

Release Abatement Measure Plan

Former Raytheon Facility

430 Boston Post Road

Wayland, Massachusetts

VERTEX Project No. 19163

Release Tracking Number (RTN): 3-13302

VERTEX

Prepared By:

VERTEX Environmental Services, Inc.

400 Libbey Parkway
Weymouth, MA 02189

September 15, 2011

Prepared For:

Twenty Wayland
10 Memorial Boulevard
Suite 901
Providence, RI 02903
Attention: Mr. Frank Dougherty

Submitted To:

Massachusetts Department of
Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887
Attention: Bureau of Waste Site Cleanup



Vertex Environmental Services, Inc.
Vertex Environmental Insurance Services, Inc.
Vertex Construction Services, Inc.
Vertex International Services
Vertex Air Quality Services, LLC
Vertex Ingenieros Consultores, S. de R.L. de C.V.

Corporate Headquarters
400 Libbey Parkway
Weymouth, MA 02189
www.vertexeng.com
p: 781.952.6000
f: 781.335.3543

September 15, 2011

Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

RE: Release Abatement Measure Plan
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts
VERTEX Project No. 19163
Release Tracking Number (RTN): 3-13302

Attention: Bureau of Waste Site Cleanup;

VERTEX Environmental Services, Inc. (VERTEX) is pleased to submit this Release Abatement Measure (RAM) Plan for the release listed under the above referenced RTN (the "Subject Site"). This document has been prepared for Twenty Wayland in accordance with the provisions contained in Section 40.0444 of the Massachusetts Contingency Plan (MCP).

Pursuant to 310 CMR 40.1403(3)(d)(2), public notice of the RAM Plan implementation has been provided to both the Town of Wayland Health Department and the Town Administrator's office, concurrently with this RAM Plan. The Subject Site is subject to a Public Involvement Plan (PIP) for which a PIP dated July 13, 2004 was prepared by ERM on behalf of Raytheon, the Responsible Party for the above RTN.

Please do not hesitate to contact us should you have any questions or require additional information.

Sincerely,

Vertex Environmental Services, Inc.

Arie BarJosef, PG
Sr. Project Manager

James B. O'Brien, LSP
President



Environmental



Construction



Air Quality



Energy

TABLE OF CONTENTS

1.0	SUMMARY OF THE GENERAL SITE INFORMATION.....	1
1.1	Existing Site Conditions and Limits of the RAM Area	1
1.2	Site History and Usage.....	1
1.3	Proposed Subject Site Redevelopment and RAM Objectives	2
1.4	Responsible Party Conducting the RAM.....	4
1.5	Licensed Site Professional	4
1.6	Summary of the Subject Site Regulatory Status	4
1.6.1	RTN 3-13302	4
1.6.2	RTN 3-22408 (linked to RTN 3-13302).....	6
1.6.3	Activity and Use Limitation (AUL)/ Deed Restriction	7
1.7.1	Human Receptors.....	8
1.7.2	Ecological Receptors	9
3.0	RELEASE ABATEMENT MEASURE PLAN	12
	Upon completion of the excavation, the LSP will obtain post-excavation confirmatory soil samples from the sides and bottom of the UST excavation and submit thereof to the laboratory for petroleum-related analyses, such as but not limited to EPH fractions and target PAHs.....	15
4.0	RAM WASTE MANAGEMENT	18
6.0	FOCUSED RISK CHARACTERIZATION.....	21
6.1	Hazard Identification.....	21
6.2	Identification of Contaminants of Concern (COCs) and Risk Estimation Procedures	23
6.3	Exposure Assessment.....	24
6.5	Environmental Monitoring	29
6.6	Risk of Harm to Future Site Workers, USERS and/or Occupants	29
7.0	FOCUSED FEASIBILITY EVALUATION.....	32
8.0	PUBLIC INVOLVEMENT.....	33
9.0	QUALIFICATIONS	34

TABLES

Table 1:	Summary of Soil Vapor Analytical Results
Table 2:	Summary of Soil Gas Exposure Point Concentrations
Table 2A:	Diffusion of Contaminants in Indoor Air Using Soil Gas Data
Table 3:	Summary of Soil Analyses and Risk Data
Table 4:	Summary of Groundwater Analyses
Table 5:	Summary of Contaminants of Concern and Human Health Risk Quotients

FIGURES

Figure 1:	Site Locus
Figure 2:	Site Plan
Figure 3:	Development Plan



Environmental



Construction



Air Quality



Energy

TABLE OF CONTENTS (Continued)

APPENDICES

- Appendix A: Laboratory Analytical Reports
- Appendix B: ERM Well Location Plans
- Appendix C: Method 3 Risk Characterization
- Appendix D: Statement of Sufficient Financial Resources
- Appendix E: Response to Public Comments



Environmental



Construction



Air Quality



Energy

1.0 SUMMARY OF THE GENERAL SITE INFORMATION

Details regarding the Subject Site information are contained in various phased reports that were previously submitted to the MADEP. The property that contains the Subject Site is listed by the MADEP under multiple Release Tracking Numbers (RTNs) due to releases of oil and/or hazardous materials (OHM) that occurred at different locations across the property. The portion of the property that is the subject of this RAM Plan (the Subject Site) is listed under RTN 3-13302. A summary of the Subject Site information and regulatory status is presented below.

1.1 EXISTING SITE CONDITIONS AND LIMITS OF THE RAM AREA

The MADEP database lists Subject Site address as 430 Boston Post Road in Wayland, Massachusetts. The Subject Site is bounded by Boston Post Road (Route 20) and a Massachusetts Bay Transportation Authority (MBTA) easement to the south, Old Sudbury Road (Route 27) to the east, the Sudbury River and its associated wetlands to the west, and undeveloped land and wetlands to the north. The general site location is shown on **FIGURE 1**. The Subject Site was formerly operated as a research and design facility by Raytheon Company between 1955 and 1995 for electronic testing and chemical process research. In 1995, Raytheon ceased operations as the Subject Site and decommissioned the facility. The portion of the Subject Site that is proposed for redevelopment is currently occupied by three (3) vacant one and two-story buildings that have no basements, and associated paved and landscaped areas.

The current buildings are scheduled for demolition prior to the Subject Site redevelopment. The Subject Site topography within the proposed RAM area is relatively flat, with elevations varying from approximately EL. 133 to EL. 135 as referenced to the National Geodetic Vertical Datum (NGVD) 1929. The limits of the RAM area are depicted on the enclosed **FIGURE 2**.

1.2 SITE HISTORY AND USAGE

Details regarding the Subject Site history and usage are contained in previously submitted reports. In summary, the property that contains the Subject Site was utilized for agricultural and



residential purposes until circa 1955. From 1955 to 1995, the Subject Site was occupied by a Raytheon research facility for electronic testing equipment and that included printed circuit board laboratory and operation of small-scale chemical processes. During the Subject Site operation by Raytheon, wastewaters were treated onsite and discharged to the Sudbury River under a NPDES permit. Reportedly, a leaching field was utilized for the sanitary waste prior to 1962 and industrial waste prior to 1972. Subsequently, the use of the leaching field was discontinued and the Subject Site is currently serviced by a municipal sanitary sewer and water supply and by other public utilities. In 1995, Raytheon ceased operations and decommissioned the facility. Subsequently, the buildings were utilized by Polaroid Corporation and by subsequent various other tenants until circa 2007 when the buildings were vacated and remained vacant to-date.

1.3 PROPOSED SUBJECT SITE REDEVELOPMENT AND RAM OBJECTIVES

The limits of the property addressed by this RAM Plan are shown on the enclosed **FIGURE 3** and encompass the majority of the former Raytheon property hereinafter referred to as the Subject Site. As shown in **FIGURE 3**, the Subject Site contains two (2) areas: east and west of the limits of the activity and use limitation AUL. The AUL limits presented on Figure 3 are related to a future AUL for the property, which is intended to replace the current site-wide AUL in place at the site. The purpose of the “limits of the AUL” is explained in Section 3 below. Based on available information, the proposed redevelopment of the former Raytheon property will include the following concurrent elements:

- **Commercial Area:** The portion of the Subject Site that is situated within the “limits of the AUL” and currently occupied by the vacant Raytheon facility will be redeveloped to include construction of commercial buildings including retail stores, a supermarket, offices, multi-unit residences and associated paved parking areas, roadways and new utilities and infrastructure as shown on **FIGURE 3**. The proposed residences will utilize the upper floors of some of the commercial buildings.



- **Residential Area:** The portion of the Subject Site that is situated outside the “limits of the AUL” that currently contains paved parking lots, undeveloped land and a small vacant building is scheduled for redevelopment into a multi-unit residential community and a public open space. However, it is understood that general site re-grading and preparatory work will be completed concurrent to the development of the eastern portion of the Subject Site and that the proposed residential buildings will be constructed subsequent to the completion of the construction activities at the eastern portion of the Subject Site.

Since the proposed redevelopment of the former Raytheon property will occur in phases, this RAM Plan is focused on addressing MCP response actions associated with the implementation of the first phase of development at the eastern portion of the Subject Site and the preparatory work at the western portion of the Subject Site. A subsequent RAM Plan Modification will be submitted to the MADEP prior to the commencement of MCP response actions during future development at the western portion of the Subject Site.

The Town of Wayland will be constructing a wastewater treatment plant (WWTP) on the northeastern portion of the site. As shown on **FIGURES 2 and 3**, the location of the proposed WWTP is not included in the area subject to the proposed RAM.

None of the proposed buildings will have basements and below-grade structures will be limited to subsurface utilities, foundations and other infrastructure elements. Excavations during construction are anticipated to be relatively limited as incidental to the proposed development. A sanitary sewer pump station will be constructed as part of the proposed redevelopment. The site preparation work will likely include removal of existing asphalt pavement, existing building foundations and abandoned utilities and will involve localized excavation of potential fill or natural soil. Localized dewatering is likely to be required. It is anticipated that the construction dewatering effluent will be recharged onsite subsequent to appropriate characterization and in accordance with applicable regulatory requirements. Details regarding the proposed on-site recharge are presented below.



The objectives of the proposed RAM are to achieve a condition of No Significant Risk of harm to human health, public safety and welfare, and the environment predicated upon a Permanent Solution as defined in the MCP.

1.4 RESPONSIBLE PARTY CONDUCTING THE RAM

Twenty Wayland, LLC
c/o KGI Properties
10 Memorial Boulevard, Suite 901
Providence, Rhode Island 02903
Contact: Mr. Frank Dougherty
Tel: 401-273-8600

1.5 LICENSED SITE PROFESSIONAL

James B. O'Brien, LSP #9092
Vertex Environmental Services, Inc.
400 Libbey Parkway
Weymouth, Massachusetts 02189
Tel: 781-952-6000

1.6 SUMMARY OF THE SUBJECT SITE REGULATORY STATUS

Presently, there is one (1) parent RTN listed for the Subject Site: RTN 3-13302. Several other RTNs are linked to RTN 3-13302, as described below.

1.6.1 RTN 3-13302

RTN 3-13302 was issued on January 2, 1996 in response to the discovery of petroleum contamination in a groundwater monitoring well that is located adjacent to a former 20,000-gallon No. 6 fuel oil underground storage tank (UST). This RTN is currently utilized as the primary RTN for MCP response actions related to Tier IB Permit No. 133939.

The following RTNs were assigned to separate releases, but have been closed by linking to the primary RTN 3-13302 or by filing a Response Action Outcome (RAO) Statement. A portion of



the Disposal Site listed under RTN 3-13302 is located within the limits of the proposed RAM (refer to **FIGURE 2**).

- **RTN 3-1783** was issued on January 15, 1987 in response to an EPA listing due to a “waste storage impoundment” identified in aerial photographs which were reported as correlated with wastewater treatment impoundments associated with the former Raytheon facility Sanitary Treatment Plant. This RTN was closed following the submission of a Class B-1 RAO to the MADEP on July 31, 1995.
- **RTN 3-13574** was issued March 28, 1996 as a result of the discovery of volatile organics (VOCs) contamination in tested groundwater samples at concentrations in excess of the MCP Reportable Concentrations (RC) for groundwater category RCGW-1. This RTN was closed by the MADEP on November 28, 2000.
- **RTN 3-14042** was issued July 25, 1996 as a result of the discovery of polychlorinated biphenyls (PCBs) contamination in tested soil samples at levels in excess of the applicable RC. This RTN was closed by the MADEP on November 28, 2000.
- **RTN 3-19482** was issued May 9, 2000 in response to the discovery of PCBs and metals impacts to wetland. This RTN was closed by the MADEP on November 28, 2000.
- **RTN 3-22665** was issued March 12, 2003 in response to the discovery of chromium in groundwater at concentrations above the applicable RC. Subsequent investigation by others concluded that the chromium in groundwater was attributed to a naturally-occurring chemical oxidation due to in-situ remediation activities. This RTN was closed by the MADEP on December 10, 2003.

In 2002, Environmental Resource Management (ERM) submitted to MADEP a Phase IV Remedy Implementation Plan (RIP) for two distinct remedial actions at the Subject Site under RTN 3-13302. ERM proposed wetland remediation on the western portion of the property which



is outside of the proposed RAM limits and in-situ groundwater remediation on the southern and eastern portions of the Subject Site, which are partially contained within the proposed RAM limits. In situ chemical oxidation of the groundwater was conducted by ERM during May through July 2004. The Disposal Site listed under RTN 3-13302 is currently in Phase V - Remedy Operation Status, and ERM continues to perform semi-annual groundwater quality monitoring.

1.6.2 RTN 3-22408 (linked to RTN 3-13302)

The Disposal Site listed under RTN 3-22408 consists of three (3) distinct and separate affected areas for which MCP response actions are conducted under a Tier 1B permit No. W045278. The three distinct and separate areas are located outside the proposed RAM limits for RTN 3-13302. The Contaminants of Concern (COCs) listed under RTN 3-13302 include chlorinated VOCs, arsenic and methyl-tertiary-butyl-ether (MTBE). In 2007, ERM submitted a Partial Class B-1 RAO for the arsenic release in the western portion of the property which is located outside of proposed RAM limits. ERM attributed the detected levels of arsenic in groundwater to naturally-occurring arsenic in soil that was mobilized as a result of natural reducing conditions in the wetlands associated with the Sudbury River.

Subsequently, ERM submitted a Phase IV - Remedy Implementation Plan (RIP) for the remaining portions of RTN 3-22408. ERM proposed excavation and removal of soil impacted by CVOCs from the northern portion of the property, outside the limits of the RAM proposed herein. ERM also proposed the implementation of in-situ bioremediation of the groundwater within the area impacted chlorinated VOCs, which is also outside the limits of the proposed RAM. In July 2008, ERM submitted a Modified Phase IV RIP. On November 26, 2007 a partial RAO for the arsenic release, and a Downgradient Property Status Opinion for the methyl-tertiary-butyl-ether (MTBE) release were submitted to the MADEP. On June 9, 2009, RTN 3-22408 was linked to the parent RTN 3-13302 and MCP response actions are on-going under RTN 3-13302.



1.6.3 Activity and Use Limitation (AUL)/ Deed Restriction

Three (3) Notices of AUL and/or Deed Restrictions have been recorded for the Subject Site. A summary of the Notices of AUL/Deed Restrictions are presented below.

- Site-Wide AUL (Deed Restriction): On October 21, 1997, a Deed Restriction titled “form 1075 Notice of Activity and Use Limitation herein referred to as the “site-wide” AUL was recorded to restrict certain activities and uses at the Subject Site to mitigate potential human exposure and maintain the condition of No Significant Risk of harm to human health upon which the AUL is based. This “site-wide” AUL applies the entire property, including the area subject to this RAM Plan (the Subject Site). Activities and uses that are considered in the site wide AUL as consistent with a condition of No Significant Risk of harm to human health include any commercial and/or industrial uses including such uses as offices, retail, wholesale, storage and warehouses or manufacturing.

In summary, the site-wide AUL restricts residential or other uses where children would be present at high frequency and potentially exposed at high intensity. Other restricted activities include the growing of fruit or vegetables for human consumption, excavation, below-grade construction, and below-grade utility maintenance unless determined by an LSP that such activities would not pose a substantial hazard or significant risk to human health, public safety, welfare, or the environment. The existing site-wide AUL will be revised to allow residential usage of the Subject Site.

The site-wide AUL contains provisions for the management of contaminated soil or groundwater during construction, if encountered. This RAM Plan contains provisions for the management of impacted soil and/or groundwater during the redevelopment of the Subject Site consistent with the requirements of the site-wide AUL.

UST Area AUL: A Notice of AUL was recorded on April 13, 1999 for approximately 0.8-acre portion of the Subject Site (refer to **FIGURE 2**). This Notice of AUL was recorded as part of a Class A-3 Response Action Outcome (RAO) Statement for the



release of petroleum hydrocarbons associated with a former fuel oil UST and listed under RTN 3-13302. This Notice of AUL is generally consistent with the provisions contained in the Site-Wide Notice of AUL. This RAM Plan contains provisions for the management of impacted soil and/or groundwater, if encountered, during the redevelopment of the Subject Site consistent with the requirements of the Notice of AUL.

- Hamlen Property AUL: A Notice of AUL was filed on January 9, 2006 for an approximately 5.5-acre portion of the former Hamlen property to address a release of PCBs. Based on information regarding the proposed Subject Site redevelopment, this Notice of AUL pertains to a release which occurred on a portion of the property that is located outside of proposed RAM limits to the west. Thus, this Notice of AUL is not considered relevant to the proposed RAM.

1.7 Receptors Information

1.7.1 Human Receptors

The Subject Site is located adjacent to commercial and residential properties and a protected open space. Identified potential human receptors who may be exposed through direct contact or incidental ingestion of impacted soil during construction at the Subject Site include construction and/or utility workers, adult visitors, occasional trespassers (including children), residents at near-by residences and the general public as passers-by. In accordance with the requirements of the Notice of AUL, a Health and Safety Plan will be prepared for and implemented at the Subject Site during construction activities. Thus potential exposure by the on-site construction and/or utility workers, and visitors will be managed through the use of appropriate personal protective equipment (PPE) and implementation of risk-mitigating measures. The criteria regarding usage of PPE and implementation of risk reduction measures are addressed in Section 6.5 below.

In addition, the Subject Site is located within a Zone II Wellhead Protection Area for the Baldwin Pond Wellfield, which according to ERM's 1996 Phase I Report for RTN 3-13302 is located cross-gradient to the Subject Site, approximately 0.5 miles to the north. Based on information contained in the ERM reports there is no evidence suggesting adverse impacts at the



Baldwin Pond Wellfield due to the known groundwater conditions listed under RTN 3-13302. As noted above, groundwater remediation/monitoring at RTN 3-13302 is on-going by ERM on behalf of Raytheon. The potential for human exposure due to ingestion of potable water that originates from the Baldwin Pond Wellfield will not change as a result of the implementation of this RAM plan.

1.7.2 Ecological Receptors

As noted above and as shown in **FIGURE 2**, this RAM Plan pertains to most of the former Raytheon property which includes the western portion of the property that contains wetlands or other undeveloped areas. However, current site development plans indicate that construction activities within the western portion of the former Raytheon property would be limited at this time to general regrading or resurfacing in preparation to potential future development. As noted on **FIGURE 2**, there are no identified ecological receptors such as wetlands, surface water bodies or terrestrial habitats located within the eastern portion of the Subject Site.

The Great Meadows National Wildlife Refuge (GMNWR), which includes the Sudbury River (a Class B Surface Water) and adjacent wetlands, abuts the Subject Site to the north and west and is managed by the U.S. Fish and Wildlife Service for protection of fresh-water wetlands and other terrestrial habitats. Open space maintained by the Wayland Conservation Commission is located to the north and northwest of the Subject Site.



2.0 SITE SUBSURFACE CONDITIONS

The Subject Site subsurface conditions had been assessed during the various phases of investigation, the results of which are contained in reports that were previously submitted to the MADEP for the above referenced RTNs. The following is a summary of the Subject Site subsurface conditions.

The geologic units present at the site are listed in order of occurrence from ground surface downward:

Lacustrine Sequence

Fluvial Deposits

Glacial Till

Bedrock

A description of each geologic unit follows:

- Lacustrine Sequence - In general, naturally-deposited or disturbed lacustrine sand and silt deposits are present below topsoil in landscaped areas or below minor fill material and beneath existing pavement or building footprint. The lacustrine sequence consists of brown coarse to medium sand which varies in thickness from 30 to 50 feet, underlain by gray silt which is generally 5 to 20 feet thick. The silt deposit is underlain by gray-brown fine to medium sand which is generally 5 to 10 feet thick.
- Fluvial Deposits- A discontinuous deposit of sand and gravel was identified by ERM below the glaciolacustrine deposits at some locations. The fluvial deposits are typically described as brown fine to coarse sand and gravel with a thickness ranging up to 5 feet.
- Glacial Till Deposit- A discontinuous deposit of glacial till, generally less than 5 feet in thickness, was identified at some locations by ERM. The glacial till deposits are



described as very dense coarse to fine sand and gravel with varying amounts of silt, occasional cobbles and boulders.

- Bedrock- Bedrock was encountered in borings across the property at a depth ranging from 60 to 80 feet below grade. The bedrock consists of a hard, generally sound igneous and metamorphic sequence of the Claypit Hill formation.

ERM has previously identified groundwater below the eastern portion of the property at about El. 113 to El. 130 which corresponds to a depth ranging from approximately six (6) to nineteen (19) feet bgs. Local groundwater levels are likely also affected by factors such as existing subsurface structures, precipitation, surface runoff, underground utilities, and seasonal fluctuations.



3.0 RELEASE ABATEMENT MEASURE PLAN

The objective of this RAM Plan is to provide procedures for management of contaminated soil and/or groundwater if encountered consistent with the requirements of the existing Site-Wide Notice of AUL, as they pertain to the RAM area.

In summary, the existing Site-Wide Notice of AUL requires that activities involving excavation, disturbance or otherwise potential exposure to subsurface contaminated media be performed in accordance with a contingency plan that will include the following elements:

- Implementation of a program of environmental monitoring;
- Notification procedures to be implemented upon discovery of conditions or contamination that require such notification;
- Conduct of all MCP response actions under a supervision of an LSP;
- Implementation of a Soil Management Plan (SMP) including procedures for handling, storage, transportation and off-site disposal of impacted soil and/or groundwater, if encountered, and;
- Implementation of a Health and safety Plan (HASP) in accordance with applicable state and federal regulations.

As noted in **TABLE 3**, none of the tested soil samples exhibited concentrations of any of the analytes tested for in excess of the MCP Method 1 S-1/GW-1 standards, thus suggesting that soil situated within the RAM area would not require the implementation of special risk mitigating measures and would not be considered remediation waste. However, this RAM plan contains provisions for the management of impacted soil if such soil is encountered during the proposed construction activities. In addition, in accordance with the existing Site-Wide Notice of AUL, temporary construction dewatering requirements are addressed in this RAM Plan.

No federal permits are expected to be required for the RAM activities. The RAM activities will be performed in coordination with Raytheon and their environmental consultant ERM under the



two existing Tier IB permits for the site (No. 133939 and No. W045278). As Raytheon, through its LSP, will continue and maintain the overall applicability of the RAM Plan to the existing Tier IB Permit, Twenty Wayland LLC will not need to be named on the Tier IB permit to implement the RAM Activities.

The proposed RAM Activities are as follows:

- Excavated soil will be observed for visual and olfactory evidence of contamination. Representative soil samples will be collected during the excavation and screened for the presence of total volatile organics (TVOC). Soils that exhibit TVOC readings in excess of 10 parts per million (ppm) or exhibit visual or olfactory evidence of contamination will be either assessed in place or relocated to temporary stockpiles on-site and characterized to determine their suitability for on-site reuse or off-site disposal. Based on their evaluation of historic site operations, Raytheon has conservatively created a limit of the AUL as depicted on **FIGURE 3**, which separates the portion of the site to be developed with mixed use commercial and residential (residences at upper floors of commercial buildings) within the limits of the AUL (“Commercial Area”), and the portion of the site to be developed for residential usage outside the limits of the AUL – “Residential Area”). However, as noted above, current development plans for the Residential Area are limited to general site grading or preparatory utility work and the construction of future residential buildings will be conducted in accordance with a Modified RAM Plan that will be prepared and submitted to the MADEP prior to the commencement of construction activities at the Residential Area. Per Raytheon requirements, soil originating from the Commercial Area of the Subject Site will not be reused on areas outside the Commercial Area. However, soil from outside the Commercial Area may be reused within the Commercial Area..

Based on the results of the characterization, excavated soils may require off-site disposal. Any off-site disposal will be managed in accordance with applicable MADEP policies and regulations. Specifically, if the results of the characterization indicate that the soil requires off-site disposal, such soil will be disposed off-site in accordance with relevant



regulations. Based on the results of the soil samples analyses (**TABLE 3**) it is anticipated that off-site disposal would not be required during most of the RAM Activities.

- There are three closed-in-place underground storage tanks (USTs) located within the limits of the RAM Area (the Subject Site). If a closed-in-place UST is encountered during RAM activities, it will be managed appropriately in accordance with all applicable laws, regulations and policies.
- One of the closed-in-place includes a 20,000-gallon No.6 fuel oil UST. As noted above, the location of this UST is subject to a Notice of AUL that requires implementation of soil management provisions due to the presence of impacted soil that was left in place following past remediation activities.

Removal of the UST will be conducted under the oversight of the LSP and in accordance with all applicable MADEP and other Massachusetts regulations contained in 527 CMR 9.00 (Tanks and Containers). The contractor will obtain all necessary permits and notify the relevant authorities who has jurisdiction over the work prior to the commencement of the UST removal activities.

The material that is contained within the decommissioned UST is considered Containerized Waste and will require off-site disposal subsequent to appropriate characterization. As such, the off-site transportation of the containerized waste will be accompanied by a Hazardous Waste Manifest.

Upon removal of the UST, the soil surrounding the UST will be sampled by the LSP and screened for the presence of total volatile organics (TVOC) utilizing a photoionization detector (PID) in accordance with applicable MADEP protocol. The results of the field screening will be used to determine the applicability of implementation of an Immediate Response Action (IRA), as defined in the MCP. Should a condition requiring the implementation of an IRA be disclosed, the LSP will provide relevant MCP information



and advise the owner regarding notification requirements as well as subsequent MCP response actions.

Based on the LSP's observations, soil removed from the UST excavation exhibiting evidence of petroleum-related contamination will be segregated into a temporary stockpile, samples will be obtained and submitted to the laboratory for analyses in accordance with the provisions contained in the MADEP policy COMM-97-001. The results of the analyses will be utilized to identify the appropriate off-site disposal alternatives and facilities. It is anticipated that up to 8,000 cubic yards of soil may require off-site disposal or recycling into asphalt. Accordingly, enclosed with this RAM Plan is a statement of sufficient financial resources pursuant to 310 CMR 40.0442(5).

Upon completion of the excavation, the LSP will obtain post-excavation confirmatory soil samples from the sides and bottom of the UST excavation and submit thereof to the laboratory for petroleum-related analyses, such as but not limited to EPH fractions and target PAHs.

The LSP will perform observation of the groundwater that may accumulate in the UST excavation for the presence of visual or olfactory evidence of petroleum-related contamination. Groundwater that may accumulate in the UST excavation will be evacuated utilizing a vacuum truck for off-site disposal or alternatively be pump into a temporary (frac) storage tank. The LSP will obtain samples of the water for characterization. Based on the results of the characterization, the LSP will determine the suitability of the stored groundwater for on-site recharge or off-site disposal.

Finally, the UST excavation will be backfilled with fill material brought to the Subject Site from an off-site source or using suitable on-site material. The LSP will make observations of the fill material and perform field screening to verify the absence of TVOC. Backfilling of the UST excavation will be conducted subsequent to a determination by the LSP that no additional soil removal is necessary.

- Temporary stockpiles will be managed as described below.



- Existing chemical test data indicates that none of the tested samples exhibited the presence leachable metals (TCLP) in excess of the RCRA lower hazardous waste limits. However, should the results of the stockpiles characterization indicate TCLP exceedences, an on-site TCLP treatment of up to 500 CY is included as a contingent RAM activity. The TCLP treatment will result in a reduction the leachable metals to levels below the RCRA lower hazardous waste limits. Upon completion, the TCLP treated soil will be disposed off-site in a manner consistent with applicable MADEP policies and regulations based on the results of the characterization.
- The proposed construction excavations, including for the sewer pump station that extends to about Elevation 111.5 which is approximately 21 feet below grade and for utility trenches beneath the proposed supermarket building that extend to about Elevation 124.5 which is approximately 8 feet below grade, are not anticipated to encounter impacted groundwater. Available groundwater quality data indicates that groundwater situated at a shallow depth, generally less than 25 feet below grade, is not affected by the COCs at concentrations that require the implementation of response actions under the MCP. It is anticipated that the limited quantities of groundwater that may accumulate in the localized excavations (foundations, utilities or other infrastructure) will be re-charged on-site in accordance with applicable MADEP policies and regulations. However, should impacted groundwater be encountered, the management of such groundwater will be coordinated with Raytheon and ERM in conjunction with the on-going groundwater remediation. Construction dewatering is described further in Section 5.0.
- As part of the proposed RAM activities, and in accordance with the requirements presented by Raytheon, the infrastructure for a future venting system including crushed stone and slotted PVC pipe will be installed within the soil vadose zone beneath the concrete slabs of the proposed residential and possibly commercial buildings. As noted by the results of the soil gas analyses and by the results of the groundwater samples chemical tests, mitigation of potential vapor intrusion is not required however the infrastructure will be installed as an added conservative risk reduction measure. The



specific design of the venting systems will be prepared upon completion of the proposed building designs.

- As an additional risk-mitigating measure and in accordance with the requirements by Raytheon, a vapor barrier will be installed across the entire foot print of each residential and possibly commercial building that will be constructed at the Subject Site. The vapor barrier will consist of material of sufficiently low permeance to mitigate potential migration of VOC vapors. The vapor barrier material will be selected and the barrier designed upon completion of the buildings foundation design. The vapor barrier will be installed below the concrete slab of the buildings and over the crushed stone and slotted PVC pipe infrastructure.
- As noted in the Focused Risk Characterization (FRC) below none of the soil samples exhibited the presence of the COCs at concentrations in excess of the MCP Method 1 S-1/GW-1, 2 and 3 thus are considered to pose No Significant Risk (NSR) of harm to human health. Additionally, the results of the FRC indicate that a condition of NSR exists for construction workers and other identified human receptors. However, as a conservative measure, VERTEX will perform dust monitoring utilizing Dust Trak dust monitors at up-wind, down-wind and perimeter locations. Details regarding the proposed dust action level are presented in Section 6.5 below.



4.0 RAM WASTE MANAGEMENT

The objective of this RAM Plan is to minimize the generation of remediation waste. The proposed construction is not anticipated to require off-site disposal of excavated soil or off-site discharge of dewatering effluent. Most of the excavated soil is likely to be reused on-site for foundation, infrastructure and utility backfill. On-site reuse will be conducted in accordance with applicable MADEP policies and regulations. As noted below, dewatering effluent will be recharged on-site.

However, in the event excess soil will require off-site disposal, such soil will be appropriately characterized and disposed off-site in a manner consistent with applicable MADEP policies and regulations. Records of such characterization and off-site disposal will be submitted to the MADEP as required.

- **Soil stockpiles management.** Temporary stockpiles will be placed on polyethylene substrate and covered with polyethylene until it is determined that the soil either can be reused on-site or disposed off-site. In addition, such stockpiles will be surrounded with silt fences or booms in order to mitigate potential migration during precipitation events.
- **Off-site reuse, recycling or disposal.** Soil destined for off-site reuse or disposal will be characterized in accordance with MADEP Policy COMM-97-001. Based on the results of the soil characterization, the soil will be reused, disposed or recycled off-site. Additional characterization, beyond the requirements contained in Policy COMM-97-001 will be performed depending on specific facility requirements. As noted above, soil exhibiting leachable metals in excess of the RCRA lower hazardous waste limit (TCLP) will be treated on-site to reduce the levels of TCLP below the hazardous waste limits. Any off-site transportation of RAM waste will be accompanied by appropriate Bills of Lading as required.

A statement of sufficient financial resources is included in Appendix D.



5.0 CONSTRUCTION DEWATERING

Based on information regarding the proposed redevelopment of the Subject Site, localized construction dewatering is likely to be required in order to manage groundwater that may accumulate at excavations for foundations, utilities or other infrastructure. It is anticipated that relatively limited amounts of water will be handled under the construction dewatering, including the excavation for the proposed sewer pump station.

The dewatering activities will be performed in accordance with MADEP Policy WSC-00-425 and pursuant to the provisions contained in Section 40-0045 of the MCP. The results of the groundwater sampling and testing (**TABLE 4**) indicate that except for VOCs none of the analytes tested for (SVOCs, PCBs, pesticides and dissolved metals) were detected in any of the samples obtained from the area subject to the RAM at levels in excess of the RDLs. The 2010 and 2011 ERM groundwater quality data that is included in phased reports that were previously submitted to the MADEP and are made a part of this RAM Plan by reference (refer to **APPENDIX B** for the ERM well locations), indicates that samples obtained from some of the monitoring wells that are situated within the Subject Site exhibited detectable concentrations of chloroform, tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethene (1,1-DCE), vinyl chloride (VC) and 1,1-dichloroethane (1,1-DCA) collectively referred to as chlorinated VOCs (CVOCs). As shown in **TABLE 4**, the detected levels of PCE, TCE, cis-1,2-DCE and VC exceed the Method 1 GW-1 or GW-2 standard, but are below the Method 1 GW-3 standards. However, based on available groundwater data contained in various ERM reports that were previously submitted to the MADEP indicates that groundwater that is situated at a depth shallower than 25 feet below grade generally did not exhibit levels of CVOCs in excess of the MCP Method 1 standards, thus are considered reflective of the groundwater conditions that are anticipated to be encountered within the proposed construction excavations.

Therefore, it is concluded that groundwater that may accumulate in localized excavations may be pumped into a proximate recharge trench or well that will be constructed for this purpose within the limits of the RAM area without causing degradation at the location of discharge, in



accordance with the “non-degradation” provisions of the MCP. Although not required by state or federal regulations, at the request of Raytheon VERTEX will collect one grab sample of groundwater from an excavation to be dewatered and submit the sample to the laboratory for analysis by VOCs via EPA Method 8260 prior to dewatering and discharge.

Since the on-site recharge of the dewatering effluent is considered an MCP remedial action that is conducted under MGL Ch. 21E, the proposed dewatering does not require a permit as defined in 310 CMR 5.05(16). However, if on-site recharge of the dewatered effluent is considered not possible, VERTEX will coordinate the off-site discharge thereof with ERM through a National Pollution Discharge and Elimination System (NPDES) Remediation General Permit (RGP) subsequent to appropriate characterization.



6.0 FOCUSED RISK CHARACTERIZATION

A Focused Risk Characterization (FRC) was performed for the Subject Site in support of the RAM Plan. The FRC was performed in accordance with the provisions contained in Section 40.0442(3) of the MCP and the MADEP Policy WSC-00-425.

A Method 3 Risk Characterization, as described in Section 40.0995 of the MCP was utilized in this FRC to characterize the potential risk of harm to human health during construction activities at the Subject Site. In addition, potential exposure and risk of harm to future Subject Site workers, buildings occupants and potential residents of the upper floors of the proposed commercial buildings are addressed.

6.1 HAZARD IDENTIFICATION

Hazard identification involves the assessment of the human health effects associated with potential exposures to the identified COCs in each environmental medium.

- **Soil.** The soil data selected for use in the FRC consist of data from sampling locations within the Subject Site (RAM Area) that are considered representative of soil to which identified human receptors could be exposed during the conduct of the RAM and construction activities. The soil data include samples collected by Haley & Aldrich, Inc. and by ERM across the Subject Site during their investigations. Results of the sampling performed by Haley & Aldrich are contained in **APPENDIX A** and summarized in **TABLE 3**. Results of the ERM soil sampling and testing are contained in reports that were previously submitted to the MADEP.

The COCs are identified as those compounds that were detected at concentrations in excess of the laboratory reported detection limits (RDLs) and include VOCs, extractable petroleum hydrocarbons (EPH) fractions C9-C18 aliphatics, C19-C36 aliphatics and C11-C22 aromatics, and RCRA metals (arsenic, barium, chromium, and lead).



- Groundwater.** The groundwater data selected for use in the FRC consist of test results from wells located within or most proximate to the area subject to this RAM Plan. Refer to **FIGURE 2** for the monitoring well locations at the eastern portion of the Subject Site. Monitoring wells located at the western portion of the Subject Site are shown on figures contained in previously submitted reports prepared by ERM and made a part of this RAM Plan by reference (refer to **APPENDIX B** for the ERM well locations). The groundwater data included three (3) samples collected by ERM in 1995, 1998, and 2002 and samples collected by ERM in 2010 and in 2011 the results of which are contained in a Remedy Operation Status (ROS) Report prepared by ERM, dated May 2011 and previously submitted to the MADEP. Refer to **TABLE 4** for the analyses results. Analytical results for the three (3) samples obtained in 1995, 1998 and 2002, indicate that none of the tested samples exhibited concentrations of the COCs in excess of the RDLs which are below the applicable MCP Method 1 risk-based groundwater standards. As noted above, the results of the 2010 and 2011 analyses indicated that samples obtained from some of the monitoring wells that are situated generally within the western portion of the Subject Site exhibited concentrations of chlorinated volatile organics (CVOCs) at levels in excess of the MCP Method 1 GW-1 or GW-2 standards, but below the MCP Method 1 GW-3 standards. The detected concentrations of CVOCs in the tested groundwater samples were identified as a potential source of indoor air impacts. The potential indoor air impacts are evaluated below.
- Soil gas.** The soil gas data used in the FRC consists of results from sampling locations within the eastern portion of the Subject Site (RAM area) that are considered representative of conditions which identified receptors could be exposed to during construction and during post-RAM commercial and possibly residential usage, as described above. Refer to **FIGURE 2** for the soil gas sampling locations. The soil gas data consists of samples collected by Haley & Aldrich, Inc. across the Subject Site in 2008. The soil gas samples were analyzed for VOCs via Method TO-15, the results of which are summarized in **TABLE 1**. The soil gas analytical results (refer to **APPENDIX A**) were used to estimate ambient and indoor air concentrations as a result of diffusion from the vadose zone.



6.2 IDENTIFICATION OF CONTAMINANTS OF CONCERN (COCs) AND RISK ESTIMATION PROCEDURES

Of the analytes tested for, CVOCs were detected in groundwater samples at concentrations in excess of the RDLs or the applicable MCP risk-based standards, thus are identified as COCs for the Subject Site groundwater. With respect to metals detected in the tested soil samples, the maximum detected levels were compared to background concentrations for natural soil published by the MADEP (Technical Update 2002). In general, COCs for which the maximum detected concentrations do not exceed the published MADEP background concentrations need not be included in the FRC because they are considered to meet the background definition contained in the MCP and thus, by definition, pose No Significant Risk. However, conservatively, these COCs were included in the estimation of the cumulative risk of harm posed to construction and/or utility workers, site visitors, occasional trespassers and/or passers-by.

Metals were detected in the tested soil samples at levels generally below the MADEP applicable background concentrations for natural soil, thus by definition are considered to pose No Significant Risk. In addition, as shown in **TABLE 3**, none of the EPCs that were identified for the detected metals are in excess of the MCP Method 1 S-1/GW-1 standards thus are considered to pose No Significant Risk of harm to human health under unrestricted exposure scenarios. However, as noted above, in order to address the potential cumulative health effects to the identified human receptors, the detected levels of metals were included in this FRC.

With respect to the EPH fractions and VOCs detected in the tested soil samples, the EPCs are well below the MCP Method 1 S-1/GW-1 Standards which are considered by the MADEP protective of human health under any unrestricted usage and/or exposure. However, as noted above, in order to address the potential cumulative health effects to the identified human receptors, the detected levels of EPH fractions were included in this FRC.

Detected concentrations of VOCs (including CVOCs) in samples of the soil gas are quantitatively addressed in this FRC in order to evaluate the potential inhalation exposure through a diffusion model that estimates the concentrations of the detected VOCs in air and



compares the estimated concentrations in air to the RDLs. In addition, the estimated indoor air concentrations were assessed with respect to potential human health risk factors that include Excess Lifetime Cancer Risk (ELCR) for the VOCs that are considered carcinogens and Hazard Index (HI) for those compounds that are identified by the MADEP as non-carcinogens. Finally, the detected levels of VOCs in the tested soil gas samples were evaluated for a potential residential usage of the upper floors of the proposed commercial buildings.

6.3 EXPOSURE ASSESSMENT

This FRC is focused mainly on the evaluation of the risk of harm during the implementation of the proposed RAM activities at the eastern portion of the Subject Site because most of the excavation will occur as incidental to the construction of the proposed buildings and other site development elements. Excavation activities across the western portion of the Subject Site will mostly be limited to surficial grading and other preparatory work. Finally, the potential risk of harm to human health has also been evaluated for anticipated post-remediation Subject Site uses and activities.

- **Exposure During RAM Activities.** During implementation of the RAM in conjunction with the proposed construction potential human receptors which may be present include: construction and/or utility workers, adult visitors, adult and children trespassers and the general public as passers-by or occupants of near-by residences. During the conduct of the RAM and during construction excavation, exposure to the COCs may occur in the ambient air via inhalation of the COCs detected in the tested samples of soil gas or by inhalation of the COCs entrained in dust particles. Additional human exposure routes that are considered relevant to this FRC are direct contact and incidental ingestion.

It should be noted that in order to manage the potential risk that may be associated with the above exposures, a Site-Specific Health and Safety Plan that will be prepared for the conduct of construction activities will contain provisions for usage of appropriate personal protective equipment (PPE) and for implementation of risk-mitigating measures, if required.



The identified human receptors that are not construction-related but may be present in the vicinity of the Subject Site during the RAM activities such as occasional trespassers (including children), visitors and passers-by, would likely be exposed at significantly lower frequencies and potential intensities. Potential exposures to vapors of the COCs in ambient air were evaluated by comparison of the estimated concentrations in air to the laboratory reported detection limits (RDLs). The use of the RDLs as the risk estimation is considered appropriate because all of the RDLs are well below applicable inhalation risk factors. Given the relatively low levels of the COCs detected in the tested soil gas samples which result in yet lower levels in the ambient air due to dispersion and dilution, and the distance between the Subject Site and nearby residences, quantitative evaluation of the potential exposure by residents in nearby residences to the VOCs in air is considered not necessary. The already low estimated levels of VOCs in air are expected to be significantly reduced as a result of dispersion thus rendering this exposure pathway incomplete or insignificant. However, the potential for direct contact or incidental ingestion by visitors, trespassers or by passers-by are addressed in this FRC separately.

- **Exposure by Future Site Workers or Occupants.** This exposure potential is addressed in Section 6.6 below.
- **Exposure Point Concentrations (EPCs).** The EPCs were identified pursuant to the provisions contained in Section 40.0926 of the MCP. EPCs are defined in the MCP as the concentrations of the COCs in each identified environmental medium with which human or ecological receptors may come in contact at the point of exposure. The soil EPCs are summarized in **TABLE 3**. The maximum detected levels of the COCs in the tested groundwater samples are considered EPCs as shown **TABLE 4**. For the VOCs that were detected in the tested soil gas samples, the EPCs were identified as the maximum detected concentrations (refer to **TABLES 1 and 2**). It should be noted that the residual levels of petroleum hydrocarbons that may be present in the soil or groundwater at the location of the closed-in-place No.6 fuel oil UST and disclosed during the tank removal activities may require a revision of the EPCs as presented in **TABLE 3**. However, the revised EPCs for petroleum hydrocarbons are not anticipated to



significantly alter the results of the FRC because the EPH fractions that are most common to No.6 fuel oil (C19-C36 aliphatics and C11-C22 aromatics) are not considered carcinogens and thus would not affect the cancer risk quotient. Even elevated levels of these EPH fractions would not significantly affect the Hazard Index (HI), as related to the exposure scenarios addressed in the FRC.



6.4 FOCUSED RISK CHARACTERIZATION

The detected levels of CVOCs in the tested groundwater samples and their potential indoor or outdoor air impacts is evaluated through the results of the soil gas analyses that are considered reflective of the potential for migration of vapors of VOCs as a result of partitioning from the groundwater through the soil vadoze zone. Concentrations of VOCs in air were estimated based on the results of the soil gas analyses (**TABLES 1 and 2**) utilizing the US EPA air simulation model (2006) and are summarized in **TABLE 2A**. The estimated concentrations in air then were compared to the RDLs (**TABLE 2**). As shown in **TABLE 2A**, none of the estimated VOCs concentrations in air exceed the RDLs, thus it is concluded that any additional quantification of the risk of harm to construction workers, visitors, trespassers or passers-by due to potential exposure to vapors of the VOCs is not necessary and a qualitative risk evaluation is considered sufficient.

The current MADEP Method 3 Short Forms were used in this FRC for the estimation of the risks posed by the EPCs of the COCs detected in the tested soil samples to construction and/or utility workers and to occasional trespassers and passers-by during the conduct of the RAM. Pursuant to the provisions contained in Section 40.0933(6) of the MCP a condition of No Significant Risk of harm to human health exists at any disposal site if the identified cancer and non-cancer risk quotients do not exceed the limits established by the MADEP. For carcinogenic Excess Lifetime Cancer Risk (ELCR) the MADEP established a lower risk limit of one in one-hundred thousand (1.0E-05) and for non-cancer risk the MADEP established a lower Hazard Index (HI) limit of one (1).

The results of the risk quantification are contained in **APPENDIX B** and indicate the following:

- For construction workers the ELCR is 2E-07 and the cumulative HI is 1E-01;
- For occasional trespassers the ELCR is 2E-07, the chronic HI is 6E-03 and the sub-chronic HI is 1E-02.



Since none of the above risk quotients exceed the MADEP human health risk limits, VERTEX has concluded that a condition of No Significant Risk exists for construction workers and for occasional trespassers. In addition, because the exposure potential of occasional trespassers (within the site limits) is predicated upon an exposure period of 30 weeks at a frequency of 2 days per each week it is unlikely that an exposure by a passer-by (outside the site limits) for the same duration and frequency would result in greater risk quotients. Thus it is concluded that the condition of NSR that applies to trespassers also applies to passers-by or the general public who may be exposed outside the Subject Site limits. Similarly, the exposure by construction workers is predicated upon a frequency of 182 days per year for 8 hours per day which is significantly greater than the exposure potential by visitors or by utility workers. Therefore, the estimated risk quotients for construction workers would not under estimate the risk to visitors or utility workers. Finally, it should be noted that the results of the FRC would not be altered significantly, for the exposure scenarios considered in this FRC, should soil affected by residual levels of petroleum hydrocarbons is disclosed during the removal of the closed-in-place No.6 fuel oil UST. A hypothetical consideration of EPH fractions at levels equal to the Method 3 Upper Concentration Limits (UCLs) does not alter the condition of No Significant Risk for the exposure scenarios considered in this FRC.

Based on the results of the air simulation model and based on the information summarized above, VERTEX has concluded that a condition of No Significant Risk exists at the Subject Site for the implementation of the proposed RAM. However, it should be noted that RAM activities will be conducted in accordance with a Site-Specific Health and Safety Plan that will contain provisions for the implementation of risk-mitigating measures based upon actual conditions disclosed during the conduct of the RAM.

In addition, VERTEX has concluded that further quantification of the risk of harm to the general public as passers-by, visitors, and occasional trespassers is not necessary because: (1) the potential exposure by construction workers (183 days per year, 5 days per week and 8 hours per day) is of a significantly longer duration, frequency and intensity than the anticipated exposure by visitors, occasional trespassers or passers-by, and (2) a condition of No Significant Risk of harm to construction workers is considered to exist at the Subject Site, predicated upon an



unrestricted exposure. Therefore, the results of any quantification of the risk of harm to the occasional human receptors would result in significantly lower risk quotients. Thus, it is concluded that a condition of No Significant Risk exists for the identified occasional human receptors.

6.5 ENVIRONMENTAL MONITORING

Based on the above conclusion that a condition of No Significant Risk of harm to human health exists for the COCs identified in the tested soil samples, it is concluded that quantification of dust action levels or instrument monitoring of the dust in ambient air are not required. However, conservatively, VERTEX will implement a program of dust monitoring utilizing a Mini-RAE dust monitor with an action level of 0.15 mg/m³ (US EPA/600/P-95/002 – Exposure Factors, 1997). In addition, the Site-Specific Health and Safety Plan will contain provisions for dust management as a source of nuisance if visual observations indicate a potential for off-site migration of dust. Provisions for other environmental monitoring, such as instrument measurements of total VOCs (TVOCs) in ambient air or odor control, will also be included in the Site-Specific Health and Safety Plan to address conditions that may be disclosed during the conduct of the RAM.

Finally, appropriate erosion control measures, such as installation of silt fences and hay bales, will be implemented during the performance of the RAM in order to mitigate potential off-site migration of the Subject Site soil as a result of precipitation events.

6.6 RISK OF HARM TO FUTURE SITE WORKERS, USERS AND/OR OCCUPANTS

As noted above, the proposed redevelopment of the eastern portion of the Subject Site includes the demolition of the existing former Raytheon facility and construction of mixed-use commercial establishments including retail stores and offices. A potential residential usage of the upper floors of the proposed commercial buildings is considered. In addition, future development plans for the western portion of the Subject Site include multi-unit residences and a two-acre public open space.



The proposed buildings will be constructed as “slab-on-grade” and will have no below-grade structures except for utilities or infrastructure.

Portions of the eastern portion of the Subject Site not occupied by the footprint of the proposed buildings will be paved and utilized as parking lots with landscaped margins. Most of the soil will be situated beneath the footprint of the proposed buildings, paved areas or landscaped margins. Therefore, subsequent to the completion of the proposed redevelopment, most of the Subject Site soils will be categorized pursuant to 310 CMR 40.0933(9) as Isolated Subsurface Soils and relatively minor portions of the Subject Site soils will be categorized as Potentially Accessible Soils.

Occasional future exposures to the Subject Site soils by construction and/or utility workers, and by future site workers, trespassers, the general public and visitors could occur during temporary utility work or other excavation activities (in response to emergency or utility maintenance) that are typically of limited duration. Based on the results of the FRC above that indicate the existence of a condition of No Significant Risk for construction and/or utility workers, visitors, passers-by and for occasional trespassers, it is concluded that the existing condition of No Significant Risk would continue to be applicable to the occasional future exposures during temporary excavation activities. In addition, an evaluation of the risk of harm for a potential usage of a portion of the western portion of the Subject Site as a public open space was conducted utilizing the current MADEP Method 3 Short Forms for park visitors (refer to **APPENDIX B**). The results of the risk quantification indicate that the EPCs of the COCs identified in the tested soil samples pose No Significant Risk of harm for park visitors, including children. Specifically, the estimated ELCR is 3E-06, the chronic HI is 6E-02 and the sub-chronic HI is 1E-01. None of these risk quotients exceed the MADEP lower risk limits.

Any additional quantification under this RAM Plan of the risk of harm to potential future workers or the general public that may be posed by the COCs in soil is considered not necessary because the frequency of exposure and its potential intensity by construction workers during the conduct of the RAM (in conjunction with the proposed redevelopment) is significantly greater than the potential exposure by future site workers or the general public thus mitigating the potential for underestimation of the risk of harm under future occasional or short duration exposures.



Based on the above, the main exposure pathway that is considered applicable to the evaluation of the risk of harm to future site workers, occupants or potential residents of the upper floors of the proposed commercial buildings at the eastern portion of the Subject Site is inhalation of the VOCs detected in the tested soil gas samples as a result of potential migration into indoor air. To assess the potential for indoor air impacts, a US EPA air simulation model (2006) was utilized to estimate the potential human health risk quotients. Results are summarized in **TABLE 5**. The human health risk quotients are based on a residential exposure frequency of 365 days per year with an averaging time of 70 years for carcinogens and 30 years for non-carcinogens.

As shown in **TABLE 5**, none of the estimated ELCR or HI quotients exceed the human health risk limits established by the MADEP. In addition, the cumulative cancer risk quotients for ELCR (3.12E-06) and the cumulative non-cancer HI (8.12E-02) are well below the above referenced MADEP risk limits.

Thus it is concluded that the detected concentrations of VOCs in the tested soil gas samples are not anticipated to pose a significant risk of harm to future occupants or workers at the eastern portion of the Subject Site or to potential residents of the upper floors of the commercial buildings.

Finally, as noted above, a vapor barrier and infrastructure for sub-slab venting systems will be installed within the footprints of all of the proposed residential buildings and potentially within the footprints of the proposed commercial buildings to mitigate potential vapor intrusion into the indoor space of the buildings. Therefore, upon completion of the installation of the venting system infrastructure and the vapor barrier this exposure pathway will be considered incomplete and thus by definition, pose No Significant Risk of harm to human health.



7.0 FOCUSED FEASIBILITY EVALUATION

An evaluation of the feasibility to achieve or approach background was performed as part of this RAM Plan. The feasibility evaluation was conducted pursuant to the provisions contained in Section 40.0442(3)(c) of the MCP and in accordance with MADEP Policy WSC-04-160.

Based on the current Subject Site redevelopment plans, the soil generated during excavation activities will be re-used on-site and only a small amount of soil is considered as a contingency for off-site disposal. As noted above, the objective of the RAM is to implement on-site reuse of the soil that will be excavated during the installation of foundations, utilities and infrastructure. Such soil will be reused on-site as backfill material. As noted above, the results of the Focused Risk Characterization indicate that a condition of No Significant Risk already exists for the Subject Site soil under unrestricted exposure scenarios. Therefore, given the significant costs of any additional excavation, off-site disposal and replacement with fill material from an off-site source, the results of a cost-benefit evaluation [(310 CMR 40.0860(7))] indicate that the costs of any additional excavation, beyond what is required for the redevelopment of the Subject Site, are significantly disproportionate to the little risk-reduction benefits.

Finally, the results of the estimation of the risk of harm to human health posed by the detected concentrations of VOCs in the tested soil gas samples indicate that the estimated risk quotients are well below the MCP risk limits (refer to **TABLE 5**) for carcinogens and for non-carcinogens thus there is no evidence for the presence of a condition described in the MCP as Critical Exposure Pathway (CEP). In the absence of a CEP, and since the objective of the RAM is to achieve a Permanent Solution it is concluded that implementation of any additional remedial action, beyond the scope of this RAM Plan, would result in a risk-reduction benefit that is insignificant but would require significantly disproportionate costs and effort.

Based on the above, VERTEX has concluded that the requirements of the MCP with regards to feasibility evaluation had been met and it is further concluded that conduct of any additional remedial action, beyond the provisions of the proposed RAM, is infeasible.



8.0 PUBLIC INVOLVEMENT

In accordance with the July 13, 2004, Public Involvement Plan prepared by ERM for Raytheon, Raytheon, the Draft RAM Plan was submitted for public comment. The public comment period extended from August 8, 2011 to September 8, 2011. In addition, a public meeting was held by VERTEX on September 1, 2011 in the Wayland Town Hall. A Response to Comments letter was sent to individuals or organization that submitted comment in writing to VERTEX. A copy of the Response to Comments Letter is included in Appendix E.



9.0 QUALIFICATIONS

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This warranty is in lieu of all other warranties either expressed or implied. VERTEX is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report. Our professional opinion and the conclusions contained herein are based solely on the scope of work conducted as described in this RAM Plan.

It must be recognized that environmental investigations are inherently limited in the sense that conclusions are drawn and recommendations developed from information obtained from limited research and site investigation. All site subsurface conditions were not field investigated as part of this study and may differ from the conditions described herein. Additionally, the passage of time may result in a change in the environmental characteristics at this site and surrounding properties. This report does not warrant against future operations or conditions, nor does this report warrant against operations or conditions present of a type or at a location not investigated.

The reference to various MCP or other risk-based cleanup standards contained in this report is intended to provide a focused evaluation of the risk of harm to human health for the conduct of the RAM and is not intended to be used as a comprehensive risk characterization as defined in the MCP, but rather to provide an assessment of the risk under focused exposures.



TABLES



Environmental



Construction



Air Quality



Energy

TABLE 1 - SUMMARY OF SOIL VAPOR ANALYSES

400 BOSTON POST ROAD, WAYLAND, MASSACHUSETTS
MADEP RTN 3-13302
VERTEX PROJECT No. 19163

SAMPLE DESIGNATION	SV-1	SV-2	SV-3	SV-4	SV-5	SVE-2	SV-11	SV-12	SV-13
LABORATORY ID	L0809833-01	L0809833-02	L0809833-03	L0809956-01	L0809956-02	L0809898-02	L0809960-01	L0809960-02	L0809960-03
SAMPLING DATE	1-Jul-08	1-Jul-08	1-Jul-08	2-Jul-08	2-Jul-08	3-Jul-08	3-Jul-08	3-Jul-08	3-Jul-08
VOCs	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
1,1,1-Trichloroethane	ND(5.45)	ND(1.09)	ND(1.09)	ND(1.09)	ND(1.09)	7.93	25.2	2.32	4.38
1,2,4-Trichlorobenzene	ND(7.4)	ND(1.485)	7.43	ND(1.485)	ND(1.485)	ND(0.74)	ND(0.74)	ND(0.74)	ND(1.485)
1,2,4-Trimethylbenzene	ND(4.91)	ND(0.98)	ND(0.98)	ND(0.98)	ND(0.98)	5.12	1.05	1.31	ND(0.98)
1,3,5-Trimethylbenzene	ND(4.91)	ND(0.98)	ND(0.98)	ND(0.98)	ND(0.98)	1.88	ND(0.491)	ND(0.491)	ND(0.98)
1,4-Dichlorobenzene	ND(6)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	2.02	ND(0.6)	ND(0.6)	ND(1.2)
2-Butanone	53.5	58.2	67.5	39.1	54.2	255	15	16	9.31
2-Hexanone	ND(4.095)	11	13.6	10.2	12.5	66.8	5.24	5.88	2.66
4-Ethyltoluene	ND(4.91)	ND(0.98)	ND(0.98)	ND(0.98)	ND(0.98)	1.47	ND(0.491)	ND(0.491)	ND(0.98)
Acetone	1130	505	419	374	181	1850	43.6	51.3	74.4
Benzene	ND(3.19)	ND(0.64)	ND(0.64)	1.56	ND(0.64)	11.5	ND(0.319)	0.99	ND(0.64)
Carbon disulfide	ND(3.11)	1.6	ND(0.62)	ND(0.62)	ND(0.62)	15.4	ND(0.311)	0.648	ND(0.62)
Chloroethane	ND(2.635)	ND(0.525)	ND(0.525)	ND(0.525)	ND(0.525)	0.725	ND(0.2635)	ND(0.2635)	ND(0.525)
Chloroform	ND(4.88)	5.47	ND(0.975)	ND(0.975)	9.61	1.47	5.11	4.57	8.62
Chloromethane	ND(2.065)	ND(0.4125)	ND(0.4125)	ND(0.4125)	ND(0.4125)	1.78	ND(0.2065)	0.418	ND(0.4125)
Cyclohexane	ND(3.44)	ND(0.69)	ND(0.69)	ND(0.69)	ND(0.69)	1.67	ND(0.344)	ND(0.344)	ND(0.69)
Dichlorodifluoromethane	ND(4.94)	2.4	2.43	2.39	2.66	2.38	4.75	9.42	14.3
Ethanol	ND(23.55)	31.6	23.4	16.9	14.8	146	15.6	20	13.7
Ethylbenzene	ND(4.34)	ND(0.87)	ND(0.87)	ND(0.87)	ND(0.87)	4.41	ND(0.434)	1.19	ND(0.87)
Freon 113	ND(7.65)	ND(1.53)	ND(1.53)	ND(1.53)	ND(1.53)	1.57	1.93	ND(0.765)	ND(1.53)
Isopropanol	65.4	41.7	17.8	32.3	12.6	17.1	3.64	4.98	3.81
Methylene chloride	17.4	4.54	4.51	4.38	4.29	3.91	3.27	4.54	4.07
4-Methyl-2-pentanone	ND(4.095)	ND(0.82)	ND(0.82)	ND(0.82)	ND(0.82)	9.89	0.982	1.31	ND(0.82)
m/p-Xylene	ND(8.7)	3.9	ND(1.735)	ND(1.735)	ND(1.735)	11	2.95	3.98	ND(1.735)
o-Xylene	ND(4.34)	ND(0.87)	ND(0.87)	ND(0.87)	ND(0.87)	4.88	1.04	1.55	ND(0.87)
Heptane	ND(4.095)	ND(0.82)	1.8	2.6	ND(0.82)	12.4	ND(0.4095)	0.874	ND(0.82)
n-Hexane	9.67	8.11	8.49	6.21	6.64	13.3	1.97	4.66	ND(0.705)
Propylene	ND(1.72)	3.76	3.37	2.26	1.75	49.4	ND(0.172)	ND(0.172)	ND(0.344)
Styrene	ND(4.255)	ND(0.85)	ND(0.85)	ND(0.85)	ND(0.85)	1.65	ND(0.4255)	ND(0.4255)	ND(0.85)
Tetrachloroethylene	44.3	29.9	13.7	ND(1.355)	22.2	107	32.5	13.3	59.3
Tetrahydrofuran	ND(2.945)	ND(0.59)	ND(0.59)	ND(0.59)	ND(0.59)	ND(0.2945)	2.39	2.53	1.62
Toluene	ND(3.765)	6.31	3.87	3.61	3.85	19	3.34	6.95	3.22
Trichloroethylene	20.5	29.1	9.24	5.9	59	99.4	8.83	96.4	79.7
Trichlorofluoromethane	111	241	149	86	434	16.7	847	398	345
Vinyl acetate	ND(3.52)	4.32	7.39	2.31	2.88	47.7	ND(0.352)	ND(0.352)	ND(0.705)

Notes:

1. ND(XX) = Not detected (0.5 RDL).
2. Table limited to compounds detected
3. Samples collected by Haley & Aldrich, Inc.

TABLE 2 - SUMMARY OF SOIL GAS CONTAMINANTS OF CONCERN AND EXPOSURE POINT CONCENTRATIONS

**430 BOSTON POST ROAD, WAYLAND, MASSACHUSETTS
MADEP RTN 3-13302
VERTEX PROJECT No. 19163**

DETECTED CONTAMINANT IN SOIL GAS	CAS NUMBER	SOIL GAS EPC ($\mu\text{g}/\text{m}^3$)	ESTIMATED AMBIENT AIR CONCENTRATION ($\mu\text{g}/\text{m}^3$)	METHOD TO-15 DETECTION LIMITS ($\mu\text{g}/\text{m}^3$)
1,1,1-Trichloroethane	71-55-6	2.5E+01	5.9E-06	1.1E+00
1,2,4-Trichlorobenzene	120-82-1	7.4E+00	1.7E-06	1.5E+00
1,2,4-Trimethylbenzene	95-63-6	5.1E+00	1.2E-06	1.0E+00
1,3,5-Trimethylbenzene	108-67-8	1.9E+00	4.4E-07	1.0E+00
1,4-Dichlorobenzene	106-46-7	2.0E+00	4.8E-07	1.2E+00
2-Dichlorobenzene	78-93-3	2.6E+02	6.0E-05	6.0E-01
2-Hexanone	591-78-6	6.7E+01	3.2E-06	8.3E-01
4-Ethyltoluene	622-96-8	1.5E+00	1.8E-07	9.8E-01
Acetone	67-64-1	1.9E+03	4.4E-04	4.8E-01
Benzene	71-43-2	1.2E+01	2.7E-06	6.5E-01
Carbon disulfide	75-15-0	1.5E+01	3.6E-06	6.3E-01
Chloroethane	75-00-3	7.3E-01	1.7E-07	5.4E-01
Chloroform	67-66-3	9.6E+00	2.3E-06	9.9E-01
Chloromethane	74-87-3	1.8E+00	4.2E-07	4.2E-01
Cyclohexane	110-82-7	1.7E+00	7.2E-08	7.0E-01
Dichlorodifluoromethane	75-71-8	1.4E+01	3.4E-06	1.0E+00
Ethanol	64-17-5	1.5E+02	2.3E-02	2.8E-01
Ethylbenzene	100-41-4	4.4E+00	1.1E-06	8.8E-01
Freon 113	76-13-1	1.9E+00	1.5E-05	1.6E+00
Isopropanol	67-63-0	6.5E+01	7.9E-02	5.0E-01
Methylene chloride	75-09-2	1.7E+01	4.1E-06	7.1E-01
4-Methyl-2-pentanone	108-10-1	9.9E+00	2.3E-06	8.3E-01
m/p-Xylene	108-38-3	1.1E+01	2.6E-06	8.8E-01
o-Xylene	95-47-6	4.9E+00	1.5E-06	8.8E-01
Heptane	142-82-5	1.2E+01	3.9E-07	8.3E-01
n-Hexane	110-54-3	1.3E+01	6.8E-08	7.2E-01
Propylene	115-07-1	4.9E+01	1.2E-05	3.5E-01
Styrene	100-42-5	1.7E+00	3.9E-07	8.7E-01
Tetrachloroethylene	127-18-4	1.1E+02	2.5E-05	1.4E+00
Tetrahydrofuran	109-99-9	2.5E+00	7.9E-04	6.0E-01
Toluene	108-88-3	1.9E+01	4.5E-06	7.7E-01
Trichloroethylene	79-01-6	9.9E+01	2.3E-05	1.1E+00
Trichlorofluoromethane	75-69-4	8.5E+02	2.0E-04	1.1E+00
Vinyl acetate	108-05-4	4.8E+01	1.3E-05	7.2E-01

Notes:

1. The soil vapor Exposure Point Concentration (EPC) is the maximum detected level.
2. Predicted ambient air concentrations were estimated using
US EPA Air Simulation - 2006 (TABLE 2A).

TABLE 2A - DIFFUSION OF CONTAMINANTS IN AIR USING SOIL VAPOR DATA

430 BOSTON POST ROAD, WAYLAND, MASSACHUSETTS
MADEP RTN 3-13302
VERTEX PROJECT No. 19163

DETECTED CONTAMINANT	DIFFUSION MODEL ASSUMPTIONS			EFFECTIVE DIFFUSION COEFFICIENT (cm2/s)	SOIL GAS CONCENTRATION (EPC) (mg/m3)	SOIL GAS TO AIR ATTENUATION FACTOR	ESTIMATED AMBIENT AIR CONCENTRATION (ug/m3)	METHOD TO-15 DETECTION LIMITS (mg/m3)	EXCEEDENCE OF REPORTED DETECTION LIMIT (RDL)
	EXCAVATION AREA (m2)	BREATHING ZONE HEIGHT (cm)	DEPTH TO SOIL GAS SOURCE (cm)						
SOIL GAS									
1,1,1-Trichloroethane	1,000	125	33	1.30E-02	2.52E-02	2.4E-07	5.9E-06	1.11E-03	NO
1,2,4-Trichlorobenzene	1,000	125	33	5.00E-03	7.43E-03	2.2E-07	1.7E-06	1.51E-03	NO
1,2,4-Trimethylbenzene	1,000	125	33	9.80E-03	5.12E-03	2.3E-07	1.2E-06	1.00E-03	NO
1,3,5-Trimethylbenzene	1,000	125	33	9.70E-03	1.88E-03	2.4E-07	4.4E-07	1.00E-03	NO
1,4-Dichlorobenzene	1,000	125	33	1.10E-02	2.02E-03	2.4E-07	4.8E-07	1.23E-03	NO
2-Butanone	1,000	125	33	1.30E-02	2.55E-01	2.4E-07	6.0E-05	6.01E-04	NO
2-Hexanone	1,000	125	33	3.20E-02	6.68E-02	2.4E-07	3.2E-06	8.35E-04	NO
4-Ethyltoluene	1,000	125	33	2.10E-02	1.47E-03	2.6E-07	1.8E-07	9.75E-04	NO
Acetone	1,000	125	33	2.10E-02	1.85E+00	2.3E-07	4.4E-04	4.83E-04	NO
Benzene	1,000	125	33	1.50E-02	1.15E-02	2.4E-07	2.7E-06	6.51E-04	NO
Carbon disulfide	1,000	125	33	1.70E-02	1.54E-02	2.4E-07	3.6E-06	6.35E-04	NO
Chloroethane	1,000	125	33	4.40E-02	7.25E-04	2.4E-07	1.7E-07	5.38E-04	NO
Chloroform	1,000	125	33	1.70E-02	9.61E-03	2.4E-07	2.3E-06	9.95E-04	NO
Chloromethane	1,000	125	33	2.10E-02	1.78E-03	2.3E-07	4.2E-07	4.21E-04	NO
Cyclohexane	1,000	125	33	3.10E-02	1.67E-03	2.7E-07	7.2E-08	7.02E-04	NO
Dichlorodifluoromethane	1,000	125	33	1.10E-02	1.43E-02	2.5E-07	3.4E-06	1.01E-03	NO
Ethanol	1,000	125	33	9.00E-03	1.46E-01	2.3E-07	2.3E-02	2.83E-04	NO
Ethylbenzene	1,000	125	33	1.20E-02	4.41E-03	2.4E-07	1.1E-06	8.85E-04	NO
Freon 113	1,000	125	33	1.00E-02	1.93E-02	2.7E-07	1.5E-05	1.56E-03	NO
Isopropanol	1,000	125	33	1.40E-02	6.54E-02	2.4E-07	7.9E-02	5.00E-04	NO
Methylene chloride	1,000	125	33	1.60E-02	1.74E-02	2.4E-07	4.1E-06	7.08E-04	NO
4-Methyl-2-pentanone	1,000	125	33	1.20E-02	9.89E-03	2.3E-07	2.3E-06	8.35E-04	NO
m/p-Xylene	1,000	125	33	1.40E-02	1.10E-02	2.4E-07	2.6E-06	8.84E-04	NO
o-Xylene	1,000	125	33	1.40E-02	4.88E-03	2.4E-07	1.5E-06	8.85E-04	NO
Heptane	1,000	125	33	1.10E-02	1.24E-02	2.3E-07	3.9E-07	8.33E-04	NO
n-Hexane	1,000	125	33	3.10E-02	1.33E-02	2.4E-07	6.8E-08	7.18E-04	NO
Propylene	1,000	125	33	9.70E-03	4.94E-02	2.3E-07	1.2E-05	3.50E-04	NO
Styrene	1,000	125	33	1.20E-02	1.65E-03	2.3E-07	3.9E-07	8.68E-04	NO
Tetrachloroethylene	1,000	125	33	1.20E-02	1.07E-01	2.3E-07	2.5E-05	1.38E-03	NO
Tetrahydrofuran	1,000	125	33	1.30E-02	2.53E-03	2.6E-07	7.9E-04	6.01E-04	NO
Toluene	1,000	125	33	1.40E-02	1.90E-02	2.4E-07	4.5E-06	7.68E-04	NO
Trichloroethylene	1,000	125	33	1.30E-02	9.94E-02	2.4E-07	2.3E-05	1.09E-03	NO
Trichloroflouromethane	1,000	125	33	1.40E-02	8.47E-01	2.4E-07	2.0E-04	1.15E-03	NO
Vinyl acetate	1,000	125	33	1.40E-02	4.77E+00	2.4E-07	1.3E-05	7.18E-04	NO

Notes:

- 1. Model utilized: US EPA Air Similation Model (2006).
- 2. Table limited to detected analytes.

TABLE 3 - SUMMARY OF SOIL ANALYSES AND RISK DATA

430 BOSTON POST ROAD, WYALAND, MASSACHUSETTS
RTN 3-13302
VERTEX PROJECT NO. 19163

SAMPLE DESIGNATION (ft) LAB SAMPLE ID	SAMPLING DATE	SAMPLE DEPTH	MCP Method I S-1/GW-1 Standard	MADEP Background for "Natural" Soil	Exposure Point Concentration	SB-1 13-Oct-95 3'5"-5'5'	SB-3 13-Oct-95 18'-20'	SB-4 13-Oct-95 3'9"-6'8'	SB-5 13-Oct-95 6'5"-8'5'	SB-8 13-Oct-95 10'5"-12'5'	SB-8 13-Oct-95 6'5"-8'5'	SB-8 13-Oct-95 8'5"-10'5'	SB-8 13-Oct-95 4'5"-6'5'	SB-8A 13-Oct-95 4'5"-6'5'	SB-SA 13-Oct-95 8'5"-10'5'	SB-9 13-Oct-95 3'5"-5'5'	HASS-1 11-Oct-00 0-3'	HASS-2 11-Oct-00 0-3'	HASS-3 11-Oct-00 0-3'	HASS-4 11-Oct-00 0-3'	HASS-5 11-Oct-00 0-3'	HA SS-6 11-Oct-00 0-3'
Volatile Ore;anic Compounds (ue:/ke:)																						
Tetrachloroethene			1000	NA	32																	
Trichloroethene			300	NA	61.8																	
cis-1,2-Dichloroethene			300	NA	38.4																	
trans-1,2-Dichloroethene			1000	NA	1.2																	
Toluene			30000	NA	1.2																	
Acetone			6000	NA	26.7																	
n-Isopropyltoluene			NS	NA	1.4																	
Chlorobenzene			1000	NA	5.6																	
1,4-Dichlorobenzene			700	NA	7.8																	
Extractable Petroleum Hydrocarbons (me:/ke:)																						
C19-C36 Aliphatics			3000	NA	32.5																	
C11-C22 Aromatics Adjusted			1000	NA	14.1																	
C9-C18 Aliphatics			1000	NA	ND																	
Polychlorinated Biphenyls by MCP 8082 (mg/kg)			2	NA	ND																	
Total Metals by MCP 6000000 series (me:/ke:)																						
Arsenic Total			20	20	6.6	5.96	6.6	3.56	7.2	4.8	5.2	4.4	29	2.8	3.5	4.73	ND(2.8)	ND(2.7)	ND(2.7)	ND(2.7)	ND(2.7)	7.5
Barium Total			1000	50	28.2																	
Chromium Total			30	30	11.5																	
Lead Total			300	100	5.9																	

Notes:
ND(I): Not detected (0.5 RDL) NA: Not applicable
Table limited to detected contaminants
Samples collected by Haley & Aldrich, Inc and ERM Blank- Not Tested

TABLE 3 - SUMMARY OF SOIL ANALYSES AND RISK DATA

430 BOSTON POST ROAD, WYALAND, MASSACHUSETTS
RTN 3-13302
VERTEX PROJECT NO. 19163

SAMPLE DESIGNATION SAMPLING DATE SAMPLE DEPTH (ft) LAB SAMPLE 1D	HASS-7 11-Oct-00 0-3'	HASS-7 11-Oct-00 DUP	HASS-8 11-Oct-00 0-3'	HASS-9 11-Oct-00 0-3'	HA SS-10 11-Oct-00 0-3'	HA SS-11 11-Oct-00 0-3'	HASS-12 11-Oct-00 0-3'	HA SS-13 11-Oct-00 0-3'	HA SS-13 11-Oct-00 DUP	B-301 19-Aul!:-02 0'-S'	B-302 19-Aul!:-02 0'-S'	B-303 19-Aul!:-02 0'-S'	B-304 19-Aul!:-02 0'-S'	B-305 19-Aul!:-02 0'-S'	B-306 19-Au :-02 0'-S'	B-307 19-Aul!:-02 0'-S'	B-308 19-Aul!:-02 0'-S'	B-309 19-Aul!:-02 0'-S'	B-310 19-Aul!:-02 0'-S'	B-311 19-Aul!:-02 0'-S'	B-312 19-Aul!:-02 0'-S'	B-316 9-Sep-02 0'-S'
Volatile Organic Compounds (u)																						
Tetrachloroethene																						
Trichloroethene																						
cis-1,2-Dichloroethene																						
trans-1,2-Dichloroethene																						
Toluene																						
Acetone																						
p-Isopropyltoluene																						
Chlorobenzene																						
1,4-Dichlorobenzene																						
Extractable Petroleum Hydrocarbons (mg/kg)																						
C19-C36 Aliphatics																						
C11-C22 Aromatics, Adjusted																						
C9-C18 Aliphatics																						
Polychlorinated Biphenyls by MCP 8082 (mel/kg)																						
Total Metals by MCP 6000000 series (m l																						
senic Total	ND(2.9)	ND(2.9)	7.2	12	2.80	ND(2.7)	ND(2.8)	7.3	5.9	6.3	5.7	5.8	5.4	6.0	6.3	6.4	6.4	5.3	5.7	5.1	36	5.5
Barium Total																						
Chromium Total																						
Lead Total																						

Not.
ND(I) Not detected (0.5 RDL) NA Not applicable
Table limited to detected contaminants
Samples collected by Haley & Aldrich, Inc. and ERM Blank -Not Tested

TABLE 3 - SUMMARY OF SOIL ANALYSES AND RISK DATA

430 BOSTON POST ROAD, WYALAND, MASSACHUSETTS
RTN 3-13302
VERTEX PROJECT NO. 19163

SAMPLE DESIGNATION	SAMPLING DATE	SAMPLE DEPTH (ft.)	ABSAMPLE ID	B-317 9-Sep-02 0'-5'	B-318 9-Sep-02 0'-5'	B-522 1-Feb-06 10'-15'	Comp20060201 1-Feb-06 Composite	MW-313 26-Au -02 5'-7'	MW-314 26-Au -02 5'-7'	MW-315 26-Au -02 5'-7'	SW-117-003 26-Jul-06 Sidewall	SW-117-009 26-Jul-06 Sidewall	SW-117-018 26-Jul-06 Sidewall	SW-117-021 26-Jul-06 Sidewall	SW-117-027 26-Jul-06 Sidewall	SW-117-023 26-Jul-06 Sidewall	SW-117-039 26-Jul-06 Sidewall	SW-117-045 26-Jul-06 Sidewall	SW-117-051 26-Jul-06 Sidewall	SW-117-057 26-Jul-06 Sidewall	SW-117-063 26-Jul-06 Sidewall	SW-117-069 26-Jul-06 Sidewall	SW-117-075 26-Jul-06 Sidewall	SW-117-081 26-Jul-06 Sidewall	SW-117-087 26-Jul-06 Sidewall
Volatile Organic Compounds (ug/kg)																									
Tetrachloroethene											ND(LO)	4.6	9.2	ND(LO)	1.9	2.8	5.9	75	1.2	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND(1.2)
Trichloroethene											7.5	6.5	59	ND(LO)	2.1	2.5	19	230	ND(1.1)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND(1.2)
cis-1,2-Dichloroethene											ND(LO)	ND(LO)	12	ND(LO)	3.7	6.8	19	180	ND(1.1)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND(1.2)
trans-1,2-Dichloroethene											ND(1.6)	ND(1.6)	ND(1.6)	ND(1.6)	ND(1.5)	ND(1.6)	ND(1.3)	ND(1.8)	ND(1.6)	ND(1.8)	ND(1.8)	ND(1.7)	ND(1.7)	ND(1.6)	ND(1.8)
Toluene											ND(1.6)	ND(1.6)	ND(1.6)	ND #	ND(1.5)	ND(1.6)	ND(1.3)	ND(1.8)	ND(1.6)	ND(1.8)	ND(1.8)	ND(1.7)	ND(1.7)	ND(1.6)	ND(1.8)
Acetone											ND(LO)	18	15	ND #	19	22	44	46	17	ND(1.2)	ND(1.2)	47	13	21	56
n-Isopropyltoluene											1.4	ND(LO)	ND(LO)	ND #	ND(LO)	ND(1.1)	ND(0.88)	ND(1.2)	ND(1.1)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND(1.2)
Chlorobenzene											ND(LO)	ND(LO)	ND(LO)	ND #	ND(LO)	ND(1.1)	ND(0.88)	ND(1.2)	ND(1.1)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND(1.2)
1,4-Dichlorobenzene											ND(LO)	ND(LO)	ND(LO)	ND(LO)	ND(LO)	ND(1.1)	ND(0.88)	ND(1.2)	ND(1.1)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND(1.2)
Extractable Petroleum Hydrocarbons (mg/kg)																									
C9-C36 Aliphatics																									
C11-C22 Aromatics, Adjusted																									
C9-C18 Aliphatics																									
Polychlorinated Biphenyls by MCP 8082 (m2fk2)																									
Total Metals by MCP 6000000 series (mg/kg)																									
Arsenic Total		6.0	5.1	4.9	5.6	ND(2.6)	5.1	ND(3.0)																	
Barium Total																									
Chromium Total																									
Lead Total																									

Notes
ND(l) Not detected, (0.5 RDL) NA Not applicable
Table limited to detected contaminants
Samples collected by Haley & Aldrich, Inc. and ERM Blank- Not Tested

TABLE 3 - SUMMARY OF SOIL ANALYSES AND RISK DATA

430 BOSTON POST ROAD, WYALAND, MASSACHUSETTS
RTN 3-13302
VERTEX PROJECT NO. 19163

SAMPLE DESIGNATION (ft) LAB SAMPLE ID	SAMPLING DATE	SAMPLE DEPTH	SW-117-093 26-Jul-06 Sidewall	SW-117-098 26-Jul-06 Sidewall	SW-117-102 26-Jul-06 Sidewall	SW-117-109 26-Jul-06 Sidewall	SP-A1 11-Jul-07 Stockpile	SP-A2 11-Jul-07 Stockpile	SP-A3 11-Jul-07 Stockpile	SP-A4 11-Jul-07 Stockpile	SP-AS 11-Jul-07 Stockpile	SP-A6 11-Jul-07 Stockpile	SP-B1 11-Jul-07 Stockpile	SP-B2 11-Jul-07 Stockpile	SP-83 11-Jul-07 Stockpile	SP-84 11-Jul-07 Stockpile	SP-BS 11-Jul-07 Stockpile	SP-B6 11-Jul-07 Stockpile	SP-C1 11-Jul-07 Stockpile	SP-C2 11-Jul-07 Stockpile	SP-C3 11-Jul-07 Stockpile	SP-C4 11-Jul-07 Stockpile	SP-C5 11-Jul-07 Stockpile	SP-C6 11-Jul-07 Stockpile	
Volatile Organic Compounds (u/Yk/l)																									
Tetrachloroethene		ND(I 3)	6.6	24	ND(0.81)	ND(I O)	ND(I O)	1.4	ND(0.97)	ND(0.98)	5.0	46	42	120	4.8	6.7	88	ND(I I)	ND(0.97)	ND(0.95)	ND(I 2)	ND(I 2)	ND(I I)		
Trichloroethene		ND(I 3)	87	ND(670)	20	ND(I O)	ND(I O)	ND(0.96)	ND(0.97)	ND(0.98)	ND(I O)	110	50	39	4.3	27	220	ND(I I)	ND(0.97)	ND(0.95)	1.2	1.2	220		
cis-1,2-Dichloroethene		ND(I 3)	12	5.9	ND(0.81)	ND(I O)	ND(I O)	ND(0.96)	ND(0.97)	ND(0.98)	ND(I O)	70	48	62	5.0	23	130	ND(I I)	ND(0.97)	ND(0.95)	1.7	ND(I 2)	1.2		
n-ans-1,2-Dichloroethene		ND(I 9)	ND(I 9)	1.2	ND(I 2)																				
Toluene		ND(I 9)	ND(I 9)	1.2	ND(I 2)	ND(I 5)	ND(I 5)	ND(I 4)	ND(0.15)	ND(I 5)	ND(I 5)	ND(I 5)	ND(I 6)	ND(I 6)	ND(I 6)	ND(I 6)	ND(I 6)	ND(I 7)	ND(I 6)	ND(I 4)	ND(I 4)	ND(I 7)	ND(I 9)	ND(I 6)	
Acetone		38	17	28	15	ND(I O)	ND(I O)	24	ND(9.7)	ND(9.8)	23	16	46	14	ND(II)	ND(II)	25	ND(II)	ND(9.7)	ND(9.5)	ND(I 2)	ND(I 2)	ND(II)		
n-Isopropyltoluene		ND(I 3)	ND(I 3)	ND(0.79)	ND(0.81)																				
Chlorobenzene		ND(I 3)	ND(I 3)	ND(0.79)	ND(0.81)																				
1,4-Dichlorobenzene		ND(I 3)	ND(I 3)	ND(0.79)	ND(0.81)																				
Extractable Petroleum Hydrocarbons (mg/kg)																									
C9-C36 Aliphatics																									
C11-C22 Aromatics Adjusted																									
C9-C18 Aliphatics																									
Polychlorinated Biphenyls by MCP 8082 (mg/kg)																									
Total Metals by MCP 6000000 series (m Yk£)																									
Arsenic Total																									
Barium Total																									
Chromium Total																									
Lead Total																									

Notes
ND(I) Not detected. (0.5 RDL) NA Not applicable
Table limited to detected contaminants
Samples collected by Haley & Aldrich, Inc. and ERM Blank- Not Tested

TABLE 3 - SUMMARY OF SOIL ANALYSES AND RISK DATA

430 BOSTON POST ROAD, WYALAND, MASSACHUSETTS
RTN 3-13302
VERTEX PROJECT NO. 19163

SAMPLE DESIGNATION SAMPLING DATE SAMPLE DEPTH (ft) LAB SAMPLE ID	SP-G1 IS-Aur;-07 Stockpile	SP-G2 IS-Aur;-07 Stockpile	CF-1 23-Aur;-07 -	CF-2 23-Aur;-07 -	CF-3 23-Aur;-07 -	CF-4 23-Aur;-07 -	CF-S 23-Aur;-07 -	CF-6 23-Aur;-07 -	ABI3 22-Aur;-07 Bottom	AB4S 22-Aur;-07 Bottom	AB67 22-Aur;-07 Bottom	CD23-2 11-Aur;-07 Bottom	CD4S 22-Aur;-07 Bottom	CD67 22-Aur;-07 Bottom	EF13 22-Aur;-07 Bottom	EF4S 22-Aur;-07 Bottom	EF67 22-Aur;-07 Bottom	GH13 22-Aur;-07 Bottom	GH4S 22-Aur;-07 Bottom	GH67 22-Aur;-07 Bottom	DE1-4 22-Aur;-07 Bottom	DES 11-Aur;-07 Bottom
Volatile Organic Compounds (ug/kg)																						
Tetrachloroethene	ND(1.0)	ND(1.0)	ND(4.6)	ND(4.8)	ND(4.8)	ND(4.6)	ND(4.8)	ND(5.0)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.2)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	1.2	ND(1.1)
Trichloroethene	ND(1.0)	ND(1.0)	ND(4.6)	ND(4.8)	ND(4.8)	ND(4.6)	ND(4.8)	ND(5.0)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.2)	4.0	ND(1.1)	2.4	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	6.5	ND(1.1)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(4.6)	ND(4.8)	ND(4.8)	ND(4.6)	ND(4.8)	ND(5.0)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.2)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.0)	ND(1.1)
trans-1,2-Dichloroethene																						
Toluene	ND(1.5)	ND(1.6)																				
Acetone	ND(10)	ND(10)							16	14	ND(11)	ND(12)	ND(11)	ND(11)	19	52	81	ND	ND	ND	ND(10)	ND
1,4-Dichlorobenzene									NA	NA	ND(11)	ND(12)	ND(11)	ND(11)								
Chlorobenzene									2.7	7.3	12	ND(1.2)	2.6	3.6	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.1)	ND(1.0)	ND(1.1)
1,4-Dichlorobenzene									ND(5.6)	ND(5.6)	7.8	ND(5.8)	ND(5.4)	ND(5.3)	ND(5.3)	ND(5.6)	ND(5.5)	ND(5.6)	ND(5.6)	ND(5.6)	ND(5.2)	ND(5.6)
Extractable Petroleum Hydrocarbons (mg/kg)																						
C19-C36 Aliphatics																						
C11-C22 Aromatics, Adjusted																						
C9-C18 Aliphatics																						
Polychlorinated Biphenyls by MCP 8082 (mg/kg)			ALLND	ALLND	ALLND	ALLND	ALLND	ALLND														
Total Metals by MCP 6000000 series (mg/kg)																						
senic Total			6.4	6.3	5.5	5.4	6.0	5.8														
Barium Total																						
Chromium Total			10	9.5	8.1	8.6	9.1	11														
Lead Total			7.4	4.0	3.1	3.4	6.5	4.7														

Notes
ND(I) Not detected, (0.5 RDL) NA Not applicable
Table limited to detected contaminants
Samples collected by Haley & Aldrich, Inc. and ERM Blank- Not Tested

TABLE 3 - SUMMARY OF SOIL ANALYSES AND RISK DATA

430 BOSTON POST ROAD, WYALAND, MASSACHUSETTS
RTN 3-13302
VERTEX PROJECT NO. 19163

SAMPLE DESIGNATION (ft) LAB SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	STEP1 22-Au :-07 Bottom	STEP2 22-Au :-07 Bottom	STEP3 22-Au :-07 Bottom	STEP4 22-Au :-07 Bottom	S1 3I-Jul-08 0-6	S4 3I-Jul-08 0-6	S6 3I-Jul-08 0-6	S7 3I-Jul-08 0-6	S8 I-Aug-08 0-6	S10 I-Aug-08 0-6	S11 30-Jul-08 0-6	S11 3I-Jul-08 0-6	S15 30-Jul-08 0-6	S16 I-Aug-08 0-6	SE1 I-Aug-08 0-6	SE2 I-Aug-08 0-6
Volatile Organic Compounds (uflkl!)																		
Tetrachloroethene		120		82	24	ND(I I)												
Trichloroethene		240		150	32	4 5												
cis-1,2-Dichloroethene		100		10	ND(I O)	ND(I I)												
trans-1,2-Dichloroethene																		
Benzene																		
Acetone		ND(II)		48	ND(10)	ND(II)												
n-Isopropyltoluene																		
Chlorobenzene		ND(I I)		ND(I 2)	ND(I O)	ND(I I)												
1,4-Dichlorobenzene		ND(5 6)		ND(5 9)	ND(5 0)	ND(5 6)												
Extractable Petroleum Hydrocarbons (mg/kg)																		
C9-C36 Aliphatics						ND(3 435)	ND(3 47)	ND(3 545)	ND(3 47)	ND(3 79)	ND(3 705)	ND(6 85)	ND(3 4)	ND(3 4)	32 5	ND(3 92)	ND(4 015)	
C11-C22 Aromatics Adjusted						11 4	ND(3 47)	ND(3 545)	8 56	8 44	8 75	23 4	10 6	12 8	32 3	10	ND(4 015)	
C9-C18 Aliphatics						ND(3 435)	ND(3 47)	ND(3 545)	ND(3 47)	ND(3 79)	ND(3 705)	ND(6 85)	ND(3 4)	ND(3 4)	ND(3 4)	ND(3 92)	ND(4 015)	
Polychlorinated Biphenyls by MCP 8082 (mg/kg)						ALLND	ALLND	ALLND	ALLND	ALLND	ALLND	ALLND	ALLND	ALLND	ALLND	ALLND	ALLND	
Total Metals by MCP 6000000 series (mg/kg)																		
Arsenic Total						4 8	4 4	3 9	6 6	5 3	6 4	4 9	4 3	3 3	5 5	5 8	6 4	
Barium Total						22	18	33	50	32	30	22	17	36	26	20	32	
Chromium Total						19	7	15	14	11	14	8 3	6	13	11	7 3	12	
Lead Total						3 6	3 1	5 4	6 2	11	9 1	4 4	ND(1 25)	4 6	4 5	ND(1 35)	3 9	

Notes:
ND(I) Not detected. (0.5 RDL) NA Not applicable
Table limited to detected contaminants
Samples collected by Haley & Aldrich, Inc. and ERM Blank- Not Tested

TABLE 4 - SUMMARY OF GROUNDWATER ANALYSES

430 BOSTON POST ROAD, WAYLAND, MASSACHUSETTS

RTN 3-13302

VERTEX PROJECT No. 19163

WELL DESIGNATION SAMPLING DATE SAMPLE COLLECTED BY	Method 1 GW- 1 Standard	Method 1 GW- 2 Standard	Method 1 GW- 3 Standard	MW-1 24-Oct-95 ERM	MW-1 27-May-98 ERM	MW-1 18-Feb-02 ERM	MW-40 5-Oct-10 ERM	MW-40S 5-Oct-10 ERM	MW-43S 6-Oct-10 ERM	MW-47M 6-Oct-10 ERM	MW-118 6-Oct-10 ERM	MW-201M 6-Oct-10 ERM	MW-202M 6-Oct-10 ERM	MW-403 6-Oct-10 ERM	MW-404 6-Oct-10 ERM	DEP-19M 7-Apr-11 ERM	DEP-21 7-Apr-11 ERM	MW-263M 7-Apr-11 ERM	MW-264M 7-Apr-11 ERM	MW-264M(DUP) 7-Apr-11 ERM	MW-266Ma 7-Apr-11 ERM	MW-267M 7-Apr-11 ERM	MW-267S 7-Apr-11 ERM	MW-267S(DUP) 7-Apr-11 ERM	MW-268D 7-Apr-11 ERM	MW-269Ma 7-Apr-11 ERM	MW-554D 7-Apr-11 ERM	MW-555D 7-Apr-11 ERM	
Chloroform	70	50	20,000	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	1 2	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	50	30,000	ND	ND	ND	ND	ND	ND	5 4	ND	ND	ND	1 4	ND	ND	ND	ND	7	7 2	ND	15	11	13	ND	ND	ND	ND	ND
Trichloroethene	5	30	5,000	ND	ND	ND	3 9	4 5	7 3	15	25	56	32	30	13	ND	2 1	ND	37	37	6	240	510	450	8 4	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	100	50,000	ND	ND	ND	ND	ND	ND	ND	ND	48	ND	1 6	ND	2 7	14	ND	28	28	2 3	320	97	85	9 8	2 1	ND	ND	1 3
1,1,1-Trichloroethane	200	4,000	20,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7	80	30,000	ND	ND	ND	ND	ND	ND	ND	ND	4 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	1,000	20,000	ND	ND	ND	ND	ND	ND	ND	ND	2 4	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 2	1 3	1 3	ND	1 2	ND	ND	ND
Vinyl Chloride	2	2	50,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	17	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (VOC)	NS	NS	NS	ALL ND	ALL ND	ALL ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	3	6,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 45	NA	1 89
Semi Volatile Organic Compounds (SVOC)	VARIOUS			ALL ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyls (PCB)	VARIOUS			ALL ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Organchlorine Pesticides	VARIOUS			ALL ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Metals	VARIOUS	NS	VARIOUS	ALL ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 ND: Not detected

2 NA: Not analyzed

3 NS: No Standard

TABLE 5 - SUMMARY OF INDOOR AIR CONTAMINANTS OF CONCERN AND HUMAN HEALTH RISK QUOTIENTS

**400 BOSTON POST ROAD, WAYLAND, MASSACHUSETTS
MADEP RTN 3-13302
VERTEX PROJECT No. 19163**

DETECTED CONTAMINANT IN SOIL GAS	CAS NUMBER	SOIL GAS EPC ($\mu\text{g}/\text{m}^3$)	ESTIMATED INDOOR AIR CONCENTRATION ($\mu\text{g}/\text{m}^3$)	ESTIMATED ELCR QUOTIENT	ESTIMATED HI QUOTIENT
1,1,1-Trichloroethane	71-55-6	2.5E+01	1.03E-01	0.00E+00	4.70E-05
1,2,4-Trichlorobenzene	120-82-1	7.4E+00	2.45E-02	0.00E+00	1.22E-04
1,2,4-Trimethylbenzene	95-63-6	5.1E+00	2.02E-02	0.00E+00	3.40E-03
1,3,5-Trimethylbenzene	108-67-8	1.9E+00	7.42E-03	0.00E+00	1.25E-03
1,4-Dichlorobenzene	106-46-7	2.0E+00	8.18E-03	0.00E+00	1.02E-05
2-Dichlorobenzene	78-93-3	2.6E+02	3.50E-04	1.46E-07	2.36E-03
2-Hexanone	591-78-6	6.7E+01	1.06E+00	0.00E+00	1.06E-03
4-Ethyltoluene	622-96-8	1.5E+00	2.87E-06	0.00E+00	3.25E-04
Acetone	67-64-1	1.9E+03	8.13E+00	0.00E+00	2.32E-02
Benzene	71-43-2	1.2E+01	4.84E-02	1.55E-07	1.20E-09
Carbon disulfide	75-15-0	1.5E+01	6.63E-02	0.00E+00	9.47E-05
Chloroethane	75-00-3	7.3E-01	3.38E-03	1.15E-09	3.38E-07
Chloroform	67-66-3	9.6E+00	4.14E-02	3.91E-07	6.00E-05
Chloromethane	74-87-3	1.8E+00	7.83E-03	3.22E-09	8.70E-05
Cyclohexane	110-82-7	1.7E+00	8.90E-07	0.00E+00	7.25E-05
Dichlorodifluoromethane	75-71-8	1.4E+01	5.75E-02	0.00E+00	2.88E-04
Ethanol	64-17-5	1.5E+02	5.13E-05	0.00E+00	8.21E-05
Ethylbenzene	100-41-4	4.4E+00	1.81E-02	8.19E-09	1.81E-05
Freon 113	76-13-1	1.9E+00	1.35E-06	0.00E+00	6.32E-03
Isopropanol	67-63-0	6.5E+01	2.74E-01	0.00E+00	2.61E-04
Methylene chloride	75-09-2	1.7E+01	7.50E-02	1.44E-08	2.48E-05
4-Methyl-2-pentanone	108-10-1	9.9E+00	4.06E-02	0.00E+00	5.08E-04
m/p-Xylene	108-38-3	1.1E+01	4.46E-02	0.00E+00	6.38E-06
o-Xylene	95-47-6	4.9E+00	2.05E-02	0.00E+00	2.96E-06
Heptane	142-82-5	1.2E+01	6.32E-05	0.00E+00	4.98E-06
n-Hexane	110-54-3	1.3E+01	6.09E-02	0.00E+00	3.05E-04
Propylene	115-07-1	4.9E+01	1.95E-01	0.00E+00	1.39E-03
Styrene	100-42-5	1.7E+00	6.71E-03	0.00E+00	6.71E-06
Tetrachloroethylene	127-18-4	1.1E+02	4.36E-01	5.38E-07	9.80E-05
Tetrahydrofuran	109-99-9	2.5E+00	8.97E-03	0.00E+00	3.25E-02
Toluene	108-88-3	1.9E+01	7.98E-02	0.00E+00	2.00E-04
Trichloroethylene	79-01-6	9.9E+01	4.12E-02	1.86E-06	1.03E-03
Trichlorofluoromethane	75-69-4	8.5E+02	3.56E+00	0.00E+00	5.09E-03
Vinyl acetate	108-05-4	4.8E+01	2.00E-01	0.00E+00	9.99E-04
Cumulative risk				3.12E-06	8.12E-02

Notes:

1. The soil vapor Exposure Point Concentration (EPC) is the maximum detected level.
2. Estimated indoor air concentrations via US EPA air simulation model - 2006.
3. ELCR - Excess Lifetime Cancer Risk Limit = 1E-05.
4. HI - Hazard Index for non-cancer risk limit = 1E+01.

FIGURES



Environmental



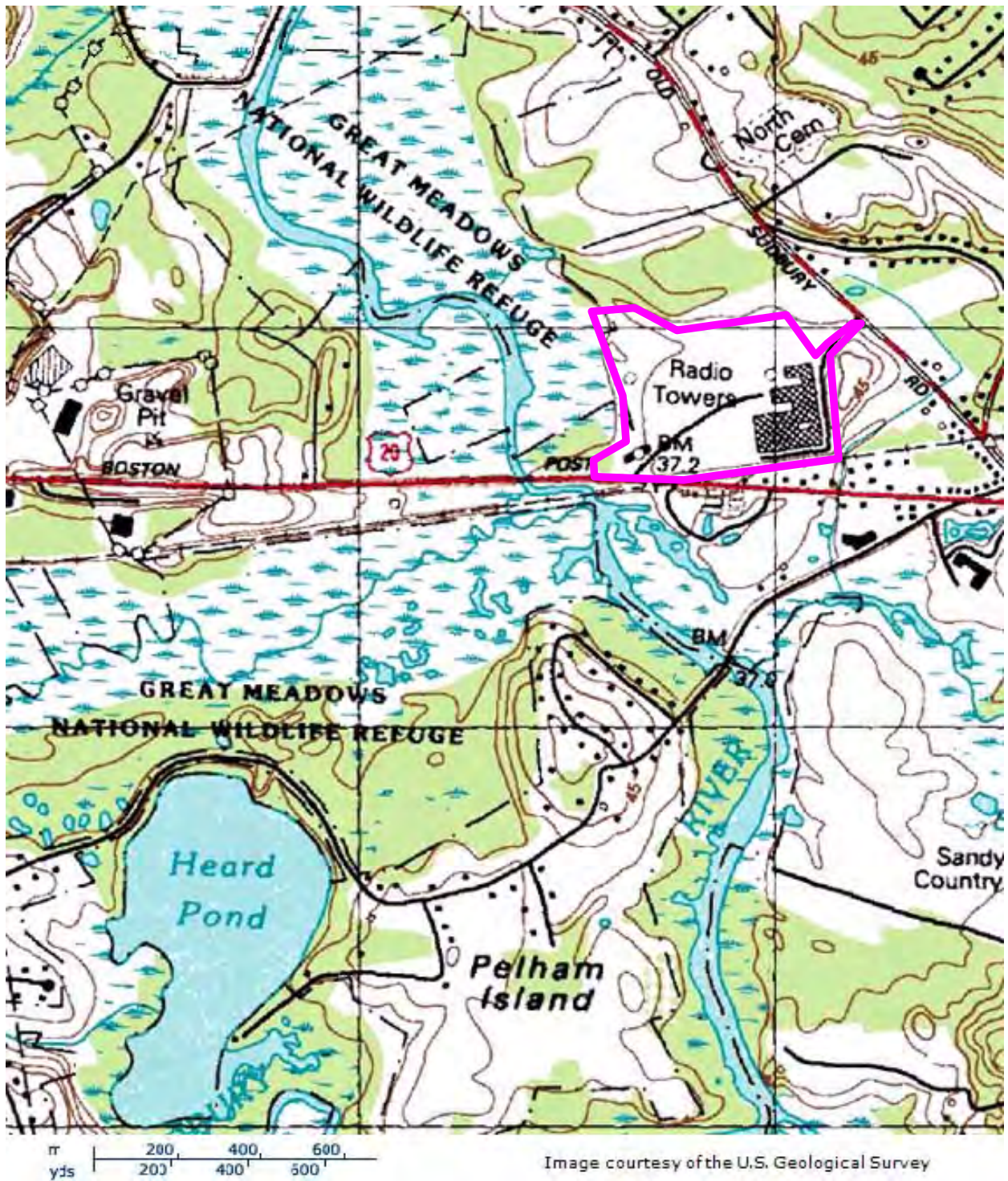
Construction



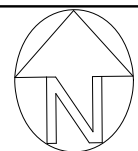
Air Quality



Energy



USGS Topographic Map, 1987
Wayland, MA Quadrangle
Contour Interval: As Shown



SITE LOCUS MAP

Former Raytheon Facility
430 Boston Post Road
Wayland, MA

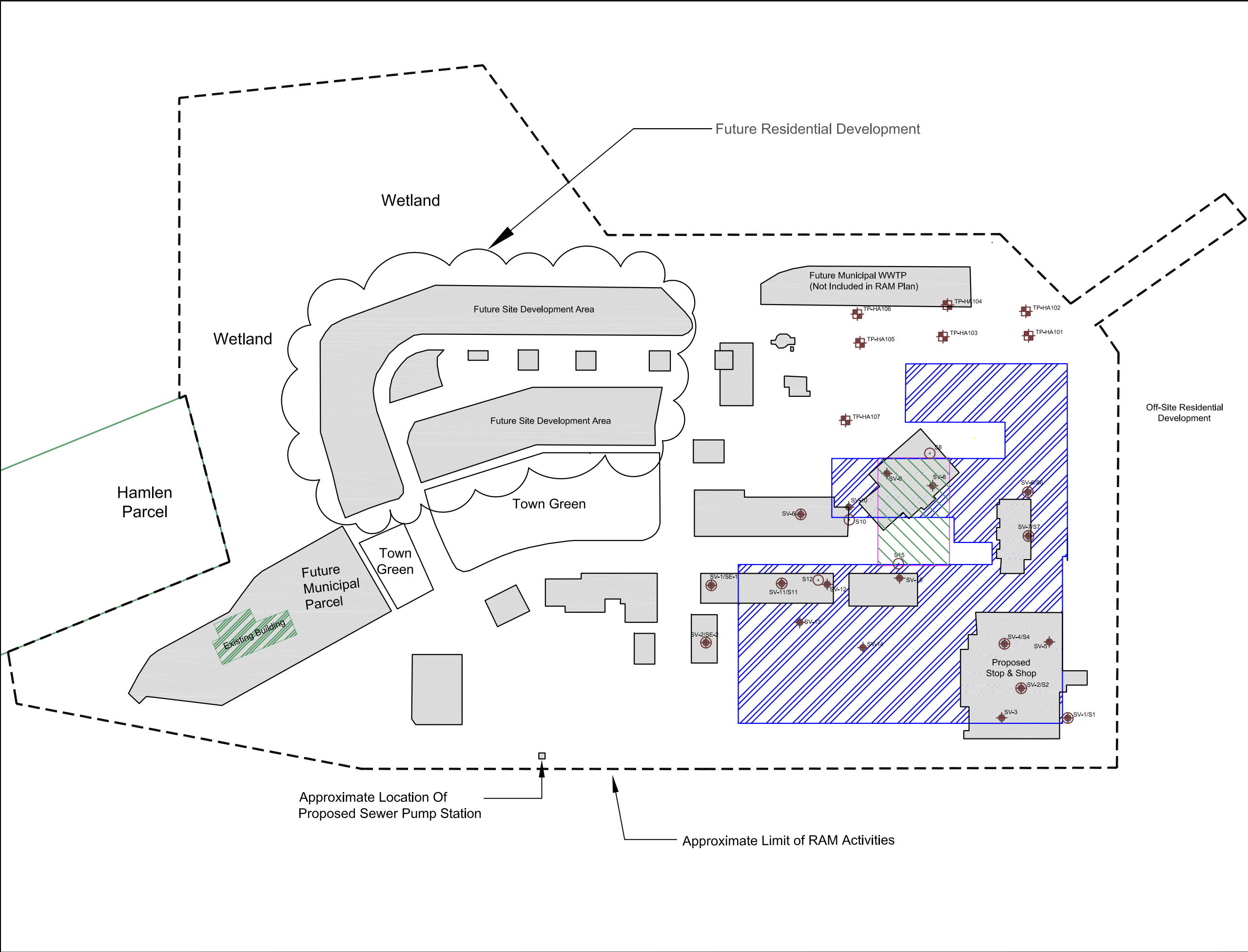
SCALE: AS SHOWN

July 2011

VERTEX Proj. No. 19163

VERTEX

Environmental Services, Inc.
FIGURE NO. 1



LEGEND

- Soil Vapor Sample (H&A)
- Soil Vapor/Soil Sample (H&A)
- Test Pit (H&A)
- Soil Sample (H&A)
- Proposed Building
- Existing Building
- April 1999 Former UST AUL Area



VERTEX

Environmental Services, Inc.
VERTEX@vertexeng.com

Boston Denver San Francisco

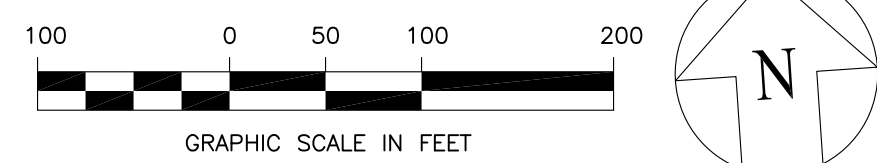
Project: Former Raytheon Facility
430 Boston Post Road
Wayland, MA

Drawing Title:
Site Schematic

Date:
July 2011

Figure No:
2

Job Number:
19163



APPENDIX A

LABORATORY ANALYTICAL REPORTS



Environmental



Construction



Air Quality



Energy



ANALYTICAL REPORT

Lab Number: L0811375

Client: Haley & Aldrich, Inc.
465 Medford Street, Suite 2200
Charlestown, MA 02129-1400

ATTN: Kate Leblanc

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Report Date: 08/07/08

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

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



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

Alpha Sample ID	Client ID	Sample Location
L0811375-01	S8	WAYLAND, MA
L0811375-02	S10	WAYLAND, MA
L0811375-03	S16	WAYLAND, MA
L0811375-04	SE1	WAYLAND, MA
L0811375-05	SE2	WAYLAND, MA

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

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, B, C & D is required for "Presumptive Certainty" status		
A	Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set?	YES
B	Were all QA/QC procedures required for the specified analytical methods(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	YES
C	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	YES
D	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	YES
A response to questions E and F is required for "Presumptive Certainty" status		
E	Were all QC performance standards and recommendations for the specified method(s) achieved?	NO
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	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: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

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.

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.

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

MCP Related Narratives

EPH

L0811375-03 has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample.

PCB

In reference to question E:

L0811375-01: The Continuing Calibration criteria was not met for the confirmatory column; however, the sample was non-detect for the target analytes. Therefore, no further actions were taken.

Metals

In reference to question F:

All samples were analyzed for a subset of MCP elements 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:



Title: Technical Director/Representative

Date: 08/07/08

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-01
Client ID: S8
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 19:59
Analyst: MF
Percent Solids: 88%

Date Collected: 08/01/08 08:15
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	7.58	1
C19-C36 Aliphatics	ND		mg/kg	7.58	1
C11-C22 Aromatics	8.44		mg/kg	7.58	1
C11-C22 Aromatics, Adjusted	8.44		mg/kg	7.58	1
Naphthalene	ND		mg/kg	0.379	1
2-Methylnaphthalene	ND		mg/kg	0.379	1
Acenaphthylene	ND		mg/kg	0.379	1
Acenaphthene	ND		mg/kg	0.379	1
Fluorene	ND		mg/kg	0.379	1
Phenanthrene	ND		mg/kg	0.379	1
Anthracene	ND		mg/kg	0.379	1
Fluoranthene	ND		mg/kg	0.379	1
Pyrene	ND		mg/kg	0.379	1
Benzo(a)anthracene	ND		mg/kg	0.379	1
Chrysene	ND		mg/kg	0.379	1
Benzo(b)fluoranthene	ND		mg/kg	0.379	1
Benzo(k)fluoranthene	ND		mg/kg	0.379	1
Benzo(a)pyrene	ND		mg/kg	0.379	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.379	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.379	1
Benzo(ghi)perylene	ND		mg/kg	0.379	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-01

Date Collected: 08/01/08 08:15

Client ID: S8

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	69		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	86		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-02
Client ID: S10
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 21:37
Analyst: MF
Percent Solids: 90%

Date Collected: 08/01/08 09:00
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	7.41	1
C19-C36 Aliphatics	ND		mg/kg	7.41	1
C11-C22 Aromatics	8.75		mg/kg	7.41	1
C11-C22 Aromatics, Adjusted	8.75		mg/kg	7.41	1
Naphthalene	ND		mg/kg	0.370	1
2-Methylnaphthalene	ND		mg/kg	0.370	1
Acenaphthylene	ND		mg/kg	0.370	1
Acenaphthene	ND		mg/kg	0.370	1
Fluorene	ND		mg/kg	0.370	1
Phenanthrene	ND		mg/kg	0.370	1
Anthracene	ND		mg/kg	0.370	1
Fluoranthene	ND		mg/kg	0.370	1
Pyrene	ND		mg/kg	0.370	1
Benzo(a)anthracene	ND		mg/kg	0.370	1
Chrysene	ND		mg/kg	0.370	1
Benzo(b)fluoranthene	ND		mg/kg	0.370	1
Benzo(k)fluoranthene	ND		mg/kg	0.370	1
Benzo(a)pyrene	ND		mg/kg	0.370	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.370	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.370	1
Benzo(ghi)perylene	ND		mg/kg	0.370	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-02

Date Collected: 08/01/08 09:00

Client ID: S10

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	73		40-140
2-Fluorobiphenyl	84		40-140
2-Bromonaphthalene	84		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-03
Client ID: S16
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/06/08 18:19
Analyst: MF
Percent Solids: 94%

Date Collected: 08/01/08 09:50
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	14.2	2
C19-C36 Aliphatics	32.5		mg/kg	14.2	2
C11-C22 Aromatics	32.3		mg/kg	14.2	2
C11-C22 Aromatics, Adjusted	32.3		mg/kg	14.2	2
Naphthalene	ND		mg/kg	0.709	2
2-Methylnaphthalene	ND		mg/kg	0.709	2
Acenaphthylene	ND		mg/kg	0.709	2
Acenaphthene	ND		mg/kg	0.709	2
Fluorene	ND		mg/kg	0.709	2
Phenanthrene	ND		mg/kg	0.709	2
Anthracene	ND		mg/kg	0.709	2
Fluoranthene	ND		mg/kg	0.709	2
Pyrene	ND		mg/kg	0.709	2
Benzo(a)anthracene	ND		mg/kg	0.709	2
Chrysene	ND		mg/kg	0.709	2
Benzo(b)fluoranthene	ND		mg/kg	0.709	2
Benzo(k)fluoranthene	ND		mg/kg	0.709	2
Benzo(a)pyrene	ND		mg/kg	0.709	2
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.709	2
Dibenzo(a,h)anthracene	ND		mg/kg	0.709	2
Benzo(ghi)perylene	ND		mg/kg	0.709	2

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-03

Date Collected: 08/01/08 09:50

Client ID: S16

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	72		40-140
2-Fluorobiphenyl	72		40-140
2-Bromonaphthalene	73		40-140

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-04
Client ID: SE1
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/06/08 17:51
Analyst: MF
Percent Solids: 85%

Date Collected: 08/01/08 10:40
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	7.84	1
C19-C36 Aliphatics	ND		mg/kg	7.84	1
C11-C22 Aromatics	10.0		mg/kg	7.84	1
C11-C22 Aromatics, Adjusted	10.0		mg/kg	7.84	1
Naphthalene	ND		mg/kg	0.392	1
2-Methylnaphthalene	ND		mg/kg	0.392	1
Acenaphthylene	ND		mg/kg	0.392	1
Acenaphthene	ND		mg/kg	0.392	1
Fluorene	ND		mg/kg	0.392	1
Phenanthrene	ND		mg/kg	0.392	1
Anthracene	ND		mg/kg	0.392	1
Fluoranthene	ND		mg/kg	0.392	1
Pyrene	ND		mg/kg	0.392	1
Benzo(a)anthracene	ND		mg/kg	0.392	1
Chrysene	ND		mg/kg	0.392	1
Benzo(b)fluoranthene	ND		mg/kg	0.392	1
Benzo(k)fluoranthene	ND		mg/kg	0.392	1
Benzo(a)pyrene	ND		mg/kg	0.392	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.392	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.392	1
Benzo(ghi)perylene	ND		mg/kg	0.392	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-04

Date Collected: 08/01/08 10:40

Client ID: SE1

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	53		40-140
o-Terphenyl	62		40-140
2-Fluorobiphenyl	70		40-140
2-Bromonaphthalene	68		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-05
Client ID: SE2
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 21:05
Analyst: MF
Percent Solids: 83%

Date Collected: 08/01/08 11:25
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	8.03	1
C19-C36 Aliphatics	ND		mg/kg	8.03	1
C11-C22 Aromatics	ND		mg/kg	8.03	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	8.03	1
Naphthalene	ND		mg/kg	0.402	1
2-Methylnaphthalene	ND		mg/kg	0.402	1
Acenaphthylene	ND		mg/kg	0.402	1
Acenaphthene	ND		mg/kg	0.402	1
Fluorene	ND		mg/kg	0.402	1
Phenanthrene	ND		mg/kg	0.402	1
Anthracene	ND		mg/kg	0.402	1
Fluoranthene	ND		mg/kg	0.402	1
Pyrene	ND		mg/kg	0.402	1
Benzo(a)anthracene	ND		mg/kg	0.402	1
Chrysene	ND		mg/kg	0.402	1
Benzo(b)fluoranthene	ND		mg/kg	0.402	1
Benzo(k)fluoranthene	ND		mg/kg	0.402	1
Benzo(a)pyrene	ND		mg/kg	0.402	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.402	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.402	1
Benzo(ghi)perylene	ND		mg/kg	0.402	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811375**Project Number:** 12069-054**Report Date:** 08/07/08**SAMPLE RESULTS**

Lab ID: L0811375-05

Date Collected: 08/01/08 11:25

Client ID: SE2

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	45		40-140
o-Terphenyl	71		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	80		40-140

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

Method Blank Analysis Batch Quality Control

Analytical Method: 61,EPH-04-1
 Analytical Date: 08/05/08 15:01
 Analyst: MF

Extraction Method: EPA 3546
 Extraction Date: 08/02/08 09:30

Parameter	Result	Qualifier	Units	RDL
Extractable Petroleum Hydrocarbons for sample(s): 01-05 Batch: WG331278-1				
C9-C18 Aliphatics	ND		mg/kg	6.67
C19-C36 Aliphatics	ND		mg/kg	6.67
C11-C22 Aromatics	ND		mg/kg	6.67
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.67
Naphthalene	ND		mg/kg	0.333
2-Methylnaphthalene	ND		mg/kg	0.333
Acenaphthylene	ND		mg/kg	0.333
Acenaphthene	ND		mg/kg	0.333
Fluorene	ND		mg/kg	0.333
Phenanthrene	ND		mg/kg	0.333
Anthracene	ND		mg/kg	0.333
Fluoranthene	ND		mg/kg	0.333
Pyrene	ND		mg/kg	0.333
Benzo(a)anthracene	ND		mg/kg	0.333
Chrysene	ND		mg/kg	0.333
Benzo(b)fluoranthene	ND		mg/kg	0.333
Benzo(k)fluoranthene	ND		mg/kg	0.333
Benzo(a)pyrene	ND		mg/kg	0.333
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.333
Dibenzo(a,h)anthracene	ND		mg/kg	0.333
Benzo(ghi)perylene	ND		mg/kg	0.333

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	80		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811375

Report Date: 08/07/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Extractable Petroleum Hydrocarbons Associated sample(s): 01-05 Batch: WG331278-2 WG331278-3					
C9-C18 Aliphatics	51	54	40-140	6	25
C19-C36 Aliphatics	60	62	40-140	3	25
C11-C22 Aromatics	80	80	40-140	0	25
Naphthalene	64	64	40-140	0	25
2-Methylnaphthalene	64	63	40-140	2	25
Acenaphthylene	64	64	40-140	0	25
Acenaphthene	68	68	40-140	0	25
Fluorene	74	73	40-140	1	25
Phenanthrene	80	78	40-140	3	25
Anthracene	78	76	40-140	3	25
Fluoranthene	86	85	40-140	1	25
Pyrene	86	85	40-140	1	25
Benzo(a)anthracene	86	86	40-140	0	25
Chrysene	87	87	40-140	0	25
Benzo(b)fluoranthene	84	84	40-140	0	25
Benzo(k)fluoranthene	87	87	40-140	0	25
Benzo(a)pyrene	77	77	40-140	0	25
Indeno(1,2,3-cd)Pyrene	79	79	40-140	0	25
Dibenzo(a,h)anthracene	82	82	40-140	0	25
Benzo(ghi)perylene	80	80	40-140	0	25
Nonane (C9)	39	44	30-140	12	25

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811375

Report Date: 08/07/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Extractable Petroleum Hydrocarbons Associated sample(s): 01-05 Batch: WG331278-2 WG331278-3					
Decane (C10)	46	51	40-140	10	25
Dodecane (C12)	54	56	40-140	4	25
Tetradecane (C14)	55	57	40-140	4	25
Hexadecane (C16)	58	60	40-140	3	25
Octadecane (C18)	59	60	40-140	2	25
Nonadecane (C19)	60	61	40-140	2	25
Eicosane (C20)	60	63	40-140	5	25
Docosane (C22)	62	64	40-140	3	25
Tetracosane (C24)	65	67	40-140	3	25
Hexacosane (C26)	62	63	40-140	2	25
Octacosane (C28)	62	63	40-140	2	25
Triacontane (C30)	60	62	40-140	3	25
Hexatriacontane (C36)	60	61	40-140	2	25
% Naphthalene Breakthrough	0	0		NC	
% 2-Methylnaphthalene Breakthrough	0	0		NC	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811375

Report Date: 08/07/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Extractable Petroleum Hydrocarbons Associated sample(s): 01-05 Batch: WG331278-2 WG331278-3					

Surrogate	LCS %Recovery	Qualifier	LCSD %Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	52		56		40-140
o-Terphenyl	85		84		40-140
2-Fluorobiphenyl	83		84		40-140
2-Bromonaphthalene	85		86		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

**Fractionation Check Standard
Quality Control**

Fractionation check standard for 200818205

Parameter	% Recovery	QC Criteria
C9-C18 Aliphatics	77	40-140
C19-C36 Aliphatics	76	40-140
C11-C22 Aromatics	86	40-140
Naphthalene	82	40-140
2-Methylnaphthalene	78	40-140
Acenaphthylene	76	40-140
Acenaphthene	80	40-140
Fluorene	79	40-140
Phenanthrene	78	40-140
Anthracene	82	40-140
Fluoranthene	84	40-140
Pyrene	84	40-140
Benzo(a)anthracene	82	40-140
Chrysene	88	40-140
Benzo(b)fluoranthene	81	40-140
Benzo(k)fluoranthene	97	40-140
Benzo(a)pyrene	78	40-140
Indeno(1,2,3-cd)Pyrene	76	40-140
D benzo(a,h)anthracene	83	40-140
Benzo(g,h,i)perylene	82	40-140
Nonane	72	30-140
Decane	77	40-140
Dodecane	80	40-140
Tetradecane	76	40-140
Hexadecane	78	40-140
Octadecane	76	40-140
Nonadecane	75	40-140
Eicosane	77	40-140
Docosane	79	40-140
Tetracosane	83	40-140
Hexacosane	78	40-140
Octacosane	77	40-140
triacontane	76	40-140
Hexatriacontane	75	40-140
% Naphthalene Breakthrough	0	40-140
% 2-Methylnaphthalene Breakthrough	0	40-140

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

**Fractionation Check Standard
Quality Control**

Fractionation check standard for 200818205

Surrogate	% Recovery	QC Criteria
Chloro-Octadecane	66	40-140
o-Terphenyl	83	40-140
2-Fluorobiphenyl	75	40-140
2-Bromonaphthalene	76	40-140

PCBS

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-01
Client ID: S8
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 23:10
Analyst: JB
Percent Solids: 88%

Date Collected: 08/01/08 08:15
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	37.9	1
Aroclor 1221	ND		ug/kg	37.9	1
Aroclor 1232	ND		ug/kg	37.9	1
Aroclor 1242	ND		ug/kg	37.9	1
Aroclor 1248	ND		ug/kg	37.9	1
Aroclor 1254	ND		ug/kg	37.9	1
Aroclor 1260	ND		ug/kg	37.9	1
Aroclor 1262	ND		ug/kg	37.9	1
Aroclor 1268	ND		ug/kg	37.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	53		30-150	A
Decachlorobiphenyl	53		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	72		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-02
Client ID: S10
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 23:37
Analyst: JB
Percent Solids: 90%

Date Collected: 08/01/08 09:00
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	37.0	1
Aroclor 1221	ND		ug/kg	37.0	1
Aroclor 1232	ND		ug/kg	37.0	1
Aroclor 1242	ND		ug/kg	37.0	1
Aroclor 1248	ND		ug/kg	37.0	1
Aroclor 1254	ND		ug/kg	37.0	1
Aroclor 1260	ND		ug/kg	37.0	1
Aroclor 1262	ND		ug/kg	37.0	1
Aroclor 1268	ND		ug/kg	37.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	54		30-150	A
Decachlorobiphenyl	59		30-150	A
2,4,5,6-Tetrachloro-m-xylene	67		30-150	B
Decachlorobiphenyl	72		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-03
Client ID: S16
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 23:51
Analyst: JB
Percent Solids: 94%

Date Collected: 08/01/08 09:50
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	35.5	1
Aroclor 1221	ND		ug/kg	35.5	1
Aroclor 1232	ND		ug/kg	35.5	1
Aroclor 1242	ND		ug/kg	35.5	1
Aroclor 1248	ND		ug/kg	35.5	1
Aroclor 1254	ND		ug/kg	35.5	1
Aroclor 1260	ND		ug/kg	35.5	1
Aroclor 1262	ND		ug/kg	35.5	1
Aroclor 1268	ND		ug/kg	35.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	52		30-150	A
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	74		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-04
 Client ID: SE1
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Analytical Method: 64,8082
 Analytical Date: 08/06/08 00:05
 Analyst: JB
 Percent Solids: 85%

Date Collected: 08/01/08 10:40
 Date Received: 08/01/08
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 08/04/08 11:15
 Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Polychlorinated Biphenyls by MCP 8082

Aroclor 1016	ND		ug/kg	39.2	1
Aroclor 1221	ND		ug/kg	39.2	1
Aroclor 1232	ND		ug/kg	39.2	1
Aroclor 1242	ND		ug/kg	39.2	1
Aroclor 1248	ND		ug/kg	39.2	1
Aroclor 1254	ND		ug/kg	39.2	1
Aroclor 1260	ND		ug/kg	39.2	1
Aroclor 1262	ND		ug/kg	39.2	1
Aroclor 1268	ND		ug/kg	39.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	56		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	62		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-05
Client ID: SE2
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/06/08 00:19
Analyst: JB
Percent Solids: 83%

Date Collected: 08/01/08 11:25
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	40.2	1
Aroclor 1221	ND		ug/kg	40.2	1
Aroclor 1232	ND		ug/kg	40.2	1
Aroclor 1242	ND		ug/kg	40.2	1
Aroclor 1248	ND		ug/kg	40.2	1
Aroclor 1254	ND		ug/kg	40.2	1
Aroclor 1260	ND		ug/kg	40.2	1
Aroclor 1262	ND		ug/kg	40.2	1
Aroclor 1268	ND		ug/kg	40.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	53		30-150	A
Decachlorobiphenyl	49		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	65		30-150	B

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

Method Blank Analysis Batch Quality Control

Analytical Method: 64,8082
 Analytical Date: 08/04/08 13:55
 Analyst: JB

Extraction Method: EPA 3546
 Extraction Date: 08/04/08 08:45
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 08/04/08

Parameter	Result	Qualifier	Units	RDL
Polychlorinated Biphenyls by MCP 8082 for sample(s): 01-05 Batch: WG331341-1				
Aroclor 1016	ND		ug/kg	33.3
Aroclor 1221	ND		ug/kg	33.3
Aroclor 1232	ND		ug/kg	33.3
Aroclor 1242	ND		ug/kg	33.3
Aroclor 1248	ND		ug/kg	33.3
Aroclor 1254	ND		ug/kg	33.3
Aroclor 1260	ND		ug/kg	33.3
Aroclor 1262	ND		ug/kg	33.3
Aroclor 1268	ND		ug/kg	33.3

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		30-150	A
Decachlorobiphenyl	78		30-150	A
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	92		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811375

Report Date: 08/07/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Polychlorinated Biphenyls by MCP 8082 Associated sample(s): 01-05 Batch: WG331341-2 WG331341-3					
Aroclor 1016	89	75	40-140	17	30
Aroclor 1260	83	74	40-140	11	30

Surrogate	LCS %Recovery	Qualifier	LCSD %Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		65		30-150	A
Decachlorobiphenyl	84		77		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		69		30-150	B
Decachlorobiphenyl	90		80		30-150	B

METALS

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-01

Date Collected: 08/01/08 08:15

Client ID: S8

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	5.3		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:52	EPA 3050B	60,6010B	MG
Barium, Total	32		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:52	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:52	EPA 3050B	60,6010B	MG
Chromium, Total	11		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:52	EPA 3050B	60,6010B	MG
Lead, Total	11		mg/kg	2.7	1	08/04/08 12:00	08/05/08 11:52	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.09	1	08/04/08 23:00	08/05/08 18:04	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.7	1	08/04/08 12:00	08/05/08 11:52	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:52	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-02
 Client ID: S10
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Percent Solids: 90%

Date Collected: 08/01/08 09:00
 Date Received: 08/01/08
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	6.4		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:55	EPA 3050B	60,6010B	MG
Barium, Total	30		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:55	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:55	EPA 3050B	60,6010B	MG
Chromium, Total	14		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:55	EPA 3050B	60,6010B	MG
Lead, Total	9.1		mg/kg	2.7	1	08/04/08 12:00	08/05/08 11:55	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.09	1	08/04/08 23:00	08/05/08 18:06	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.7	1	08/04/08 12:00	08/05/08 11:55	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.54	1	08/04/08 12:00	08/05/08 11:55	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-03

Date Collected: 08/01/08 09:50

Client ID: S16

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	5.5		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:58	EPA 3050B	60,6010B	MG
Barium, Total	26		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:58	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:58	EPA 3050B	60,6010B	MG
Chromium, Total	11		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:58	EPA 3050B	60,6010B	MG
Lead, Total	4.5		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:58	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 18:12	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:58	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:58	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-04
 Client ID: SE1
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Percent Solids: 85%

Date Collected: 08/01/08 10:40
 Date Received: 08/01/08
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	5.8		mg/kg	0.54	1	08/04/08 12:00	08/05/08 12:00	EPA 3050B	60,6010B	MG
Barium, Total	20		mg/kg	0.54	1	08/04/08 12:00	08/05/08 12:00	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.54	1	08/04/08 12:00	08/05/08 12:00	EPA 3050B	60,6010B	MG
Chromium, Total	7.3		mg/kg	0.54	1	08/04/08 12:00	08/05/08 12:00	EPA 3050B	60,6010B	MG
Lead, Total	ND		mg/kg	2.7	1	08/04/08 12:00	08/05/08 12:00	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.10	1	08/04/08 23:00	08/05/08 18:13	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.7	1	08/04/08 12:00	08/05/08 12:00	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.54	1	08/04/08 12:00	08/05/08 12:00	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-05
 Client ID: SE2
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Percent Solids: 83%

Date Collected: 08/01/08 11:25
 Date Received: 08/01/08
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	6.4		mg/kg	0.58	1	08/04/08 12:00	08/05/08 12:03	EPA 3050B	60,6010B	MG
Barium, Total	32		mg/kg	0.58	1	08/04/08 12:00	08/05/08 12:03	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.58	1	08/04/08 12:00	08/05/08 12:03	EPA 3050B	60,6010B	MG
Chromium, Total	12		mg/kg	0.58	1	08/04/08 12:00	08/05/08 12:03	EPA 3050B	60,6010B	MG
Lead, Total	3.9		mg/kg	2.9	1	08/04/08 12:00	08/05/08 12:03	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.10	1	08/04/08 23:00	08/05/08 18:15	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.9	1	08/04/08 12:00	08/05/08 12:03	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.58	1	08/04/08 12:00	08/05/08 12:03	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER

Lab Number: L0811375

Project Number: 12069-054

Report Date: 08/07/08

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series for sample(s): 01-05 Batch: WG331366-1									
Arsenic, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Barium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Chromium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Lead, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Selenium, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Silver, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series for sample(s): 01-05 Batch: WG331485-1									
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 17:38	64,7471A	HG

Prep Information

Digestion Method: EPA 7471A

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811375

Report Date: 08/07/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals by MCP 6000/7000 series Associated sample(s): 01-05 Batch: WG331366-2 WG331366-3					
Arsenic, Total	89	92	75-125	3	30
Barium, Total	90	91	75-125	1	30
Cadmium, Total	92	95	75-125	3	30
Chromium, Total	90	93	75-125	3	30
Lead, Total	92	91	75-125	1	30
Selenium, Total	89	91	75-125	2	30
Silver, Total	92	94	75-125	2	30
Total Metals by MCP 6000/7000 series Associated sample(s): 01-05 Batch: WG331485-2 WG331485-3					
Mercury, Total	98	100	75-125	2	30

INORGANICS & MISCELLANEOUS

Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811375**Report Date:** 08/07/08**SAMPLE RESULTS****Lab ID:** L0811375-01**Client ID:** S8**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 08/01/08 08:15**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	88		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-02
Client ID: S10
Sample Location: WAYLAND, MA
Matrix: Soil

Date Collected: 08/01/08 09:00
Date Received: 08/01/08
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	90		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

SAMPLE RESULTS

Lab ID: L0811375-03
Client ID: S16
Sample Location: WAYLAND, MA
Matrix: Soil

Date Collected: 08/01/08 09:50
Date Received: 08/01/08
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	94		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811375**Report Date:** 08/07/08**SAMPLE RESULTS****Lab ID:** L0811375-04**Client ID:** SE1**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 08/01/08 10:40**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	85		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811375**Report Date:** 08/07/08**SAMPLE RESULTS****Lab ID:** L0811375-05**Client ID:** SE2**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 08/01/08 11:25**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	83		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L0811375

Report Date: 08/07/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Associated sample(s): 01-05 QC Batch ID: WG331294-1 QC Sample: L0811343-01 Client ID: DUP Sample					
Solids, Total	86	88	%	2	20

Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811375**Report Date:** 08/07/08**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0811375-01A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811375-02A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811375-03A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811375-04A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811375-05A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)

*Hold days indicated by values in parentheses



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

GLOSSARY

Acronyms

- 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.
- 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.
- NI - Not Ignitable.
- 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.
- ND - Not detected at the reported detection limit for the sample.
- RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL 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.

Terms

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

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

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.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Report Format: Not Specified



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811375
Report Date: 08/07/08

REFERENCES

- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
- 60 Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). May 2004.
- 61 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH). Massachusetts Department of Environmental Protection, DEA/ORS/BWSC. May 2004, Revision 1.1.
- 64 Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). August 2004.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs 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 Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs 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 Woods Hole Labs.

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.



HALEY & ALDRICHHaley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1402**CHAIN OF CUSTODY RECORD**

Phone (617) 886-7400

Fax (617) 886-7600

Page 1 of 1

H&A FILE NO.

12069-054

PROJECT NAME

Weyland Park Center

H&A CONTACT

Steve Provival

LABORATORY

Alpha

ADDRESS

Westborough MA

CONTACT

Kate O'Brien

DELIVERY DATE

8/1/08

TURNAROUND TIME

5 DAY

PROJECT MANAGER

Kate LeBlanc

Sample No.	Date	Time	Depth	Type	Analysis Requested												Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)
					VOA	AAHC PAH only	MCP Metals	Particulate PCBs	VPI Full Suite	TPH (specify)	TCLP (specify)	Reactivity Ignitability Corrosivity						
S8	8/1/08	0815	0-6'	Soil			X	X		X							1	Laboratory to use applicable DEP CAM methods, unless otherwise directed. ① DRCA B Metals ② PLUS 8082 ③ EPA carbon + target analytes <u>5 TOTAL</u>
S10		0900					X	X		X							1	
S16		0950					X	X		X							1	
SE1		1040					X	X		X							1	
SE2		1125					X	X		X							1	

Sampled and Relinquished by		Received by		LIQUID		SAMPLING COMMENTS	
Sign <u>Matthew Nelson</u>	Sign <u>Don Banks</u>			VOA Vial Amber Glass Plastic Bottle Preservative Volume		For MCP RC-S1	
Print <u>Matthew Nelson</u>	Print <u>DON BANKS</u>						
Firm <u>ALPHA</u>	Firm <u>ALPHA</u>						
Date <u>8/1/08</u> Time <u>1545</u>	Date <u>8/1/08</u> Time <u>1545</u>						
Relinquished by		Received by		SOLID		Evidence samples were tampered with? YES NO If YES, please explain in section below.	
Sign <u>Don Banks</u>	Sign <u>William McLendon</u>	VOA Vial Amber Glass Clear Glass Preservative Volume					
Print <u>DON BANKS</u>	Print <u>William McLendon</u>						
Firm <u>ALPHA</u>	Firm <u>Alpha</u>						
Date <u>8/1/08</u> Time <u>1745</u>	Date <u>8/1/08</u> Time <u>1745</u>						
Relinquished by		Received by		PRESERVATION KEY			
Sign	Sign			A Sample chilled C NaOH E H ₂ SO ₄ G Methanol B Sample filtered D HNO ₃ F HCL H Water/NaHSO ₄ (circle)			
Print	Print						
Firm	Firm						
Date	Date						

ALPHA Job # L0811375**HALEY & ALDRICH**Haley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1402**CHAIN OF CUSTODY RECORD**

Phone (617) 886-7400

Fax (617) 886-7600

Page 1 of 1

H&A FILE NO.

12069-054

PROJECT NAME

Weyland Park Center

H&A CONTACT

Steve Provincial

LABORATORY

Alpha

ADDRESS

Westborough MA

CONTACT

Kate O'Brien

DELIVERY DATE

TURNAROUND TIME

PROJECT MANAGER

8/1/08
5 DAY
Kate LeBlanc

Sample No.	Date	Time	Depth	Type	Analysis Requested												Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)
					VOA	AAHC PAH only	MCP Metals	Particulate PCBs	VPI Full Suite (changes only)	DPI Full Suite (changes only)	TPH (specify)	TCLP (specify)	Reactivity Ignitability Corrosivity					
SB	8/1/08	0815	0-6'	Soil			X	X		X								Laboratory to use applicable DEP CAM methods, unless otherwise directed. ① DRCA B Metals ② PLUS 8082 ③ EPA carbon + target analytes <u>5 TOTAL</u>
S10		0900					X	X		X								
S16		0950					X	X		X								
SE1		1040					X	X		X								
SE2		1125					X	X		X								

Sampled and Relinquished by		Received by		Liquor		SOLID		PRESERVATION KEY		Sampling Comments	
Sign <u>Matthew Nelson</u>	Sign <u>DON BANKS</u>	Sign <u>DON BANKS</u>	Sign <u>William meclender</u>	VOA Vial	VOA Vial	VOA Vial	VOA Vial	VOA Vial	VOA Vial	VOA Vial	VOA Vial
Print <u>Matthew Nelson</u>	Print <u>DON BANKS</u>	Print <u>DON BANKS</u>	Print <u>William meclender</u>	Amber Glass	Amber Glass	Amber Glass	Amber Glass	Amber Glass	Amber Glass	Amber Glass	Amber Glass
Firm <u>ALPHA</u>	Firm <u>ALPHA</u>	Firm <u>ALPHA</u>	Firm <u>Alpha</u>	Plastic Bottle	Plastic Bottle	Plastic Bottle	Plastic Bottle	Plastic Bottle	Plastic Bottle	Plastic Bottle	Plastic Bottle
Date <u>8/1/08</u> Time <u>1545</u>	Date <u>8/1/08</u> Time <u>1545</u>	Date <u>8/1/08</u> Time <u>1545</u>	Date <u>8/1/08</u> Time <u>1745</u>	Preservative	Preservative	Preservative	Preservative	Preservative	Preservative	Preservative	Preservative
Relinquished by	Received by	Received by	Received by	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Sign <u>DON BANKS</u>	Sign <u>ALPHA</u>	Sign <u>ALPHA</u>	Sign <u>ALPHA</u>	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Print <u>DON BANKS</u>	Print <u>ALPHA</u>	Print <u>ALPHA</u>	Print <u>ALPHA</u>	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Firm <u>ALPHA</u>	Firm <u>ALPHA</u>	Firm <u>ALPHA</u>	Firm <u>ALPHA</u>	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Date <u>8/1/08</u> Time <u>1745</u>	Date <u>8/1/08</u> Time <u>1745</u>	Date <u>8/1/08</u> Time <u>1745</u>	Date <u>8/1/08</u> Time <u>1745</u>	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Relinquished by	Received by	Received by	Received by	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Sign	Sign	Sign	Sign	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Print	Print	Print	Print	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Firm	Firm	Firm	Firm	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Date	Date	Date	Date	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Time	Time	Time	Time	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

Marix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

This Chain of Custody Record (specify) X includes X does not include samples defined as Drinking Water Samples.If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate. Laboratory should (specify if applicable) analyze**Required Reporting Limits and Data Quality Objectives**

<input checked="" type="checkbox"/> AC-S1	<input type="checkbox"/> S1	<input type="checkbox"/> GW1
<input type="checkbox"/> RC-S2	<input type="checkbox"/> S2	<input type="checkbox"/> GW2
<input type="checkbox"/> RC-GW1	<input type="checkbox"/> S3	<input type="checkbox"/> GW3
<input type="checkbox"/> RC-GW2		



ANALYTICAL REPORT

Lab Number: L0811374

Client: Haley & Aldrich, Inc.
465 Medford Street, Suite 2200
Charlestown, MA 02129-1400

ATTN: Kate Leblanc

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Report Date: 08/08/08

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

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



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

Alpha Sample ID	Client ID	Sample Location
L0811374-01	S15	WAYLAND, MA
L0811374-02	S11	WAYLAND, MA
L0811374-03	S12	WAYLAND, MA
L0811374-04	S1	WAYLAND, MA
L0811374-05	S4	WAYLAND, MA
L0811374-06	S6	WAYLAND, MA
L0811374-07	S7	WAYLAND, MA

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811374

Project Number: 12069-054

Report Date: 08/08/08

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, B, C & D is required for "Presumptive Certainty" status		
A	Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set?	YES
B	Were all QA/QC procedures required for the specified analytical methods(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	YES
C	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	YES
D	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	YES
A response to questions E and F is required for "Presumptive Certainty" status		
E	Were all QC performance standards and recommendations for the specified method(s) achieved?	NO
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	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: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

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.

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.

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

MCP Related Narratives

EPH

L0811374-02 has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample.

PCB

In reference to question E:

L0811374-01 through -07: The Continuing Calibration criteria was not met for the confirmatory column; however, the sample was non-detect for the target analytes. Therefore, no further actions were taken.

Metals

In reference to question F:

All samples were analyzed for a subset of MCP elements 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:



Title: Technical Director/Representative

Date: 08/08/08

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-01
Client ID: S15
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 16:43
Analyst: MF
Percent Solids: 98%

Date Collected: 07/30/08 12:00
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	6.80	1
C19-C36 Aliphatics	ND		mg/kg	6.80	1
C11-C22 Aromatics	12.8		mg/kg	6.80	1
C11-C22 Aromatics, Adjusted	12.8		mg/kg	6.80	1
Naphthalene	ND		mg/kg	0.340	1
2-Methylnaphthalene	ND		mg/kg	0.340	1
Acenaphthylene	ND		mg/kg	0.340	1
Acenaphthene	ND		mg/kg	0.340	1
Fluorene	ND		mg/kg	0.340	1
Phenanthrene	ND		mg/kg	0.340	1
Anthracene	ND		mg/kg	0.340	1
Fluoranthene	ND		mg/kg	0.340	1
Pyrene	ND		mg/kg	0.340	1
Benzo(a)anthracene	ND		mg/kg	0.340	1
Chrysene	ND		mg/kg	0.340	1
Benzo(b)fluoranthene	ND		mg/kg	0.340	1
Benzo(k)fluoranthene	ND		mg/kg	0.340	1
Benzo(a)pyrene	ND		mg/kg	0.340	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.340	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.340	1
Benzo(ghi)perylene	ND		mg/kg	0.340	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-01

Date Collected: 07/30/08 12:00

Client ID: S15

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	81		40-140
2-Fluorobiphenyl	90		40-140
2-Bromonaphthalene	90		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-02
Client ID: S11
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 22:11
Analyst: MF
Percent Solids: 97%

Date Collected: 07/30/08 13:45
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	13.7	2
C19-C36 Aliphatics	ND		mg/kg	13.7	2
C11-C22 Aromatics	23.4		mg/kg	13.7	2
C11-C22 Aromatics, Adjusted	23.4		mg/kg	13.7	2
Naphthalene	ND		mg/kg	0.687	2
2-Methylnaphthalene	ND		mg/kg	0.687	2
Acenaphthylene	ND		mg/kg	0.687	2
Acenaphthene	ND		mg/kg	0.687	2
Fluorene	ND		mg/kg	0.687	2
Phenanthrene	ND		mg/kg	0.687	2
Anthracene	ND		mg/kg	0.687	2
Fluoranthene	ND		mg/kg	0.687	2
Pyrene	ND		mg/kg	0.687	2
Benzo(a)anthracene	ND		mg/kg	0.687	2
Chrysene	ND		mg/kg	0.687	2
Benzo(b)fluoranthene	ND		mg/kg	0.687	2
Benzo(k)fluoranthene	ND		mg/kg	0.687	2
Benzo(a)pyrene	ND		mg/kg	0.687	2
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.687	2
Dibenzo(a,h)anthracene	ND		mg/kg	0.687	2
Benzo(ghi)perylene	ND		mg/kg	0.687	2

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-02

Date Collected: 07/30/08 13:45

Client ID: S11

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	42		40-140
o-Terphenyl	80		40-140
2-Fluorobiphenyl	87		40-140
2-Bromonaphthalene	88		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-03
Client ID: S12
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 17:16
Analyst: MF
Percent Solids: 98%

Date Collected: 07/31/08 08:15
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	6.80	1
C19-C36 Aliphatics	ND		mg/kg	6.80	1
C11-C22 Aromatics	10.6		mg/kg	6.80	1
C11-C22 Aromatics, Adjusted	10.6		mg/kg	6.80	1
Naphthalene	ND		mg/kg	0.340	1
2-Methylnaphthalene	ND		mg/kg	0.340	1
Acenaphthylene	ND		mg/kg	0.340	1
Acenaphthene	ND		mg/kg	0.340	1
Fluorene	ND		mg/kg	0.340	1
Phenanthrene	ND		mg/kg	0.340	1
Anthracene	ND		mg/kg	0.340	1
Fluoranthene	ND		mg/kg	0.340	1
Pyrene	ND		mg/kg	0.340	1
Benzo(a)anthracene	ND		mg/kg	0.340	1
Chrysene	ND		mg/kg	0.340	1
Benzo(b)fluoranthene	ND		mg/kg	0.340	1
Benzo(k)fluoranthene	ND		mg/kg	0.340	1
Benzo(a)pyrene	ND		mg/kg	0.340	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.340	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.340	1
Benzo(ghi)perylene	ND		mg/kg	0.340	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-03

Date Collected: 07/31/08 08:15

Client ID: S12

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	64		40-140
o-Terphenyl	76		40-140
2-Fluorobiphenyl	89		40-140
2-Bromonaphthalene	88		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-04
Client ID: S1
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 17:49
Analyst: MF
Percent Solids: 97%

Date Collected: 07/31/08 09:55
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
Extractable Petroleum Hydrocarbons					
C9-C18 Aliphatics	ND		mg/kg	6.87	1
C19-C36 Aliphatics	ND		mg/kg	6.87	1
C11-C22 Aromatics	11.4		mg/kg	6.87	1
C11-C22 Aromatics, Adjusted	11.4		mg/kg	6.87	1
Naphthalene	ND		mg/kg	0.344	1
2-Methylnaphthalene	ND		mg/kg	0.344	1
Acenaphthylene	ND		mg/kg	0.344	1
Acenaphthene	ND		mg/kg	0.344	1
Fluorene	ND		mg/kg	0.344	1
Phenanthrene	ND		mg/kg	0.344	1
Anthracene	ND		mg/kg	0.344	1
Fluoranthene	ND		mg/kg	0.344	1
Pyrene	ND		mg/kg	0.344	1
Benzo(a)anthracene	ND		mg/kg	0.344	1
Chrysene	ND		mg/kg	0.344	1
Benzo(b)fluoranthene	ND		mg/kg	0.344	1
Benzo(k)fluoranthene	ND		mg/kg	0.344	1
Benzo(a)pyrene	ND		mg/kg	0.344	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.344	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.344	1
Benzo(ghi)perylene	ND		mg/kg	0.344	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-04

Date Collected: 07/31/08 09:55

Client ID: S1

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	55		40-140
o-Terphenyl	74		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	80		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-05
Client ID: S4
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 18:22
Analyst: MF
Percent Solids: 96%

Date Collected: 07/31/08 11:00
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	6.94	1
C19-C36 Aliphatics	ND		mg/kg	6.94	1
C11-C22 Aromatics	ND		mg/kg	6.94	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.94	1
Naphthalene	ND		mg/kg	0.347	1
2-Methylnaphthalene	ND		mg/kg	0.347	1
Acenaphthylene	ND		mg/kg	0.347	1
Acenaphthene	ND		mg/kg	0.347	1
Fluorene	ND		mg/kg	0.347	1
Phenanthrene	ND		mg/kg	0.347	1
Anthracene	ND		mg/kg	0.347	1
Fluoranthene	ND		mg/kg	0.347	1
Pyrene	ND		mg/kg	0.347	1
Benzo(a)anthracene	ND		mg/kg	0.347	1
Chrysene	ND		mg/kg	0.347	1
Benzo(b)fluoranthene	ND		mg/kg	0.347	1
Benzo(k)fluoranthene	ND		mg/kg	0.347	1
Benzo(a)pyrene	ND		mg/kg	0.347	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.347	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.347	1
Benzo(ghi)perylene	ND		mg/kg	0.347	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-05

Date Collected: 07/31/08 11:00

Client ID: S4

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	45		40-140
o-Terphenyl	74		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	89		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-06
Client ID: S6
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 18:54
Analyst: MF
Percent Solids: 94%

Date Collected: 07/31/08 13:30
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	7.09	1
C19-C36 Aliphatics	ND		mg/kg	7.09	1
C11-C22 Aromatics	ND		mg/kg	7.09	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.09	1
Naphthalene	ND		mg/kg	0.355	1
2-Methylnaphthalene	ND		mg/kg	0.355	1
Acenaphthylene	ND		mg/kg	0.355	1
Acenaphthene	ND		mg/kg	0.355	1
Fluorene	ND		mg/kg	0.355	1
Phenanthrene	ND		mg/kg	0.355	1
Anthracene	ND		mg/kg	0.355	1
Fluoranthene	ND		mg/kg	0.355	1
Pyrene	ND		mg/kg	0.355	1
Benzo(a)anthracene	ND		mg/kg	0.355	1
Chrysene	ND		mg/kg	0.355	1
Benzo(b)fluoranthene	ND		mg/kg	0.355	1
Benzo(k)fluoranthene	ND		mg/kg	0.355	1
Benzo(a)pyrene	ND		mg/kg	0.355	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.355	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.355	1
Benzo(ghi)perylene	ND		mg/kg	0.355	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-06

Date Collected: 07/31/08 13:30

Client ID: S6

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	46		40-140
o-Terphenyl	71		40-140
2-Fluorobiphenyl	82		40-140
2-Bromonaphthalene	82		40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-07
Client ID: S7
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 61,EPH-04-1
Analytical Date: 08/05/08 19:27
Analyst: MF
Percent Solids: 96%

Date Collected: 07/31/08 15:30
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/02/08 09:30

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	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

C9-C18 Aliphatics	ND		mg/kg	6.94	1
C19-C36 Aliphatics	ND		mg/kg	6.94	1
C11-C22 Aromatics	8.56		mg/kg	6.94	1
C11-C22 Aromatics, Adjusted	8.56		mg/kg	6.94	1
Naphthalene	ND		mg/kg	0.347	1
2-Methylnaphthalene	ND		mg/kg	0.347	1
Acenaphthylene	ND		mg/kg	0.347	1
Acenaphthene	ND		mg/kg	0.347	1
Fluorene	ND		mg/kg	0.347	1
Phenanthrene	ND		mg/kg	0.347	1
Anthracene	ND		mg/kg	0.347	1
Fluoranthene	ND		mg/kg	0.347	1
Pyrene	ND		mg/kg	0.347	1
Benzo(a)anthracene	ND		mg/kg	0.347	1
Chrysene	ND		mg/kg	0.347	1
Benzo(b)fluoranthene	ND		mg/kg	0.347	1
Benzo(k)fluoranthene	ND		mg/kg	0.347	1
Benzo(a)pyrene	ND		mg/kg	0.347	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.347	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.347	1
Benzo(ghi)perylene	ND		mg/kg	0.347	1

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-07

Date Collected: 07/31/08 15:30

Client ID: S7

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Extractable Petroleum Hydrocarbons

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	53		40-140
o-Terphenyl	80		40-140
2-Fluorobiphenyl	93		40-140
2-Bromonaphthalene	92		40-140

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811374

Project Number: 12069-054

Report Date: 08/08/08

Method Blank Analysis Batch Quality Control

Analytical Method: 61,EPH-04-1
 Analytical Date: 08/05/08 15:01
 Analyst: MF

Extraction Method: EPA 3546
 Extraction Date: 08/02/08 09:30

Parameter	Result	Qualifier	Units	RDL
Extractable Petroleum Hydrocarbons for sample(s): 01-07 Batch: WG331278-1				
C9-C18 Aliphatics	ND		mg/kg	6.67
C19-C36 Aliphatics	ND		mg/kg	6.67
C11-C22 Aromatics	ND		mg/kg	6.67
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.67
Naphthalene	ND		mg/kg	0.333
2-Methylnaphthalene	ND		mg/kg	0.333
Acenaphthylene	ND		mg/kg	0.333
Acenaphthene	ND		mg/kg	0.333
Fluorene	ND		mg/kg	0.333
Phenanthrene	ND		mg/kg	0.333
Anthracene	ND		mg/kg	0.333
Fluoranthene	ND		mg/kg	0.333
Pyrene	ND		mg/kg	0.333
Benzo(a)anthracene	ND		mg/kg	0.333
Chrysene	ND		mg/kg	0.333
Benzo(b)fluoranthene	ND		mg/kg	0.333
Benzo(k)fluoranthene	ND		mg/kg	0.333
Benzo(a)pyrene	ND		mg/kg	0.333
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.333
Dibenzo(a,h)anthracene	ND		mg/kg	0.333
Benzo(ghi)perylene	ND		mg/kg	0.333

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	80		40-140



Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811374

Report Date: 08/08/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Extractable Petroleum Hydrocarbons Associated sample(s): 01-07 Batch: WG331278-2 WG331278-3					
C9-C18 Aliphatics	51	54	40-140	6	25
C19-C36 Aliphatics	60	62	40-140	3	25
C11-C22 Aromatics	80	80	40-140	0	25
Naphthalene	64	64	40-140	0	25
2-Methylnaphthalene	64	63	40-140	2	25
Acenaphthylene	64	64	40-140	0	25
Acenaphthene	68	68	40-140	0	25
Fluorene	74	73	40-140	1	25
Phenanthrene	80	78	40-140	3	25
Anthracene	78	76	40-140	3	25
Fluoranthene	86	85	40-140	1	25
Pyrene	86	85	40-140	1	25
Benzo(a)anthracene	86	86	40-140	0	25
Chrysene	87	87	40-140	0	25
Benzo(b)fluoranthene	84	84	40-140	0	25
Benzo(k)fluoranthene	87	87	40-140	0	25
Benzo(a)pyrene	77	77	40-140	0	25
Indeno(1,2,3-cd)Pyrene	79	79	40-140	0	25
Dibenzo(a,h)anthracene	82	82	40-140	0	25
Benzo(ghi)perylene	80	80	40-140	0	25
Nonane (C9)	39	44	30-140	12	25

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811374

Report Date: 08/08/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Extractable Petroleum Hydrocarbons Associated sample(s): 01-07 Batch: WG331278-2 WG331278-3					
Decane (C10)	46	51	40-140	10	25
Dodecane (C12)	54	56	40-140	4	25
Tetradecane (C14)	55	57	40-140	4	25
Hexadecane (C16)	58	60	40-140	3	25
Octadecane (C18)	59	60	40-140	2	25
Nonadecane (C19)	60	61	40-140	2	25
Eicosane (C20)	60	63	40-140	5	25
Docosane (C22)	62	64	40-140	3	25
Tetracosane (C24)	65	67	40-140	3	25
Hexacosane (C26)	62	63	40-140	2	25
Octacosane (C28)	62	63	40-140	2	25
Triacontane (C30)	60	62	40-140	3	25
Hexatriacontane (C36)	60	61	40-140	2	25
% Naphthalene Breakthrough	0	0		NC	
% 2-Methylnaphthalene Breakthrough	0	0		NC	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811374

Report Date: 08/08/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Extractable Petroleum Hydrocarbons Associated sample(s): 01-07 Batch: WG331278-2 WG331278-3					

Surrogate	LCS %Recovery	Qualifier	LCSD %Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	52		56		40-140
o-Terphenyl	85		84		40-140
2-Fluorobiphenyl	83		84		40-140
2-Bromonaphthalene	85		86		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

**Fractionation Check Standard
Quality Control**

Fractionation check standard for 200818205

Parameter	% Recovery	QC Criteria
C9-C18 Aliphatics	77	40-140
C19-C36 Aliphatics	76	40-140
C11-C22 Aromatics	86	40-140
Naphthalene	82	40-140
2-Methylnaphthalene	78	40-140
Acenaphthylene	76	40-140
Acenaphthene	80	40-140
Fluorene	79	40-140
Phenanthrene	78	40-140
Anthracene	82	40-140
Fluoranthene	84	40-140
Pyrene	84	40-140
Benzo(a)anthracene	82	40-140
Chrysene	88	40-140
Benzo(b)fluoranthene	81	40-140
Benzo(k)fluoranthene	97	40-140
Benzo(a)pyrene	78	40-140
Indeno(1,2,3-cd)Pyrene	76	40-140
D benzo(a,h)anthracene	83	40-140
Benzo(g,h,i)perylene	82	40-140
Nonane	72	30-140
Decane	77	40-140
Dodecane	80	40-140
Tetradecane	76	40-140
Hexadecane	78	40-140
Octadecane	76	40-140
Nonadecane	75	40-140
Eicosane	77	40-140
Docosane	79	40-140
Tetracosane	83	40-140
Hexacosane	78	40-140
Octacosane	77	40-140
triacontane	76	40-140
Hexatriacontane	75	40-140
% Naphthalene Breakthrough	0	40-140
% 2-Methylnaphthalene Breakthrough	0	40-140

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**Fractionation Check Standard
Quality Control**

Fractionation check standard for 200818205

Surrogate	% Recovery	QC Criteria
Chloro-Octadecane	66	40-140
o-Terphenyl	83	40-140
2-Fluorobiphenyl	75	40-140
2-Bromonaphthalene	76	40-140

PCBS

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-01
Client ID: S15
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 21:33
Analyst: JB
Percent Solids: 98%

Date Collected: 07/30/08 12:00
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	34.0	1
Aroclor 1221	ND		ug/kg	34.0	1
Aroclor 1232	ND		ug/kg	34.0	1
Aroclor 1242	ND		ug/kg	34.0	1
Aroclor 1248	ND		ug/kg	34.0	1
Aroclor 1254	ND		ug/kg	34.0	1
Aroclor 1260	ND		ug/kg	34.0	1
Aroclor 1262	ND		ug/kg	34.0	1
Aroclor 1268	ND		ug/kg	34.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	43		30-150	A
Decachlorobiphenyl	40		30-150	A
2,4,5,6-Tetrachloro-m-xylene	53		30-150	B
Decachlorobiphenyl	62		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-02
Client ID: S11
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 21:46
Analyst: JB
Percent Solids: 97%

Date Collected: 07/30/08 13:45
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	34.4	1
Aroclor 1221	ND		ug/kg	34.4	1
Aroclor 1232	ND		ug/kg	34.4	1
Aroclor 1242	ND		ug/kg	34.4	1
Aroclor 1248	ND		ug/kg	34.4	1
Aroclor 1254	ND		ug/kg	34.4	1
Aroclor 1260	ND		ug/kg	34.4	1
Aroclor 1262	ND		ug/kg	34.4	1
Aroclor 1268	ND		ug/kg	34.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	55		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	74		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-03
Client ID: S12
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 22:00
Analyst: JB
Percent Solids: 98%

Date Collected: 07/31/08 08:15
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	34.0	1
Aroclor 1221	ND		ug/kg	34.0	1
Aroclor 1232	ND		ug/kg	34.0	1
Aroclor 1242	ND		ug/kg	34.0	1
Aroclor 1248	ND		ug/kg	34.0	1
Aroclor 1254	ND		ug/kg	34.0	1
Aroclor 1260	ND		ug/kg	34.0	1
Aroclor 1262	ND		ug/kg	34.0	1
Aroclor 1268	ND		ug/kg	34.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	53		30-150	A
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	78		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-04
 Client ID: S1
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Analytical Method: 64,8082
 Analytical Date: 08/05/08 22:14
 Analyst: JB
 Percent Solids: 97%

Date Collected: 07/31/08 09:55
 Date Received: 08/01/08
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 08/04/08 11:15
 Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	34.4	1
Aroclor 1221	ND		ug/kg	34.4	1
Aroclor 1232	ND		ug/kg	34.4	1
Aroclor 1242	ND		ug/kg	34.4	1
Aroclor 1248	ND		ug/kg	34.4	1
Aroclor 1254	ND		ug/kg	34.4	1
Aroclor 1260	ND		ug/kg	34.4	1
Aroclor 1262	ND		ug/kg	34.4	1
Aroclor 1268	ND		ug/kg	34.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		30-150	A
Decachlorobiphenyl	54		30-150	A
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	77		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-05
Client ID: S4
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 22:28
Analyst: JB
Percent Solids: 96%

Date Collected: 07/31/08 11:00
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	34.7	1
Aroclor 1221	ND		ug/kg	34.7	1
Aroclor 1232	ND		ug/kg	34.7	1
Aroclor 1242	ND		ug/kg	34.7	1
Aroclor 1248	ND		ug/kg	34.7	1
Aroclor 1254	ND		ug/kg	34.7	1
Aroclor 1260	ND		ug/kg	34.7	1
Aroclor 1262	ND		ug/kg	34.7	1
Aroclor 1268	ND		ug/kg	34.7	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	A
Decachlorobiphenyl	56		30-150	A
2,4,5,6-Tetrachloro-m-xylene	69		30-150	B
Decachlorobiphenyl	76		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-06
Client ID: S6
Sample Location: WAYLAND, MA
Matrix: Soil
Analytical Method: 64,8082
Analytical Date: 08/05/08 22:42
Analyst: JB
Percent Solids: 94%

Date Collected: 07/31/08 13:30
Date Received: 08/01/08
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 08/04/08 11:15
Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	35.5	1
Aroclor 1221	ND		ug/kg	35.5	1
Aroclor 1232	ND		ug/kg	35.5	1
Aroclor 1242	ND		ug/kg	35.5	1
Aroclor 1248	ND		ug/kg	35.5	1
Aroclor 1254	ND		ug/kg	35.5	1
Aroclor 1260	ND		ug/kg	35.5	1
Aroclor 1262	ND		ug/kg	35.5	1
Aroclor 1268	ND		ug/kg	35.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	64		30-150	A
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	88		30-150	B

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-07
 Client ID: S7
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Analytical Method: 64,8082
 Analytical Date: 08/05/08 22:56
 Analyst: JB
 Percent Solids: 96%

Date Collected: 07/31/08 15:30
 Date Received: 08/01/08
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 08/04/08 11:15
 Cleanup Method1: EPA 3665A

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Polychlorinated Biphenyls by MCP 8082					
Aroclor 1016	ND		ug/kg	34.7	1
Aroclor 1221	ND		ug/kg	34.7	1
Aroclor 1232	ND		ug/kg	34.7	1
Aroclor 1242	ND		ug/kg	34.7	1
Aroclor 1248	ND		ug/kg	34.7	1
Aroclor 1254	ND		ug/kg	34.7	1
Aroclor 1260	ND		ug/kg	34.7	1
Aroclor 1262	ND		ug/kg	34.7	1
Aroclor 1268	ND		ug/kg	34.7	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	40		30-150	A
Decachlorobiphenyl	40		30-150	A
2,4,5,6-Tetrachloro-m-xylene	48		30-150	B
Decachlorobiphenyl	54		30-150	B

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811374

Project Number: 12069-054

Report Date: 08/08/08

Method Blank Analysis Batch Quality Control

Analytical Method: 64,8082
 Analytical Date: 08/04/08 13:55
 Analyst: JB

Extraction Method: EPA 3546
 Extraction Date: 08/04/08 08:45
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 08/04/08

Parameter	Result	Qualifier	Units	RDL
Polychlorinated Biphenyls by MCP 8082 for sample(s): 01-07 Batch: WG331341-1				
Aroclor 1016	ND		ug/kg	33.3
Aroclor 1221	ND		ug/kg	33.3
Aroclor 1232	ND		ug/kg	33.3
Aroclor 1242	ND		ug/kg	33.3
Aroclor 1248	ND		ug/kg	33.3
Aroclor 1254	ND		ug/kg	33.3
Aroclor 1260	ND		ug/kg	33.3
Aroclor 1262	ND		ug/kg	33.3
Aroclor 1268	ND		ug/kg	33.3

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		30-150	A
Decachlorobiphenyl	78		30-150	A
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	92		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Lab Number: L0811374

Project Number: 12069-054

Report Date: 08/08/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Polychlorinated Biphenyls by MCP 8082 Associated sample(s): 01-07 Batch: WG331341-2 WG331341-3					
Aroclor 1016	89	75	40-140	17	30
Aroclor 1260	83	74	40-140	11	30

Surrogate	LCS %Recovery	Qualifier	LCSD %Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		65		30-150	A
Decachlorobiphenyl	84		77		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		69		30-150	B
Decachlorobiphenyl	90		80		30-150	B

METALS

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-01

Date Collected: 07/30/08 12:00

Client ID: S15

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil

Percent Solids: 98%

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	3.3		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:19	EPA 3050B	60,6010B	MG
Barium, Total	36		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:19	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:19	EPA 3050B	60,6010B	MG
Chromium, Total	13		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:19	EPA 3050B	60,6010B	MG
Lead, Total	4.6		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:19	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 17:52	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:19	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:19	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER

Lab Number: L0811374

Project Number: 12069-054

Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-02
 Client ID: S11
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Percent Solids: 97%

Date Collected: 07/30/08 13:45
 Date Received: 08/01/08
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	4.9		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:21	EPA 3050B	60,6010B	MG
Barium, Total	22		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:21	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:21	EPA 3050B	60,6010B	MG
Chromium, Total	8.3		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:21	EPA 3050B	60,6010B	MG
Lead, Total	4.4		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:21	EPA 3050B	60,6010B	MG
Mercury, Total	0.10		mg/kg	0.08	1	08/04/08 23:00	08/05/08 17:54	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:21	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:21	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-03

Date Collected: 07/31/08 08:15

Client ID: S12

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil

Percent Solids: 98%

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	4.3		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:24	EPA 3050B	60,6010B	MG
Barium, Total	17		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:24	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:24	EPA 3050B	60,6010B	MG
Chromium, Total	6.0		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:24	EPA 3050B	60,6010B	MG
Lead, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:24	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 17:56	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:24	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 11:24	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-04

Date Collected: 07/31/08 09:55

Client ID: S1

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil

Percent Solids: 97%

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	4.8		mg/kg	0.47	1	08/04/08 12:00	08/05/08 11:41	EPA 3050B	60,6010B	MG
Barium, Total	22		mg/kg	0.47	1	08/04/08 12:00	08/05/08 11:41	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.47	1	08/04/08 12:00	08/05/08 11:41	EPA 3050B	60,6010B	MG
Chromium, Total	19		mg/kg	0.47	1	08/04/08 12:00	08/05/08 11:41	EPA 3050B	60,6010B	MG
Lead, Total	3.6		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:41	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 17:57	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:41	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.47	1	08/04/08 12:00	08/05/08 11:41	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-05
 Client ID: S4
 Sample Location: WAYLAND, MA
 Matrix: Soil
 Percent Solids: 96%

Date Collected: 07/31/08 11:00
 Date Received: 08/01/08
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	4.4		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:44	EPA 3050B	60,6010B	MG
Barium, Total	18		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:44	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:44	EPA 3050B	60,6010B	MG
Chromium, Total	7.0		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:44	EPA 3050B	60,6010B	MG
Lead, Total	3.1		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:44	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 17:59	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:44	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.48	1	08/04/08 12:00	08/05/08 11:44	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-06
Client ID: S6
Sample Location: WAYLAND, MA
Matrix: Soil
Percent Solids: 94%

Date Collected: 07/31/08 13:30
Date Received: 08/01/08
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	3.9		mg/kg	0.51	1	08/04/08 12:00	08/05/08 11:46	EPA 3050B	60,6010B	MG
Barium, Total	33		mg/kg	0.51	1	08/04/08 12:00	08/05/08 11:46	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.51	1	08/04/08 12:00	08/05/08 11:46	EPA 3050B	60,6010B	MG
Chromium, Total	15		mg/kg	0.51	1	08/04/08 12:00	08/05/08 11:46	EPA 3050B	60,6010B	MG
Lead, Total	5.4		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:46	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 18:01	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 11:46	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.51	1	08/04/08 12:00	08/05/08 11:46	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0811374**Project Number:** 12069-054**Report Date:** 08/08/08**SAMPLE RESULTS**

Lab ID: L0811374-07

Date Collected: 07/31/08 15:30

Client ID: S7

Date Received: 08/01/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series										
Arsenic, Total	6.6		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:49	EPA 3050B	60,6010B	MG
Barium, Total	50		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:49	EPA 3050B	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:49	EPA 3050B	60,6010B	MG
Chromium, Total	14		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:49	EPA 3050B	60,6010B	MG
Lead, Total	6.2		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:49	EPA 3050B	60,6010B	MG
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 18:03	EPA 7471A	64,7471A	HG
Selenium, Total	ND		mg/kg	2.4	1	08/04/08 12:00	08/05/08 11:49	EPA 3050B	60,6010B	MG
Silver, Total	ND		mg/kg	0.49	1	08/04/08 12:00	08/05/08 11:49	EPA 3050B	60,6010B	MG



Project Name: WAYLAND TOWN CENTER

Lab Number: L0811374

Project Number: 12069-054

Report Date: 08/08/08

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series for sample(s): 01-07 Batch: WG331366-1									
Arsenic, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Barium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Cadmium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Chromium, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Lead, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Selenium, Total	ND		mg/kg	2.5	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG
Silver, Total	ND		mg/kg	0.50	1	08/04/08 12:00	08/05/08 10:44	60,6010B	MG

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals by MCP 6000/7000 series for sample(s): 01-07 Batch: WG331485-1									
Mercury, Total	ND		mg/kg	0.08	1	08/04/08 23:00	08/05/08 17:38	64,7471A	HG

Prep Information

Digestion Method: EPA 7471A

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-054

Lab Number: L0811374

Report Date: 08/08/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals by MCP 6000/7000 series Associated sample(s): 01-07 Batch: WG331366-2 WG331366-3					
Arsenic, Total	89	92	75-125	3	30
Barium, Total	90	91	75-125	1	30
Cadmium, Total	92	95	75-125	3	30
Chromium, Total	90	93	75-125	3	30
Lead, Total	92	91	75-125	1	30
Selenium, Total	89	91	75-125	2	30
Silver, Total	92	94	75-125	2	30
Total Metals by MCP 6000/7000 series Associated sample(s): 01-07 Batch: WG331485-2 WG331485-3					
Mercury, Total	98	100	75-125	2	30

INORGANICS & MISCELLANEOUS

Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**SAMPLE RESULTS****Lab ID:** L0811374-01**Client ID:** S15**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 07/30/08 12:00**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	98		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**SAMPLE RESULTS****Lab ID:** L0811374-02**Client ID:** S11**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 07/30/08 13:45**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	97		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**SAMPLE RESULTS****Lab ID:** L0811374-03**Client ID:** S12**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 07/31/08 08:15**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	98		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**SAMPLE RESULTS****Lab ID:** L0811374-04**Client ID:** S1**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 07/31/08 09:55**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	97		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**SAMPLE RESULTS****Lab ID:** L0811374-05**Client ID:** S4**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 07/31/08 11:00**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	96		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**SAMPLE RESULTS****Lab ID:** L0811374-06**Client ID:** S6**Sample Location:** WAYLAND, MA**Matrix:** Soil**Date Collected:** 07/31/08 13:30**Date Received:** 08/01/08**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	94		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

SAMPLE RESULTS

Lab ID: L0811374-07
Client ID: S7
Sample Location: WAYLAND, MA
Matrix: Soil

Date Collected: 07/31/08 15:30
Date Received: 08/01/08
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry									
Solids, Total	96		%	0.10	1	-	08/02/08 13:50	30,2540G	NM



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L0811374
Report Date: 08/08/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Associated sample(s): 01-07 QC Batch ID: WG331294-1 QC Sample: L0811343-01 Client ID: DUP Sample					
Solids, Total	86	88	%	2	20

Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0811374-01A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811374-02A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811374-03A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811374-04A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811374-05A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)
L0811374-06A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent	MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)

*Hold days indicated by values in parentheses



Project Name: WAYLAND TOWN CENTER**Project Number:** 12069-054**Lab Number:** L0811374**Report Date:** 08/08/08**Container Information**

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal
L0811374-07A	Amber 250ml unpreserved	A	N/A	2C	Y	Absent

Analysis

MCP-BA-6010T(180),MCP-AS-6010T(180),EPH-DELUX-04(14),TS(7),MCP-PB-6010T(180),MCP-8082-04(14),MCP-AG-6010T(180),MCP-SE-6010T(180),MCP-7471T(28),MCP-CD-6010T(180),MCP-CR-6010T(180)

*Hold days indicated by values in parentheses



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

GLOSSARY

Acronyms

- 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.
- 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.
- NI - Not Ignitable.
- 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.
- ND - Not detected at the reported detection limit for the sample.
- RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL 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.

Terms

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

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

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.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-054

Lab Number: L0811374
Report Date: 08/08/08

REFERENCES

- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
- 60 Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). May 2004.
- 61 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH). Massachusetts Department of Environmental Protection, DEA/ORS/BWSC. May 2004, Revision 1.1.
- 64 Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). August 2004.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs 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 Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs 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 Woods Hole Labs.

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.



HALEY & ALDRICHALPHA Job # L0811374
Haley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1402**CHAIN OF CUSTODY RECORD**Phone (617) 886-7400
Fax (617) 886-7600

Page 1 of 1

H&A FILE NO. 12069-054
PROJECT NAME Wayland Town Center
H&A CONTACT Steve ProvencalLABORATORY Alpha
ADDRESS Westborough, MA
CONTACT Kate O'BrienDELIVERY DATE 8/1/08
TURNAROUND TIME 10 Day
PROJECT MANAGER Kate O'Brien

Sample No.	Date	Time	Depth	Type	Analysis Requested													Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)
					VOA	ALHA PAH only	① MCP Metals	② Inorganic PCBs	③ VPH Full Suite C-Range only	④ FPH Full Suite C-Range only	TPH (specify)	TCLP (specify)	Reactivity Ignitability Corrosivity						
S15	7/30/08	1200	0-6'	Soil	X	X	X	X	X	X								1	Laboratory to use applicable DEP CAM methods, unless otherwise directed. ① RCRA Metals ② PCBs 8082 ③ DEP H carbon and target analytes
S11	"	1345			X	X	X	X	X	X								1	
S12	7/31/08	0815			X	X	X	X	X	X								1	
S1	"	0955			X	X	X	X	X	X								1	
S4	"	1100			X	X	X	X	X	X								1	
S6	"	1330			X	X	X	X	X	X								1	
S7	"	1530			X	X	X	X	X	X								1	
7 TOTAL																			

Sampled and Relinquished by Sign <u>Matthew Dedson</u> Print <u>Matthew Dedson</u> Firm <u>H + A</u> Date <u>8/1/08</u> Time <u>1545</u>		Received by Sign <u>Don Banks</u> Print <u>Don Banks</u> Firm <u>ALPHA</u> Date <u>8/1/08</u> Time <u>1545</u>		LIQUID													Sampling Comments VOA Vial Amber Glass Plastic Bottle Preservative Volume	
Reinquired by Sign <u>Don Banks</u> Print <u>DON BANKS</u> Firm <u>ALPHA</u> Date <u>8/1/08</u> Time <u>1745</u>		Received by Sign <u>William McClellan</u> Print <u>William McClellan</u> Firm <u>Alpha</u> Date <u>8/1/08</u> Time <u>1745</u>		SOLID													Evidence samples were tampered with? YES NO If YES, please explain in section below.	
Relinquished by Sign Print Firm Date		Received by Sign Print Firm Date		PRESERVATION KEY														
				A Sample chilled C NaOH E H ₂ SO ₄ G Methanol B Sample filtered D HNO ₃ F HCL H Water/NaHSO ₄ (circle)														

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

The required minimum field QC samples, as designated in HWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

☒ This Chain of Custody Record (specify) _____ includes ☒ does not include samples defined as Drinking Water Samples.

If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate.

Laboratory should (specify if applicable) _____ analyze

Required Reporting Limits and Data Quality Objectives

<input checked="" type="checkbox"/> RC-S1	<input type="checkbox"/> S1	<input type="checkbox"/> GW1
<input type="checkbox"/> RC-S2	<input type="checkbox"/> S2	<input type="checkbox"/> GW2
<input type="checkbox"/> RC-GW1	<input type="checkbox"/> S3	<input type="checkbox"/> GW3
<input type="checkbox"/> RC-GW2		



ANALYTICAL REPORT

Lab Number: L0809833

Client: Haley & Aldrich, Inc.
465 Medford Street, Suite 2200
Charlestown, MA 02129-1400

ATTN: Kate Leblanc

Project Name: PROPOSED WAYLAND TEAM CENTER

Project Number: 12069-052

Report Date: 07/11/08

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

Alpha Sample ID	Client ID	Sample Location
L0809833-01	SV-1	WAYLAND, MA
L0809833-02	SV-2	WAYLAND, MA
L0809833-03	SV-3	WAYLAND, MA

Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

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.

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.

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

TO-15

L0809833-01 through -03 have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L0809833-02 The Acetone result slightly exceeded the calibration in original analysis. The Acetone result was within calibration on the duplicate analysis. The Relative Percent Difference between the sample and duplicate was within criteria for Acetone. No further action taken.

The WG328542-2 LCS recovery for Vinyl Acetate is outside the 70%-130% acceptance limit. The LCS was within overall method allowances, therefore the analysis proceeded.

Fixed Gas - Helium

L0809833-02: Prior to sample analysis, the canister was pressurized with UHP Nitrogen in order to facilitate

Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052


Lab Number: L0809833
Report Date: 07/11/08

Case Narrative (continued)

the transfer of sample to the Gas Chromatograph. The addition of Nitrogen resulted in a dilution of the sample. The reporting limits have been elevated accordingly.

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:



Title: Technical Director/Representative

Date: 07/11/08

AIR

Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

SAMPLE RESULTS

Lab ID: L0809833-01
Client ID: SV-1
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/09/08 20:08
Analyst: AR

Date Collected: 07/01/08 12:10
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	2.00	ND	10.9		10
1,1,2,2-Tetrachloroethane	ND	2.00	ND	13.7		10
1,1,2-Trichloroethane	ND	2.00	ND	10.9		10
1,1-Dichloroethane	ND	2.00	ND	8.09		10
1,1-Dichloroethene	ND	2.00	ND	7.92		10
1,2,4-Trichlorbenzene	ND	2.00	ND	14.8		10
1,2,4-Trimethylbenzene	ND	2.00	ND	9.82		10
1,2-Dibromoethane	ND	2.00	ND	15.4		10
1,2-Dichlorobenzene	ND	2.00	ND	12.0		10
1,2-Dichloroethane	ND	2.00	ND	8.09		10
1,2-Dichloropropane	ND	2.00	ND	9.24		10
1,3,5-Trimethybenzene	ND	2.00	ND	9.82		10
1,3-Butadiene	ND	2.00	ND	4.42		10
1,3-Dichlorobenzene	ND	2.00	ND	12.0		10
1,4-Dichlorobenzene	ND	2.00	ND	12.0		10
1,4-Dioxane	ND	2.00	ND	7.20		10
2,2,4-Trimethylpentane	ND	2.00	ND	9.34		10
2-Butanone	18.2	2.00	53.5	5.89		10
2-Hexanone	ND	2.00	ND	8.19		10
3-Chloropropene	ND	2.00	ND	6.26		10
4-Ethyltoluene	ND	2.00	ND	9.82		10
Acetone	478	5.00	1130	11.9		10
Benzene	ND	2.00	ND	6.38		10
Benzyl chloride	ND	2.00	ND	10.3		10
Bromodichloromethane	ND	2.00	ND	13.4		10



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

SAMPLE RESULTS

Lab ID: L0809833-01
Client ID: SV-1
Sample Location: WAYLAND, MA

Date Collected: 07/01/08 12:10
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	2.00	ND	20.6		10
Bromomethane	ND	2.00	ND	7.76		10
Carbon disulfide	ND	2.00	ND	6.22		10
Carbon tetrachloride	ND	2.00	ND	12.6		10
Chlorobenzene	ND	2.00	ND	9.20		10
Chloroethane	ND	2.00	ND	5.27		10
Chloroform	ND	2.00	ND	9.76		10
Chloromethane	ND	2.00	ND	4.13		10
cis-1,2-Dichloroethene	ND	2.00	ND	7.92		10
cis-1,3-Dichloropropene	ND	2.00	ND	9.07		10
Cyclohexane	ND	2.00	ND	6.88		10
Dibromochloromethane	ND	2.00	ND	17.0		10
Dichlorodifluoromethane	ND	2.00	ND	9.88		10
Ethanol	ND	25.0	ND	47.1		10
Ethyl Acetate	ND	5.00	ND	18.0		10
Ethylbenzene	ND	2.00	ND	8.68		10
Freon-113	ND	2.00	ND	15.3		10
Freon-114	ND	2.00	ND	14.0		10
Hexachlorobutadiene	ND	2.00	ND	21.3		10
Isopropanol	26.6	5.00	65.4	12.3		10
Methylene chloride	5.00	5.00	17.4	17.4		10
4-Methyl-2-pentanone	ND	2.00	ND	8.19		10
Methyl tert butyl ether	ND	2.00	ND	7.20		10
p/m-Xylene	ND	4.00	ND	17.4		10
o-Xylene	ND	2.00	ND	8.68		10
Heptane	ND	2.00	ND	8.19		10
n-Hexane	2.75	2.00	9.67	7.04		10
Propylene	ND	2.00	ND	3.44		10



Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS****Lab ID:** L0809833-01**Date Collected:** 07/01/08 12:10**Client ID:** SV-1**Date Received:** 07/03/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	2.00	ND	8.51		10
Tetrachloroethene	6.53	2.00	44.3	13.6		10
Tetrahydrofuran	ND	2.00	ND	5.89		10
Toluene	ND	2.00	ND	7.53		10
trans-1,2-Dichloroethene	ND	2.00	ND	7.92		10
trans-1,3-Dichloropropene	ND	2.00	ND	9.07		10
Trichloroethene	3.82	2.00	20.5	10.7		10
Trichlorofluoromethane	19.7	2.00	111	11.2		10
Vinyl acetate	ND	2.00	ND	7.04		10
Vinyl bromide	ND	2.00	ND	8.74		10
Vinyl chloride	ND	2.00	ND	5.11		10



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

SAMPLE RESULTS

Lab ID: L0809833-02
Client ID: SV-2
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/10/08 00:25
Analyst: AR

Date Collected: 07/01/08 14:00
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	0.400	ND	2.18		2
1,1,2,2-Tetrachloroethane	ND	0.400	ND	2.74		2
1,1,2-Trichloroethane	ND	0.400	ND	2.18		2
1,1-Dichloroethane	ND	0.400	ND	1.62		2
1,1-Dichloroethene	ND	0.400	ND	1.58		2
1,2,4-Trichlorbenzene	ND	0.400	ND	2.97		2
1,2,4-Trimethylbenzene	ND	0.400	ND	1.96		2
1,2-Dibromoethane	ND	0.400	ND	3.07		2
1,2-Dichlorobenzene	ND	0.400	ND	2.40		2
1,2-Dichloroethane	ND	0.400	ND	1.62		2
1,2-Dichloropropane	ND	0.400	ND	1.85		2
1,3,5-Trimethybenzene	ND	0.400	ND	1.96		2
1,3-Butadiene	ND	0.400	ND	0.884		2
1,3-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dioxane	ND	0.400	ND	1.44		2
2,2,4-Trimethylpentane	ND	0.400	ND	1.87		2
2-Butanone	19.8	0.400	58.2	1.18		2
2-Hexanone	2.69	0.400	11.0	1.64		2
3-Chloropropene	ND	0.400	ND	1.25		2
4-Ethyltoluene	ND	0.400	ND	1.96		2
Acetone	213	1.00	505	2.37		2
Benzene	ND	0.400	ND	1.28		2
Benzyl chloride	ND	0.400	ND	2.07		2
Bromodichloromethane	ND	0.400	ND	2.68		2



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

SAMPLE RESULTS

Lab ID: L0809833-02
Client ID: SV-2
Sample Location: WAYLAND, MA

Date Collected: 07/01/08 14:00
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.400	ND	4.13		2
Bromomethane	ND	0.400	ND	1.55		2
Carbon disulfide	0.515	0.400	1.60	1.24		2
Carbon tetrachloride	ND	0.400	ND	2.51		2
Chlorobenzene	ND	0.400	ND	1.84		2
Chloroethane	ND	0.400	ND	1.05		2
Chloroform	1.12	0.400	5.47	1.95		2
Chloromethane	ND	0.400	ND	0.825		2
cis-1,2-Dichloroethene	ND	0.400	ND	1.58		2
cis-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Cyclohexane	ND	0.400	ND	1.38		2
Dibromochloromethane	ND	0.400	ND	3.40		2
Dichlorodifluoromethane	0.486	0.400	2.40	1.98		2
Ethanol	16.8	5.00	31.6	9.41		2
Ethyl Acetate	ND	1.00	ND	3.60		2
Ethylbenzene	ND	0.400	ND	1.74		2
Freon-113	ND	0.400	ND	3.06		2
Freon-114	ND	0.400	ND	2.79		2
Hexachlorobutadiene	ND	0.400	ND	4.26		2
Isopropanol	17.0	1.00	41.7	2.46		2
Methylene chloride	1.31	1.00	4.54	3.47		2
4-Methyl-2-pentanone	ND	0.400	ND	1.64		2
Methyl tert butyl ether	ND	0.400	ND	1.44		2
p/m-Xylene	0.898	0.800	3.90	3.47		2
o-Xylene	ND	0.400	ND	1.74		2
Heptane	ND	0.400	ND	1.64		2
n-Hexane	2.30	0.400	8.11	1.41		2
Propylene	2.18	0.400	3.76	0.688		2



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

SAMPLE RESULTS

Lab ID: L0809833-02
Client ID: SV-2
Sample Location: WAYLAND, MA

Date Collected: 07/01/08 14:00
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	0.400	ND	1.70		2
Tetrachloroethene	4.41	0.400	29.9	2.71		2
Tetrahydrofuran	ND	0.400	ND	1.18		2
Toluene	1.68	0.400	6.31	1.51		2
trans-1,2-Dichloroethene	ND	0.400	ND	1.58		2
trans-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Trichloroethene	5.43	0.400	29.1	2.15		2
Trichlorofluoromethane	42.9	0.400	241	2.24		2
Vinyl acetate	1.23	0.400	4.32	1.41		2
Vinyl bromide	ND	0.400	ND	1.75		2
Vinyl chloride	ND	0.400	ND	1.02		2



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

SAMPLE RESULTS

Lab ID: L0809833-03
Client ID: SV-3
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/10/08 01:41
Analyst: AR

Date Collected: 07/01/08 14:45
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	0.400	ND	2.18		2
1,1,2,2-Tetrachloroethane	ND	0.400	ND	2.74		2
1,1,2-Trichloroethane	ND	0.400	ND	2.18		2
1,1-Dichloroethane	ND	0.400	ND	1.62		2
1,1-Dichloroethene	ND	0.400	ND	1.58		2
1,2,4-Trichlorbenzene	1.00	0.400	7.43	2.97		2
1,2,4-Trimethylbenzene	ND	0.400	ND	1.96		2
1,2-Dibromoethane	ND	0.400	ND	3.07		2
1,2-Dichlorobenzene	ND	0.400	ND	2.40		2
1,2-Dichloroethane	ND	0.400	ND	1.62		2
1,2-Dichloropropane	ND	0.400	ND	1.85		2
1,3,5-Trimethybenzene	ND	0.400	ND	1.96		2
1,3-Butadiene	ND	0.400	ND	0.884		2
1,3-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dioxane	ND	0.400	ND	1.44		2
2,2,4-Trimethylpentane	ND	0.400	ND	1.87		2
2-Butanone	22.9	0.400	67.5	1.18		2
2-Hexanone	3.31	0.400	13.6	1.64		2
3-Chloropropene	ND	0.400	ND	1.25		2
4-Ethyltoluene	ND	0.400	ND	1.96		2
Acetone	177	1.00	419	2.37		2
Benzene	ND	0.400	ND	1.28		2
Benzyl chloride	ND	0.400	ND	2.07		2
Bromodichloromethane	ND	0.400	ND	2.68		2



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

SAMPLE RESULTS

Lab ID: L0809833-03
Client ID: SV-3
Sample Location: WAYLAND, MA

Date Collected: 07/01/08 14:45
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.400	ND	4.13		2
Bromomethane	ND	0.400	ND	1.55		2
Carbon disulfide	ND	0.400	ND	1.24		2
Carbon tetrachloride	ND	0.400	ND	2.51		2
Chlorobenzene	ND	0.400	ND	1.84		2
Chloroethane	ND	0.400	ND	1.05		2
Chloroform	ND	0.400	ND	1.95		2
Chloromethane	ND	0.400	ND	0.825		2
cis-1,2-Dichloroethene	ND	0.400	ND	1.58		2
cis-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Cyclohexane	ND	0.400	ND	1.38		2
Dibromochloromethane	ND	0.400	ND	3.40		2
Dichlorodifluoromethane	0.492	0.400	2.43	1.98		2
Ethanol	12.4	5.00	23.4	9.41		2
Ethyl Acetate	ND	1.00	ND	3.60		2
Ethylbenzene	ND	0.400	ND	1.74		2
Freon-113	ND	0.400	ND	3.06		2
Freon-114	ND	0.400	ND	2.79		2
Hexachlorobutadiene	ND	0.400	ND	4.26		2
Isopropanol	7.23	1.00	17.8	2.46		2
Methylene chloride	1.30	1.00	4.51	3.47		2
4-Methyl-2-pentanone	ND	0.400	ND	1.64		2
Methyl tert butyl ether	ND	0.400	ND	1.44		2
p/m-Xylene	ND	0.800	ND	3.47		2
o-Xylene	ND	0.400	ND	1.74		2
Heptane	0.438	0.400	1.80	1.64		2
n-Hexane	2.41	0.400	8.49	1.41		2
Propylene	1.96	0.400	3.37	0.688		2



Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS****Lab ID:** L0809833-03**Date Collected:** 07/01/08 14:45**Client ID:** SV-3**Date Received:** 07/03/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	0.400	ND	1.70		2
Tetrachloroethene	2.02	0.400	13.7	2.71		2
Tetrahydrofuran	ND	0.400	ND	1.18		2
Toluene	1.03	0.400	3.87	1.51		2
trans-1,2-Dichloroethene	ND	0.400	ND	1.58		2
trans-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Trichloroethene	1.72	0.400	9.24	2.15		2
Trichlorofluoromethane	26.6	0.400	149	2.24		2
Vinyl acetate	2.10	0.400	7.39	1.41		2
Vinyl bromide	ND	0.400	ND	1.75		2
Vinyl chloride	ND	0.400	ND	1.02		2



Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-03 Batch: WG328542-3						
1,1,1-Trichloroethane	ND	0.200	ND	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorobenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethy benzene	ND	0.200	ND	0.982		1
1,2-D bromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	ND	0.200	ND	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	ND	0.200	ND	0.589		1
2-Hexanone	ND	0.200	ND	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	ND	0.200	ND	0.982		1
Acetone	ND	0.500	ND	1.19		1
Benzene	ND	0.200	ND	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1



Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-03 Batch: WG328542-3						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	ND	0.200	ND	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	ND	0.200	ND	0.527		1
Chloroform	ND	0.200	ND	0.976		1
Chloromethane	ND	0.200	ND	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	ND	0.200	ND	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	ND	0.200	ND	0.988		1
Ethanol	ND	2.50	ND	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	ND	0.200	ND	0.868		1
Freon-113	ND	0.200	ND	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	ND	0.500	ND	1.23		1
Methylene chloride	ND	0.500	ND	1.74		1
4-Methyl-2-pentanone	ND	0.200	ND	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	ND	0.400	ND	1.74		1
o-Xylene	ND	0.200	ND	0.868		1



Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-03 Batch: WG328542-3						
Heptane	ND	0.200	ND	0.819		1
n-Hexane	ND	0.200	ND	0.704		1
Propylene	ND	0.200	ND	0.344		1
Styrene	ND	0.200	ND	0.851		1
Tetrachloroethene	ND	0.200	ND	1.36		1
Tetrahydrofuran	ND	0.200	ND	0.589		1
Toluene	ND	0.200	ND	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	ND	0.200	ND	1.07		1
Trichlorofluoromethane	ND	0.200	ND	1.12		1
Vinyl acetate	ND	0.200	ND	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1



Lab Control Sample Analysis

Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Lab Number: L0809833

Project Number: 12069-052

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328542-2					
1,1,1-Trichloroethane	109	-	70-130	-	
1,1,2,2-Tetrachloroethane	123	-	70-130	-	
1,1,2-Trichloroethane	116	-	70-130	-	
1,1-Dichloroethane	112	-	70-130	-	
1,1-Dichloroethene	99	-	70-130	-	
1,2,4-Trichlorobenzene	111	-	70-130	-	
1,2,4-Trimethy benzene	123	-	70-130	-	
1,2-D bromoethane	106	-	70-130	-	
1,2-Dichlorobenzene	120	-	70-130	-	
1,2-Dichloroethane	118	-	70-130	-	
1,2-Dichloropropane	122	-	70-130	-	
1,3,5-Trimethy benzene	121	-	70-130	-	
1,3-Butadiene	101	-	70-130	-	
1,3-Dichlorobenzene	120	-	70-130	-	
1,4-Dichlorobenzene	122	-	70-130	-	
1,4-Dioxane	108	-	70-130	-	
2,2,4-Trimethylpentane	124	-	70-130	-	
2-Butanone	106	-	70-130	-	
2-Hexanone	117	-	70-130	-	
3-Chloropropene	114	-	70-130	-	
4-Ethyltoluene	120	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Lab Number: L0809833

Project Number: 12069-052

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328542-2					
Acetone	116	-	70-130	-	
Benzene	111	-	70-130	-	
Benzyl chloride	122	-	70-130	-	
Bromodichloromethane	117	-	70-130	-	
Bromoform	112	-	70-130	-	
Bromomethane	86	-	70-130	-	
Carbon disulfide	96	-	70-130	-	
Carbon tetrachloride	104	-	70-130	-	
Chlorobenzene	111	-	70-130	-	
Chloroethane	100	-	70-130	-	
Chloroform	112	-	70-130	-	
Chloromethane	97	-	70-130	-	
cis-1,2-Dichloroethene	113	-	70-130	-	
cis-1,3-Dichloropropene	111	-	70-130	-	
Cyclohexane	103	-	70-130	-	
Dibromochloromethane	109	-	70-130	-	
Dichlorodifluoromethane	96	-	70-130	-	
Ethyl Alcohol	119	-	70-130	-	
Ethyl Acetate	125	-	70-130	-	
Ethylbenzene	124	-	70-130	-	
1,1,2-Trichloro-1,2,2-Trifluoroethane	99	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Lab Number: L0809833

Project Number: 12069-052

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328542-2					
1,2-Dichloro-1,1,2,2-tetrafluoroethane	98	-	70-130	-	
Hexachlorobutadiene	98	-	70-130	-	
iso-Propyl Alcohol	114	-	70-130	-	
Methylene chloride	102	-	70-130	-	
4-Methyl-2-pentanone	118	-	70-130	-	
Methyl tert butyl ether	116	-	70-130	-	
p/m-Xylene	124	-	70-130	-	
o-Xylene	125	-	70-130	-	
Heptane	119	-	70-130	-	
n-Hexane	102	-	70-130	-	
Propylene	99	-	70-130	-	
Styrene	120	-	70-130	-	
Tetrachloroethene	106	-	70-130	-	
Tetrahydrofuran	115	-	70-130	-	
Toluene	117	-	70-130	-	
trans-1,2-Dichloroethene	101	-	70-130	-	
trans-1,3-Dichloropropene	104	-	70-130	-	
Trichloroethene	110	-	70-130	-	
Trichlorofluoromethane	96	-	70-130	-	
Vinyl acetate	140	-	70-130	-	
Vinyl bromide	98	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Lab Number: L0809833

Project Number: 12069-052

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328542-2					
Vinyl chloride	98	-	70-130	-	
Naphthalene	106	-	70-130	-	

Lab Duplicate Analysis Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Project Number: 12069-052

Lab Number: L0809833

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: SV-2					
1,1,1-Trichloroethane	ND	ND	ppbV	NC	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethene	ND	ND	ppbV	NC	25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC	25
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC	25
1,3-Butadiene	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC	25
2-Butanone	19.8	17.4	ppbV	13	25
2-Hexanone	2.69	2.72	ppbV	1	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Project Number: 12069-052

Lab Number: L0809833

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: SV-2					
3-Chloropropene	ND	ND	ppbV	NC	25
4-Ethyltoluene	ND	ND	ppbV	NC	25
Acetone	213	182	ppbV	16	25
Benzene	ND	ND	ppbV	NC	25
Benzyl chloride	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
Bromomethane	ND	ND	ppbV	NC	25
Carbon disulfide	0.515	0.497	ppbV	4	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Chlorobenzene	ND	ND	ppbV	NC	25
Chloroethane	ND	ND	ppbV	NC	25
Chloroform	1.12	1.09	ppbV	3	25
Chloromethane	ND	ND	ppbV	NC	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Cyclohexane	ND	ND	ppbV	NC	25
D bromochloromethane	ND	ND	ppbV	NC	25
Dichlorodifluoromethane	0.486	0.481	ppbV	1	25

Lab Duplicate Analysis Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Project Number: 12069-052

Lab Number: L0809833

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: SV-2					
Ethanol	16.8	15.9	ppbV	6	25
Ethyl Acetate	ND	ND	ppbV	NC	25
Ethylbenzene	ND	ND	ppbV	NC	25
Freon-113	ND	ND	ppbV	NC	25
Freon-114	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25
Isopropanol	17.0	16.5	ppbV	3	25
Methylene chloride	1.31	1.30	ppbV	1	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
p/m-Xylene	0.898	0.861	ppbV	4	25
o-Xylene	ND	ND	ppbV	NC	25
Heptane	ND	0.404	ppbV	NC	25
n-Hexane	2.30	2.26	ppbV	2	25
Propylene	2.18	2.10	ppbV	4	25
Styrene	ND	ND	ppbV	NC	25
Tetrachloroethene	4.41	4.49	ppbV	2	25
Tetrahydrofuran	ND	ND	ppbV	NC	25
Toluene	1.68	1.70	ppbV	1	25

Lab Duplicate Analysis Batch Quality Control

Project Name: PROPOSED WAYLAND TEAM CENTER

Project Number: 12069-052

Lab Number: L0809833

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: SV-2					
trans-1,2-Dichloroethene	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Trichloroethene	5.43	5.41	ppbV	0	25
Trichlorofluoromethane	42.9	42.2	ppbV	2	25
Vinyl acetate	1.23	1.10	ppbV	11	25
Vinyl bromide	ND	ND	ppbV	NC	25
Vinyl chloride	ND	ND	ppbV	NC	25

Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809833-02
Client ID: SV-2
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 51,3C(M)
Analytical Date: 07/10/08 11:05
Analyst: RY

Date Collected: 07/01/08 14:00
Date Received: 07/03/08
Field Prep: Not Specified
Extraction Method:

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
-----------	--------	-----------	-------	-----	-----------------

Fixed Gases by GC

Helium	0.085		%	0.018	1.77
--------	-------	--	---	-------	------

Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08**Method Blank Analysis**
Batch Quality Control

Analytical Method: 51,3C(M)

Analytical Date: 07/10/08 10:53

Analyst: RY

Parameter	Result	Qualifier	Units	RDL
-----------	--------	-----------	-------	-----

Fixed Gases by GC for sample(s): 02 Batch: WG328549-2				
---	--	--	--	--

Helium	ND		%	0.010
--------	----	--	---	-------

Lab Control Sample Analysis**Batch Quality Control****Project Name:** PROPOSED WAYLAND TEAM CENTER**Project Number:** 12069-052**Lab Number:** L0809833**Report Date:** 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Fixed Gases by GC Associated sample(s): 02 Batch: WG328549-1					
Helium	80	-	80-120	-	

Project Name: PROPOSED WAYLAND TEAM CENTER

Project Number: 12069-052

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L0809833

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Fixed Gases by GC Associated sample(s): 02 QC Batch ID: WG328549-3 QC Sample: L0809833-02 Client ID: SV-2					
Helium	0.085	0.085	%	0	5

Project Name: PROPOSED WAYLAND TEAM CENTER

07110813:05

Lab Number: L0809833

Project Number: 12069-052

Report Date: 07/11/08

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Cleaning Batch ID	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Out mL/min	Flow In mL/min	% RSD
L0809833-01	SV-1	0103	#16 SV		-	-	39	36	8
L0809833-01	SV-1	381	2.7L Can	L0809159-01	-29.3	-2.3	-	-	-
L0809833-02	SV-2	0169	#30 SV		-	-	38	39	3
L0809833-02	SV-2	257	2.7L Can	L0809159-01	-29.4	-2.5	-	-	-
L0809833-03	SV-3	139	2.7L Can	L0809159-01	-29.3	-0.5	-	-	-



Project Name: PROPOSED WAYLAND TEAM CENTER**Lab Number:** L0809833**Project Number:** 12069-052**Report Date:** 07/11/08**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0809833-01A	Canister - 2.7 Liter	NA	NA	NA	NA	Absent	-
L0809833-02A	Canister - 2.7 Liter	NA	NA	NA	NA	Absent	FIXGAS-HE,TO15-LL
L0809833-03A	Canister - 2.7 Liter	NA	NA	NA	NA	Absent	-

Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

GLOSSARY

Acronyms

- 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.
- 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.
- NI - Not Ignitable.
- 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.
- ND - Not detected at the reported detection limit for the sample.
- RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL 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.

Terms

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

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

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.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Report Format: Not Specified



Project Name: PROPOSED WAYLAND TEAM CENTER
Project Number: 12069-052

Lab Number: L0809833
Report Date: 07/11/08

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.
- 51 Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources. Method 3C. Appendix A, Part 60, 40 CFR (Code of Federal Regulations). June 20, 1996.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs 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 Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs 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 Woods Hole Labs.

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.



AIR ANALYSIS

PAGE _____ OF _____



CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Haley & Aldrich, Inc.
Address: 465 Medford St.
Boston
Phone: 617-886-7400
Fax: _____
Email: K.LeBlanc@Haleyaldrich.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Proposed Wayland Town Center
Project Location: Wayland, Ma
Project #: 12069-052
Project Manager: K. LeBlanc
ALPHA Quote #: _____

Turn-Around Time

☐ Standard 10 DAYS ☐ RUSH (only confirmed if pre-approved!) 5 DAY

Date Due: _____ Time: _____

Date Rec'd in Lab: _____

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker: _____
(Default based on Regulatory Criteria Indicated)
Other Formats: _____
☐ EMAIL (standard pdf report)
☐ Additional Deliverables: _____
Report to: (if different than Project Manager) _____

ALPHA Job #: L0809833

Billing Information

☐ Same as Client info PO #: _____

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15 APH	FIXED	TO-13	TO-4 /	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum													
9833-01	SV-1	7-1-08	1043	1210	-35	-5		DRW	27L	381	0103	X							
-02	SV-2	"	1230	1400	-35	-4		DRW	"	257	0169	X							Ram w/ He Trailer
-03	SV-3	"	1523	1445	-30	-6		CT	"	139	0021	X							
													</						

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By: [Signature]

Date/Time: 7/1/08 1630

Received By: [Signature]

Date/Time: 7/1/08 1630



ANALYTICAL REPORT

Lab Number: L0809956

Client: Haley & Aldrich, Inc.
465 Medford Street, Suite 2200
Charlestown, MA 02129-1400

ATTN: Kate Leblanc

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Report Date: 07/11/08

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-052

Lab Number: L0809956
Report Date: 07/11/08

Alpha Sample ID	Client ID	Sample Location
L0809956-01	SV-4	WAYLAND, MA
L0809956-02	SV-5	WAYLAND, MA

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-052

Lab Number: L0809956
Report Date: 07/11/08

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.

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.

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


TO-15

L0809956-01 and -02 have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

The WG328542-2 LCS recovery for Vinyl Acetate is outside the 70%-130% acceptance limit. The LCS was within overall method allowances, therefore the analysis proceeded.

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:



Title: Technical Director/Representative

Date: 07/11/08

AIR

Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809956-01
Client ID: SV-4
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/10/08 02:18
Analyst: AR

Date Collected: 07/02/08 10:45
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	0.400	ND	2.18		2
1,1,2,2-Tetrachloroethane	ND	0.400	ND	2.74		2
1,1,2-Trichloroethane	ND	0.400	ND	2.18		2
1,1-Dichloroethane	ND	0.400	ND	1.62		2
1,1-Dichloroethene	ND	0.400	ND	1.58		2
1,2,4-Trichlorbenzene	ND	0.400	ND	2.97		2
1,2,4-Trimethylbenzene	ND	0.400	ND	1.96		2
1,2-Dibromoethane	ND	0.400	ND	3.07		2
1,2-Dichlorobenzene	ND	0.400	ND	2.40		2
1,2-Dichloroethane	ND	0.400	ND	1.62		2
1,2-Dichloropropane	ND	0.400	ND	1.85		2
1,3,5-Trimethybenzene	ND	0.400	ND	1.96		2
1,3-Butadiene	ND	0.400	ND	0.884		2
1,3-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dioxane	ND	0.400	ND	1.44		2
2,2,4-Trimethylpentane	ND	0.400	ND	1.87		2
2-Butanone	13.3	0.400	39.1	1.18		2
2-Hexanone	2.49	0.400	10.2	1.64		2
3-Chloropropene	ND	0.400	ND	1.25		2
4-Ethyltoluene	ND	0.400	ND	1.96		2
Acetone	158	1.00	374	2.37		2
Benzene	0.488	0.400	1.56	1.28		2
Benzyl chloride	ND	0.400	ND	2.07		2
Bromodichloromethane	ND	0.400	ND	2.68		2



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809956-01

Date Collected: 07/02/08 10:45

Client ID: SV-4

Date Received: 07/03/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.400	ND	4.13		2
Bromomethane	ND	0.400	ND	1.55		2
Carbon disulfide	ND	0.400	ND	1.24		2
Carbon tetrachloride	ND	0.400	ND	2.51		2
Chlorobenzene	ND	0.400	ND	1.84		2
Chloroethane	ND	0.400	ND	1.05		2
Chloroform	ND	0.400	ND	1.95		2
Chloromethane	ND	0.400	ND	0.825		2
cis-1,2-Dichloroethene	ND	0.400	ND	1.58		2
cis-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Cyclohexane	ND	0.400	ND	1.38		2
Dibromochloromethane	ND	0.400	ND	3.40		2
Dichlorodifluoromethane	0.483	0.400	2.39	1.98		2
Ethanol	8.96	5.00	16.9	9.41		2
Ethyl Acetate	ND	1.00	ND	3.60		2
Ethylbenzene	ND	0.400	ND	1.74		2
Freon-113	ND	0.400	ND	3.06		2
Freon-114	ND	0.400	ND	2.79		2
Hexachlorobutadiene	ND	0.400	ND	4.26		2
Isopropanol	13.1	1.00	32.3	2.46		2
Methylene chloride	1.26	1.00	4.38	3.47		2
4-Methyl-2-pentanone	ND	0.400	ND	1.64		2
Methyl tert butyl ether	ND	0.400	ND	1.44		2
p/m-Xylene	ND	0.800	ND	3.47		2
o-Xylene	ND	0.400	ND	1.74		2
Heptane	0.636	0.400	2.60	1.64		2
n-Hexane	1.76	0.400	6.21	1.41		2
Propylene	1.32	0.400	2.26	0.688		2



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS****Lab ID:** L0809956-01**Date Collected:** 07/02/08 10:45**Client ID:** SV-4**Date Received:** 07/03/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	0.400	ND	1.70		2
Tetrachloroethene	ND	0.400	ND	2.71		2
Tetrahydrofuran	ND	0.400	ND	1.18		2
Toluene	0.960	0.400	3.61	1.51		2
trans-1,2-Dichloroethene	ND	0.400	ND	1.58		2
trans-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Trichloroethene	1.10	0.400	5.90	2.15		2
Trichlorofluoromethane	15.3	0.400	86.0	2.24		2
Vinyl acetate	0.657	0.400	2.31	1.41		2
Vinyl bromide	ND	0.400	ND	1.75		2
Vinyl chloride	ND	0.400	ND	1.02		2



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809956-02
Client ID: SV-5
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/10/08 02:56
Analyst: AR

Date Collected: 07/02/08 11:10
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	0.400	ND	2.18		2
1,1,2,2-Tetrachloroethane	ND	0.400	ND	2.74		2
1,1,2-Trichloroethane	ND	0.400	ND	2.18		2
1,1-Dichloroethane	ND	0.400	ND	1.62		2
1,1-Dichloroethene	ND	0.400	ND	1.58		2
1,2,4-Trichlorobenzene	ND	0.400	ND	2.97		2
1,2,4-Trimethylbenzene	ND	0.400	ND	1.96		2
1,2-Dibromoethane	ND	0.400	ND	3.07		2
1,2-Dichlorobenzene	ND	0.400	ND	2.40		2
1,2-Dichloroethane	ND	0.400	ND	1.62		2
1,2-Dichloropropane	ND	0.400	ND	1.85		2
1,3,5-Trimethybenzene	ND	0.400	ND	1.96		2
1,3-Butadiene	ND	0.400	ND	0.884		2
1,3-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dioxane	ND	0.400	ND	1.44		2
2,2,4-Trimethylpentane	ND	0.400	ND	1.87		2
2-Butanone	18.4	0.400	54.2	1.18		2
2-Hexanone	3.05	0.400	12.5	1.64		2
3-Chloropropene	ND	0.400	ND	1.25		2
4-Ethyltoluene	ND	0.400	ND	1.96		2
Acetone	76.2	1.00	181	2.37		2
Benzene	ND	0.400	ND	1.28		2
Benzyl chloride	ND	0.400	ND	2.07		2
Bromodichloromethane	ND	0.400	ND	2.68		2



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809956-02

Date Collected: 07/02/08 11:10

Client ID: SV-5

Date Received: 07/03/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.400	ND	4.13		2
Bromomethane	ND	0.400	ND	1.55		2
Carbon disulfide	ND	0.400	ND	1.24		2
Carbon tetrachloride	ND	0.400	ND	2.51		2
Chlorobenzene	ND	0.400	ND	1.84		2
Chloroethane	ND	0.400	ND	1.05		2
Chloroform	1.97	0.400	9.61	1.95		2
Chloromethane	ND	0.400	ND	0.825		2
cis-1,2-Dichloroethene	ND	0.400	ND	1.58		2
cis-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Cyclohexane	ND	0.400	ND	1.38		2
Dibromochloromethane	ND	0.400	ND	3.40		2
Dichlorodifluoromethane	0.538	0.400	2.66	1.98		2
Ethanol	7.88	5.00	14.8	9.41		2
Ethyl Acetate	ND	1.00	ND	3.60		2
Ethylbenzene	ND	0.400	ND	1.74		2
Freon-113	ND	0.400	ND	3.06		2
Freon-114	ND	0.400	ND	2.79		2
Hexachlorobutadiene	ND	0.400	ND	4.26		2
Isopropanol	5.12	1.00	12.6	2.46		2
Methylene chloride	1.24	1.00	4.29	3.47		2
4-Methyl-2-pentanone	ND	0.400	ND	1.64		2
Methyl tert butyl ether	ND	0.400	ND	1.44		2
p/m-Xylene	ND	0.800	ND	3.47		2
o-Xylene	ND	0.400	ND	1.74		2
Heptane	ND	0.400	ND	1.64		2
n-Hexane	1.88	0.400	6.64	1.41		2
Propylene	1.02	0.400	1.75	0.688		2



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08**SAMPLE RESULTS****Lab ID:** L0809956-02**Date Collected:** 07/02/08 11:10**Client ID:** SV-5**Date Received:** 07/03/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	0.400	ND	1.70		2
Tetrachloroethene	3.28	0.400	22.2	2.71		2
Tetrahydrofuran	ND	0.400	ND	1.18		2
Toluene	1.02	0.400	3.85	1.51		2
trans-1,2-Dichloroethene	ND	0.400	ND	1.58		2
trans-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Trichloroethene	11.0	0.400	59.0	2.15		2
Trichlorofluoromethane	77.3	0.400	434	2.24		2
Vinyl acetate	0.817	0.400	2.88	1.41		2
Vinyl bromide	ND	0.400	ND	1.75		2
Vinyl chloride	ND	0.400	ND	1.02		2



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-02 Batch: WG328542-3						
1,1,1-Trichloroethane	ND	0.200	ND	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorobenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethy benzene	ND	0.200	ND	0.982		1
1,2-D bromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	ND	0.200	ND	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	ND	0.200	ND	0.589		1
2-Hexanone	ND	0.200	ND	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	ND	0.200	ND	0.982		1
Acetone	ND	0.500	ND	1.19		1
Benzene	ND	0.200	ND	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-02 Batch: WG328542-3						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	ND	0.200	ND	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	ND	0.200	ND	0.527		1
Chloroform	ND	0.200	ND	0.976		1
Chloromethane	ND	0.200	ND	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	ND	0.200	ND	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	ND	0.200	ND	0.988		1
Ethanol	ND	2.50	ND	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	ND	0.200	ND	0.868		1
Freon-113	ND	0.200	ND	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	ND	0.500	ND	1.23		1
Methylene chloride	ND	0.500	ND	1.74		1
4-Methyl-2-pentanone	ND	0.200	ND	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	ND	0.400	ND	1.74		1
o-Xylene	ND	0.200	ND	0.868		1



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-02 Batch: WG328542-3						
Heptane	ND	0.200	ND	0.819		1
n-Hexane	ND	0.200	ND	0.704		1
Propylene	ND	0.200	ND	0.344		1
Styrene	ND	0.200	ND	0.851		1
Tetrachloroethene	ND	0.200	ND	1.36		1
Tetrahydrofuran	ND	0.200	ND	0.589		1
Toluene	ND	0.200	ND	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	ND	0.200	ND	1.07		1
Trichlorofluoromethane	ND	0.200	ND	1.12		1
Vinyl acetate	ND	0.200	ND	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1



Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Lab Number: L0809956

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
1,1,1-Trichloroethane	109	-	70-130	-	
1,1,2,2-Tetrachloroethane	123	-	70-130	-	
1,1,2-Trichloroethane	116	-	70-130	-	
1,1-Dichloroethane	112	-	70-130	-	
1,1-Dichloroethene	99	-	70-130	-	
1,2,4-Trichlorobenzene	111	-	70-130	-	
1,2,4-Trimethy benzene	123	-	70-130	-	
1,2-D bromoethane	106	-	70-130	-	
1,2-Dichlorobenzene	120	-	70-130	-	
1,2-Dichloroethane	118	-	70-130	-	
1,2-Dichloropropane	122	-	70-130	-	
1,3,5-Trimethy benzene	121	-	70-130	-	
1,3-Butadiene	101	-	70-130	-	
1,3-Dichlorobenzene	120	-	70-130	-	
1,4-Dichlorobenzene	122	-	70-130	-	
1,4-Dioxane	108	-	70-130	-	
2,2,4-Trimethylpentane	124	-	70-130	-	
2-Butanone	106	-	70-130	-	
2-Hexanone	117	-	70-130	-	
3-Chloropropene	114	-	70-130	-	
4-Ethyltoluene	120	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Lab Number: L0809956

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
Acetone	116	-	70-130	-	
Benzene	111	-	70-130	-	
Benzyl chloride	122	-	70-130	-	
Bromodichloromethane	117	-	70-130	-	
Bromoform	112	-	70-130	-	
Bromomethane	86	-	70-130	-	
Carbon disulfide	96	-	70-130	-	
Carbon tetrachloride	104	-	70-130	-	
Chlorobenzene	111	-	70-130	-	
Chloroethane	100	-	70-130	-	
Chloroform	112	-	70-130	-	
Chloromethane	97	-	70-130	-	
cis-1,2-Dichloroethene	113	-	70-130	-	
cis-1,3-Dichloropropene	111	-	70-130	-	
Cyclohexane	103	-	70-130	-	
Dibromochloromethane	109	-	70-130	-	
Dichlorodifluoromethane	96	-	70-130	-	
Ethyl Alcohol	119	-	70-130	-	
Ethyl Acetate	125	-	70-130	-	
Ethylbenzene	124	-	70-130	-	
1,1,2-Trichloro-1,2,2-Trifluoroethane	99	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Lab Number: L0809956

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
1,2-Dichloro-1,1,2,2-tetrafluoroethane	98	-	70-130	-	
Hexachlorobutadiene	98	-	70-130	-	
iso-Propyl Alcohol	114	-	70-130	-	
Methylene chloride	102	-	70-130	-	
4-Methyl-2-pentanone	118	-	70-130	-	
Methyl tert butyl ether	116	-	70-130	-	
p/m-Xylene	124	-	70-130	-	
o-Xylene	125	-	70-130	-	
Heptane	119	-	70-130	-	
n-Hexane	102	-	70-130	-	
Propylene	99	-	70-130	-	
Styrene	120	-	70-130	-	
Tetrachloroethene	106	-	70-130	-	
Tetrahydrofuran	115	-	70-130	-	
Toluene	117	-	70-130	-	
trans-1,2-Dichloroethene	101	-	70-130	-	
trans-1,3-Dichloropropene	104	-	70-130	-	
Trichloroethene	110	-	70-130	-	
Trichlorofluoromethane	96	-	70-130	-	
Vinyl acetate	140	-	70-130	-	
Vinyl bromide	98	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Lab Number: L0809956

Project Number: 12069-052

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
Vinyl chloride	98	-	70-130	-	
Naphthalene	106	-	70-130	-	

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Lab Number: L0809956

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
1,1,1-Trichloroethane	ND	ND	ppbV	NC	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethene	ND	ND	ppbV	NC	25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC	25
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC	25
1,3-Butadiene	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC	25
2-Butanone	19.8	17.4	ppbV	13	25
2-Hexanone	2.69	2.72	ppbV	1	25

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Lab Number: L0809956

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
3-Chloropropene	ND	ND	ppbV	NC	25
4-Ethyltoluene	ND	ND	ppbV	NC	25
Acetone	213	182	ppbV	16	25
Benzene	ND	ND	ppbV	NC	25
Benzyl chloride	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
Bromomethane	ND	ND	ppbV	NC	25
Carbon disulfide	0.515	0.497	ppbV	4	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Chlorobenzene	ND	ND	ppbV	NC	25
Chloroethane	ND	ND	ppbV	NC	25
Chloroform	1.12	1.09	ppbV	3	25
Chloromethane	ND	ND	ppbV	NC	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Cyclohexane	ND	ND	ppbV	NC	25
D bromochloromethane	ND	ND	ppbV	NC	25
Dichlorodifluoromethane	0.486	0.481	ppbV	1	25

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Lab Number: L0809956

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
Ethanol	16.8	15.9	ppbV	6	25
Ethyl Acetate	ND	ND	ppbV	NC	25
Ethylbenzene	ND	ND	ppbV	NC	25
Freon-113	ND	ND	ppbV	NC	25
Freon-114	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25
Isopropanol	17.0	16.5	ppbV	3	25
Methylene chloride	1.31	1.30	ppbV	1	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
p/m-Xylene	0.898	0.861	ppbV	4	25
o-Xylene	ND	ND	ppbV	NC	25
Heptane	ND	0.404	ppbV	NC	25
n-Hexane	2.30	2.26	ppbV	2	25
Propylene	2.18	2.10	ppbV	4	25
Styrene	ND	ND	ppbV	NC	25
Tetrachloroethene	4.41	4.49	ppbV	2	25
Tetrahydrofuran	ND	ND	ppbV	NC	25
Toluene	1.68	1.70	ppbV	1	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CENTER

Project Number: 12069-052

Lab Number: L0809956

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
trans-1,2-Dichloroethene	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Trichloroethene	5.43	5.41	ppbV	0	25
Trichlorofluoromethane	42.9	42.2	ppbV	2	25
Vinyl acetate	1.23	1.10	ppbV	11	25
Vinyl bromide	ND	ND	ppbV	NC	25
Vinyl chloride	ND	ND	ppbV	NC	25

Project Name: WAYLAND TOWN CENTER

07110813:07

Lab Number: L0809956

Project Number: 12069-052

Report Date: 07/11/08

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Cleaning Batch ID	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Out mL/min	Flow In mL/min	% RSD
L0809956-01	SV-4	0021	#30 SV		-	-	39	39	0
L0809956-01	SV-4	384	2.7L Can	L0809159-01	-29.4	0	-	-	-
L0809956-02	SV-5	0194	#30 SV		-	-	39	40	3
L0809956-02	SV-5	459	2.7L Can	L0809159-01	-29.4	-0.4	-	-	-



Project Name: WAYLAND TOWN CENTER**Lab Number:** L0809956**Project Number:** 12069-052**Report Date:** 07/11/08**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
N/A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0809956-01A	Canister - 2.7 Liter	N/A	NA	N/A	NA	Absent	TO15-LL
L0809956-02A	Canister - 2.7 Liter	N/A	NA	N/A	NA	Absent	TO15-LL

Project Name: WAYLAND TOWN CENTER
Project Number: 12069-052

Lab Number: L0809956
Report Date: 07/11/08

GLOSSARY

Acronyms

- 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.
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.
NI - Not Ignitable.
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.
ND - Not detected at the reported detection limit for the sample.
RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL 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.

Terms

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

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

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.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Report Format: Not Specified



Project Name: WAYLAND TOWN CENTER
Project Number: 12069-052

Lab Number: L0809956
Report Date: 07/11/08

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs 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 Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs 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 Woods Hole Labs.

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.



AIR ANALYSIS

PAGE OF

Date Rec'd in Lab:

7/2

ALPHA Job #: L0809956

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Haley & Aldrich, Inc.
Address: 465 Medford St.
Boston

Phone: 607-886-7400

Fax:

Email: K. LeBlanc@Haleyaldrich.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

Project Information

Project Name: Whitland Town Center

Project Location: Wayland me

Project #: 12069-052

Project Manager: *K. Le Blanc*

ALPHA Quote #:

Turn-Around Time

☐ Standard
10 DAYS☐ **RUSH** (only confirmed if pre-approved!)

Date Due: 5/14/11

Time:

Report Information - Data Deliverables

☐ FAX

☐ ADEx

Criteria Checker:

(Default based on Regulatory Criteria Indicated)

Other Formats:

☐ EMAIL (standard pdf report)

☐ Additional Deliverables:

Report to: (if different than Project Manager)

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria
-----------	---------	----------

ANALYSIS

All Columns Below Must Be Filled Out

[illegible]

***SAMPLE MATRIX CODES**

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.



ANALYTICAL REPORT

Lab Number: L0809898

Client: Haley & Aldrich, Inc.
465 Medford Street, Suite 2200
Charlestown, MA 02129-1400

ATTN: Kate Leblanc

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Report Date: 07/11/08

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809898
Report Date: 07/11/08

Alpha Sample ID	Client ID	Sample Location
L0809898-01	SV-14	WAYLAND, MA
L0809898-02	SVE-2	WAYLAND, MA

Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809898
Report Date: 07/11/08

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.

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.

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


TO-15

L0809898-01 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L0809898-02 required re-analysis on a dilution in order to quantitate the sample within the calibration range. The result is reported as a "greater than" value for the compound that exceeded the calibration on the initial analysis. The re-analysis was performed only for the compound which exceeded the calibration range. The WG328542-2 LCS recovery for Vinyl Acetate is outside the 70%-130% acceptance limit. The LCS was within overall method allowances, therefore the analysis proceeded.

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:



Title: Technical Director/Representative

Date: 07/11/08

AIR

Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809898-01
Client ID: SV-14
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/09/08 23:10
Analyst: AR

Date Collected: 07/03/08 15:00
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	7.80	5.00	42.6	27.2		25
1,1,2,2-Tetrachloroethane	ND	5.00	ND	34.3		25
1,1,2-Trichloroethane	ND	5.00	ND	27.2		25
1,1-Dichloroethane	ND	5.00	ND	20.2		25
1,1-Dichloroethene	ND	5.00	ND	19.8		25
1,2,4-Trichlorobenzene	ND	5.00	ND	37.1		25
1,2,4-Trimethylbenzene	ND	5.00	ND	24.6		25
1,2-Dibromoethane	ND	5.00	ND	38.4		25
1,2-Dichlorobenzene	ND	5.00	ND	30.0		25
1,2-Dichloroethane	ND	5.00	ND	20.2		25
1,2-Dichloropropane	ND	5.00	ND	23.1		25
1,3,5-Trimethybenzene	ND	5.00	ND	24.6		25
1,3-Butadiene	ND	5.00	ND	11.0		25
1,3-Dichlorobenzene	ND	5.00	ND	30.0		25
1,4-Dichlorobenzene	ND	5.00	ND	30.0		25
1,4-Dioxane	ND	5.00	ND	18.0		25
2,2,4-Trimethylpentane	ND	5.00	ND	23.3		25
2-Butanone	10.2	5.00	29.9	14.7		25
2-Hexanone	ND	5.00	ND	20.5		25
3-Chloropropene	ND	5.00	ND	15.6		25
4-Ethyltoluene	ND	5.00	ND	24.6		25
Acetone	76.7	12.5	182	29.7		25
Benzene	ND	5.00	ND	16.0		25
Benzyl chloride	ND	5.00	ND	25.9		25
Bromodichloromethane	ND	5.00	ND	33.5		25



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809898-01

Date Collected: 07/03/08 15:00

Client ID: SV-14

Date Received: 07/03/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	5.00	ND	51.6		25
Bromomethane	ND	5.00	ND	19.4		25
Carbon disulfide	ND	5.00	ND	15.6		25
Carbon tetrachloride	ND	5.00	ND	31.4		25
Chlorobenzene	ND	5.00	ND	23.0		25
Chloroethane	ND	5.00	ND	13.2		25
Chloroform	5.24	5.00	25.6	24.4		25
Chloromethane	ND	5.00	ND	10.3		25
cis-1,2-Dichloroethene	ND	5.00	ND	19.8		25
cis-1,3-Dichloropropene	ND	5.00	ND	22.7		25
Cyclohexane	ND	5.00	ND	17.2		25
Dibromochloromethane	ND	5.00	ND	42.6		25
Dichlorodifluoromethane	173	5.00	856	24.7		25
Ethanol	ND	62.5	ND	118.		25
Ethyl Acetate	ND	12.5	ND	45.0		25
Ethylbenzene	ND	5.00	ND	21.7		25
Freon-113	ND	5.00	ND	38.3		25
Freon-114	ND	5.00	ND	34.9		25
Hexachlorobutadiene	ND	5.00	ND	53.3		25
Isopropanol	ND	12.5	ND	30.7		25
Methylene chloride	ND	12.5	ND	43.4		25
4-Methyl-2-pentanone	ND	5.00	ND	20.5		25
Methyl tert butyl ether	ND	5.00	ND	18.0		25
p/m-Xylene	ND	10.0	ND	43.4		25
o-Xylene	ND	5.00	ND	21.7		25
Heptane	ND	5.00	ND	20.5		25
n-Hexane	ND	5.00	ND	17.6		25
Propylene	ND	5.00	ND	8.60		25



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**SAMPLE RESULTS****Lab ID:** L0809898-01**Date Collected:** 07/03/08 15:00**Client ID:** SV-14**Date Received:** 07/03/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	5.00	ND	21.3		25
Tetrachloroethene	33.4	5.00	226	33.9		25
Tetrahydrofuran	ND	5.00	ND	14.7		25
Toluene	ND	5.00	ND	18.8		25
trans-1,2-Dichloroethene	ND	5.00	ND	19.8		25
trans-1,3-Dichloropropene	ND	5.00	ND	22.7		25
Trichloroethene	2370	5.00	12700	26.8		25
Trichlorofluoromethane	66.9	5.00	376	28.1		25
Vinyl acetate	ND	5.00	ND	17.6		25
Vinyl bromide	ND	5.00	ND	21.8		25
Vinyl chloride	ND	5.00	ND	12.8		25



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809898-02
Client ID: SVE-2
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/09/08 23:47
Analyst: AR

Date Collected: 07/03/08 14:35
Date Received: 07/03/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	1.45	0.200	7.93	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorobenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethylbenzene	1.04	0.200	5.12	0.982		1
1,2-Dibromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	0.383	0.200	1.88	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	0.336	0.200	2.02	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	>100	0.2	>295	0.589		1
2-Hexanone	16.3	0.200	66.8	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	0.300	0.200	1.47	0.982		1
Acetone	>100	0.5	>238	1.19		1
Benzene	3.61	0.200	11.5	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809898-02

Date Collected: 07/03/08 14:35

Client ID: SVE-2

Date Received: 07/03/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	4.96	0.200	15.4	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	0.275	0.200	0.725	0.527		1
Chloroform	0.302	0.200	1.47	0.976		1
Chloromethane	0.861	0.200	1.78	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	0.486	0.200	1.67	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	0.482	0.200	2.38	0.988		1
Ethanol	77.3	2.50	146	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	1.02	0.200	4.41	0.868		1
Freon-113	0.206	0.200	1.57	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	6.95	0.500	17.1	1.23		1
Methylene chloride	1.13	0.500	3.91	1.74		1
4-Methyl-2-pentanone	2.42	0.200	9.89	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	2.55	0.400	11.0	1.74		1
o-Xylene	1.12	0.200	4.88	0.868		1
Heptane	3.02	0.200	12.4	0.819		1
n-Hexane	3.77	0.200	13.3	0.704		1
Propylene	28.7	0.200	49.4	0.344		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**SAMPLE RESULTS****Lab ID:** L0809898-02**Date Collected:** 07/03/08 14:35**Client ID:** SVE-2**Date Received:** 07/03/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	0.388	0.200	1.65	0.851		1
Tetrachloroethene	15.8	0.200	107	1.36		1
Tetrahydrofuran	ND	0.200	ND	0.589		1
Toluene	5.04	0.200	19.0	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	18.5	0.200	99.4	1.07		1
Trichlorofluoromethane	2.97	0.200	16.7	1.12		1
Vinyl acetate	13.6	0.200	47.7	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**SAMPLE RESULTS**

Lab ID: L0809898-02 R

Date Collected: 07/03/08 14:35

Client ID: SVE-2

Date Received: 07/03/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil_Vapor

Analytical Method: 48,TO-15

Analytical Date: 07/10/08 07:04

Analyst: AR

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
2-Butanone	86.5	2.00	255	5.89		10
Acetone	779	5.00	1850	11.9		10



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-02 Batch: WG328542-3						
1,1,1-Trichloroethane	ND	0.200	ND	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorobenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethy benzene	ND	0.200	ND	0.982		1
1,2-D bromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	ND	0.200	ND	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	ND	0.200	ND	0.589		1
2-Hexanone	ND	0.200	ND	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	ND	0.200	ND	0.982		1
Acetone	ND	0.500	ND	1.19		1
Benzene	ND	0.200	ND	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1



Project Name: WAYLAND TOWN CNT.

Lab Number: L0809898

Project Number: 12069-054

Report Date: 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-02 Batch: WG328542-3						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	ND	0.200	ND	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	ND	0.200	ND	0.527		1
Chloroform	ND	0.200	ND	0.976		1
Chloromethane	ND	0.200	ND	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	ND	0.200	ND	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	ND	0.200	ND	0.988		1
Ethanol	ND	2.50	ND	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	ND	0.200	ND	0.868		1
Freon-113	ND	0.200	ND	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	ND	0.500	ND	1.23		1
Methylene chloride	ND	0.500	ND	1.74		1
4-Methyl-2-pentanone	ND	0.200	ND	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	ND	0.400	ND	1.74		1
o-Xylene	ND	0.200	ND	0.868		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/09/08 12:53

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-02 Batch: WG328542-3						
Heptane	ND	0.200	ND	0.819		1
n-Hexane	ND	0.200	ND	0.704		1
Propylene	ND	0.200	ND	0.344		1
Styrene	ND	0.200	ND	0.851		1
Tetrachloroethene	ND	0.200	ND	1.36		1
Tetrahydrofuran	ND	0.200	ND	0.589		1
Toluene	ND	0.200	ND	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	ND	0.200	ND	1.07		1
Trichlorofluoromethane	ND	0.200	ND	1.12		1
Vinyl acetate	ND	0.200	ND	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1



Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Lab Number: L0809898

Project Number: 12069-054

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
1,1,1-Trichloroethane	109	-	70-130	-	
1,1,2,2-Tetrachloroethane	123	-	70-130	-	
1,1,2-Trichloroethane	116	-	70-130	-	
1,1-Dichloroethane	112	-	70-130	-	
1,1-Dichloroethene	99	-	70-130	-	
1,2,4-Trichlorobenzene	111	-	70-130	-	
1,2,4-Trimethy benzene	123	-	70-130	-	
1,2-D bromoethane	106	-	70-130	-	
1,2-Dichlorobenzene	120	-	70-130	-	
1,2-Dichloroethane	118	-	70-130	-	
1,2-Dichloropropane	122	-	70-130	-	
1,3,5-Trimethy benzene	121	-	70-130	-	
1,3-Butadiene	101	-	70-130	-	
1,3-Dichlorobenzene	120	-	70-130	-	
1,4-Dichlorobenzene	122	-	70-130	-	
1,4-Dioxane	108	-	70-130	-	
2,2,4-Trimethylpentane	124	-	70-130	-	
2-Butanone	106	-	70-130	-	
2-Hexanone	117	-	70-130	-	
3-Chloropropene	114	-	70-130	-	
4-Ethyltoluene	120	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809898

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
Acetone	116	-	70-130	-	
Benzene	111	-	70-130	-	
Benzyl chloride	122	-	70-130	-	
Bromodichloromethane	117	-	70-130	-	
Bromoform	112	-	70-130	-	
Bromomethane	86	-	70-130	-	
Carbon disulfide	96	-	70-130	-	
Carbon tetrachloride	104	-	70-130	-	
Chlorobenzene	111	-	70-130	-	
Chloroethane	100	-	70-130	-	
Chloroform	112	-	70-130	-	
Chloromethane	97	-	70-130	-	
cis-1,2-Dichloroethene	113	-	70-130	-	
cis-1,3-Dichloropropene	111	-	70-130	-	
Cyclohexane	103	-	70-130	-	
Dibromochloromethane	109	-	70-130	-	
Dichlorodifluoromethane	96	-	70-130	-	
Ethyl Alcohol	119	-	70-130	-	
Ethyl Acetate	125	-	70-130	-	
Ethylbenzene	124	-	70-130	-	
1,1,2-Trichloro-1,2,2-Trifluoroethane	99	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809898

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
1,2-Dichloro-1,1,2,2-tetrafluoroethane	98	-	70-130	-	
Hexachlorobutadiene	98	-	70-130	-	
iso-Propyl Alcohol	114	-	70-130	-	
Methylene chloride	102	-	70-130	-	
4-Methyl-2-pentanone	118	-	70-130	-	
Methyl tert butyl ether	116	-	70-130	-	
p/m-Xylene	124	-	70-130	-	
o-Xylene	125	-	70-130	-	
Heptane	119	-	70-130	-	
n-Hexane	102	-	70-130	-	
Propylene	99	-	70-130	-	
Styrene	120	-	70-130	-	
Tetrachloroethene	106	-	70-130	-	
Tetrahydrofuran	115	-	70-130	-	
Toluene	117	-	70-130	-	
trans-1,2-Dichloroethene	101	-	70-130	-	
trans-1,3-Dichloropropene	104	-	70-130	-	
Trichloroethene	110	-	70-130	-	
Trichlorofluoromethane	96	-	70-130	-	
Vinyl acetate	140	-	70-130	-	
Vinyl bromide	98	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Lab Number: L0809898

Project Number: 12069-054

Report Date: 07/11/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 Batch: WG328542-2					
Vinyl chloride	98	-	70-130	-	
Naphthalene	106	-	70-130	-	

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809898

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
1,1,1-Trichloroethane	ND	ND	ppbV	NC	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethene	ND	ND	ppbV	NC	25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC	25
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC	25
1,3-Butadiene	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC	25
2-Butanone	19.8	17.4	ppbV	13	25
2-Hexanone	2.69	2.72	ppbV	1	25

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809898

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
3-Chloropropene	ND	ND	ppbV	NC	25
4-Ethyltoluene	ND	ND	ppbV	NC	25
Acetone	213	182	ppbV	16	25
Benzene	ND	ND	ppbV	NC	25
Benzyl chloride	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
Bromomethane	ND	ND	ppbV	NC	25
Carbon disulfide	0.515	0.497	ppbV	4	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Chlorobenzene	ND	ND	ppbV	NC	25
Chloroethane	ND	ND	ppbV	NC	25
Chloroform	1.12	1.09	ppbV	3	25
Chloromethane	ND	ND	ppbV	NC	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Cyclohexane	ND	ND	ppbV	NC	25
D bromochloromethane	ND	ND	ppbV	NC	25
Dichlorodifluoromethane	0.486	0.481	ppbV	1	25

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809898

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
Ethanol	16.8	15.9	ppbV	6	25
Ethyl Acetate	ND	ND	ppbV	NC	25
Ethylbenzene	ND	ND	ppbV	NC	25
Freon-113	ND	ND	ppbV	NC	25
Freon-114	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25
Isopropanol	17.0	16.5	ppbV	3	25
Methylene chloride	1.31	1.30	ppbV	1	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
p/m-Xylene	0.898	0.861	ppbV	4	25
o-Xylene	ND	ND	ppbV	NC	25
Heptane	ND	0.404	ppbV	NC	25
n-Hexane	2.30	2.26	ppbV	2	25
Propylene	2.18	2.10	ppbV	4	25
Styrene	ND	ND	ppbV	NC	25
Tetrachloroethene	4.41	4.49	ppbV	2	25
Tetrahydrofuran	ND	ND	ppbV	NC	25
Toluene	1.68	1.70	ppbV	1	25

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809898

Report Date: 07/11/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-02 QC Batch ID: WG328542-4 QC Sample: L0809833-02 Client ID: DUP Sample					
trans-1,2-Dichloroethene	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Trichloroethene	5.43	5.41	ppbV	0	25
Trichlorofluoromethane	42.9	42.2	ppbV	2	25
Vinyl acetate	1.23	1.10	ppbV	11	25
Vinyl bromide	ND	ND	ppbV	NC	25
Vinyl chloride	ND	ND	ppbV	NC	25

Project Name: WAYLAND TOWN CNT.

07110813:02

Lab Number: L0809898

Project Number: 12069-054

Report Date: 07/11/08

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Cleaning Batch ID	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Out mL/min	Flow In mL/min	% RSD
L0809898-01	SV-14	0016	#30 SV		-	-	32	31	3
L0809898-01	SV-14	379	2.7L Can	I0808739	-29.3	-2.5	-	-	-
L0809898-02	SVE-2	0339	#30 SV		-	-	37	38	3
L0809898-02	SVE-2	499	2.7L Can	L0809159-01	-29.4	-3.6	-	-	-



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809898**Project Number:** 12069-054**Report Date:** 07/11/08**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
N/A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0809898-01A	Canister - 2.7 Liter	N/A	NA	N/A	NA	Absent	TO15-LL
L0809898-02A	Canister - 2.7 Liter	N/A	NA	N/A	NA	Absent	TO15-LL

Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809898
Report Date: 07/11/08

GLOSSARY

Acronyms

- 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.
- 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.
- NI - Not Ignitable.
- 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.
- ND - Not detected at the reported detection limit for the sample.
- RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL 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.

Terms

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

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

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.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Report Format: Not Specified



Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809898
Report Date: 07/11/08

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs 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 Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs 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 Woods Hole Labs.

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.



AIR ANALYSIS

PAGE _____ OF _____



CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: HALEY & ADDISON, INC.
Address: 465 MANSFIELD ST.
BOSTON, MA
Phone: 617 886-7900
Fax: _____
Email: _____

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: WAYLAND TOWN CNT
Project Location: WAYLAND AVE
Project #: 12069-054
Project Manager: K. LEONINE
ALPHA Quote #: _____

Turn-Around Time

☐ Standard 10 DAYS ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5 DAY Time: _____

Date Rec'd in Lab: 7/3

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker: _____
(Default based on Regulatory Criteria Indicated)
Other Formats: _____
☐ EMAIL (standard pdf report)
☐ Additional Deliverables: _____
Report to: (if different than Project Manager) _____

ALPHA Job #: L0809898

Billing Information

☐ Same as Client info PO #: _____

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15 APH	FIXED	TO-13A	TO-4 /	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum													
9898.1	SU-14	7/3/08	1310	1500	-35	-7		CET	27L	379	0016	X							
.2	SUE-2	"	1315	1435	-29	0		"	"	499	0339	X							
</																			

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:

Date/Time

Received By:

Date/Time:

AIR ANALYSIS

PAGE _____ OF _____



CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: HALEY & ADDISON, INC.
Address: 465 MIDDLE ST.
BOSTON, MA
Phone: 617 886-7900
Fax:
Email:

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: WAYLAND TOWN CNT
Project Location: WAYLAND AVE
Project #: 12069-054
Project Manager: K. LEONCE
ALPHA Quote #:

Turn-Around Time

☐ Standard 10 DAYS ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5 DAY Time:

Date Rec'd in Lab: 7/3

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

ALPHA Job #: L0809898

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program Criteria

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15 APH	FIXED	TO-13	TO-4/	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum													
9898.1	SU-14	7/3/08	1310	1500	-35	-7		CFT	27L	379	0016	X							
.2	SUE-2	"	1315	1435	-29	0		"	"	499	0339	X							

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:

Date/Time

Received By:

Date/Time:



ANALYTICAL REPORT

Lab Number: L0809960

Client: Haley & Aldrich, Inc.
465 Medford Street, Suite 2200
Charlestown, MA 02129-1400

ATTN: Kate Leblanc

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Report Date: 07/14/08

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809960
Report Date: 07/14/08

Alpha Sample ID	Client ID	Sample Location
L0809960-01	SV-11	WAYLAND, MA
L0809960-02	SV-12	WAYLAND, MA
L0809960-03	SV-13	WAYLAND, MA

Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809960
Report Date: 07/14/08

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.

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.

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

TO-15


L0809960-01 required re-analysis on a 5x dilution in order to quantitate the sample within the calibration range. The result is reported as a "greater than" value for the compound that exceeded the calibration on the initial analysis. The re-analysis was performed only for the compound which exceeded the calibration range. L0809960-03 and WG328755-4 Duplicate have elevated detection limits due to the 2x dilution required by the elevated concentrations of target compounds in the sample.

Fixed Gas - Helium

L0809960-03: Prior to sample analysis, the canisters were pressurized with UHP Nitrogen in order to facilitate the transfer of sample to the Gas Chromatograph. The addition of Nitrogen resulted in a dilution of the sample. The reporting limits have been elevated accordingly.

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:



Title: Technical Director/Representative

Date: 07/14/08

AIR

Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-01
Client ID: SV-11
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/10/08 21:03
Analyst: AR

Date Collected: 07/03/08 10:55
Date Received: 07/07/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	4.63	0.200	25.2	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorbenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethylbenzene	0.214	0.200	1.05	0.982		1
1,2-Dibromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	ND	0.200	ND	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	5.11	0.200	15.0	0.589		1
2-Hexanone	1.28	0.200	5.24	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	ND	0.200	ND	0.982		1
Acetone	18.4	0.500	43.6	1.19		1
Benzene	ND	0.200	ND	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS****Lab ID:** L0809960-01**Date Collected:** 07/03/08 10:55**Client ID:** SV-11**Date Received:** 07/07/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	ND	0.200	ND	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	ND	0.200	ND	0.527		1
Chloroform	1.05	0.200	5.11	0.976		1
Chloromethane	ND	0.200	ND	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	ND	0.200	ND	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	0.962	0.200	4.75	0.988		1
Ethanol	8.26	2.50	15.6	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	ND	0.200	ND	0.868		1
Freon-113	0.252	0.200	1.93	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	1.48	0.500	3.64	1.23		1
Methylene chloride	0.943	0.500	3.27	1.74		1
4-Methyl-2-pentanone	0.240	0.200	0.982	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	0.680	0.400	2.95	1.74		1
o-Xylene	0.240	0.200	1.04	0.868		1
Heptane	ND	0.200	ND	0.819		1
n-Hexane	0.558	0.200	1.97	0.704		1
Propylene	ND	0.200	ND	0.344		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-01

Date Collected: 07/03/08 10:55

Client ID: SV-11

Date Received: 07/07/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	0.200	ND	0.851		1
Tetrachloroethene	4.79	0.200	32.5	1.36		1
Tetrahydrofuran	0.813	0.200	2.39	0.589		1
Toluene	0.888	0.200	3.34	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	1.64	0.200	8.83	1.07		1
Trichlorofluoromethane	>100	0.2	>561	1.12		1
Vinyl acetate	ND	0.200	ND	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-01 R

Date Collected: 07/03/08 10:55

Client ID: SV-11

Date Received: 07/07/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Matrix: Soil_Vapor

Analytical Method: 48,TO-15

Analytical Date: 07/11/08 05:01

Analyst: AR

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Trichlorofluoromethane	151	1.00	847	5.61		5



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-02
Client ID: SV-12
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/10/08 21:39
Analyst: AR

Date Collected: 07/03/08 11:20
Date Received: 07/07/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	0.426	0.200	2.32	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorobenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethylbenzene	0.267	0.200	1.31	0.982		1
1,2-Dibromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	ND	0.200	ND	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	5.44	0.200	16.0	0.589		1
2-Hexanone	1.44	0.200	5.88	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	ND	0.200	ND	0.982		1
Acetone	21.6	0.500	51.3	1.19		1
Benzene	0.310	0.200	0.990	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS****Lab ID:** L0809960-02**Date Collected:** 07/03/08 11:20**Client ID:** SV-12**Date Received:** 07/07/08**Sample Location:** WAYLAND, MA**Field Prep:** Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	0.208	0.200	0.648	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	ND	0.200	ND	0.527		1
Chloroform	0.938	0.200	4.57	0.976		1
Chloromethane	0.203	0.200	0.418	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	ND	0.200	ND	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	1.90	0.200	9.42	0.988		1
Ethanol	10.6	2.50	20.0	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	0.274	0.200	1.19	0.868		1
Freon-113	ND	0.200	ND	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	2.03	0.500	4.98	1.23		1
Methylene chloride	1.31	0.500	4.54	1.74		1
4-Methyl-2-pentanone	0.320	0.200	1.31	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	0.918	0.400	3.98	1.74		1
o-Xylene	0.357	0.200	1.55	0.868		1
Heptane	0.213	0.200	0.874	0.819		1
n-Hexane	1.32	0.200	4.66	0.704		1
Propylene	ND	0.200	ND	0.344		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-02

Date Collected: 07/03/08 11:20

Client ID: SV-12

Date Received: 07/07/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	0.200	ND	0.851		1
Tetrachloroethene	1.97	0.200	13.3	1.36		1
Tetrahydrofuran	0.859	0.200	2.53	0.589		1
Toluene	1.84	0.200	6.94	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	17.9	0.200	96.4	1.07		1
Trichlorofluoromethane	71.0	0.200	398	1.12		1
Vinyl acetate	ND	0.200	ND	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-03
Client ID: SV-13
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 48,TO-15
Analytical Date: 07/10/08 22:15
Analyst: AR

Date Collected: 07/03/08 10:42
Date Received: 07/07/08
Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	0.803	0.400	4.38	2.18		2
1,1,2,2-Tetrachloroethane	ND	0.400	ND	2.74		2
1,1,2-Trichloroethane	ND	0.400	ND	2.18		2
1,1-Dichloroethane	ND	0.400	ND	1.62		2
1,1-Dichloroethene	ND	0.400	ND	1.58		2
1,2,4-Trichlorbenzene	ND	0.400	ND	2.97		2
1,2,4-Trimethylbenzene	ND	0.400	ND	1.96		2
1,2-Dibromoethane	ND	0.400	ND	3.07		2
1,2-Dichlorobenzene	ND	0.400	ND	2.40		2
1,2-Dichloroethane	ND	0.400	ND	1.62		2
1,2-Dichloropropane	ND	0.400	ND	1.85		2
1,3,5-Trimethybenzene	ND	0.400	ND	1.96		2
1,3-Butadiene	ND	0.400	ND	0.884		2
1,3-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dichlorobenzene	ND	0.400	ND	2.40		2
1,4-Dioxane	ND	0.400	ND	1.44		2
2,2,4-Trimethylpentane	ND	0.400	ND	1.87		2
2-Butanone	3.16	0.400	9.31	1.18		2
2-Hexanone	0.649	0.400	2.66	1.64		2
3-Chloropropene	ND	0.400	ND	1.25		2
4-Ethyltoluene	ND	0.400	ND	1.96		2
Acetone	31.3	1.00	74.4	2.37		2
Benzene	ND	0.400	ND	1.28		2
Benzyl chloride	ND	0.400	ND	2.07		2
Bromodichloromethane	ND	0.400	ND	2.68		2



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-03

Date Collected: 07/03/08 10:42

Client ID: SV-13

Date Received: 07/07/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	0.400	ND	4.13		2
Bromomethane	ND	0.400	ND	1.55		2
Carbon disulfide	ND	0.400	ND	1.24		2
Carbon tetrachloride	ND	0.400	ND	2.51		2
Chlorobenzene	ND	0.400	ND	1.84		2
Chloroethane	ND	0.400	ND	1.05		2
Chloroform	1.77	0.400	8.62	1.95		2
Chloromethane	ND	0.400	ND	0.825		2
cis-1,2-Dichloroethene	ND	0.400	ND	1.58		2
cis-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Cyclohexane	ND	0.400	ND	1.38		2
Dibromochloromethane	ND	0.400	ND	3.40		2
Dichlorodifluoromethane	2.90	0.400	14.3	1.98		2
Ethanol	7.29	5.00	13.7	9.41		2
Ethyl Acetate	ND	1.00	ND	3.60		2
Ethylbenzene	ND	0.400	ND	1.74		2
Freon-113	ND	0.400	ND	3.06		2
Freon-114	ND	0.400	ND	2.79		2
Hexachlorobutadiene	ND	0.400	ND	4.26		2
Isopropanol	1.55	1.00	3.81	2.46		2
Methylene chloride	1.17	1.00	4.07	3.47		2
4-Methyl-2-pentanone	ND	0.400	ND	1.64		2
Methyl tert butyl ether	ND	0.400	ND	1.44		2
p/m-Xylene	ND	0.800	ND	3.47		2
o-Xylene	ND	0.400	ND	1.74		2
Heptane	ND	0.400	ND	1.64		2
n-Hexane	ND	0.400	ND	1.41		2
Propylene	ND	0.400	ND	0.688		2



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-03

Date Collected: 07/03/08 10:42

Client ID: SV-13

Date Received: 07/07/08

Sample Location: WAYLAND, MA

Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air						
Styrene	ND	0.400	ND	1.70		2
Tetrachloroethene	8.74	0.400	59.3	2.71		2
Tetrahydrofuran	0.551	0.400	1.62	1.18		2
Toluene	0.856	0.400	3.22	1.51		2
trans-1,2-Dichloroethene	ND	0.400	ND	1.58		2
trans-1,3-Dichloropropene	ND	0.400	ND	1.81		2
Trichloroethene	14.8	0.400	79.7	2.15		2
Trichlorofluoromethane	61.5	0.400	345	2.24		2
Vinyl acetate	ND	0.400	ND	1.41		2
Vinyl bromide	ND	0.400	ND	1.75		2
Vinyl chloride	ND	0.400	ND	1.02		2



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/10/08 16:45

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-03 Batch: WG328755-3						
1,1,1-Trichloroethane	ND	0.200	ND	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorobenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethy benzene	ND	0.200	ND	0.982		1
1,2-D bromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	ND	0.200	ND	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	ND	0.200	ND	0.589		1
2-Hexanone	ND	0.200	ND	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	ND	0.200	ND	0.982		1
Acetone	ND	0.500	ND	1.19		1
Benzene	ND	0.200	ND	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/10/08 16:45

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-03 Batch: WG328755-3						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	ND	0.200	ND	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	ND	0.200	ND	0.527		1
Chloroform	ND	0.200	ND	0.976		1
Chloromethane	ND	0.200	ND	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	ND	0.200	ND	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	ND	0.200	ND	0.988		1
Ethanol	ND	2.50	ND	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	ND	0.200	ND	0.868		1
Freon-113	ND	0.200	ND	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	ND	0.500	ND	1.23		1
Methylene chloride	ND	0.500	ND	1.74		1
4-Methyl-2-pentanone	ND	0.200	ND	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	ND	0.400	ND	1.74		1
o-Xylene	ND	0.200	ND	0.868		1



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 07/10/08 16:45

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Low Level Volatile Organic Compounds in Air for sample(s): 01-03 Batch: WG328755-3						
Heptane	ND	0.200	ND	0.819		1
n-Hexane	ND	0.200	ND	0.704		1
Propylene	ND	0.200	ND	0.344		1
Styrene	ND	0.200	ND	0.851		1
Tetrachloroethene	ND	0.200	ND	1.36		1
Tetrahydrofuran	ND	0.200	ND	0.589		1
Toluene	ND	0.200	ND	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	ND	0.200	ND	1.07		1
Trichlorofluoromethane	ND	0.200	ND	1.12		1
Vinyl acetate	ND	0.200	ND	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1



Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328755-2					
1,1,1-Trichloroethane	104	-	70-130	-	
1,1,2,2-Tetrachloroethane	113	-	70-130	-	
1,1,2-Trichloroethane	111	-	70-130	-	
1,1-Dichloroethane	103	-	70-130	-	
1,1-Dichloroethene	90	-	70-130	-	
1,2,4-Trichlorobenzene	117	-	70-130	-	
1,2,4-Trimethy benzene	110	-	70-130	-	
1,2-D bromoethane	105	-	70-130	-	
1,2-Dichlorobenzene	106	-	70-130	-	
1,2-Dichloroethane	109	-	70-130	-	
1,2-Dichloropropane	116	-	70-130	-	
1,3,5-Trimethy benzene	108	-	70-130	-	
1,3-Butadiene	94	-	70-130	-	
1,3-Dichlorobenzene	107	-	70-130	-	
1,4-Dichlorobenzene	109	-	70-130	-	
1,4-Dioxane	105	-	70-130	-	
2,2,4-Trimethylpentane	115	-	70-130	-	
2-Butanone	99	-	70-130	-	
2-Hexanone	122	-	70-130	-	
3-Chloropropene	108	-	70-130	-	
4-Ethyltoluene	106	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328755-2					
Acetone	100	-	70-130	-	
Benzene	107	-	70-130	-	
Benzyl chloride	108	-	70-130	-	
Bromodichloromethane	112	-	70-130	-	
Bromoform	106	-	70-130	-	
Bromomethane	79	-	70-130	-	
Carbon disulfide	89	-	70-130	-	
Carbon tetrachloride	99	-	70-130	-	
Chlorobenzene	115	-	70-130	-	
Chloroethane	90	-	70-130	-	
Chloroform	102	-	70-130	-	
Chloromethane	90	-	70-130	-	
cis-1,2-Dichloroethene	103	-	70-130	-	
cis-1,3-Dichloropropene	109	-	70-130	-	
Cyclohexane	100	-	70-130	-	
Dibromochloromethane	106	-	70-130	-	
Dichlorodifluoromethane	88	-	70-130	-	
Ethyl Alcohol	111	-	70-130	-	
Ethyl Acetate	114	-	70-130	-	
Ethylbenzene	112	-	70-130	-	
1,1,2-Trichloro-1,2,2-Trifluoroethane	89	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328755-2					
1,2-Dichloro-1,1,2,2-tetrafluoroethane	92	-	70-130	-	
Hexachlorobutadiene	101	-	70-130	-	
iso-Propyl Alcohol	108	-	70-130	-	
Methylene chloride	94	-	70-130	-	
4-Methyl-2-pentanone	118	-	70-130	-	
Methyl tert butyl ether	101	-	70-130	-	
p/m-Xylene	110	-	70-130	-	
o-Xylene	113	-	70-130	-	
Heptane	110	-	70-130	-	
n-Hexane	103	-	70-130	-	
Propylene	92	-	70-130	-	
Styrene	109	-	70-130	-	
Tetrachloroethene	106	-	70-130	-	
Tetrahydrofuran	119	-	70-130	-	
Toluene	117	-	70-130	-	
trans-1,2-Dichloroethene	94	-	70-130	-	
trans-1,3-Dichloropropene	101	-	70-130	-	
Trichloroethene	106	-	70-130	-	
Trichlorofluoromethane	87	-	70-130	-	
Vinyl acetate	120	-	70-130	-	
Vinyl bromide	89	-	70-130	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 Batch: WG328755-2					
Vinyl chloride	92	-	70-130	-	
2,4,4-Trimethyl-2-Pentene	115	-	70-130	-	
2,4,4-Trimethyl-1-Pentene	115	-	70-130	-	

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328755-4 QC Sample: L0809960-03 Client ID: SV-13					
1,1,1-Trichloroethane	0.803	0.830	ppbV	3	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethene	ND	ND	ppbV	NC	25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC	25
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC	25
1,3-Butadiene	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC	25
2-Butanone	3.16	3.16	ppbV	0	25
2-Hexanone	0.649	0.725	ppbV	11	25

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328755-4 QC Sample: L0809960-03 Client ID: SV-13					
3-Chloropropene	ND	ND	ppbV	NC	25
4-Ethyltoluene	ND	ND	ppbV	NC	25
Acetone	31.3	31.6	ppbV	1	25
Benzene	ND	ND	ppbV	NC	25
Benzyl chloride	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
Bromomethane	ND	ND	ppbV	NC	25
Carbon disulfide	ND	ND	ppbV	NC	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Chlorobenzene	ND	ND	ppbV	NC	25
Chloroethane	ND	ND	ppbV	NC	25
Chloroform	1.77	1.80	ppbV	2	25
Chloromethane	ND	ND	ppbV	NC	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Cyclohexane	ND	ND	ppbV	NC	25
D bromochloromethane	ND	ND	ppbV	NC	25
Dichlorodifluoromethane	2.90	2.96	ppbV	2	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328755-4 QC Sample: L0809960-03 Client ID: SV-13					
Ethanol	7.29	7.86	ppbV	8	25
Ethyl Acetate	ND	ND	ppbV	NC	25
Ethylbenzene	ND	ND	ppbV	NC	25
Freon-113	ND	ND	ppbV	NC	25
Freon-114	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25
Isopropanol	1.55	1.54	ppbV	1	25
Methylene chloride	1.17	1.15	ppbV	2	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
p/m-Xylene	ND	ND	ppbV	NC	25
o-Xylene	ND	ND	ppbV	NC	25
Heptane	ND	ND	ppbV	NC	25
n-Hexane	ND	ND	ppbV	NC	25
Propylene	ND	ND	ppbV	NC	25
Styrene	ND	ND	ppbV	NC	25
Tetrachloroethene	8.74	8.68	ppbV	1	25
Tetrahydrofuran	0.551	0.663	ppbV	18	25
Toluene	0.856	0.759	ppbV	12	25

Lab Duplicate Analysis Batch Quality Control

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Number: L0809960

Report Date: 07/14/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01-03 QC Batch ID: WG328755-4 QC Sample: L0809960-03 Client ID: SV-13					
trans-1,2-Dichloroethene	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Trichloroethene	14.8	14.7	ppbV	1	25
Trichlorofluoromethane	61.5	62.0	ppbV	1	25
Vinyl acetate	ND	ND	ppbV	NC	25
Vinyl bromide	ND	ND	ppbV	NC	25
Vinyl chloride	ND	ND	ppbV	NC	25

Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**SAMPLE RESULTS**

Lab ID: L0809960-03
Client ID: SV-13
Sample Location: WAYLAND, MA
Matrix: Soil_Vapor
Analytical Method: 51,3C(M)
Analytical Date: 07/11/08 17:20
Analyst: RY

Date Collected: 07/03/08 10:42
Date Received: 07/07/08
Field Prep: Not Specified
Extraction Method:

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
Fixed Gases by GC					
Helium	0.019		%	0.016	1.575

Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**Method Blank Analysis**
Batch Quality Control

Analytical Method: 51,3C(M)

Analytical Date: 07/11/08 17:00

Analyst: RY

Parameter	Result	Qualifier	Units	RDL
Fixed Gases by GC for sample(s): 03 Batch: WG328810-2				
Helium	ND		%	0.010

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Fixed Gases by GC Associated sample(s): 03 Batch: WG328810-1					
Helium	93	-	80-120	-	

Project Name: WAYLAND TOWN CNT.

Project Number: 12069-054

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L0809960

Report Date: 07/14/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Fixed Gases by GC Associated sample(s): 03 QC Batch ID: WG328810-3 QC Sample: L0809960-03 Client ID: SV-13					
Helium	0.019	0.019	%	0	5

Project Name: WAYLAND TOWN CNT.

07140808:22

Lab Number: L0809960

Project Number: 12069-054

Report Date: 07/14/08

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Cleaning Batch ID	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Out mL/min	Flow In mL/min	% RSD
L0809960-01	SV-11	0098	#16 SV		-	-	40	42	5
L0809960-01	SV-11	490	2.7L Can	L0809159-01	-29.4	-0.9	-	-	-
L0809960-02	SV-12	0336	#30 SV		-	-	37	38	3
L0809960-02	SV-12	184	2.7L Can	L0809159-01	-29.4	0.1	-	-	-
L0809960-03	SV-13	0243	#30 SV		-	-	33	36	9
L0809960-03	SV-13	136	2.7L Can	L0809159-01	-29.4	-0.1	-	-	-



Project Name: WAYLAND TOWN CNT.**Lab Number:** L0809960**Project Number:** 12069-054**Report Date:** 07/14/08**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
N/A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0809960-01A	Canister - 2.7 Liter	N/A	NA	N/A	NA	Absent	TO15-LL
L0809960-02A	Canister - 2.7 Liter	N/A	NA	N/A	NA	Absent	TO15-LL
L0809960-03A	Canister - 2.7 Liter	N/A	NA	N/A	NA	Absent	FIXGAS-HE,TO15-LL

Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809960
Report Date: 07/14/08

GLOSSARY

Acronyms

- 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.
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.
NI - Not Ignitable.
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.
ND - Not detected at the reported detection limit for the sample.
RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL 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.

Terms

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

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

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.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Report Format: Not Specified



Project Name: WAYLAND TOWN CNT.
Project Number: 12069-054

Lab Number: L0809960
Report Date: 07/14/08

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.
- 51 Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources. Method 3C. Appendix A, Part 60, 40 CFR (Code of Federal Regulations). June 20, 1996.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs 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 Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs 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 Woods Hole Labs.

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.



APPENDIX B

ERM WELL LOCATION PLAN



Environmental



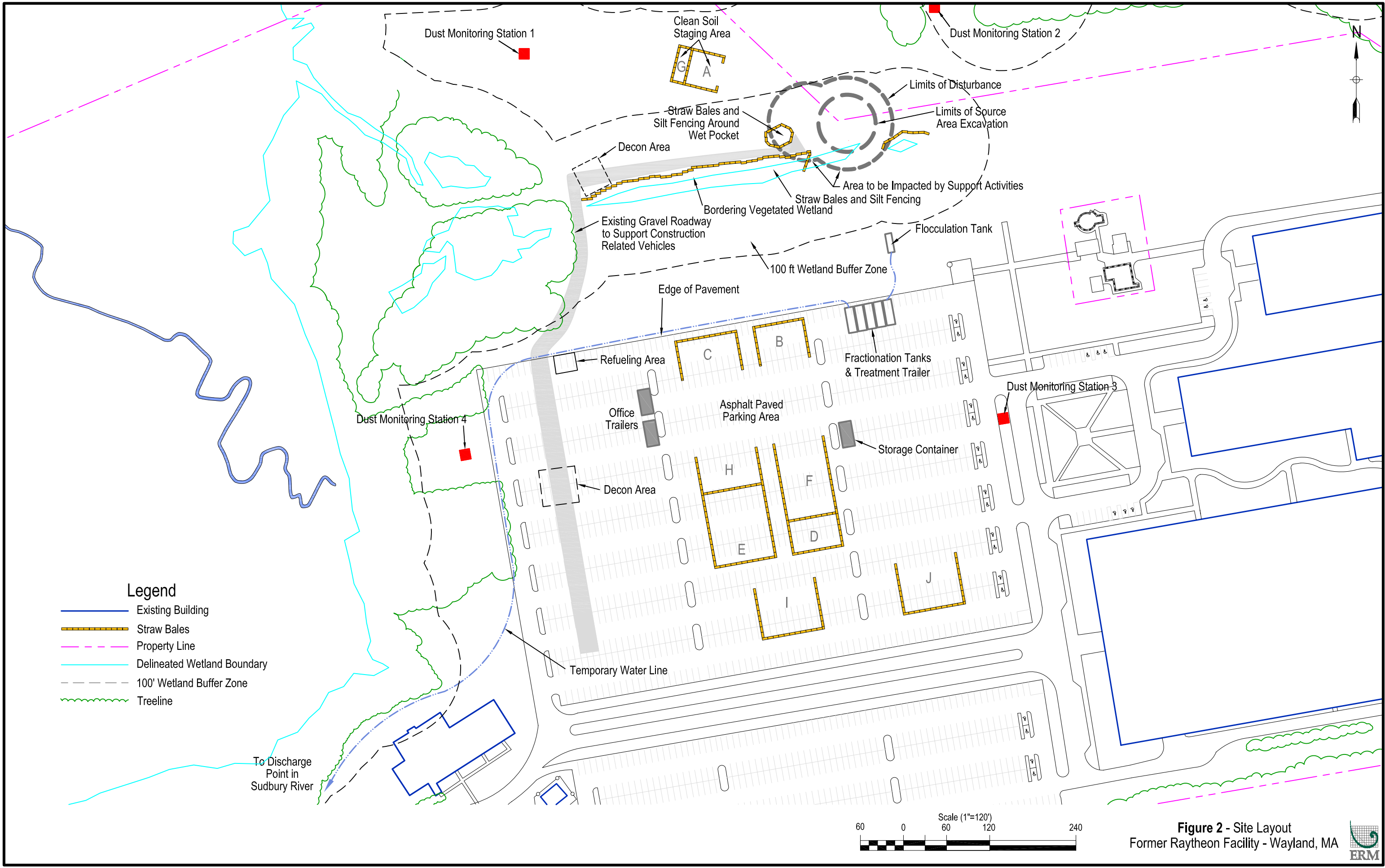
Construction

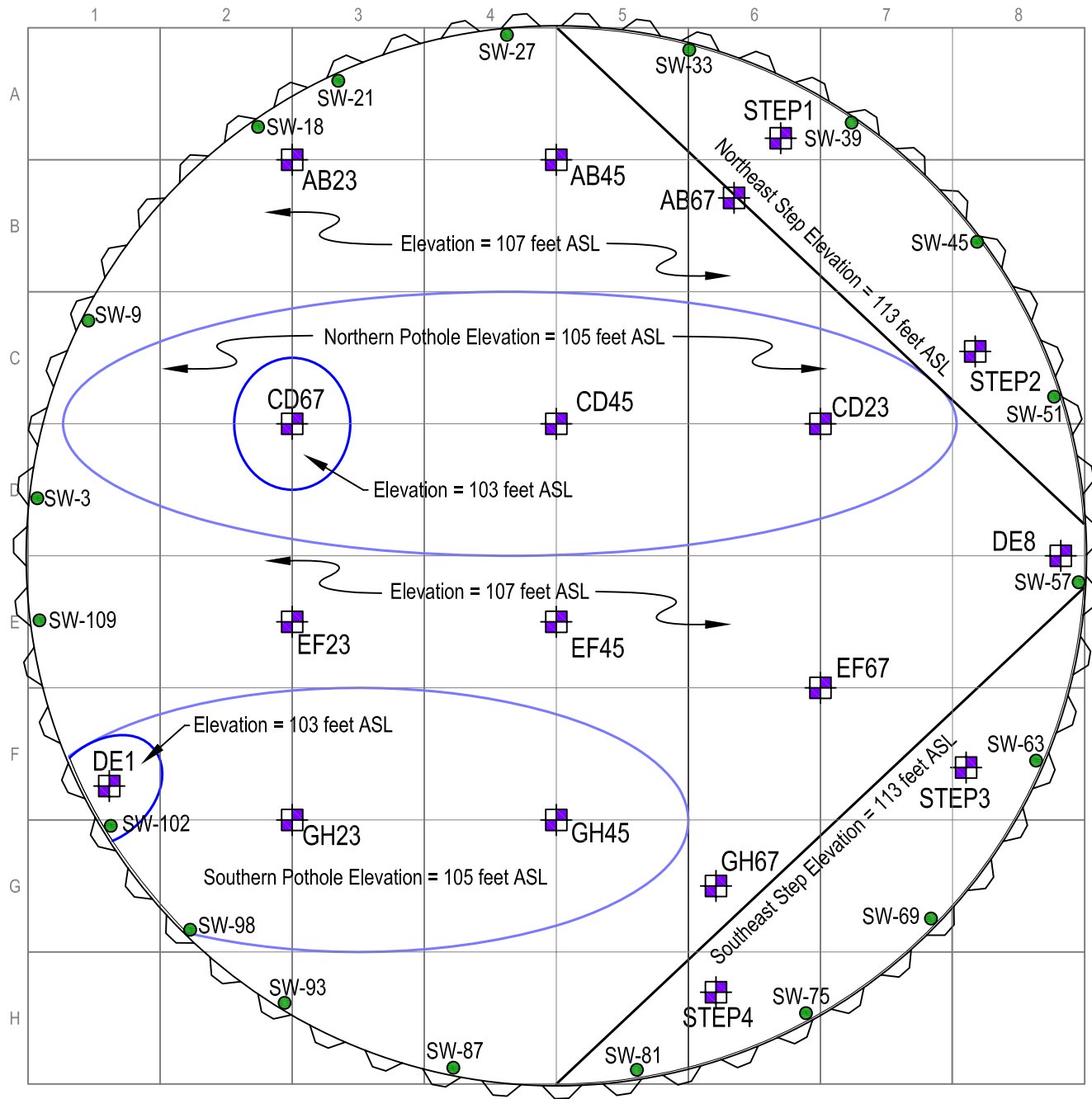


Air Quality

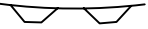




Energy





Legend

-  Cofferdam Sheet Piling
-  Confirmation Sample Location - Bottom of Excavation
-  Confirmation Sample Location - Sidewall

Notes: ASL = Above Mean Sea Level
All Elevations Approximate

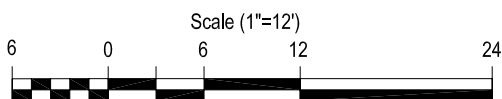
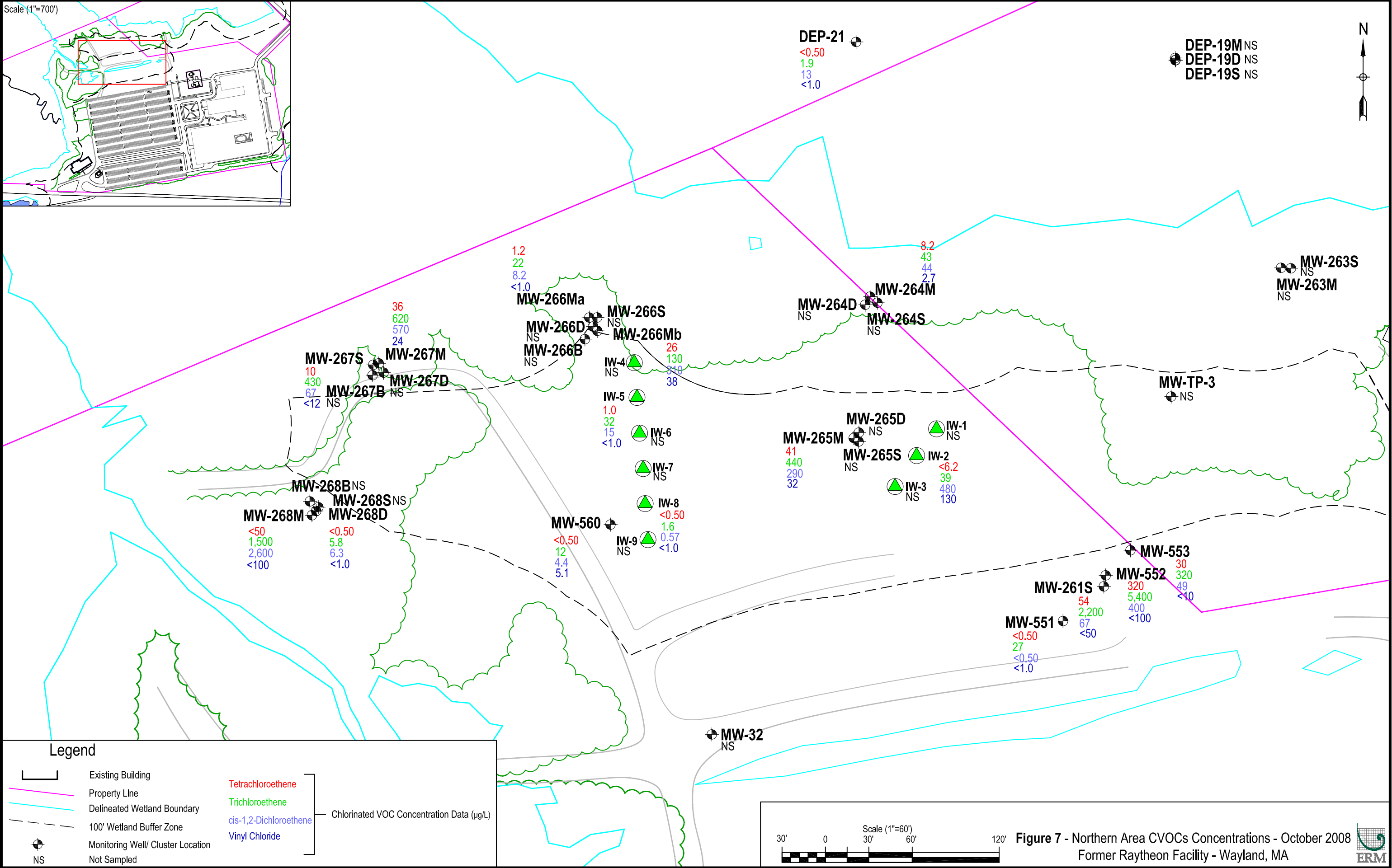
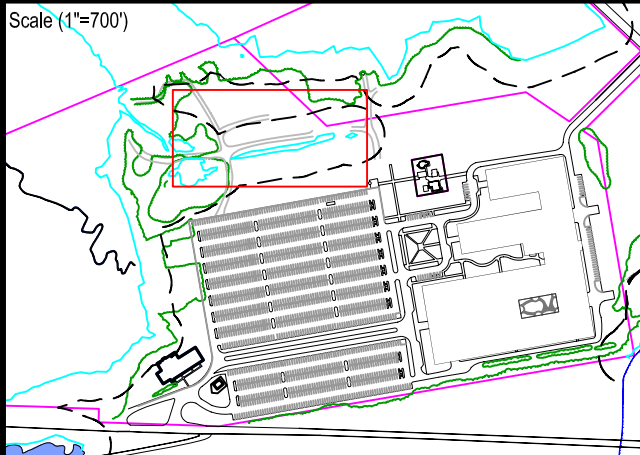
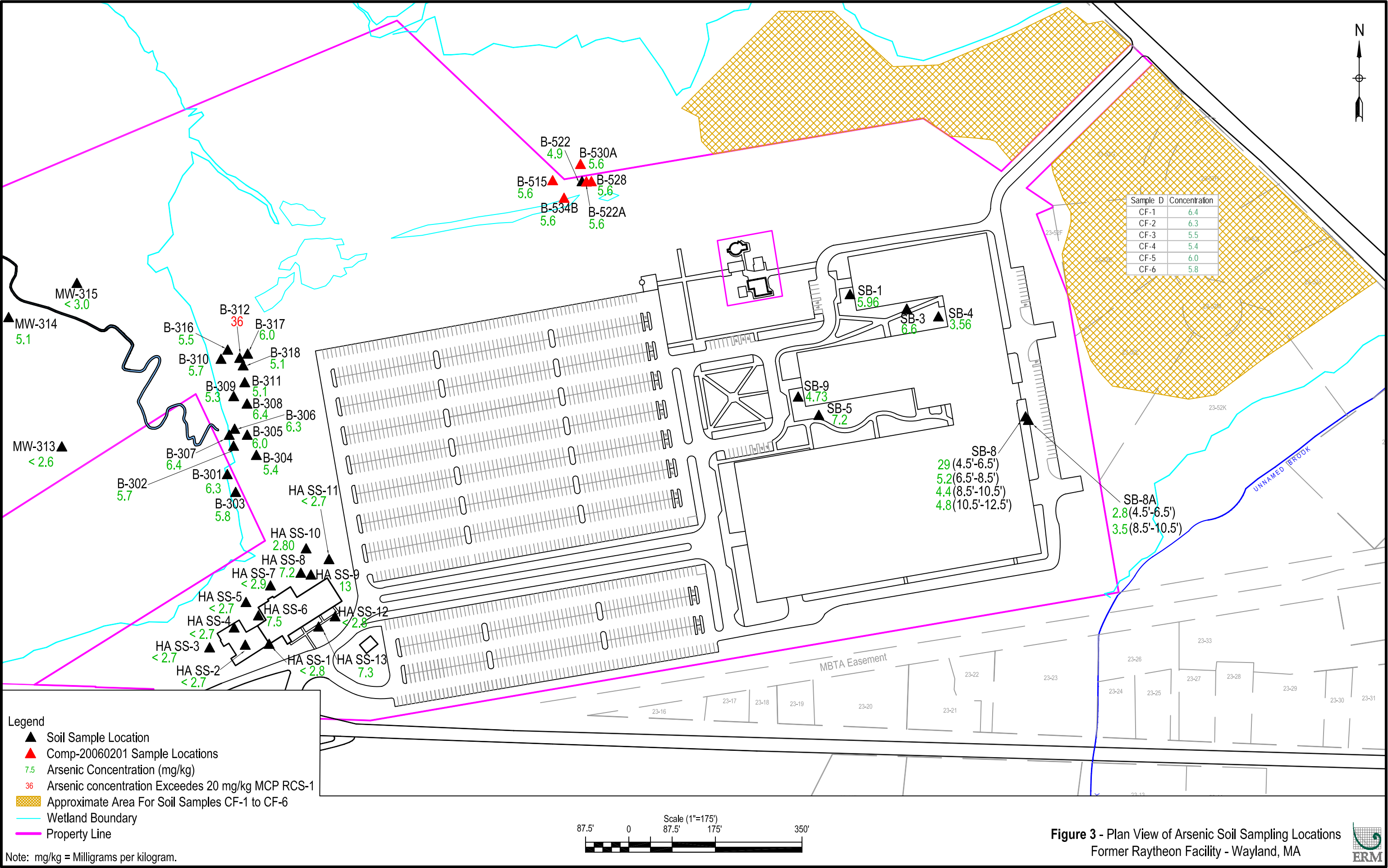


Figure 4 - Confirmation Sampling and Limits of Excavation
Former Raytheon Facility - Wayland, MA







APPENDIX C

METHOD 3 RISK CHARACTERIZATION



Environmental



Construction



Air Quality



Energy

Construction Worker - Soil: Table CW-1
Exposure Point Concentration (EPC) and Risk
Based on Construction Worker 18-25 years of age

430 Boston Post Road, Wayland, MA
RTN 3-13302

ShortForm Version 08-08
Vlookup Version v0808

ELCR (all chemicals) = 2E-07
HI (all chemicals) = 1E-01

Oil or Hazardous Material (OHM)	EPC (mg/kg)	ELCR ingestion	ELCR dermal	ELCR inhalation GI	ELCR inhalation pulmonary	ELCR _{total}	Subchronic				HQ _{total}
							HQ _{ing}	HQ _{derm}	HQ _{inh-GI}	HQ _{inh}	
Tetrachloroethylene	3 2E-02	1 4E-11	1 4E-11	3 7E-13	8 5E-14	2 9E-11	3 9E-07	4 0E-07	1 0E-08	2 6E-10	8 0E-07
Trichloroethylene	6 2E-02	6 0E-12	6 0E-12	1 5E-13	2 8E-14	1 2E-11	3 8E-06	3 8E-06	9 9E-08	1 3E-08	7 7E-06
Dichloroethylene, cis-1,2-	3 8E-02						4 7E-07	4 8E-07	1 2E-08	4 1E-08	1 0E-06
Dichloroethylene, trans-1,2-	1 2E-03						7 4E-09	7 4E-09	1 9E-10	6 4E-11	1 5E-08
Toluene	1 2E-03						1 8E-09	2 2E-09	4 8E-11	8 9E-12	4 1E-09
Acetone	2 7E-02						1 2E-08	1 2E-08	3 2E-10	1 2E-09	2 6E-08
Chlorobenzene	5 6E-03						3 4E-08	3 5E-08	8 9E-10	1 0E-08	8 1E-08
Dichlorobenzene, 1,4- (p-DCB)	7 8E-03	1 6E-12	1 7E-12	4 2566E-14	1 419E-14	3 4E-12	1 1E-08	1 1E-08	2 8E-10	1 2E-10	2 2E-08
Aliphatics C19 to C36	3 3E+01						6 7E-06	6 7E-06	1 7E-07		1 4E-05
Aromatics C11 to C22	1 4E+01						2 1E-05	5 8E-05	5 4E-07	1 1E-06	8 1E-05
Arsenic	6 6E+00	8 7E-08	2 6E-08	2 3E-09	7 5E-09	1 2E-07	2 7E-02	8 2E-03	7 0E-04	9 8E-02	1 3E-01
Barium	2 8E+01						5 0E-04	2 5E-04	1 3E-05	2 1E-04	9 7E-04
Chromium (total)	1 15E+01				3 7E-08	3 7E-08	7 1E-04	6 4E-04	1 8E-05	1 4E-03	2 8E-03
Lead	5 90E+00						4 8E-03	5 9E-04	1 3E-04	2 2E-04	5 8E-03

Construction Worker - Soil: Table CW-2

Equations to Calculate Cancer Risk for Construction Worker

Vlookup Version v0808

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing} * CSF_{oral}$$

$$LADD_{ing} = \frac{EPC * IR * RAF_{c-ing} * EF * ED_{ing} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF_{oral}$$

$$LADD_{derm} = \frac{EPC * SA * AF * RAF_{c-derm} * EF * ED_{derm} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$ELCR_{inh-GI} = LADD_{inh-GI} * CSF_{oral}$$

$$LADD_{inh-GI} = \frac{EPC * RCAF_{inh-gi} * PM_{10} * VR_{work} * RAF_{c-ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Pulmonary Absorption

$$ELCR_{inh} = LADD_{inh} * CSF_{inhalation}$$

$$LADD = \frac{EPC * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{c-inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Parameter	Value	Units
CSF	OHM-specific	(mg/kg-day) ⁻¹
LADD	age/OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
RAF _{c-ing}	OHM-specific	dimensionless
RAF _{c-derm}	OHM-specific	dimensionless
RAF _{c-inh}	OHM-specific	dimensionless
EF	0.714	event/day
ED _{ing & derm}	1	day/event
ED _{inh}	0.333	day/event
EP	182	days
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/μg
C3	1440	min/days
C4	1.0E-03	m ³ /L
BW	58.0	kg
AP _(lifetime)	25,550	days
VR _{work}	60	L/min
AF	0.29	mg/cm ²
SA	3473	cm ² /day
RCAF _{inh-gi}	1.5	dimensionless
RCAF _{inh}	0.5	dimensionless
PM ₁₀	60	μg/m ³

Construction Worker - Soil: Table CW-3

Equations to Calculate Noncancer Risk for Construction Worker

Vlookup Version v0808

Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{oral-subchronic}}$$

$$ADD_{ing} = \frac{EPC * IR * RAF_{nc-ing} * EF * ED_{ing} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{oral-subchronic}}$$

$$ADD_{derm} = \frac{EPC * SA * AF * RAF_{nc-derm} * EF * ED_{dermal} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$HQ_{inh-GI} = \frac{ADD_{inh-GI}}{RfD_{oral-subchronic}}$$

$$ADD_{inh-GI} = \frac{EPC * RCAF_{inh-gi} * PM_{10} * VR_{work} * RAF_{nc-ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Pulmonary Absorption

$$HQ_{inh} = \frac{ADD}{RfD_{inhalation-subchronic}}$$

$$ADD_{inh} = \frac{EPC_{soil} * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{nc-inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Parameter	Value	Units
RfD	OHM-specific	mg/kg-day
ADD	OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
RAF _{nc-ing}	OHM-specific	dimensionless
RAF _{nc-derm}	OHM-specific	dimensionless
RAF _{nc-inh}	OHM-specific	dimensionless
EF	0.714	event/day
EF _{cyanide}	1	event/day
ED _{ing & derm}	1	day/event
ED _{inh}	0.333	day/event
EP	182	days
EP _{cyanide}	1.00	day
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/μg
C3	1440	min/days
C4	1.0E-03	m ³ /L
BW	58.0	kg
AP _{noncancer}	182	days
AP _{cyanide}	1	day
VR _{work}	60	L/min
AF	0.29	mg/cm ²
SA	3473	cm ² /day
RCAF _{inh-gi}	1.5	dimensionless
RCAF _{inh}	0.5	dimensionless
PM10	60	μg/m ³

Construction Worker - Soil: Table CW-4

Definitions and Exposure Factors

Vlookup Version v0808

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
HI - Hazard Index	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	(mg/kg-day) ⁻¹	see Table CW-5
RfD - Reference Dose	chemical specific	mg/kg-day	see Table CW-5
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific See Table CW-2
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific See Table CW-3
EPC - Exposure Point Concentration	chemical specific	µg/L	see Table CW-1
IR - Soil Ingestion Rate	100	mg/day	MADEP 2002 Technical Update: Calculation of an Enhanced Soil Ingestion Rate (http://www.mass.gov/dep/ors/orspubs.htm)
RAF _c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5
RAF _{nc} - Relative Absorption Factor for Noncancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5
EF - Exposure Frequency	0.714	event/day	5 events (days) / 7 events (days) in a week; MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-38
EF _{cyanide} - Exposure Frequency for Cyanide Exposures	1.00	event/day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
ED _{ing,derm} - Exposure Duration for ingestion or dermal exposure	1	day/event	
ED _{inh} - Exposure Duration for inhalation exposure	0.333	day/event	Represents 8 hours / event
EP - Exposure Period	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization
EP _{cyanide} - Exposure period for cyanide exposure	1	day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
BW - Body Weight	58.0	kg	U.S. EPA 1997 Exposure Factors Handbook Table 7-7, Females, ages 18 - 25
AP _(lifetime) - Averaging Period for lifetime	25,550	days	Represents 70 years
AP _(noncancer) - Averaging Period for noncancer	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization
AP _{cyanide} - Averaging period for assessing cyanide exposure	1	day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
AF - Adherence Factor	0.29	mg/cm ²	MA DEP 2002 Technical Update: Weighted Skin-Soil Adherence Factors (http://www.mass.gov/dep/ors/orspubs.htm)
VR _{work} - Ventilation Rate during work (heavy exertion)	60	L/min	Table B-4 MADEP 1995 Guidance for Disposal Site Risk Characterization
SA - Surface Area	3473	cm ² /day	MADEP 1995 Guidance for Disposal Site Risk Characterization 50th percentile for females Appendix Table B-2
RCAF _{inh-gi} - Relative Concentration Adjustment Factor, gastrointestinal	1.5	dimensionless	MADEP 2007 Characterization of Risks Due to Inhalation of Particulates by Construction Workers
RCAF _{inh} - Relative Concentration Adjustment Factor, inhalation	0.5	dimensionless	MADEP 2002 Characterization of Risks Due to Inhalation of Particulates by Construction Workers
PM ₁₀ - Concentration of PM ₁₀	60	µg/m ³	MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-11

Construction Worker - Soil: Table CW-5
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	Oral CSF (mg/kg-day) ⁻¹	RAF _{c-ing}	RAF _{c-derm}	RAF _{c-inh}	Inhalation CSF (mg/kg-day) ⁻¹	Subchronic Oral RfD mg/kg-day	Subchronic RAF _{nc-ing}	Subchronic RAF _{nc-derm}	Subchronic RAF _{nc-inh}	Subchronic Inhalation RfD
Tetrachloroethylene	5.1E-02	1	0.1	1	3.5E-02	1.0E-01	1	0.1	1	1.3E+00
Trichloroethylene	1.1E-02	1	0.1	1	6.0E-03	2.0E-02	1	0.1	1	5.1E-02
Dichloroethylene, cis-1,2-						1.0E-01	1	0.1	1	1.0E-02
Dichloroethylene, trans-1,2-						2.0E-01	1	0.1	1	2.0E-01
Toluene						8.0E-01	1	0.12	1	1.4E+00
Acetone						2.7E+00	1	0.1	1	2.3E-01
Chlorobenzene						2.0E-01	1	0.1	1	5.7E-03
Dichlorobenzene, 1,4- (p-DCB)	2.400E-02	1	0.1	1.00	2.4E-02	9.0E-01	1	0.1	1	6.9E-01
Aliphatics C19 to C36						6.0E+00	1	0.1		
Aromatics C11 to C22						3.0E-01	0.36	0.1	1	1.4E-01
Arsenic	1.5E+00	1	0.03	1	1.5E+01	3.0E-04	1	0.03	1	7.1E-07
Barium						7.0E-02	1	0.05	1	1.4E-03
Chromium (total)					4.2E+01	2.0E-02	1	0.09	1	8.6E-05
Lead						7.5E-04	0.5	0.006	1	2.9E-04

Trespasser - Soil: Table TS-1
Exposure Point Concentration (EPC)
Based on Trespasser Ages 11-18 (Cancer and Non-Cancer)

430 Boston Post Road, Wayland, MA
RTN 3-13302

ShortForm Version 6-06

Vlookup Version v0808

ELCR (all chemicals) = 2E-07

Chronic HI (all chemicals) = 6E-03

Subchronic HI (all chemicals) = 1E-02

Oil or Hazardous Material	EPC (mg/kg)	ELCR _{ingestion}	ELCR _{dermal}	ELCR _{total}	Chronic		HQ _{total}	Subchronic		HQ _{total}
					HQ _{ing}	HQ _{derm}		HQ _{ing}	HQ _{derm}	
Tetrachloroethylene	3.2E-02	2.6E-11	2.2E-11	4.8E-11	5.2E-07	4.3E-07	9.5E-07	1.1E-07	7.9E-08	1.9E-07
Trichloroethylene	6.2E-02	1.1E-11	9.1E-12	2.0E-11	5.0E-06	4.1E-06	9.1E-06	1.1E-06	7.6E-07	1.9E-06
Dichloroethylene, cis-1,2-	3.8E-02				6.2E-07	5.1E-07	1.1E-06	1.4E-07	9.4E-08	2.3E-07
Dichloroethylene, trans-1,2-	1.2E-03				9.7E-09	8.0E-09	1.8E-08	2.1E-09	1.5E-09	3.6E-09
Toluene	1.2E-03				2.4E-09	2.4E-09	4.8E-09	5.3E-10	4.4E-10	9.7E-10
Acetone	2.7E-02				4.8E-09	4.0E-09	8.8E-09	3.5E-09	2.4E-09	5.9E-09
Chlorobenzene	5.6E-03				4.5E-08	3.7E-08	8.3E-08	9.9E-09	6.9E-09	1.7E-08
Dichlorobenzene, 1,4- (p-DCB)	7.8E-03	3.0E-12	2.5E-12	5.5E-12	1.4E-08	1.2E-08	2.6E-08	3.1E-09	2.1E-09	5.2E-09
Aliphatics C19 to C36	3.3E+01				2.6E-06	2.2E-06	4.8E-06	1.9E-06	1.3E-06	3.3E-06
Aromatics C11 to C22	1.4E+01				2.7E-05	6.3E-05	9.0E-05	6.0E-06	1.2E-05	1.8E-05
Arsenic	6.6E+00	1.6E-07	4.0E-08	2.0E-07	3.6E-03	8.8E-04	4.4E-03	7.8E-03	1.6E-03	9.4E-03
Barium	2.8E+01				2.3E-05	9.4E-06	3.2E-05	1.4E-04	5.0E-05	1.9E-04
Chromium (total)	1.15E+01				6.2E-04	4.6E-04	1.1E-03	2.0E-04	1.3E-04	3.3E-04
Lead	5.90E+00				6.4E-04	6.3E-05	7.0E-04	1.4E-03	1.2E-04	1.5E-03

Trespasser - Soil: Table TS-2

Equations to Calculate Cancer Risk for a Trespasser (Age 11-18 years)

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing} * CSF$$

$$LADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{c-ing} * EF_{ing} * ED * EP * C}{BW * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF$$

$$LADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{c-derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP_{lifetime}}$$

Vlookup Version v0808

Parameter	Value	Units
CSF	OHM specific	(mg/kg-day) ⁻¹
LADD	age/OHM specific	mg/kg-day
[OHM] _{soil}	OHM specific	mg/kg
IR	50	mg/day
RAF _{c-ing}	OHM specific	dimensionless
RAF _{c-derm}	OHM specific	dimensionless
EF _{ing,derm}	0.164	event/day
ED	1	day/event
EP	7	years
C	0.000001	kg/mg
BW	50.7	kg
AP _(lifetime)	70	years
SA	2940	cm ² / day
SAF	0.14	mg/cm ²

Trespasser - Soil: Table TS-3
Equations to Calculate Chronic Noncancer Risk for a Trespasser (Age 11-18 years)

Chronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc-ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{ing\ derm}}{RfD}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc-derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Vlookup Version v0808

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
[OHM] _{soil}	OHM specific	mg/kg
IR	50	mg/day
RAF _{nc-ing}	OHM specific	dimensionless
RAF _{nc-derm}	OHM specific	dimensionless
EF _{ing,derm}	0.164	event/day
EF _{cyanide}	1.00	event/day
ED	1	day/event
EP	7	years
EP _{cyanide}	1	day
C	0.000001	kg/mg
BW	50.7	kg
AP	7	year
AP _{cyanide}	1	day
SA	2940	cm ² / day
SAF	0.14	mg/cm ²

Trespasser - Soil: Table TS-4
Equations to Calculate Subchronic Noncancer Risk for a Trespasser (Age 11-12 years)

Subchronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{subchronic}}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc-ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{subchronic}}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc-derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Vlookup Version v0808

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
[OHM] _{soil}	OHM specific	mg/kg
IR	50	mg/day
RAF _{nc-ing}	OHM specific	dimensionless
RAF _{nc-derm}	OHM specific	dimensionless
EF _{ing,derm}	0.286	event/day
EF _{cyanide}	1.00	event/day
ED	1	day/event
EP _{cyanide}	1	day
EP	0.577	years
C	0.000001	kg/mg
BW	40.3	kg
AP	0.577	year
AP _{cyanide}	1	day
SA	2477	cm ² / day
SAF	0.14	mg/cm ²

Trespasser - Soil: Table TS-5
Definitions and Exposure Factors

Vlookup Version v0808

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhilation)
CSF - Cancer Slope Factor	chemical specific	(mg/kg-day) ⁻¹	see Table RS-7
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
HQ - Hazard Quotient	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhilation)
RfD - Reference Dose	chemical specific	mg/kg-day	see Table RS-7
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
EPC - Exposure Point Concentration	chemical specific	mg/kg	
IR - Soil Ingestion Rate	50	mg/day	MADEP 2002 Technical Update: Calculation of an Enhanced Soil Ingestion Rate (http://www.mass.gov/dep/ors/orspubs.htm)
RAF _c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	
EF _{subchronic} - Exposure Frequency for subchronic ingestion or dermal exposure	0.286	event/day	2 days/week
EF _{chronic} - Exposure Frequency for chronic ingestion or dermal exposure	0.164	event/day	2 days/week, 30 weeks/year
EF _{cancer} - Exposure Frequency for cancer, ingestion or dermal exposure	0.164	event/day	2 days/week, 30 weeks/year
EF _{cyanide} - Exposure Frequency for cyanide exposure	1.00	event/day	
ED - Exposure Duration	1	day/event	
EP ₍₁₁₋₁₂₎ - Exposure Period for age group 11-12	0.577	years	30 weeks
EP ₍₁₁₋₁₈₎ - Exposure Period for age group 11-18	7	years	
EP _{cyanide} - Exposure period for cyanide exposure	1	day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
BW ₍₁₁₋₁₂₎ - Body Weight for age group 11-12	40.3	kg	U S EPA 1997 Exposure Factors Handbook Table 7-7
BW ₍₁₁₋₁₈₎ - Body Weight for age group 11-18	50.7	kg	Ibid
AP _{subchronic} - Averaging Period for subchronic noncancer	0.577	years	30 weeks
AP _{chronic} - Averaging Period for chronic noncancer	7	years	
AP _{cancer} - Averaging Period for lifetime	70	years	
AP _{cyanide} - Averaging period for assessing cyanide exposure	1	day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
SA ₍₁₁₋₁₂₎ - Surface Area for age group 11-12	2477	cm ² / day	50th percentile of forearms, hands, and feet for females MADEP 1995 Guidance for Disposal Site Risk Characterization, Table B-2
SA ₍₁₁₋₁₈₎ - Surface Area for age group 11-18	2940	cm ² / day	Ibid
SAF - Surface Adherence Factor, Trespasser	0.14	mg/cm ²	SAF developed for ShortForm according to procedure outlined in MA DEP Technical Update: Weighted Skin-Soil Adherence Factors, April 2002

Trespasser - Soil: Table TS-6
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	CSF (mg/kg-day) ⁻¹	RAF _{c-ing}	RAF _{c-derm}	Chronic RfD mg/kg-day	Subchronic RfD mg/kg-day	Chronic RAF _{nc-ing}	Chronic RAF _{nc-derm}	Subchronic RAF _{nc-ing}	Subchronic RAF _{nc-derm}
Tetrachloroethylene	5 1E-02	1 00	0 10	1 0E-02	1 0E-01	1	0 1	1	0 1
Trichloroethylene	1 1E-02	1 00	0 10	2 0E-03	2 0E-02	1	0 1	1	0 1
Dichloroethylene, cis-1,2-				1 0E-02	1 0E-01	1	0 1	1	0 1
Dichloroethylene, trans-1,2				2 0E-02	2 0E-01	1	0 1	1	0 1
Toluene				8 0E-02	8 0E-01	1	0 12	1	0 12
Acetone				9 0E-01	2 7E+00	1	0 1	1	0 1
Chlorobenzene				2 0E-02	2 0E-01	1	0 1	1	0 1
Dichlorobenzene, 1,4- (p-I	2 4E-02	1 00	0 10	9 0E-02	9 0E-01	1	0 1	1	0 1
Aliphatics C19 to C36				2 0E+00	6 0E+00	1	0 1	1	0 1
Aromatics C11 to C22				3 0E-02	3 0E-01	0 36	0 1	0 36	0 1
Arsenic	1 5E+00	1 00	0 03	3 0E-04	3 0E-04	1	0 03	1	0 03
Barium				2 0E-01	7 0E-02	1	0 05	1	0 05
Chromium (total)				3 0E-03	2 0E-02	1	0 09	1	0 09
Lead				7 5E-04	7 5E-04	0 5	0 006	0 5	0 006

Park Visitor - Soil: Table PS-1
Exposure Point Concentration (EPC)
Based on Visitor Ages 1-31 (Cancer), 1-8 (Chronic Noncancer), and 1-2 (Subchronic Noncancer)

430 Boston Post Road, Wayland, MA - RTN 3-13302

ShortForm Version 06-06

Vlookup Version v0808

ELCR (all chemicals) = 3E-06

Chronic HI (all chemicals) = 6E-02

Subchronic HI (all chemicals) = 1E-01

Oil or Hazardous Material	EPC (mg/kg)	ELCR _{ingestion}	ELCR _{dermal}	ELCR _{total}	Chronic			Subchronic		
					HQ _{ing}	HQ _{derm}	HQ _{total}	HQ _{ing}	HQ _{derm}	HQ _{total}
Tetrachloroethylene	3.2E-02	3.7E-10	3.8E-10	7.5E-10	4.6E-06	4.0E-06	8.6E-06	1.3E-06	7.5E-07	2.0E-06
Trichloroethylene	6.2E-02	1.5E-10	1.6E-10	3.1E-10	4.5E-05	3.8E-05	8.3E-05	1.2E-05	7.2E-06	2.0E-05
Dichloroethylene, cis-1,2-	3.8E-02				5.6E-06	4.7E-06	1.0E-05	1.5E-06	9.0E-07	2.4E-06
Dichloroethylene, trans-1,2-	1.2E-03				8.7E-08	7.4E-08	1.6E-07	2.4E-08	1.4E-08	3.8E-08
Toluene	1.2E-03				2.2E-08	2.2E-08	4.4E-08	6.0E-09	4.2E-09	1.0E-08
Acetone	2.7E-02				4.3E-08	3.7E-08	8.0E-08	4.0E-08	2.3E-08	6.3E-08
Chlorobenzene	5.6E-03				4.1E-07	3.5E-07	7.5E-07	1.1E-07	6.5E-08	1.8E-07
Dichlorobenzene, 1,4- (p-DCB)	7.8E-03	4.2E-11	4.4E-11	8.6E-11	1.3E-07	1.1E-07	2.3E-07	3.5E-08	2.0E-08	5.5E-08
Aliphatics C19 to C36	3.3E+01				2.4E-05	2.0E-05	4.4E-05	2.2E-05	1.3E-05	3.4E-05
Aromatics C11 to C22	1.4E+01				2.5E-04	5.8E-04	8.3E-04	6.8E-05	1.1E-04	1.8E-04
Arsenic	6.6E+00	2.2E-06	6.9E-07	2.9E-06	3.2E-02	8.2E-03	4.0E-02	8.8E-02	1.5E-02	1.0E-01
Barium	2.8E+01				2.0E-04	8.7E-05	2.9E-04	1.6E-03	4.7E-04	2.1E-03
Chromium (total)	1.15E+01				5.6E-03	4.3E-03	9.8E-03	2.3E-03	1.2E-03	3.5E-03
Lead	5.90E+00				5.7E-03	5.8E-04	6.3E-03	1.6E-02	1.1E-03	1.7E-02

Park Visitor - Soil: Table PS-2
Equations to Calculate Cancer Risk for Visitor (Age 1-31 years)

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing(1-31)} * CSF$$

$$LADD_{ing(1-31)} = LADD_{ing(1-8)} + LADD_{ing(8-15)} + LADD_{ing(15-31)}$$

$$LADD_{ing(age\ group\ x)} = \frac{[OHM]_{soil} * IR_x * RAF_{c-ing} * EF_{ing} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF$$

$$LADD_{derm(1-31)} = LADD_{derm(1-8)} + LADD_{derm(8-15)} + LADD_{derm(15-31)}$$

$$LADD_{derm(age\ group\ x)} = \frac{[OHM]_{soil} * SA_x * RAF_{c-derm} * SAF_x * EF_{derm} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Vlookup Version v0808

Parameter	Value	Units
CSF	OHM specific	(mg/kg-day) ⁻¹
LADD	age/OHM specific	mg/kg-day
[OHM] _{soil}	OHM specific	mg/kg
IR ₍₁₋₈₎	100	mg/day
IR ₍₈₋₁₅₎	50	mg/day
IR ₍₁₅₋₃₁₎	50	mg/day
RAF _{c-ing}	OHM specific	dimensionless
RAF _{c-derm}	OHM specific	dimensionless
EF _{ing,derm}	0.247	event/day
ED	1	day/event
EP ₍₁₋₈₎	7	years
EP ₍₈₋₁₅₎	7	years
EP ₍₁₅₋₃₁₎	16	years
C	0.000001	kg/mg
BW ₍₁₋₈₎	17.0	kg
BW ₍₈₋₁₅₎	39.9	kg
BW ₍₁₅₋₃₁₎	58.7	kg
AP _(lifetime)	70	years
SA ₍₁₋₈₎	2431	cm ² /day
SA ₍₈₋₁₅₎	4427	cm ² /day
SA ₍₁₅₋₃₁₎	5653	cm ² /day
SAF ₍₁₋₈₎	0.35	mg/cm ²
SAF ₍₈₋₁₅₎	0.14	mg/cm ²
SAF ₍₁₅₋₃₁₎	0.13	mg/cm ²

Park Visitor - Soil: Table PS-3

Equations to Calculate Chronic Noncancer Risk for Visitor (Age 1-8 years)

Vlookup Version v0808

Chronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc-ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{ing,derm}}{RfD}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc-derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
[OHM] _{soil}	OHM specific	mg/kg
IR	100	mg/day
RAF _{nc-ing}	OHM specific	dimensionless
RAF _{nc-derm}	OHM specific	dimensionless
EF _{ing,derm}	0.247	event/day
EF _{cyanide}	1.00	event/day
ED	1	day/event
EP	7	years
EP _{cyanide}	1	day
C	0.000001	kg/mg
BW	17.0	kg
AP	7	year
AP _{cyanide}	1	day
SA	2431	cm ² /day
SAF	0.35	mg/cm ²

Park Visitor - Soil: Table PS-4
Equations to Calculate Subchronic Noncancer Risk for Visitor (Age 1-2 years)

Vloo

Subchronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{subchronic}}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc-ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{subchronic}}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc-derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
[OHM] _{soil}	OHM specific	mg/kg
IR	100	mg/day
RAF _{nc-ing}	OHM specific	dimensionless
RAF _{nc-derm}	OHM specific	dimensionless
EF _{ing,derm}	0.428	event/day
EF _{cyanide}	1.00	event/day
ED	1	day/event
EP	0.577	years
EP _{cyanide}	1	day
C	0.000001	kg/mg
BW	10.7	kg
AP	0.577	year
AP _{cyanide}	1	day
SA	1670	cm ² /day
SAF	0.35	mg/cm ²

Park Visitor - Soil: Table PS-5
Definitions and Exposure Factors

Vlookup Version v0808

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal)
CSF - Cancer Slope Factor	chemical specific	(mg/kg-day) ⁻¹	see Table PS-6
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
HQ - Hazard Quotient	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal)
RfD - Reference Dose	chemical specific	mg/kg-day	see Table PS-6
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
EPC - Exposure Point Concentration	chemical specific	mg/kg	
IR ₍₁₋₂₎ - Soil Ingestion Rate for age group 1-2	100	mg/day	MADEP 1995 Guidance for Disposal Site Risk Characterization Appendix Table B-3
IR ₍₁₋₈₎ - Soil Ingestion Rate for age group 1-8	100	mg/day	Ibid
IR ₍₈₋₁₅₎ - Soil Ingestion Rate for age group 8-15	50	mg/day	Ibid
IR ₍₁₅₋₃₁₎ - Soil Ingestion Rate for age group 15-31	50	mg/day	Ibid
RAF _c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	Adjusts estimated dose to conform to the relevant CSF See Table PS-6
RAF _{NC} - Relative Absorption Factor for non-Cancer Effects	chemical specific	dimensionless	Adjusts estimated dose to conform to the relevant RfD See Table PS-6
EF _{subchronic} - Exposure Frequency for subchronic exposure	0.428	event/day	3 events/week
EF _{chronic,lifetime} - Exposure Frequency for chronic or lifetime exposure	0.247	event/day	3 events/week, 30 weeks/year
EF _{cyanide} - Exposure Frequency for cyanide exposure	1.00	event/day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
ED - Exposure Duration	1	day/event	
EP ₍₁₋₂₎ - Exposure Period for age group 1-2	0.577	years	30 weeks
EP ₍₁₋₈₎ - Exposure Period for age group 1-8	7	years	
EP ₍₈₋₁₅₎ - Exposure Period for age group 8-15	7	years	
EP ₍₁₅₋₃₁₎ - Exposure Period for age group 15-31	16	years	
EP _{cyanide} - Exposure period for cyanide exposure	1	day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
BW ₍₁₋₂₎ - Body Weight for age group 1-2	10.7	kg	U S EPA 1997 Exposure Factors Handbook Table 7-7, females
BW ₍₁₋₈₎ - Body Weight for age group 1-8	17.0	kg	Ibid
BW ₍₈₋₁₅₎ - Body Weight for age group 8-15	39.9	kg	Ibid
BW ₍₁₅₋₃₁₎ - Body Weight for age group 15-31	58.7	kg	Ibid
AP _{subchronic} - Averaging Period for subchronic noncancer	0.577	years	30 weeks
AP _{chronic} - Averaging Period for chronic noncancer	7	years	
AP _{lifetime} - Averaging Period for cancer/lifetime	70	years	
AP _{cyanide} - Averaging period for assessing cyanide exposure	1	day	MADEP 1995 Guidance for Disposal Site Risk Characterization Page 5-5
SA ₍₁₋₂₎ - Surface Area for age group 1-2	1670	cm ² /day	50th percentile of face (1/3 head), forearms, hands, lower legs, and feet for females MADEP 1995 Guidance for Disposal Site Risk Characterization, Appendix Table B-2
SA ₍₁₋₈₎ - Surface Area for age group 1-8	2431	cm ² /day	Ibid
SA ₍₈₋₁₅₎ - Surface Area for age group 8-15	4427	cm ² /day	Ibid
SA ₍₁₅₋₃₁₎ - Surface Area for age group 15-31	5653	cm ² /day	Ibid
SAF ₍₁₋₂₎ - Surface Adherence Factor for age group 1-2	0.35	mg _{soil} / cm ²	All SAFs developed for ShortForm according to procedure outlined in MADEP Technical Update:
SAF ₍₁₋₈₎ - Surface Adherence Factor for age group 1-8	0.35	mg _{soil} / cm ²	Weighted Skin-Soil Adherence Factors, April 2002
SAF ₍₈₋₁₅₎ - Surface Adherence Factor for age group 8-15	0.14	mg _{soil} / cm ²	
SAF ₍₁₅₋₃₁₎ - Surface Adherence Factor for age group 15-31	0.13	mg _{soil} / cm ²	

Park Visitor - Soil: Table PS-6
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	CSF (mg/kg-day) ⁻¹	RAF _{c-ing}	RAF _{c-derm}	Chronic RfD mg/kg-day	Subchronic RfD mg/kg-day	Chronic RAF _{nc-ing}	Chronic RAF _{nc-derm}	Subchronic RAF _{nc-ing}	Subchronic RAF _{nc-derm}
Tetrachloroethylene	5 1E-02	1	0 1	1 0E-02	1 0E-01	1	0 1	1	0 1
Trichloroethylene	1 1E-02	1	0 1	2 0E-03	2 0E-02	1	0 1	1	0 1
Dichloroethylene, cis-1,2-				1 0E-02	1 0E-01	1	0 1	1	0 1
Dichloroethylene, trans-1,2				2 0E-02	2 0E-01	1	0 1	1	0 1
Toluene				8 0E-02	8 0E-01	1	0 12	1	0 12
Acetone				9 0E-01	2 7E+00	1	0 1	1	0 1
Chlorobenzene				2 0E-02	2 0E-01	1	0 1	1	0 1
Dichlorobenzene, 1,4- (p-I	2 4E-02	1	0 1	9 0E-02	9 0E-01	1	0 1	1	0 1
Aliphatics C19 to C36				2 0E+00	6 0E+00	1	0 1	1	0 1
Aromatics C11 to C22				3 0E-02	3 0E-01	0 36	0 1	0 36	0 1
Arsenic	1 5E+00	1	0 03	3 0E-04	3 0E-04	1	0 03	1	0 03
Barium				2 0E-01	7 0E-02	1	0 05	1	0 05
Chromium (total)				3 0E-03	2 0E-02	1	0 09	1	0 09
Lead				7 5E-04	7 5E-04	0 5	0 006	0 5	0 006

APPENDIX D
STATEMENT OF SUFFICIENT FINANCIAL RESOURCES



Environmental



Construction



Air Quality



Energy

**Twenty Wayland, LLC
c/o KGI Properties
10 Memorial Boulevard, Suite 901
Providence, Rhode Island 02903**

September 12, 2011

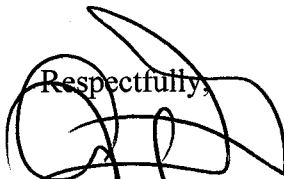
Massachusetts Department of Environmental Protection
Northeast Region – Bureau of Waste Site Cleanup
205B Lowell Street
Wilmington, MA 01887

Re: 430 Boston Post Road
Wayland, Massachusetts
Release Tracking Number (RTN) 3-13302

To Whom It May Concern;

I, Anthony Deluca, an authorized signatory for the Twenty Wayland, LLC, implementing a Release Abatement Measure Plan as an “other person” certify that the project proponent known as the Former Raytheon Facility has the willingness and sufficient financial resources to manage excavated materials in the manner and timeframe consistent with the management of remediation waste as specified in 310 CMR 40.0030 for the project known as the Former Raytheon Facility located at 430 Boston Post Road in Wayland, Massachusetts listed under RTN 3-13302.

Respectfully,

A handwritten signature in black ink, appearing to read 'Anthony Deluca', is written over the word 'Respectfully,'.

Anthony Deluca
Twenty Wayland, LLC
Authorized Signatory

APPENDIX E
RESPONSE TO PUBLIC COMMENTS



Environmental



Construction



Air Quality



Energy



Vertex Environmental Services, Inc.
Vertex Environmental Insurance Services, Inc.
Vertex Construction Services, Inc.
Vertex International Services
Vertex Air Quality Services, LLC
Vertex Ingenieros Consultores, S. de R.L. de C.V.

Corporate Headquarters
400 Libbey Parkway
Weymouth, MA 02189
www.vertexeng.com
p: 781.952.6000
f: 781.335.3543

September 15, 2011

Mr. Frederic Turkington
Wayland Town Hall
41 Cochituate Road
Wayland, MA 01778

RE: *Response to Public Comments*
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts
RTN 3-13302

Mr. Turkington:

This letter was prepared by VERTEX Environmental Services, Inc. (VERTEX) at the request of Twenty Wayland, LLC (Twenty Wayland) to provide a Response to Public Comments of the August 8, 2011, Draft Release Abatement Measure (RAM) Plan which was submitted to the Wayland Public Library, the Wayland Board of Health, and electronically to the Raytheon Extranet website www.ermne.com (username: Raytheon, Password: wayland). The Draft RAM Plan was prepared to summarize activities to be conducted by Twenty Wayland (the Party undertaking RAM Activities) at the Former Raytheon Facility located at 430 Boston Post Road in Wayland, Massachusetts (the Property).

Response to public comment is prepared based upon the order the comments were received. General comments regarding the site, and the RAM Plan that did not require a response from VERTEX are not included in this response to public comment.

Comments From
Thomas Sciacca
31 Rolling Lane
Wayland, Massachusetts

COMMENT: *I object to the use of the term “insignificant” in section 1.7.1, entitled “Human Receptors”, in describing the potential impact of site contaminants on the Baldwin Pond town wells.*



Environmental



Construction



Air Quality



Energy

While the former Raytheon site is outside the capture zone of the wells, and therefore will have no impact under normal conditions, it is within Zone 2 of the wells and therefore will provide source water during drought conditions. The correct characterization would be “small”, not “insignificant”.

RESPONSE: The RAM Plan was prepared to guide the management of potentially impacted soil and groundwater encountered during construction activities associated with the redevelopment of the Property in accordance with the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000). Potential impacts to the Baldwin Pond Wellfield as a result of existing groundwater impacts at the Property are not considered related to construction activities and are therefore not included as part of the RAM Plan. Comprehensive response actions related to the monitoring and remediation of existing groundwater contamination will continue to be conducted by ERM on behalf of Raytheon.

For clarification, the sentence in question will be modified as such: “The potential for human exposure due to ingestion of potable water that originates from the Baldwin Pond Wellfield will not change as a result of the implementation of this RAM plan.”

COMMENT: *My second comment regarded the sampling plan for soil and/or demolition debris as the main building is demolished. Having spent many years engaged in the sort of engineering work which went on in this building, I know that standard engineering lab practice was to clean circuit boards by spraying with chlorinated solvents while holding the boards over the floor, allowing solvents to drip onto the floor and evaporate or infiltrate.*

I therefore recommend that, in addition to any random sampling, specific testing of soil under former engineering labs be conducted. The probability of finding problems is far higher than under former offices of general use areas, and focused testing will avoid missing problems as a result of aggregating samples, dispersed sampling that happens to miss hot spots, etc. The Raytheon representative at the meeting indicated that he had the information as to where in the building former labs were located, and could make such data available.

RESPONSE: The RAM Plan was prepared to guide the management of potentially impacted soil and groundwater encountered during construction activities associated with the redevelopment of the Property in accordance with the MCP. Comprehensive response actions including the targeted assessment of soil and groundwater conditions as a result of the industrial history of the Property will continue to be conducted by ERM on behalf of Raytheon. Any impacted soil or groundwater encountered during construction activities will be managed in accordance with the appropriate section of the RAM Plan.

**Comments From
Benson R. Gould, LSP, LEP
CMG Environmental, Inc.
600 Charlton Street
Southbridge, Massachusetts**



COMMENT:

1.6 SUMMARY OF THE SUBJECT SITE REGULATORY STATUS

1.6.1 RTN 3-13302

I) On Pages 4 and 5 of the draft RAM Plan, Vertex indicates that Raytheon had linked several additional RTNs to the primary RTN 3-13302 (which is true). However, perusal of the Massachusetts Department of Environmental Protection (DEP) “Waste Site/Reportable Releases Look Up” (<http://db.state.ma.us/dep/cleanup/sites/search.asp>) Web page for RTN 3-1783 indicates that Raytheon closed out this RTN through submittal of a Class B-1 Response Action Outcome (RAO) Statement submitted on August 3, 1995 rather than through linkage to primary RTN 3-13302 (as implied by the second paragraph following heading 1.6.1 or by submittal of an LSP Evaluation Opinion as indicated by the first bulleted paragraph following).

The DEP Web page for RTN 3-22665 indicates that Raytheon closed out this RTN via linkage to primary RTN 3-13302 rather than by submittal of a Licensed Site Professional (LSP) opinion as stated in the fourth bulleted paragraph on page 5 of the draft RAM Plan. (Closure solely via an LSP opinion implies use of the transition procedures set forth at 310 CMR 40.0600 of the Massachusetts Contingency Plan, particularly 40.0636(2)(a), (b), or (d) – which cannot pertain because RTN 3-22665 does not refer to a ‘transition site.’)

The Town of Wayland recognizes these are minor details that do not in any way affect the substance of the Vertex draft RAM Plan. Nonetheless, for the sake of accuracy Wayland requests that Vertex revise this portion of the final RAM Plan to reflect actual DEP submittals.

RESPONSE: VERTEX has revised the RAM Plan to clarify the submittals to the MADEP.

COMMENT:

1.6.2 RTN 3-22408 (Linked to RTN 3-13302)

II) In the second paragraph on Page 6 of the draft RAM Plan, Vertex states that Raytheon linked RTN 3-22408 to the parent RTN 3-13302 in June 2009. It would be more accurate to note that on November 26, 2007 Raytheon submitted a partial RAO to close out the arsenic issue associated with RTN 3-22408, and a Downgradient Property Status Opinion to address the methyl tertiary butyl ether (MTBE) issue associated with this RTN (also identified with existing RTN 3-17974 at 356 Boston Post Road, currently in Remedy Operating Status, and subsequent RTN 3-27651 that DEP issued specific to the Downgradient Property Status Opinion). Raytheon did link the remaining issues associated with RTN 3-22408 (minor reportable concentration exceedances for toluene and trichloroethene, a/k/a TCE) to primary RTN 3-13302 on June 9, 2009.

As with Comment I above, Wayland recognizes this to be a minor detail that does not affect the substance of the Vertex draft RAM Plan. However, given the significant interest and scrutiny that Site redevelopment has garnered, the Town believes it prudent to have the background information be as accurate as possible. Therefore we request that Vertex revise this paragraph of the final RAM Plan to include all DEP closure submittals for RTN 3-22408.

RESPONSE: VERTEX has revised the RAM Plan to clarify the submittals to the MADEP.



COMMENT:

1.6.3 Activity and Use Limitation (AUL)

III) Vertex discusses the “Site-Wide AUL” on pages 6 and 7 of the draft RAM Plan. Wayland prefers the terminology ‘Deed Restriction’ for this particular document (recorded in Middlesex South District Registry of Deeds Book 27793, Page 141) because although it is titled “Form 1075, Notice of Activity and Use Limitation” as if it were a DEP-style AUL in accordance with 310 CMR 40.1074, it deviates significantly from the regulatory requirements for an AUL as promulgated by DEP.

In particular, the Deed Restriction (‘Site-Wide AUL’) requires written certification from the LSP-of-Record for RTN 3-13302 (and linked RTNs 3-13574 & 3-14042) approving changes to surface conditions (such as topography, surface cover & paving), or property use for residential purposes. Unlike a standard DEP AUL, the Deed Restriction does not give authority to any other LSP to approve changes in surface conditions or property usage at the Site. Therefore the second paragraph on page 7 of the draft RAM Plan incorrectly states that “an LSP” will revise the Deed restriction, since only the LSP-of-Record for RTN 3-13302 is allowed that option. The current LSP-of-Record for RTN 3-13302 is Mr. John Drobinski, P.G. of Environmental Resources Management, Inc., and he has been the only such LSP since imposition of the Deed Restriction on October 21, 1997. The draft RAM Plan is not signed by LSP Drobinski, nor does it include a written certification by Mr. Drobinski approving proposed changes to surface conditions (and planned residential usage) as mandated by the Deed Restriction.

Furthermore, the Deed Restriction stipulates that the LSP-of-Record for RTN 3-13302 must approve written procedures for response actions pertaining to monitoring, notification, management, or disposal of contaminated media (such as soil, groundwater, or sediment), waste, or debris. The draft RAM Plan certainly qualifies as a written procedure for such response actions. Nonetheless, it does not indicate that LSP Drobinski has approved these response actions.

The wording of this section of the draft RAM Plan leads Wayland to believe that perhaps Vertex does not fully understand or appreciate the unique and particular legal requirements of the Site Deed Restriction, which is definitely not a typical AUL. The Town requests that at a minimum, Vertex include a written certification statement from LSP-of-Record John Drobinski, P.G. (as mandated by the Deed Restriction) in the final RAM Plan, which indicates that LSP Drobinski approves the response actions as proposed in the RAM Plan, as well as the eventual residential usage of a portion of the Site.

Vertex’s responses to questions at the September 1, 2011 Public Involvement Plan (PIP) meeting clarified that you have discussed the requirements of the Deed Restriction in detail with both LSP Drobinski and Raytheon, so Wayland does not believe our request for written documentation of agreement presents an undue hardship.

RESPONSE: VERTEX has revised the RAM Plan to clarify the nature of the site-wide AUL. Activities restricted by the site-wide AUL will not be conducted without the approval of the LSP-of-Record. VERTEX has received verbal certification of the RAM Plan from Mr. John



Drobinski, P.G., LSP and a certification letter in accordance with the site-wide AUL will be provided to Twenty Wayland prior to the start of RAM activities. A copy of this certification will be included in the first RAM Status Report.

COMMENT:

2.0 SITE SUBSURFACE CONDITIONS

IV) The last paragraph on page 11 of the draft RAM Plan discusses depths to groundwater at the eastern portion of the Site. Vertex states that groundwater elevations range from elevation 116-124, corresponding to 15-19' below grade. Raytheon has amassed a very substantial data set of groundwater elevations for the Site over the past 15+ years. cursory review of groundwater elevation data for wells located in the vicinity of the existing main Site building indicates that in the past 10 monitoring rounds (September 2006 through May 2011), groundwater elevations have ranged from 113.45' (well MW-47S, 10/1/07) to 130.26' (MW-34, April 2011), corresponding to groundwater depths ranging from as shallow as 6.41' (MW-34, April 2011) to as deep as 19.23' (MW-45S, 10/1/07). Further from the Site building groundwater has been as shallow as 3.49' at MW-10 (4/23/07). Thus it appears that Vertex has significantly overestimated the minimum depth to groundwater.

Vertex's responses to questions at the September 1, 2011 PIP meeting demonstrate that you have reviewed much of the Site groundwater elevation data set. Wayland requests that Vertex consider whether and how RAM activities need to accommodate the significant seasonal fluctuation in groundwater elevations observed at the Site. The Town recommends appending a summary table of key monitoring well groundwater depths and elevations over at least the past 10 years to the final RAM Plan as supporting documentation for this analysis.

RESPONSE: The RAM Plan has been modified to provide additional clarification of the anticipated groundwater depth at the site. However, the depth to groundwater at the site is not anticipated to impact the proposed RAM Activities. If groundwater is encountered during excavation activities, groundwater dewatering will be performed in accordance with the RAM Plan.

COMMENT:

3.0 RELEASE ABATEMENT MEASURE PLAN

*V) The third bullet paragraph on page 12 of the draft RAM Plan states "Conduct of [sic] all MCP response actions under the supervision of an LSP" with reference to the Deed Restriction ('Site-Wide AUL'). Wayland believes that in order to legally comply with the stipulations of the Site Deed Restriction this should read "Conduct all MCP response actions under the overall supervision of the LSP-of-Record for RTN 3-13302" (see also Comment **III** above).*

RESPONSE: Activities restricted by the site-wide AUL will not be conducted without the approval of the LSP-of-Record. VERTEX has received verbal certification of the RAM Plan from Mr. John Drobinski, P.G., LSP and a certification letter in accordance with the site-wide AUL will be provided to Twenty Wayland prior to the start of RAM activities. A copy of this certification will be included in the first RAM Status Report.



COMMENT:

VI) The first bulleted paragraph on page 13 of the draft RAM Plan discusses direct observation and field screening of excavated soil samples. DEP regulations set forth at 310 CMR 40.0442(3)(a) mandate a more detailed assessment of Site soils in cases where planned construction activities could prevent or impede future assessment of that area. That would be the case in areas shown as ‘Proposed Buildings’ on Figure 2 of the draft RAM Plan. Wayland would like to encourage Vertex to work cooperatively with Raytheon and collect sufficient soil samples for the full suite of pertinent laboratory analyses once the existing main Site building concrete pad is removed, since this will be the best (and possibly only feasible) time to obtain these samples. The Town recommends that Vertex include a plan for collecting such assessment soil samples in the final RAM Plan.

RESPONSE: The RAM Plan was prepared to guide the management of potentially impacted soil and groundwater encountered during construction activities associated with the redevelopment of the Property in accordance with the MCP. Comprehensive response actions including the targeted assessment of soil and groundwater conditions as a result of the industrial history of the Property will continue to be conducted by ERM on behalf of Raytheon. Any impacted soil or groundwater encountered during construction activities will be managed in accordance with the appropriate section of the RAM Plan.

COMMENT:

VII) The second bulleted paragraph on page 14 of the draft RAM Plan indicates that Vertex is contingently planning on-Site treatment of excavated soils (if necessary) to reduce metals leachability. However, Vertex does not provide any details of such ‘TCLP treatment.’ Wayland requests that the final RAM Plan include a description of the proposed treatment methodology to reduce metals leachability, including monitoring parameters and locations for remedial additives and their anticipated byproducts.

RESPONSE: VERTEX does not anticipate that TCLP treatment will be required at the site and TCLP treatment was included solely for contingency for planning purposes. As such, the nature of such soils, if present, cannot be known at this time and the appropriate treatment methodology has not been chosen. However, if soils that require TCLP treatment are encountered during RAM activities, the appropriate documentation will be prepared and submitted in accordance with the local, state, and federal laws and regulations and will include details regarding the selected TCLP treatment method, treatment locations, monitoring parameters, and anticipated byproducts. Such details will be included in a RAM Status Report subsequent to TCLP treatment.

COMMENT:

VIII) The third bulleted paragraph on page 14 of the draft RAM Plan indicates that Vertex is planning excavation to as deep as elevation 111.5 (21' below grade) for the proposed sewer pump station, but that this excavation “is not anticipated to encounter impacted groundwater.” Figure 2 attached to the draft RAM Plan illustrates an area labeled “Future Municipal WWTP” but does not indicate where Vertex plans deep excavation for the proposed sewer pump station. Therefore the RAM Plan does not provide sufficient information to support Vertex’s assertion that this excavation would not encounter impacted groundwater. Based on depth to groundwater



considerations, it is very likely that this excavation would extend several feet below the seasonal high groundwater elevation (see Comment **IV** above).

Vertex's responses to questions at the September 1, 2011 PIP meeting indicate that the planned sewer pump station location is approximately 150-300' west of the southwesterly corner of the existing main Site building (in the vicinity of monitoring wells MW-204S & MW-45S, where the depth to water has ranged between 13.08-19.23' below grade in the past 10 monitoring rounds). Wayland requests that the final RAM Plan describe (and accurately depict on a figure) where they propose excavation for said sewer pump station. If this excavation is in an area where Raytheon has identified groundwater contamination, the Town further requests that the final RAM Plan incorporate a contingency plan for treatment or proper disposal of impacted groundwater encountered during such excavation work.

RESPONSE: The location of the Future Municipal WWTP presented on Figures 2 and 3 is not included in the redevelopment plan and is excluded from the RAM Activities. The approximate location of the proposed sewer pump station has been added to Figures 2 and 3 of the RAM Plan. Any groundwater dewatering required during RAM activities will be performed in accordance with Section 5.0 of the RAM Plan.

COMMENT:

4.0 RAM WASTE MANAGEMENT

IX) Pages 16 and 17 of the draft RAM Plan discuss management of soil excavated in the process of building demolition and Site redevelopment. Vertex does not include any contingency for handling soil that is a listed hazardous waste, which would be the case if stockpiled (or containerized) excavated soils equal or exceed applicable DEP S-1/GW-1 risk characterization standard for TCE or tetrachloroethene (PCE). It is also possible (albeit less likely) that excavated soils could exhibit the hazardous waste characteristic for TCE or PCE via the toxicity characteristic leaching procedure (TCLP). Wayland requests that the final RAM Plan includes contingencies for properly handling excavated soil that is a listed or characteristic hazardous waste.

RESPONSE: If soils exhibiting evidence of impact (i.e., odor, discoloration, and or total volatile organic compounds are encountered during the RAM activities, VERTEX will either assess the soils in place or stockpile soils on-site for characterizations (Section 3.0 of the RAM Plan). Based on the results of the characterization analyses, impacted soil will be managed in accordance with all applicable local, state, and federal laws.

COMMENT:

5.0 CONSTRUCTION DEWATERING

X) Pages 18 and 19 of the draft RAM Plan discuss options to handle water generated through excavation dewatering activities. The last paragraph of this section indicates that on-Site recharge would not require a permit (which is true). However, this type of activity is specifically controlled by the Site Deed Restriction and subject to the approval of the LSP-of-Record for RTN 3-13302. Even if such water is not impacted by Site contaminants, on-Site recharge has the potential to significantly alter groundwater flow, which could have the unwelcome effect of



migrating contamination into remediated or previously unaffected portions of the Site and vicinity.

Furthermore, the Wayland Wetlands and Water Resources Bylaw (Chapter 194) and the Order of Conditions for Site redevelopment (wetland File No. 322-0701) regulate groundwater discharge and injection locations. Specifically, the Chapter 194 permit issued by the Wayland Conservation Commission for DEP File No. 322-0701 on June 9, 2010 requires that dewatering activities conducted during construction must comply with the 2008 NPDES Construction General Permit (see Finding #rr and Conditions #14 & #30 of the 6/9/10 permit).

*Wayland reiterates our request (see Comment **III** above) that at a minimum, Vertex include a written certification statement from LSP-of-Record John Drobinski, P.G. (as mandated by the Deed Restriction) in the final RAM Plan, which indicates that LSP Drobinski approves the response actions as proposed in the RAM Plan (including all contingencies provided for excavation dewatering).*

RESPONSE: VERTEX has received verbal certification of the RAM Plan from Mr. John Drobinski, P.G., LSP and a certification letter in accordance with the site-wide AUL will be provided to Twenty Wayland prior to the start of RAM activities. A copy of this certification will be included in the first RAM Status Report.

Groundwater dewatering required during RAM activities will be performed in accordance with Section 5.0 of the RAM Plan and any applicable local, state, and federal regulations.

COMMENT:

7.0 FOCUSED FEASIBILITY EVALUATION

*XI) On page 30 of the draft RAM Plan Vertex evaluates the feasibility of achieving or approaching background, as required by DEP regulations set forth at 310 CMR 40.0442(3)(c). This evaluation may be adequate for soil and soil vapor concerns, but omits any consideration of groundwater remediation. Raytheon has expended a very substantial amount of time and effort in aggressively remediating chlorinated solvent contamination at two portions of the Site. The so called 'Southern Area' encompasses much of the large existing Site building, which is the identified source area of a chlorinated solvent plume in groundwater. Figure 2 appended to the draft RAM Plan depicts six smaller buildings wholly or partially within the footprint of the existing large Site building. Section 7.0 of the draft RAM Plan does not include any discussion of how Raytheon will be able to continue monitoring (and if necessary, treating) remaining chlorinated solvent contamination in the Southern Area portion of the Site following RAM activities and redevelopment in their effort to achieve background conditions in Site and vicinity groundwater. This is yet another subject addressed in detail by the Site Deed Restriction (see Comment **III** above).*

Wayland requests that the final RAM Plan include a discussion of how Raytheon will be able to continue their program of Site groundwater monitoring and remediation. If warranted, the Town requests that Vertex consider modifications to the RAM Plan to facilitate Raytheon's efforts.



RESPONSE: In accordance with the site-wide AUL, Raytheon and ERM have been consulted regarding the RAM Plan activities and arrangements for the ongoing response actions are being coordinated between Twenty Wayland and Raytheon. VERTEX has received verbal certification of the RAM Plan from Mr. John Drobinski, P.G., LSP and a certification letter in accordance with the site-wide AUL will be provided to Twenty Wayland prior to the start of RAM activities. A copy of this certification will be included in the first RAM Status Report.

COMMENT:

Minor Typographic Error

XII) On Page 9 of the draft RAM Plan, the fourth word in the first paragraph should be “regrading” or “grading” rather than “regarding.”

RESPONSE: This correction has been included in the RAM Plan.

**Comments From
Linda L. Segal
9 Aqueduct Road
Wayland, Massachusetts**

COMMENT: *As I indicated at the PIP meeting, I am accustomed to seeing a greater level of detail in RAM plans and other documents prepared under the MCP. I have read and in some cases either commented on or used plans prepared by a few other environmental firms in the last 15+ years. Some of that is thanks to the DEP’s posting of such documents on the agency’s website for easier public access.*

This site’s history seems a bit more complex and involves multiple parties with overlapping interests. It also seems appropriate and beneficial for Vertex to consider providing more detailed explanations for how you intend to address what you may encounter in the field.

RESPONSE: The RAM Plan was prepared in accordance with Section 40.0444 of the Massachusetts Contingency Plan (310 CMR 40.0000). The RAM Plan was prepared to guide the management of potentially impacted soil and groundwater encountered during construction activities associated with the redevelopment of the Property in accordance with the MCP. Information regarding the environmental condition of the Property and the status/history of response actions at the site are available in the MCP documents prepared by ERM for Raytheon.

Based upon the significant quantity soil and groundwater data provided to VERTEX by ERM, the program and procedures presented in the RAM Plan are considered sufficient to monitor site conditions during construction. VERTEX is in direct contact with ERM and Raytheon and, as indicated in the RAM Plan, the RAM activities will be performed in coordination with ERM and Raytheon.

COMMENT: *Attached please find a copy of the map I gave you at the PIP meeting. It was described last month as the most current site plan at the Wayland Planning Board office. It appears to be dated February 2011. As I indicated at the PIP meeting, some features were*



inconsistent with Figure 2 in the draft RAM Plan and the description of what can be built to the left and right of the so-called Raytheon line. My request was for Vertex to please update your Figure 2 to include relevant details such as those seen on the attached map, e.g. residential to the right of the Raytheon line, bifurcated town green, etc. That would NOT include cluttering up the Figure with parking space striping, for example, so I hope it is clear that I did not intend for all features on that map to be added to your Figure.

RESPONSE: Figure 2 “Site Schematic” has been revised and Figure 3 “Development Plan” has been added to provide additional details of the site.

COMMENT: *Please retain the day care building footprint on Figure 2 shown in the draft RAM Plan. At its September 6 public meeting, the Board of Selectmen voted not to exercise the option in the 2006 Development Agreement to have 20 Wayland, LLC demolish the so-called “day care” building when the other structures get demolished. It appears the building and its foundation will remain, at least for now.*

RESPONSE: Although the Daycare Building is presented on Figure 2. The RAM Plan was prepared to guide the management of potentially impacted soil and groundwater encountered during construction activities associated with the redevelopment of the Property in accordance with the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000). The 2006 Development Agreement is not considered related to construction activities and are therefore not included as part of the RAM Plan.

COMMENT: *Please also add the outlines of the abutting Wayland condos readily found on other site plans. The draft RAM Plan describes dust mitigation. These condos are possibly the closest residences to the project site work, and an increasing number of the condos are now sold and occupied.*

With that, I respectfully request that when Vertex issues a Final RAM Plan that you please accommodate as best as you can the public’s requests that additional information be shown on a revised Figure 2 so that known changes, which prompt the need for cooperation and communication during the implementation of the RAM Plan, are shown on the Figure (without compromising legibility). Please include the location of the new pump station, new piping routes and outfall because they are features vital to the success of the town center project and are likely to be built concurrently with Vertex’s environmental site activities. It seems in everyone’s best interests to have access to coordinated and accurate information, e.g. on your updated Figure.

RESPONSE: Figure 2 “Site Schematic” has been revised to provide additional details of the site.

COMMENT: *At the PIP meeting, I asked about the MtBE plume in the southeastern portion of the property for which Raytheon filed for downgradient status a few years ago. I don’t believe it is mentioned in the draft RAM Plan. If Vertex could encounter impacts to soils and/or groundwater during project construction, it seems prudent to include preparedness for it in the RAM Plan, including in the risk assessment.*



RESPONSE: The MTBE plume along the southeastern portion of the property is mentioned in Section 1.6.2. The program and procedures presented in the RAM Plan are considered sufficient to address MTBE impacted soil and/or groundwater if encountered during the excavation activities.

COMMENT: *We heard several parties indicate that negotiations regarding the AUL were close to completion. I also requested that if agreement is reached and documents are executed soon for new deed restriction language, that those pertinent details already mentioned in the draft RAM Plan be updated to accurately reflect the new language.*

RESPONSE: A revised site-wide AUL has not yet been recorded for the Property. Although not anticipated, if the requirements of the revised site-wide AUL significantly change the RAM Plan Activities, a RAM Plan modification will be prepared.

COMMENT: *In closing, I respectfully request to be copied, electronically or via hard copy, on your Responses to Public Comment document. Please do not hesitate to contact me if you have any questions about my comments.*

RESPONSE: Per the Public Involvement Plan, a copy of the response to comments will be provided to those who submitted comments.

**Comments From
Siobhan Zane, Chair
Wayland Historical Commission
Town of Wayland
41 Cohituate Road
Wayland, Massachusetts**

COMMENT: *The Wayland Historical Commission is concerned about the proposed ground disturbance on the former Raytheon property being developed for a Town Center. Although so much of the property has been already been disturbed by past development, your report states, there will be “below-grade structures will be limited to subsurface utilities, foundations and other infrastructure elements”.*

In addition, the report states, “A sanitary sewer pump station will be constructed as part of the proposed redevelopment. The site preparation work will likely include removal of existing asphalt pavement, existing building foundations and abandoned utilities and will involve localized excavation of potential fill or natural soil.”(Vertex PIP doc., page 3).

Furthermore, the Site Plan (Figure 2) shows the site of Future Residential Development located on the edge of the wetland at the northwestern boundary of the project. This area likely was not disturbed previously and therefore is archaeologically sensitive. Many pre-colonial sites have been found in Wayland located on areas adjoining wetlands.



Our Commission requests that an archaeological survey is conducted before this project goes forward. Ideally, such a survey should be implemented as quickly as possible so that the project can proceed as planned without delay.

RESPONSE: The RAM Plan was prepared to guide the management of potentially impacted soil and groundwater encountered during construction activities associated with the redevelopment of the Property in accordance with the MCP. As archeological considerations are not included under the MCP, an archeological survey is not considered relevant to the RAM Plan.

**Comments From
Alice Boelter
106 Lake Shore Drive
Wayland, Massachusetts**

COMMENT: *It is no surprise, that with regard to the RAM Plan, residents have asked for additional graphics and text details as to the location of monitoring wells near planned excavation, the process by which excavation will occur without disturbance to the existing outfall pipe, the specific handling process for any suspicious excavated soils and their disposition including methodology for immobilizing metals, etc.*

RESPONSE: Figure 2 “Site Schematic” has been revised to provide additional details of the site.

The RAM Plan was prepared to guide the management of potentially impacted soil and groundwater encountered during construction activities associated with the redevelopment of the Property in accordance with the MCP. Disturbance to the existing outfall pipe a construction consideration and is not considered relevant to the RAM Plan.

If soils exhibiting evidence of impact (i.e., odor, discoloration, and or total volatile organic compounds are encountered during the RAM activities, VERTEX will either assess the soils in place or stockpile soils on-site for characterizations (Section 3.0 of the RAM Plan). Based on the results of the characterization analyses, impacted soil will be managed in accordance with all applicable local, state, and federal laws.

VERTEX does not anticipate that TCLP treatment (i.e., “methodology for immobilizing metals”) will be required at the site as TCLP treatment was retained as a contingency for planning purposes. However, if soils that require TCLP treatment are encountered during RAM activities, the appropriate documentation will be prepared and submitted in accordance with the local, state, and federal laws and regulations and will include details regarding the selected TCLP treatment method, treatment locations, monitoring parameters, and anticipated byproducts. Such details will be included in a RAM Status Report subsequent to TCLP treatment.

COMMENT: *You have noted that any temporary stockpiling of excavated soil will be covered. Could you clarify whether working stockpiles will be covered at the end of each workday?*



RESPONSE: Impacted soil will be covered at the end of each day. Soil that is not impacted may not be covered at the end of each day.

COMMENT: *Also, I would ask you to provide graphically the location on-site for the treatment of soils with leachable metals exceeding RCRA limits.*

RESPONSE: VERTEX does not anticipate that TCLP treatment will be required at the site and TCLP treatment was included solely for contingency for planning purposes. As such, the nature of such soils, if present, cannot be known at this time and the appropriate treatment methodology has not been chosen. However, if soils that require TCLP treatment are encountered during RAM activities, the appropriate documentation will be prepared and submitted in accordance with the local, state, and federal laws and regulations and will include details regarding the selected TCLP treatment method, treatment locations, monitoring parameters, and anticipated byproducts. Such details will be included in a RAM Status Report subsequent to TCLP treatment.

Comments From ERM and Raytheon

In addition to the comments above, VERTEX received verbal comments from Mr. John Drobinski, P.G., LSP of ERM on behalf of Raytheon. These requests included:

- Including the removal of the 20,000 gallon No. 6 fuel oil UST in the RAM Plan, including the increase in the estimated amount of soil for off-site disposal;
- Clarifying that ERM will not be overseeing RAM activities but will be accepting them and providing certification in accordance with the site-wide AUL;
- A request that VERTEX collect one grab sample of accumulated groundwater in an excavation for VOC analysis prior to dewatering activities;
- Clarifying that excavation beneath the proposed Stop & Shop will include utility trenches to an approximate depth of 8 feet below ground surface;
- Clarifying that the area within the limits of the Town wastewater treatment plant (WWTP) is not included in the RAM Plan;
- Removing reference to a Response Action Outcome (RAO) statement as this will be prepared by ERM as part of their comprehensive response actions at the site; and,
- Including protections for potential exposure by construction workers performing excavation activities to the remedial additive permanganate to the Health and Safety Plan (HASP).

The RAM Plan and/or internal documents were modified accordingly and, as indicated above, VERTEX has received verbal certification of the RAM Plan from Mr. John Drobinski, P.G., LSP. A certification letter in accordance with the site-wide AUL will be provided to Twenty Wayland prior to the start of RAM activities. A copy of this certification will be included in the first RAM Status Report.



A copy of this Response to Public Comments as well as the final RAM Plan has been submitted to the MADEP, Wayland Public Library, the Wayland Board of Health, and electronically to the Raytheon Extranet website www.ermne.com (username: Raytheon, Password: wayland).

Sincerely,

Vertex Environmental Services, Inc.



Jessica L. Fox, PE
Senior Project Manager



Jaron J. Frieden, CEA
Vice President



James B. O'Brien, LSP #9092
President

cc: Wayland Board of Health (PIP Repository)
Wayland Public Library (PIP Repository)
MADEP, Northeast Regional Office
Frank Dougherty – Twenty Wayland, LLC
Jason Flattery - ERM
Louis J. Burkhardt – Raytheon Company
Thomas Sciacca
Benson R. Gould, LSP, LEP – CMG Environmental, Inc.
Linda Segal
Siobhan Zane, Chair – Town of Wayland Historical Commission
Alice Boelter

