Number: _____

14. Division of Solid Waste Permit Number: DES-SW-SP-96002

15. EPA Identification Number: NH5986435852

F. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 9605

2. First Name: SUSAN E 3. Last Name: O'BRIEN

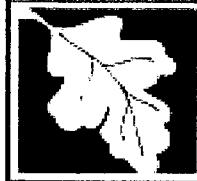
4. Telephone: 9783925361 5. Ext: _____ 6. Email: susan.obrien@amec.com

7. Signature: SUSAN E O'BRIEN

8. Date: 5/18/2015
(mm/dd/yyyy)

9. LSP Stamp:





**Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup**

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

G. PERSON SUBMITTING BILL OF LADING:

1. Check all that apply: a. change in contact name b. change of address c. change in the person undertaking response actions
2. Name of Organization: CSX TRANSPORTATION INC
3. Contact First Name: WILLIAM 4. Last Name: PARRY
5. Street: ONE BELLS CROSSING ROAD 6. Title: MANAGER ENV. REMEDIATION
7. City/Town: SELKIRK 8. State: NY 9. Zip Code: 121580000
10. Telephone: 5187676049 11. Ext: _____ 12. Email: william_parry@csx.com

H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING: Check here to change relationship

1. RP or PRP a. Owner b. Operator c. Generator d. Transporter

e. Other RP or PRP Specify: _____

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Undertaking Response Actions: Specify Relationship: _____

I. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.

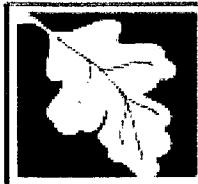
2. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@state.ma.us

3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING:

1. I, WILLIAM PARRY, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: WILLIAM PARRY 3. Title: MANAGER ENV. REMEDIATION
4. For: CSX TRANSPORTATION INC 5. Date: 5/18/2015
(Name of person or entity recorded in Section G) (mm/dd/yyyy)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

2

- 19355

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.) :

6. Check here if the address of the person providing certification is different from address recorded in Section G.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (MassDEP USE ONLY):

Received by DEP on 5/18/2015 12:31:36 PM

**Attachment to BWSC-112 Bill of Lading
Diesel Fuel Release
CSX Transportation
271 Franklin Street, Worcester, Massachusetts
Release Tracking Number 2-19355**

Question C.9

WASTE CHARACTERIZATION DOCUMENTATION

Site History Information

The 2,300 gallon diesel fuel release occurred on November 7, 2014 within an active rail yard operated by CSX Transportation, Inc. The majority of the diesel fuel migrated from the ballast to the top of a plastic membrane and into a subsurface stormwater collection conduit which discharged to an onsite unlined retention pond (referred to as Retention Pond #2) located south of the release. Most of the retention pond remediation occurred in November 2014. The final remediation was suspended due to winter conditions and was completed in May 2015.

Sampling Analytical Methods and Procedures

On November 15, 2014, Global Remediation Services, Inc. conducted waste characterization sampling in the retention pond #2 release area from the stockpiled soil. The waste characterization sample was a grab sample collected from the middle of the stockpile where the highest levels of diesel contamination were detected with a photoionization detector. The grab sample was submitted to TestAmerica Laboratories, Inc. of Savannah, Georgia for laboratory analysis of total volatile organic compounds (VOCs), total semi-volatile organic compounds (SVOCs), total RCRA 8 metals, total petroleum hydrocarbons (TPH) and total polychlorinated biphenyls (PCBs). The samples were collected and placed in laboratory supplied containers and stored on ice.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

2 - 19355

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

1. Release Name/Location Aid: CSX RAILYARD
2. Street Address: 271 FRANKLIN STREET
3. City/Town: WORCESTER 4. Zip Code: _____

5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category.
 a. Tier I b. Tier II c. Tier II

B. THIS FORM IS BEING USED TO: (check one: B1-B4):

1. Submit a Bill of Lading (BOL) to transport Remediation Waste to Temporary Storage or a Receiving Facility.

Response Actions associated with this BOL (check all that apply):

- a. Immediate Response Action (IRA) e. Comprehensive Response Actions
 b. Release Abatement Measure (RAM) f. Limited Removal Action (LRA): (must be
 c. Downgradient Property Status (DPS) retained pursuant to 310 CMR 40.0034(6); can't be
 d. Utility Release Abatement Measure (URAM) submitted via eDEP)
 g. Other _____

2. Submit an Attestation of Completion of Shipment to Temporary Storage (Sections C, F and J are not required):

3. Submit an Attestation of Completion of Shipment to a Receiving Facility (Sections C, F and J are not required):

4. Certify that Remediation Waste Was Not Shipped, and the Bill of Lading is Void. (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department: 5/18/2015 b. eDEP Transaction ID: 742621
(mm/dd/yyyy)

6. Period of Generation Associated with this Bill of Lading 5/13/2015 to 5/13/2015
(mm/dd/yyyy) (mm/dd/yyyy)

(All sections of this transmittal form must be filled out unless otherwise noted above)

The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

C. DESCRIPTION OF WASTE AND WASTE SOURCE:

1. Contaminated Media/Debris (check all that apply):

- a. Soil b. Groundwater c. Surface Water d. Sediment e. Vegetation or Organic Debris
 f. Demolition/Construction Waste g. Inorganic Absorbent Materials h. Other: _____

2. Uncontainerized Waste (check all that apply):

- a. Inorganic Absorbent Materials b. Other: _____



Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number

2

- 19355

C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):

3. Containerized Waste (check all that apply):

a. Tank Bottoms/Sludges b. Containers c. Drums d. Engineered Impoundments

e. Other: _____

4. Estimated Quantity: _____ Tons Cu. Yds. Gallons

5. Contaminant Source (check one):

a. Transportation Accident b. Underground Storage Tank c. Brownfields Redevelopment

d. Other: _____

6. Type of Contaminant (check all that apply):

a. Gasoline b. Diesel Fuel c. #2 Fuel Oil d. #4 Fuel Oil e. #6 Fuel Oil f. Jet Fuel

g. Waste Oil h. Kerosene i. Chlorinated Solvents j. Urban Fill k. Other: _____

7. Constituents of Concern (check all that apply):

a. As b. Cd c. Cr d. Pb e. Hg f. EPH/TPH g. VPH

h. PCBs i. VOCs j. SVOCs k. Other: _____

8. If applicable, check the box for the Reportable Concentration Category of the site:

a. RCS-1 b. RCS-2 c. RCGW-1 d. RCGW-2

9. Remediation Waste Characterization Documentation (check at least one):

a. Site History Information b. Sampling Analytical Methods and Procedures c. Laboratory Data

d. Field Screening Data e. Characterization Documentation previously submitted to the Department

i. Date submitted: _____ ii. Type of Documentation: _____
(mm/dd/yyyy)

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

1. Transporter/Common Carrier Name: GLOBAL REMEDIATION SERVICES
2. Contact First Name: PAUL 3. Last Name: MASTRODOMENICO
4. Street: 700 RICHMOND AVENUE 5. Title: _____
6. City/Town: TAUNTON 7. State: MA 8. Zip Code: 027180000
9. Telephone: 5088281005 10. Ext: 104 11. Email: pmastro@globalremediation.com

**Massachusetts Department of Environmental Protection***Bureau of Waste Site Cleanup***BILL OF LADING (pursuant to 310 CMR 40.0030)****BWSC 112**

Release Tracking Number

2 - 19355

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

1. Operator/Facility Name: ESMI OF NEW HAMPSHIRE

2. Contact First Name: MICHAEL 3. Last Name: PHELPS

4. Street: 67 INTERNATIONAL DRIVE 5. Title: _____

6. City/Town: LOUDON 7. State: NH 8. Zip Code: 033070000

9. Telephone: 6037830228 10. Ext: _____ 11. Email: mphelps@esmiofnh.com

12. Type of facility: (check one)

a. Temporary Storage i. Period of Temporary Storage _____
(mm/dd/yyyy) to _____
(mm/dd/yyyy)

ii. Reason for Temporary Storage: _____

b. Asphalt Batch/Hot Mix c. Landfill/Disposal d. Landfill/Structural Fill e. Landfill/Daily Cover
 f. Asphalt Batch/Cold Mix g. Thermal Processing h. Incinerator i. Other: _____

13. Division of Hazardous Waste/Class A Permit Number: _____

14. Division of Solid Waste Permit Number: DES-SW-SP-96002

15. EPA Identification Number: NH5986435852

F. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: _____

2. First Name: _____ 3. Last Name: _____

4. Telephone: _____ 5. Ext: _____ 6. Email: _____

7. Signature: _____

8. Date: _____
(mm/dd/yyyy)

9. LSP Stamp:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

G. PERSON SUBMITTING BILL OF LADING:

1. Check all that apply: a. change in contact name b. change of address c. change in the person undertaking response actions
2. Name of Organization: CSX TRANSPORTATION INC
3. Contact First Name: WILLIAM 4. Last Name: PARRY
5. Street: ONE BELLS CROSSING ROAD 6. Title: MANAGER ENV. REMEDIATION
7. City/Town: SELKIRK 8. State: NY 9. Zip Code: 121580000
10. Telephone: 5187676049 11. Ext: 12. Email: william_parry@csx.com

H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING: Check here to change relationship

1. RP or PRP a. Owner b. Operator c. Generator d. Transporter

e. Other RP or PRP Specify: _____

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Undertaking Response Actions: Specify Relationship: _____

I. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.

2. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@state.ma.us

3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING:

1. I, _____, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: _____

3. Title: MANAGER ENV. REMEDIATION

4. For: CSX TRANSPORTATION INC

(Name of person or entity recorded in Section G)

5. Date: _____

(mm/dd/yyyy)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 19355

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.):

6. Check here if the address of the person providing certification is different from address recorded in Section G.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (MassDEP USE ONLY):

Received by DEP on 6/8/2015 8:32:51 AM



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC 112A

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

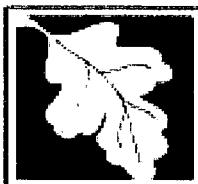
2 - 19355

SUMMARY OF SHIPMENT SHEET 1 OF 1

A. SUMMARY OF SHIPMENT (To be filled out by the receiving facility upon receipt of Remediation Waste):

1. Date of Shipment: (mm/dd/yyyy)	2. Date of Receipt: (mm/dd/yyyy)	3. Number of Loads Shipped:	4. Daily Volume Shipped: <input type="checkbox"/> yds ³ <input checked="" type="checkbox"/> tons <input type="checkbox"/> gals
5/20/2015	5/20/2015	1	5.35
5. Totals Recorded on this Summary of Shipment Sheet:		1	5.35

Check here if additional BWSC112A BOL Summary of Shipment Sheets are needed.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)
SUMMARY SHEET SIGNATURE PAGE

BWSC 112B

Release Tracking Number

2

- 19355

A. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:

1. I, STEVE BENNITT, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: STEVE BENNITT 3. Title: _____

4. For: ESMI OF NEW HAMPSHIRE 5. Date: 5/21/2015
(mm/dd/yyyy)

6. Date of Final Shipment associated with this Bill of lading: 5/20/2015
(mm/dd/yyyy)

B. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTIONS ASSOCIATED WITH THIS BILL OF LADING:

1. I, WILLIAM PARRY, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: WILLIAM PARRY 3. Title: _____

4. For: CSX TRANSPORTATION INC 5. Date: 6/8/2015
(Name of person or entity recorded in Section G) (mm/dd/yyyy)

6. Check here if the address of the person providing certification is different from address recorded in BWSC112 Section G.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

14. Check here if attaching optional supporting documentation such as copies of Load Information Summary Sheets

APPENDIX F

9080251

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MP0043004174	2. Page 1 of 3. Emergency Response Phone 800-232-0144	4. Manifest Tracking Number 012108781 JJK		
5. Generator's Name and Mailing Address CEXT 500 Water Street, J275 Jacksonville, FL 32202 904-386-4174		Generator's Site Address (if different than mailing address) 271 Franklin Street Worcester, MA 01604-4912				
Generator's Phone:						
6. Transporter 1 Company Name Global Remediation Services Inc.		U.S. EPA ID Number MAC300012903				
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address Tradebe Treatment & Recycling of Stoughton, L. 441R Canton St. Stoughton, MA 02072 USA 781-287-3530		U.S. EPA ID Number MAD002179890				
Facility's Phone:						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) 1. NATURE3, Diesel Fuel, 3, PGIII	10. Containers		11. Total Quantity X 1050	12. Unit Wt/Vol.	13. Waste Codes MA22
		No.	Type			
	001	IT				
14. Special Handling Instructions and Additional Information 1. Profile Approval# P0128150D2LH Diesel Fuel / Water (L) ERG126 Oxyd < 1000 ppm		CSX Emergency# 800-232-0144 Project No. R137323 201500498MB-ASC (MA 77062)				
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.		I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.				
Generator's/Officer's Printed/Typed Name Jeff Ragucci		Signature <i>A ME on behalf of CSXT</i>		Month	Day	Year
		<i>Jeff m.</i>		03	18	15
16. International Shipments <input checked="" type="checkbox"/> Import to U.S.		<input type="checkbox"/> Export from U.S.		Port of entry/exit: _____		
Transporter signature (for exports only):				Date leaving U.S.: _____		
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name Wm. T. Brown		Signature <i>Wm. T. Brown</i>		Month	Day	Year
				02	18	15
Transporter 2 Printed/Typed Name		Signature		Month	Day	Year
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number: _____						
18b. Alternate Facility (or Generator)		U.S. EPA ID Number				
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator)		Month Day Year				
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. HDL01		2.		3.		4.
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name Gina Aceto		Signature <i>Gina Aceto</i>		Month	Day	Year
				02	24	15

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MP9043664174	2. Page 1 of 1	3. Emergency Response Phone 800-232-0144	4. Manifest Tracking Number 012108780 JKJ				
5. Generator's Name and Mailing Address CSXT 500 Water Street, J275 Jacksonville, FL 32202 904-386-4174		Generator's Site Address (if different than mailing address) 271 Franklin Street Worcester, MA 01604-4812							
Generator's Phone:									
6. Transporter 1 Company Name Global Remediation Services Inc.		U.S. EPA ID Number MAC300012903							
7. Transporter 2 Company Name		U.S. EPA ID Number							
8. Designated Facility Name and Site Address Tradebe Treatment & Recycling of Stoughton, L. 441R Canton St. 781-297-3530 Stoughton, MA 02072 USA		U.S. EPA ID Number MAD062179890							
Facility's Phone:									
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) NA1993, Diesel Fuel, 3, PGIII	10. Containers No. 001	Type TT	11. Total Quantity 1015 X371	12. Unit Wt./Vol. G	13. Waste Codes MA98		
	2.								
	3.								
	4.								
14. Special Handling Instructions and Additional Information 1. Profile Approval# P012815002LH Diesel Fuel / Water (L) ERG128 Dexon 61000 ppm						CSX Emergency# 800-232-0144 Project No. R137323 201500499MB-ASC (ma7594)			
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						Signature A MFG on behalf of CSX	Month 02	Day 18	Year 15
Generator's/Offeror's Printed/Typed Name Jeff Ragucci		Signature J. Ragucci							
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: _____							
Transporter signature (for exports only):						Date leaving U.S.: _____			
17. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name William T. Brown		Signature W. T. Brown				Month 02	Day 18	Year 15	
Transporter 2 Printed/Typed Name		Signature							
18. Discrepancy									
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
Manifest Reference Number:									
18b. Alternate Facility (or Generator)						U.S. EPA ID Number			
Facility's Phone:									
18c. Signature of Alternate Facility (or Generator)						Month	Day	Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)									
1. Holeh		2.		3.		4.			
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a									
Printed/Typed Name Dina Gato		Signature Dina Gato				Month 02	Day 19	Year 15	

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number MV9043664174	2. Page 1 of 1	3. Emergency Response Phone (508) 872-5000	4. Manifest Tracking Number 012347612 JJK		
5. Generator's Name and Mailing Address CSX TRANSPORTATION 500 WATER STREET - J275 JACKSONVILLE, FL 32202		Generator's Site Address (if different than mailing address) 271 FRANKLIN STREET WORCESTER MA 01604				
Generator's Phone: (904) 366-4174						
6. Transporter 1 Company Name CLEAN VENTURE, INC.		U.S. EPA ID Number NJ0000027193				
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address TRADEBE TREATMENT AND RECYCLING NORTHEAST, LLC 410 SHATTUCK WAY NEWINGTON, NH 03801		U.S. EPA ID Number				
Facility's Phone: (603) 431-2420		NHD980521843				
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) STATE REGULATED OILY MATERIAL	10. Containers No. Type	11. Total Quantity	12. Unit Wt/Vol.	13. Waste Codes
	2.					
	3.					
	4.					
14. Special Handling Instructions and Additional Information IMPACTED BOOM #5498 CSX Emergency# 800-232-0144		804521/800082/73783/35680 (1)0IS-5 P120414007LHN4 FUEL OIL 201410474MB-ASC Project# R137323 <i>22/XS</i> <i>POT# 169049</i>				
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offeree's Printed/Typed Name <i>Rick Evans</i>		Signature <i>Rick Evans</i>		Month Day Year	10/15/14	
INT'L TRANSPORTER	16. International Shipments	<input type="checkbox"/> Import to U.S.	<input type="checkbox"/> Export from U.S.	Port of entry/exit:		
	Transporter signature (for exports only):		Date leaving U.S.: _____			
DESIGNATED FACILITY	17. Transporter Acknowledgment of Receipt of Materials	Transporter 1 Printed/Typed Name <i>Rick Caselle</i>		Signature <i>Rick Caselle</i>	Month Day Year	10/15/14
	Transporter 2 Printed/Typed Name			Signature	Month Day Year	
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number: _____						
18b. Alternate Facility (or Generator) U.S. EPA ID Number _____						
Facility's Phone: _____						
18c. Signature of Alternate Facility (or Generator) Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1.		2.		3.		4.
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name		Signature		Month Day Year		

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

#150004

Form Approved. OMB No. 2050-0039

GENERATOR	UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number MU9043664174	2. Page 1 of 1	3. Emergency Response Phone (308) 872-5660	4. Manifest Tracking Number 012349036 JJK
	5. Generator's Name and Mailing Address CSX TRANSPORTATION 500 WATER STREET - J225 JACKSONVILLE, FL 32202 Generator's Phone: (904) 366-4129		Generator's Site Address (if different than mailing address) 271 FRANKLIN STREET WORCESTER, MA 01609		
	6. Transporter 1 Company Name CLEAN VENTURE, INC.		U.S. EPA ID Number HJ0000027193		
	7. Transporter 2 Company Name		U.S. EPA ID Number		
	8. Designated Facility Name and Site Address TRADEBE TREATMENT AND RECYCLING NORTHEAST, LLC 410 SHATTUCK WAY NEWINGTON, NH 03801 Facility's Phone: (603) 431-2420		U.S. EPA ID Number NHDP00521843		
	9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) HAZARDOUS WASTE MATERIAL	10. Containers No. Type	11. Total Quantity	12. Unit Wt./Vol.
			XBX CF	350 P	
		2.			
		3.			
		4.			
14. Special Handling Instructions and Additional Information IMPACTED SOIL 43498 CSX Emergency# 800-232-0144 Project No. R138941 20150507SP-AFC					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator's/Officer's Printed/Typed Name Bob Evans		Signature <i>Bob Evans</i>		Month Day Year 5/29/15	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter signature (for exports only): _____					
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Kirk Gisette Signature <i>Kirk Gisette</i> Month Day Year 5/29/15 Transporter 2 Printed/Typed Name Signature Month Day Year					
18. Discrepancy					
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:					
18b. Alternate Facility (or Generator) U.S. EPA ID Number					
Facility's Phone:					
18c. Signature of Alternate Facility (or Generator)					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1. 2. 3. 4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Laurie L. Burdett Signature <i>Laurie L. Burdett</i> Month Day Year 6/1/15					

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

#150006

Form Approved. OMB No. 2050-0039

GENERATOR	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number	
	UNIFORM HAZARDOUS WASTE MANIFEST	MV9043664174	1 (508) 872-5000	014391170 JJK	
	5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)		
	CSX TRANSPORTATION 500 WATER STREET - J275 JACKSONVILLE, FL 32202		271 FRANKLIN STREET		
	Generator's Phone (904) 366-4174		WORCESTER MA 01609		
	6. Transporter 1 Company Name		U.S. EPA ID Number		
	CLEAN VENTURE, INC.		N10000027102		
	7. Transporter 2 Company Name		U.S. EPA ID Number		
	8. Designated Facility Name and Site Address TRADEBE TREATMENT AND RECYCLING NORTHEAST, LLC 410 SHATTUCK WAY NEWINGTON, NH 03801		U.S. EPA ID Number		
	Facility's Phone: (603) 431-2420		NHD980521843		
INT'L	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1 STATE REGULATED OILY MATERIAL	No.	Type		MA01
	2.				
	3.				
4.					
14. Special Handling Instructions and Additional Information 804521/800082/75532/39085 (1)OIS-5 P120414007LHN4 FUEL OIL IMPACTED BOOM #5498 3X CYB 201521495MB-ASC					
CSX Emergency# 800-232-0144 Project# R138941 P.O.# 177469					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator & Offeror's Printed/Typed Name <i>Bob Evans</i>		Signature	Month Day Year <i>11/14/15</i>		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.: Transporter signature (for exports only):					
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name <i>Rick Cosette</i> Signature Month Day Year Transporter 2 Printed/Typed Name <i>Ed Clark</i> Signature Month Day Year					
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:					
18b. Alternate Facility (or Generator) Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1 2 3 4					
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Signature Month Day Year					

APPENDIX G



January 6, 2015

Mr. Joseph Petty
Mayor
City of Worcester
2 Grove Heights Drive
Worcester, MA 01605

Subject: Public Notification Requirements
Release Notification Form
CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
November 7, 2014 Diesel Fuel Release
Release Tracking Number 2-19355

Dear Mr. Petty:

This letter is being sent to you to fulfill the public involvement provisions of the Massachusetts Contingency Plan (MCP) for the above-referenced Site. The public involvement provisions [310 CMR 40.0371(3) and 310 CMR 40.1403(3)(h)] requires that the Chief Municipal Officer and the Board of Health in the community in which a disposal site is located be notified and provided with a copy of the Massachusetts Department of Environmental Protection (MassDEP), Bureau of Waste Site Cleanup (BWSC) transmittal form BWSC-103, entitled Release Notification and Notification Retraction Form (RNF) which has been submitted to the MassDEP. A copy of the RNF is enclosed for your records. Amec Foster Wheeler would also like to make you aware of your right as a local official to request additional public involvement activities which are described in detail in the MCP under 310 CMR 40.1403(9).

If you have any questions, please do not hesitate to contact me.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.

A handwritten signature in black ink that reads "Susan O'Brien".

Susan O'Brien, LSP
Senior Project Manager

Enclosure



January 6, 2015

Michael Hirsh, MD
Acting Commissioner
Worcester Public Health Department
25 Meade Street
Worcester, MA 01610

Subject: Public Notification Requirements
Release Notification Form
CSX Intermodal Terminal
271 Franklin Street, Worcester, Massachusetts
November 7, 2014 Diesel Fuel Release
Release Tracking Number 2-19355

Dear Dr. Hirsh:

This letter is being sent to you to fulfill the public involvement provisions of the Massachusetts Contingency Plan (MCP) for the above-referenced Site. The public involvement provisions [310 CMR 40.0371(3) and 310 CMR 40.1403(3)(h)] requires that the Chief Municipal Officer and the Board of Health in the community in which a disposal site is located be notified and provided with a copy of the Massachusetts Department of Environmental Protection (MassDEP), Bureau of Waste Site Cleanup (BWSC) transmittal form BWSC-103, entitled Release Notification and Notification Retraction Form (RNF) which has been submitted to the MassDEP. A copy of the RNF is enclosed for your records. Amec Foster Wheeler would also like to make you aware of your right as a local official to request additional public involvement activities which are described in detail in the MCP under 310 CMR 40.1403(9).

If you have any questions, please do not hesitate to contact me.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.

A handwritten signature in black ink that reads "Susan O'Brien".

Susan O'Brien, LSP
Senior Project Manager

Enclosure

November 9, 2015



The Honorable Joseph Petty
Mayor
City of Worcester
2 Grove Heights Drive
Worcester, MA 01605

Subject: Public Notification Requirements
Permanent Solution Statement with Conditions
CSX Intermodal Terminal, 271 Franklin Street, Worcester
Release Tracking Number 2-19355

Dear Mayor Petty:

This letter is being sent to you to fulfill the public involvement provisions of the Massachusetts Contingency Plan (MCP) for the above-referenced Site. On November 7, 2014, approximately 2,300 gallons of diesel fuel was released from a locomotive operated by CSX. The majority of the release migrated via a recently constructed underground stormwater collection system that ultimately discharged to an onsite stormwater retention pond. Approximately 40 tons of impacted soil, peastone and rip rap were excavated from the sides of the retention pond and 2,065 gallons of a diesel fuel and water mixture were recovered from the pond shortly after the release occurred. Low concentrations of diesel-related compounds in soil remaining met the cleanup standards per the Massachusetts Contingency Plan (MCP). Therefore, the cleanup performed achieved a condition of No Significant Risk and a Permanent Solution with Conditions due to the remaining diesel fuel impacted soil remaining at the Site. As per CMR 40.1013(1)(c) of the MCP, releases that are located within a railroad right-of-way are exempt from the requirements of an Activity and Use Limitation.

The public involvement provisions [310 CMR 40.1403(3)(f)] requires that the Chief Municipal Officer and the Board of Health in the community in which a disposal site is located be notified that a Permanent Solution Statement with Conditions has been prepared for the above-named property and was submitted electronically to the Massachusetts Department of Environmental Protection (MassDEP). It is available for review using the following link: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>

If you have any questions, please do not hesitate to contact me.

Sincerely,

AMEC ENVIRONMENT & INFRASTRUCTURE, INC.

A handwritten signature in black ink that reads "Susan O'Brien".

Susan O'Brien, LSP
Senior Project Manager

November 9, 2015



Michael Hirsh, MD
Acting Commissioner
Worcester Public Health Department
25 Meade Street
Worcester, MA 01610

Subject: Public Notification Requirements
Permanent Solution Statement with Conditions
CSX Intermodal Terminal, 271 Franklin Street, Worcester
Release Tracking Number 2-19355

Dear Dr. Hirsh:

This letter is being sent to you to fulfill the public involvement provisions of the Massachusetts Contingency Plan (MCP) for the above-referenced Site. On November 7, 2014, approximately 2,300 gallons of diesel fuel was released from a locomotive operated by CSX. The majority of the release migrated via a recently constructed underground stormwater collection system that ultimately discharged to an onsite stormwater retention pond. Approximately 40 tons of impacted soil, peastone and rip rap were excavated from the sides of the retention pond and 2,065 gallons of a diesel fuel and water mixture were recovered from the pond shortly after the release occurred. Low concentrations of diesel-related compounds in soil remaining met the cleanup standards per the Massachusetts Contingency Plan (MCP). Therefore, the cleanup performed achieved a condition of No Significant Risk and a Permanent Solution with Conditions due to the remaining diesel fuel impacted soil remaining at the Site. As per CMR 40.1013(1)(c) of the MCP, releases that are located within a railroad right-of-way are exempt from the requirements of an Activity and Use Limitation.

The public involvement provisions [310 CMR 40.1403(3)(f)] requires that the Chief Municipal Officer and the Board of Health in the community in which a disposal site is located be notified that a Permanent Solution Statement with Conditions has been prepared for the above-named property and was submitted electronically to the Massachusetts Department of Environmental Protection (MassDEP). It is available for review using the following link: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>

If you have any questions, please do not hesitate to contact me.

Sincerely,

AMEC ENVIRONMENT & INFRASTRUCTURE, INC.

A handwritten signature in black ink that reads "Susan O'Brien".

Susan O'Brien, LSP
Senior Project Manager