



**MASSACHUSETTS CONTINGENCY PLAN
IMMEDIATE REPOSE ACTION PLAN
MODIFICATION**

**TOWN OF EASTHAM LANDFILL
255 OLD ORCHARD ROAD
EASTHAM, MASSACHUSETTS**

DEP RTN 4-24301

December 22, 2016

Prepared for:

Town of Eastham
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Eastham, MA 02642-2544

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ES&M Project No. 2016-038

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1.0 INTRODUCTION

This Immediate Response Action (IRA) Plan Modification has been prepared in accordance with the Massachusetts Contingency Plan (MCP) by Environmental Strategies & Management, Inc. (ES&M) on behalf of the Town of Eastham. This report pertains to Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 4-24301 which was issued following the detection of 1,4-dioxane in water samples collected from private drinking water wells near the Town's landfill. The landfill and downgradient/surrounding properties within the study area are shown on the Site Map included as Figure 1.

1.1 Purpose

MassDEP approved an IRA which initially focused on identifying private drinking water wells impacted by 1,4-dioxane, and providing alternative safe drinking water to affected residents. The IRA program also included evaluation of appropriate and feasible mitigating measures to remove 1,4-dioxane from drinking water. The ultimate objective of the IRA is the mitigation of the critical exposure pathway (CEP), which is the consumption of groundwater impacted by 1,4-dioxane emanating from the landfill at concentrations above the current MCP GW-1 standard (0.3 µg/L).

The purpose of this IRA Plan Modification is to outline procedures and policies relative to connections to the Town's municipal water system, which is currently under construction. These policies will be implemented by the Town in order to supply municipal water to affected residents. The supply of clean drinking water will eliminate the CEP, which is the regulatory requirement that must be met to close the IRA. This report first presents the data collected during the Comprehensive Site Assessment (CSA) activities, which has been used to support the mandatory municipal water supply (MWS) connection policy. This plan will also outline other relevant Town policies, for example the conversion of drinking water wells for irrigation use.

1.2 Background

The Town of Eastham implemented an extensive private well testing program following the detection of 1,4-dioxane in monitoring wells and private drinking water wells near and downgradient of the Town's landfill. Detailed background information was provided in quarterly IRA Status Reports submitted prior to 2014. Under this IRA program, water samples have been collected from over 300 private drinking water wells and submitted for laboratory analysis. During the course of the private well sampling program, bottled water has been made available to the residents of any property where 1,4-dioxane has been detected at or above the MCP GW-1 standard. Table 1 summarizes the analytical results for the drinking water samples collected from private wells within the study area as well as locations outside of the study area.

In addition to quarterly status reports, two other IRA Plan Modifications have been submitted to MassDEP. The first IRA Plan Modification was submitted on March 6, 2014, to describe implementation of alternate laboratory methods, outline a revised private well sampling protocol, clarify the ongoing monitoring schedule, and summarize future IRA activities. A second IRA Plan Modification submitted in conjunction with an IRA Status Report on June 30, 2015, discontinued annual drinking water sample collection and laboratory analysis from wells exhibiting concentrations of 1,4-dioxane above 0.3 µg/L, since residents in this category are advised to use bottled water for consumptive purposes. The Town offers to provide bottled water to all residents in this category until they are connected to the Town's municipal water system.

The site map included as Figure 1 shows the status of the properties in the study area:

- Gray = 1,4-dioxane was not detected. Well water test results in this category were below the reporting limit for 1,4-dioxane of 0.2 µg/L. Since an estimated concentration ("J" value) was not reported, it is inferred that 1,4-dioxane is not present above the detection limit (approximately 0.04 µg/L).
- Yellow = 1,4-dioxane detected at a concentration below the current guideline and proposed GW-1 drinking water standard of 0.3 µg/L. Laboratory results that are below 0.3 µg/L but above the reporting limit of 0.2 µg/L are quantified results, while results below 0.2 µg/L and above the method detection limit of 0.04 µg/L are qualified as estimated values (reported with a "J" qualifier).
- Red = 1,4-dioxane detected at or above 0.3 µg/L. All residents in the category have been offered bottled water and have been advised to not use their well water for consumptive purposes.
- White = well water not tested. For many of these properties, the owners have been contacted several times by certified mail; however, either no response has been received, access was not granted, or the property owner was not available to provide access to their well.
- Hatch = property does not have a well or is vacant.

1.3 Person Conducting IRA

The person conducting the IRA at this time is:

Town of Eastham
2500 State Highway, Eastham, MA 02642
Attention: Jane Crowley, Health Agent, Eastham Board of Health
508-240-5900, x229
jcrowley@eastham-ma.gov

2.0 IRA PLAN MODIFICATION

During the 2015 Eastham Town Meeting, voters approved a Town-wide municipal water supply system. The system will provide municipal water to residents of Eastham

residing within the Mandatory Municipal Water Supply Zone. Work on this large-scale project is well underway and efforts to connect residents in the landfill study area to the public water supply began in the fall of 2016. In order for the IRA to be complete, exposure (by way of consumption) to 1,4-dioxane-impacted groundwater must be mitigated. This IRA Plan Modification describes the pathway through which the IRA will be closed.

Sections 2.1 and 2.2 below describe assessment activities conducted to update the landfill's Comprehensive Site Assessment (CSA), and how the results are interpreted. The CSA update is necessary under MassDEP's Solid Waste regulations, and is also an important component of this IRA Plan Modification as it helps to support the Town's policy which defines where connections to the municipal water system will be required, and under which conditions conversion of potable wells to irrigation wells will be allowed.

Section 2.3 discusses the Town's policy for mandatory connection to the MWS, which will be implemented by the Town to ensure that mitigation of the critical exposure pathway is achieved.

Section 2.4 presents a groundwater and drinking water monitoring program that will be implemented to transition from the IRA to a Landfill Monitoring Plan activity under MassDEP's Solid Waste regulations.

2.1 Additional Site Assessment Information

The objective of the CSA update is to define the (horizontal and vertical) extent of 1,4-dioxane in groundwater originating from the Eastham Landfill. The assessment activities conducted for the CSA update were conducted in three phases, one in the fall of 2014, one in the fall of 2015, and the third in the fall of 2016. These activities are described in this IRA Plan Modification since the findings have been used to develop Town policies. The CSA findings will also be presented in a CSA update report.

2.1.1 Groundwater Profiling

In order to supplement groundwater quality data from existing monitoring wells and private drinking water wells located in and around the Eastham Landfill, ES&M advanced one electrical conductivity (EC) boring and seven temporary vertical profile wells. The locations of these wells are shown on Figure 1.

On October 14, 2014, Zebra Technical Services, under the supervision of ES&M personnel, advanced the EC boring to a depth of 185 feet below ground surface (bgs). In order to normalize drilling depths to a common elevation, approximate surface elevations were obtained from Google Earth. Using an approximate surface elevation of 60 feet, the EC boring extended to an elevation of -125'. A conductivity sensor continuously logged the subsurface to identify lower permeability confining layers. Two distinct confining layers were identified – one from 40' to 45' bgs (20' to 15' elevation) and one from 65' to 80' bgs (-5' to -20' elevation). The EC log is included as

Appendix A. This conductivity data was used to determine suitable aquifer zones for the collection of groundwater samples from nearby temporary profile wells. Given that lithological zones vary across the study area, the EC boring data was used only as a general indicator of where confining layers may be present near the eastern boundary of the landfill.

On October 15 through 21, 2014, seven temporary profile wells were advanced in and around the landfill. Four profile wells (ESMT-1 through 4) were completed on the landfill property close to Old Orchard Road. ESMT-1 and ESMT-2 were completed in the southern portion of the landfill property where the highest concentrations of 1,4-dioxane have historically been detected. ESMT-3 was completed northeast of the transfer station, in the vicinity of landfill monitoring well MW-5S/D and downgradient of historic septage lagoons. ESMT-4 was located in the northern portion of the landfill property, downgradient of a second historic septage lagoon location.

Three profile wells were completed in residential areas outside of the landfill property to define the horizontal and vertical extent of 1,4-dioxane in groundwater from the landfill. ESMT-5 was completed on town conservation land northwest of Walters Way and south of Route 6. ESMT-6 was completed at the end of Eldia Way, to the northeast of the landfill, and ESMT-7 was completed on Surrey Drive, east of Schoolhouse Road.

A direct push drill rig was used to advance sampling screen to predetermined depth intervals in each profile well. Ground elevations were estimated using Google Earth to normalize sampling depths to a common elevation. Samples were collected using a Waterra Hydrolift pump and dedicated tubing with a check valve. Several gallons of water were allowed to purge from each depth interval prior to collecting samples. Samples were placed in laboratory supplied containers with aliquots of the appropriate preservative and submitted to Alpha Analytical laboratory (Alpha) in Mansfield, Massachusetts, for laboratory analysis of 1,4-dioxane by EPA Method 8270D-SIM.

2.1.2 Groundwater Sampling - 2014

On October 27, 2014, groundwater samples were collected from select monitoring wells in and around the landfill property. Samples were collected using a Waterra Hydrolift pump with dedicated tubing. Several gallons of water were allowed to purge prior to sample collection. Samples were placed in laboratory supplied containers with aliquots of the appropriate preservatives and submitted to Alpha under chain of custody for analysis of 1,4-dioxane.

2.1.3 Water Level Gauging and Elevation Survey - 2014

An elevation survey was completed in concert with the water level gauging program to better define groundwater flow direction and gradients (horizontally and vertically) in the study area. Existing groundwater monitoring wells and select private drinking water supply wells were included in the survey. Surface water gauge points were also installed in Moll's Pond and Minister's Pond to relate water table elevation to surface

water elevation. A complete water level gauging event was completed on October 29, 2014 (see Table 2).

On November 4, 2014, Outermost Land Survey, Inc., under the supervision of ES&M personnel completed an elevation survey. Top of casing elevations of the monitoring wells and private drinking water wells used in the gauging program were normalized to NAVD 88 vertical control datum. While the Google Earth elevations used for the temporary wells were approximations to estimate ground elevations and sampling depths, the NAVD 88 survey provided elevation data to 0.01' accuracy. The well casing elevations were utilized with the water level gauging data to calculate water level elevations.

2.1.4 Permanent Monitoring Well Installation

In November 2015, ES&M installed twelve permanent sentry monitoring wells at four locations within public property along the perimeter of the landfill study area. At each location, three wells were installed: one screened to intersect the shallow aquifer, one screened to intersect the intermediate aquifer, and the last screened to intersect the deep aquifer. ESMW-1S, ESMW-1I, and ESMW-1D were installed in the right of way near the intersection of Old Orchard Road and State Highway, at the southwestern extent of the study area. ESMW-2S, ESMW-2I, and ESMW-2D were installed near the intersection of Preservation Way, Nauset Road, and State Highway at the southern extent of the study area. ESMW-3S, ESMW-3I, and ESMW-3D were installed near the intersection of Surrey Drive and Schoolhouse Road, at the eastern extent of the study area. And, ESMW-4S, ESMW-4I, and ESMW-4D were installed near the convergence of Schoolhouse, Meetinghouse and Northwood Roads near the northeast corner of the study area. These monitoring well locations are shown on Figure 1, and well completion logs are included in Appendix A.

2.1.5 Groundwater Sampling Events – 2015 and 2016

In November 2015 and September 2016, groundwater samples were collected for laboratory analysis from the shallow, intermediate, and deep aquifers where feasible at each of the four new monitoring wells (except ESMW-4S which was dry in September 2016) to establish the vertical and horizontal extent of 1,4-dioxane. Samples were collected in a similar fashion to previous sampling events, and analyzed at Alpha Analytical for 1,4-dioxane by EPA Method 8270-SIM.

2.1.6 Water Level Gauging – 2015 and 2016

A second water level gauging event was conducted in the fall of 2015. This gauging event included most of the residential wells from the 2014 event with some additional wells from the neighborhood northeast of the landfill. This event also included monitoring wells from the 2014 event and the new sentry wells installed in 2015. In September of 2016, the depth to water in the sentry wells was measured again. Depth to water data is presented in Table 2.

2.1.7 Additional Drinking Water Sample Collection – South Area

During the fall of 2016, the private well testing program was expanded to include the collection of samples from several properties on the south side of Route 6 that had not been previously tested. This additional testing was conducted to better define the southwesterly extent of 1,4-dioxane in the drinking water aquifer. Forty-four property owners in this southwestern expansion area were invited to participate in this sampling event and the owners of 20 properties participated. These laboratory results for the 1,4-dioxane testing are presented on Table 1 and the laboratory report is included in Appendix B. The sampling results are also reflected on the Site Map included as Figure 1.

2.2 Findings of the CSA Update Activities

The objectives of the comprehensive site assessment activities were three fold: 1) to delineate the horizontal and vertical extent of 1,4-dioxane emanating from the landfill; 2) to develop a better understanding of groundwater flow patterns at varying depths across the study area; and 3) to better understand other sources of 1,4-dioxane in the aquifer and how these source may impact private wells in and around the study area.

2.2.1 Horizontal and Vertical Distribution of 1,4-Dioxane from the Landfill

Analytical results of groundwater samples collected from the temporary and existing wells during the CSA update activities are included in Appendix B. The results are presented with historic groundwater data on Table 3 and are summarized below.

- 1,4-dioxane was not detected above the MCP Method 1, GW-1 groundwater standard of 0.3 µg/l in any of the samples collected from the temporary profile wells installed in residential areas (ESMT-5, 6 or 7), or in ESMT-3 or ESMT-4 installed within the northern portion of the landfill property.
- 1,4-dioxane was only detected above the MCP Method 1, GW-1 groundwater standard of 0.3 µg/l in samples collected from profile well ESMT-1 at elevation -60' and elevation -80'; and in samples collected from ESMT-2 at elevation -15'. Concentrations of 1,4-dioxane in the samples collected from ESMT-1 were significantly higher than the concentration in ESMT-2, indicating that the highest 1,4-dioxane concentrations in groundwater are found at the southern-most end of the landfill.
- 1,4-dioxane was detected above the MCP Method 1, GW-1 groundwater standard of 0.3 µg/l in only one sample collected from the permanent sentry wells. The samples collected from ESMW-1S (located near the southern boundary of the landfill and screened across the water table) indicated 1,4-dioxane concentrations of 0.726 µg/L (November 2015) and 1.39 µg/L (September 2016). 1,4-dioxane was not detected above the GW-1 Standard in any of the other Sentry well samples.
- Of the 20 residences to the south of Route 6 that were tested during the September 2016 sampling event, only one home (55 Salt Pond Road) had a concentration of 1,4 -dioxane detected above the GW-1 groundwater standard,

and 1,4-dioxane was not detected at all in samples from seventeen of the homes tested. Based on these findings, the Mandatory MWS Zone will be extended to include the property at 55 Salt Pond Road.

The detected concentrations of 1,4-dioxane in drinking water samples collected from residences and in groundwater samples collected from monitoring wells across the landfill study area are depicted on eight cross sections presented as Figures 3-1 through 3-7. The section lines are presented on Figure 2.

In the southern portion of the study area (which area includes both Moll's Pond and Minister's Pond) the cross sections show that the 1,4-dioxane plume has migrated to considerable depths, typically well below -80'. The downward vertical gradients (discussed in the following section) are likely the reason for this. As shown on Cross Sections 1 through 5, most of the private wells terminate above the 1,4-dioxane plume. A few wells around the intersection of Schoolhouse Road and Knowles Street were completed within this impacted zone, and it is likely that recirculation effects (where 1,4-dioxane is brought into a home via a deep well, and discharged into the shallow aquifer via the septic system) is a primary reason that 1,4-dioxane is found in shallow wells in this neighborhood and in the downgradient neighborhood.

In the northern portion of the study area (north of Moll's Pond and trending towards the Deepwood Drive neighborhood), the 1,4-dioxane distribution patterns are less clear. Cross Sections 6 and 7 both suggest 1,4-dioxane impact in the shallow zone around the Eldia Way neighborhood, despite the downward vertical gradients that were noted consistently across the study area (further discussed in the next section). In addition, water from the well at 11 Eldia Way (which is a relatively shallow well) has consistently indicated levels of 1,4-dioxane much higher than surrounding properties and higher than levels observed in the middle portion of the landfill. This raises the possibility of additional source(s) of 1,4-dioxane other than the landfill in this portion of the study area.

2.2.2 Horizontal and Vertical Groundwater Flow Patterns

Horizontal and vertical groundwater flow patterns have been inferred using water level data from monitoring wells and private drinking water wells. Wells in the study area that were used for the gauging events were selected based on depth, and that depth was converted to elevation. The wells were organized into three groups: wells completed across the water table ("shallow"); wells completed from about -10' to -30' ("intermediate"); and wells completed from about -40' to -70' ("deep").

The water table elevation contour map (Figure 4) developed using data from December 12, 2015, indicates a shallow groundwater flow direction from the landfill toward the south and east. Surface water appeared to recharge to groundwater around both Moll's Pond and Minister's Pond during the first gauge event, but during the second event recharge (surface water to groundwater) was apparent only at Minister's Pond. The data suggests there may be a component of shallow flow to the south/southwest between the southern extent of the landfill and Minister's Pond. This may be the result

of surface water recharged from Minister's Pond, and may explain why 1,4-dioxane was detected in well ESMW-1S above the GW-1 Standard.

In the northern portion of the study area, shallow groundwater generally flows easterly away from the landfill although water table elevations in the northeastern corner of the study area are locally higher than in the north/central area. The result is that shallow groundwater in the north/central area may have a component of flow to the southeast (i.e., away from the northeastern-most area).

Groundwater flow within the intermediate zone (Figure 5) generally flows in an east/southeasterly direction. This intermediate zone may also have a southwesterly component of flow between the southern extent of the landfill and Minister's Pond, similar to the shallow zone. Groundwater flow in the deep zone (Figure 6) shows a relatively consistent flow direction towards the east and southeast.

Vertical flow gradients were determined by comparing water levels in the couplet/triplet wells across the study area. To a limited extent, water levels in select private wells were also evaluated when a deep well was located very near a shallow well. In all cases, the potentiometric head in the deeper zone was lower than in the shallower zones indicating downward flow (recharge).

2.2.3 CSA Conclusions and Conceptual Site Model

The results of the CSA investigations have been evaluated in conjunction with the private well sampling program, which has included laboratory analysis of samples from approximately 300 residential drinking water wells. The data collectively has been used to better understand how 1,4-dioxane has migrated in the aquifer, and how to manage implementation of the Town's municipal water system. The ultimate objective of the CSA work is to allow the Town to determine where connections to the MWS are mandatory, and what additional monitoring actions may be needed outside of the mandatory connection area.

The Conceptual Site Model (CSM) for the landfill study area has been updated relative to release(s) of 1,4-dioxane. The CSM is a valuable tool that brings together information and data from a variety of sources to illustrate how 1,4-dioxane has migrated throughout the study area. The CSM has the following components:

- Releases of 1,4-dioxane have occurred on the landfill property, and these releases are undoubtedly related to the disposal of solid waste dating back many decades prior to 1997 when the landfill was closed. Concentrations of 1,4-dioxane are highest at the southern extent of the landfill and are considerably lower in the middle portion of the landfill. 1,4-dioxane has not been detected in the northern-most portion of the landfill.
- Groundwater flow patterns in all zones consistently show flow away from the landfill to the east and south. Surface water bodies (i.e., Minister's Pond and to a lesser extent Moll's Pond) appear to have some influence on shallow flow. The

higher water levels in Minister's Pond may result in localized flow in the shallow zone towards the southwest, between the southern extent of the landfill and Minister's Pond.

- In the northern portion of the study area, groundwater flow from the landfill is overall easterly. Shallow groundwater in the northeastern-most part of the study area appears to be higher than in the north-central area. It is not known why water table elevations around the Spinnaker Way neighborhood appear to be locally elevated. The result of this is that shallow groundwater in the northern portion of the study area may have a southeasterly component of flow.
- Cross sections 3-1 through 3-5 show how 1,4-dioxane from the landfill has migrated towards the east and southeast. The depth of the plume appears to be related to the downward vertical gradients that have been consistently observed. The cross sections show that groundwater in the zones above -80' in the areas east of Schoolhouse Road are not impacted by 1,4-dioxane above the MCP Method 1, GW-1 groundwater standard of 0.3 µg/l.
- In the northern area, the distribution of 1,4-dioxane is less clear than in the southern area. Cross Sections 3-6 and 3-7 suggest either different and unexplained groundwater flow patterns or the possibility of other sources, possibly in the Eldia Way neighborhood.
- The migration and distribution of 1,4-dioxane from the landfill is complicated by two very significant factors:
 - Recirculation – private wells that are completed within the plume emanating from the landfill have been extracting impacted water, and recharging that water into the shallow aquifer via their septic systems for many years. Since 1,4-dioxane is essentially immiscible in water (i.e., it has very high solubility and is not volatile), it typically will stay dissolved in the water as it is used within the home. Hence, recirculation has served to redistribute 1,4-dioxane from deeper zones to shallower zones.
 - Other Sources – it is now well established that 1,4-dioxane is present (sometimes at very significant levels) in a vast array of consumer products ranging from laundry detergents to hand soaps to shampoos. A brief study conducted by ES&M in 2014 showed concentrations of 1,4-dioxane higher in the septic water leaving the home than in the well water entering the home. The only possible explanation for that is the use of consumer products. It is therefore very likely that every home in the study area has contributed to the occurrence of 1,4-dioxane in the aquifer.

Based on the results of the Comprehensive Site Assessment and considering the Conceptual Site Model, we have defined the “practical” limits of the 1,4-dioxane release area as east of the Right of Way (bike path); north of State Highway/Route 6; west of Schoolhouse Road; west of Northwood Road; and south of Glacier Hill Road. We use the term “practical” since it is understood that the 1,4-dioxane plume from the landfill extends east of Schoolhouse Road, but at considerable depth and below the typical groundwater use zones. It is also understood that this outline is not necessarily a hard line, since for example a drinking water sample collected from one private well on the east side of Schoolhouse Road indicated 1,4-dioxane above the MCP Method 1, GW-1

groundwater standard of 0.3 µg/l. The extent of the release(s) from the landfill is based on the information available at this time, subject to refinement as data gaps are addressed, as described below.

As a conservative measure, the Town has identified the outline and boundaries of the of the Mandatory Municipal Water System (MMWS) Zone to include the area defined by practical limits of the 1,4-dioxane release area as described above as well as the area extending to the west side of Nauset Road. As will be described in Section 2.3, all properties within this zone are within the MMWS and are to be connected to the MWS when public water supply service is available in late 2016 and 2017.

2.3 Town of Eastham MWS Policies

The following policies will be implemented by the Town of Eastham to ensure that the objectives of the IRA are met and that the IRA can be closed. In accordance with the MCP, the IRA will be considered complete when the Critical Exposure Pathway (CEP) is eliminated, which will be achieved in this case when all homes in the MMWS Zone are connected to the municipal water supply, to the extent feasible.

As shown on Figure 1, there are many homes/private wells within the MMWS Zone that have not revealed 1,4-dioxane concentrations above the MCP Method 1, GW-1 groundwater standard of 0.3 µg/l.. The MMWS Zone includes all properties within its boundaries as a conservative measure to ensure that all residents have a clean source of drinking water and to avoid future testing requirements. By setting the mandatory zone to a larger area, connections to the MWS are assured and no further actions will be needed on the part of the Town.

2.3.1 Mandatory Connection to MWS

All homes within the defined MMWS Zone must be connected to the water system when it becomes available and the Town is responsible for providing this connection. No further drinking water testing will be performed on residential wells within the MMWS Zone once they are connected to the water system.

2.3.2 Non-Responder Policy

This policy addresses homes inside the MMWS zone. All homes within this zone must connect to the MWS to ensure that the CEP is eliminated. The Town anticipates that some homeowners will not want to connect and be subject to water use fees typical of any public water system. In these cases, the Town will make reasonable efforts to require full compliance. This will allow for the elimination of the CEP *to the extent feasible*.

2.3.3 Irrigation Well Policy

This policy addresses the conversion of current drinking water wells to irrigation wells within the MMWS Zone. Private wells within the MMWS Zone may be converted only

for irrigation use once the residence is connected to the MWS and under the following circumstances:

East of Schoolhouse Road

- The well water has been tested for 1,4 dioxane at least once (using laboratory method EPA 8270D-SIM Isotope Dilution or an alternate method capable of achieving a minimum detection limit of 0.2 µg/l) and the resulting 1,4-dioxane concentration has not exceeded 0.3 µg/l;
- The well depth is documented to be less than 100' deep; and
- A well conversion application is submitted to Eastham Board of Health.

West of Schoolhouse Road and Further than 750' from the Landfill

- Use of private drinking water wells for irrigation outside of the 750' Landfill Buffer Zone, shown on Figure 7, is prohibited; however, residents may apply for a variance to this rule with the Eastham Board of Health.
- In order for a variance request to be considered, the well water must be tested (using laboratory method EPA 8270D-SIM Isotope Dilution or an alternate method capable of achieving a minimum detection limit of 0.2 µg/l) to document that the 1,4-dioxane concentration is not above 0.3 µg/l, and the well depth must be known.
- If a well has not been tested for the presence of 1,4-dioxane and/or the well depth is not known, the homeowner may request that water testing/well measuring be performed by the Town's representative at the homeowner's expense.
- The laboratory testing data and well depth information will be evaluated by ES&M, who will utilize available information to determine whether or not the variance will be approved. Variance approval will only be granted if the 1,4 dioxane concentration is less than 0.3 µg/l and the well is not completed within 40 feet of the top of the 1,4 dioxane plume emanating from the landfill.

Within 750' of the Landfill

- Use of private drinking water wells for irrigation is prohibited. Applications for variances for such wells will not be approved.

2.4 Long Term Monitoring Program

Once all of the residences within the MMWS Zone are connected to municipal water and the private wells in the MMWS Zone with 1,4 dioxane concentrations above 0.3 µg/l are abandoned in accordance with the Town's policies, the IRA will be eligible for completion under the MCP. Annual testing of the permanent sentry wells (ESMW-1 through 4) will be transitioned to the Town's Landfill Monitoring Plan (LMP). A revised LMP will be submitted after (or in conjunction with) the IRA Completion Statement.

2.5 Remediation Waste

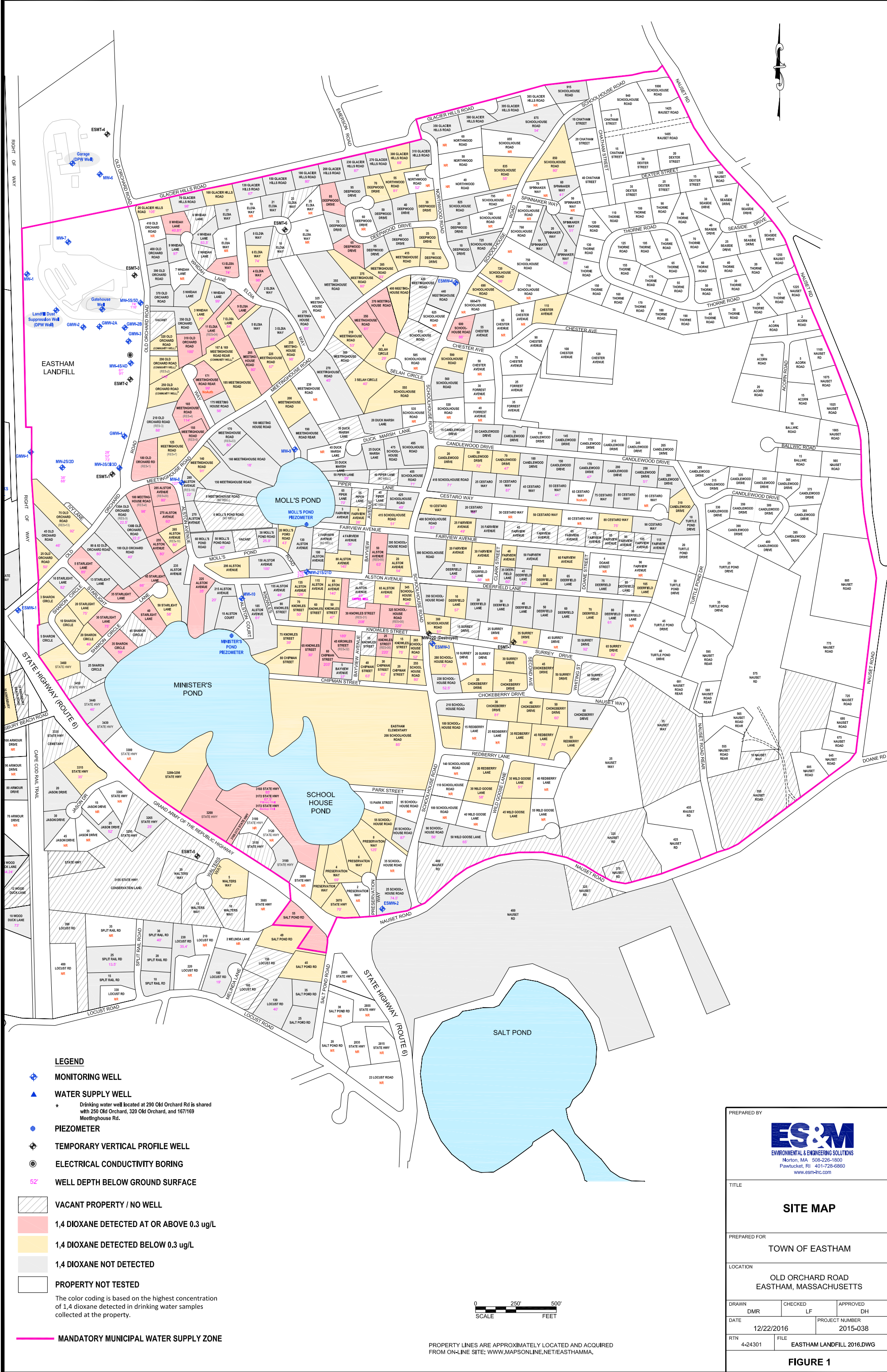
The MCP requires that IRA Plans contain information regarding the management of remedial wastes, such as contaminated soil or media such as spent carbon. No remediation wastes will be generated as a result of the work described herein.

2.6 IRA Permits

No Federal or State permits are required to complete the IRA activities described herein. ES&M has obtained permission from the owners of all properties where drinking water samples have been collected and will obtain permission from the owners of all properties where drinking water samples will be collected in the future.

2.7 Licensed Site Professional

The Licensed Site Professional who prepared this IRA Plan modification is Douglas A. Heely (LSP No. 9632) who has been retained by the Town of Eastham to oversee the IRA. This IRA Plan modification has been prepared in accordance with the MCP, 310 CMR 40.0424.



- LEGEND**
- MONITORING WELL**
 - WATER SUPPLY WELL**
 - PIEZOMETER**
 - TEMPORARY VERTICAL PROFILE WELL**
 - ELECTRICAL CONDUCTIVITY BORING**
 - WELL DEPTH BELOW GROUND SURFACE**
 - VACANT PROPERTY / NO WELL**
 - 1,4 DIOXANE DETECTED AT OR ABOVE 0.3 ug/L**
 - 1,4 DIOXANE DETECTED BELOW 0.3 ug/L**
 - 1,4 DIOXANE NOT DETECTED**
 - PROPERTY NOT TESTED**
- The color coding is based on the highest concentration of 1,4 dioxane detected in drinking water samples collected at the property.
- MANDATORY MUNICIPAL WATER SUPPLY ZONE**

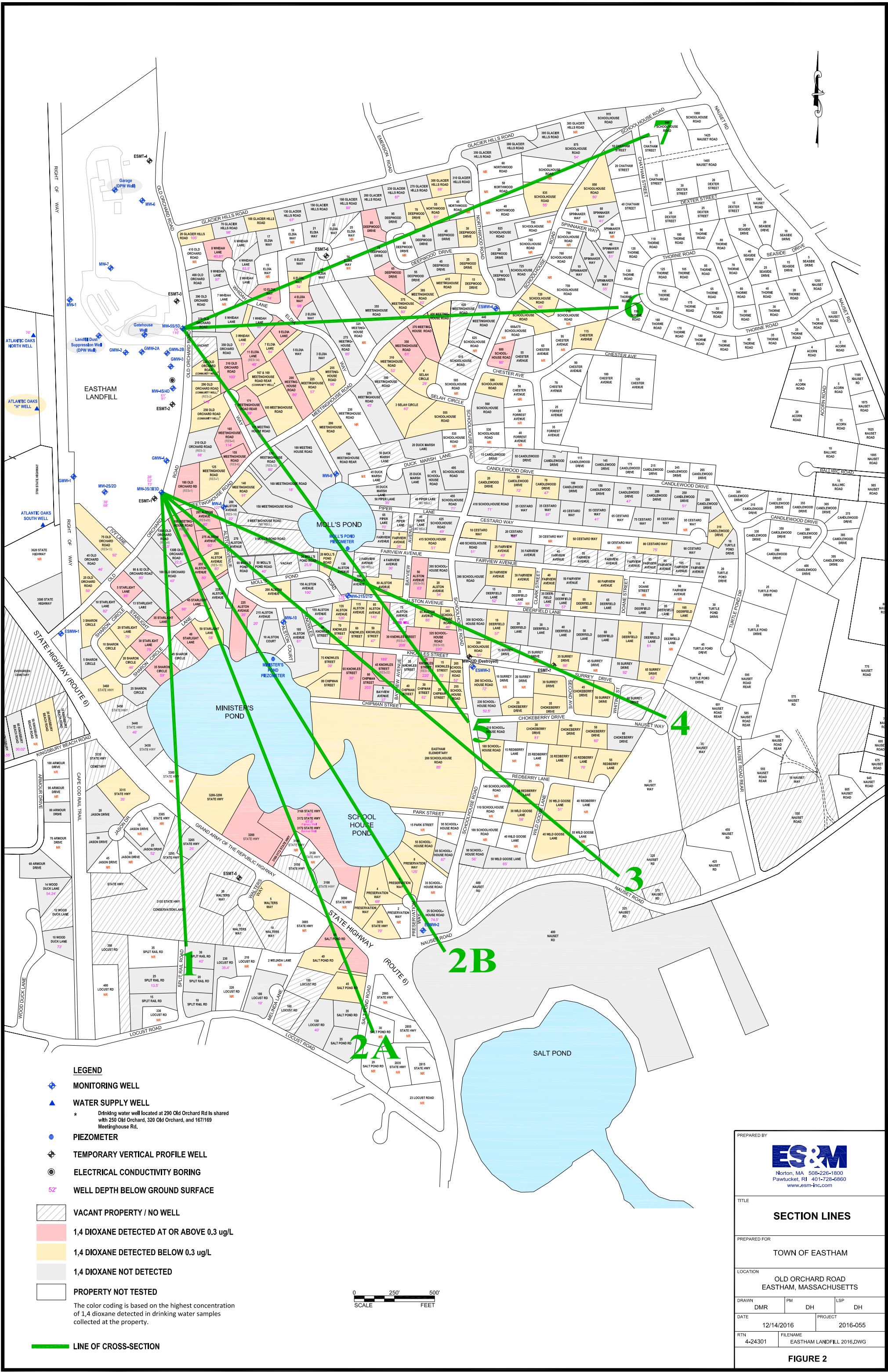
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 PAWTUCKET, RI 401-728-6860
 www.esm-hc.com

TITLE		
SITE MAP		
PREPARED FOR		
TOWN OF EASTHAM		
LOCATION		
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS		
DRAWN	CHECKED	APPROVED
DMR	LF	DH
DATE	PROJECT NUMBER	
12/22/2016	2015-038	
RTN	FILE	
4-24301	EASTHAM LANDFILL 2016.DWG	



PROPERTY LINES ARE APPROXIMATELY LOCATED AND ACQUIRED FROM ON-LINE SITE: WWW.MAPSONLINE.NET/EASTHAMMA.

FIGURE 1



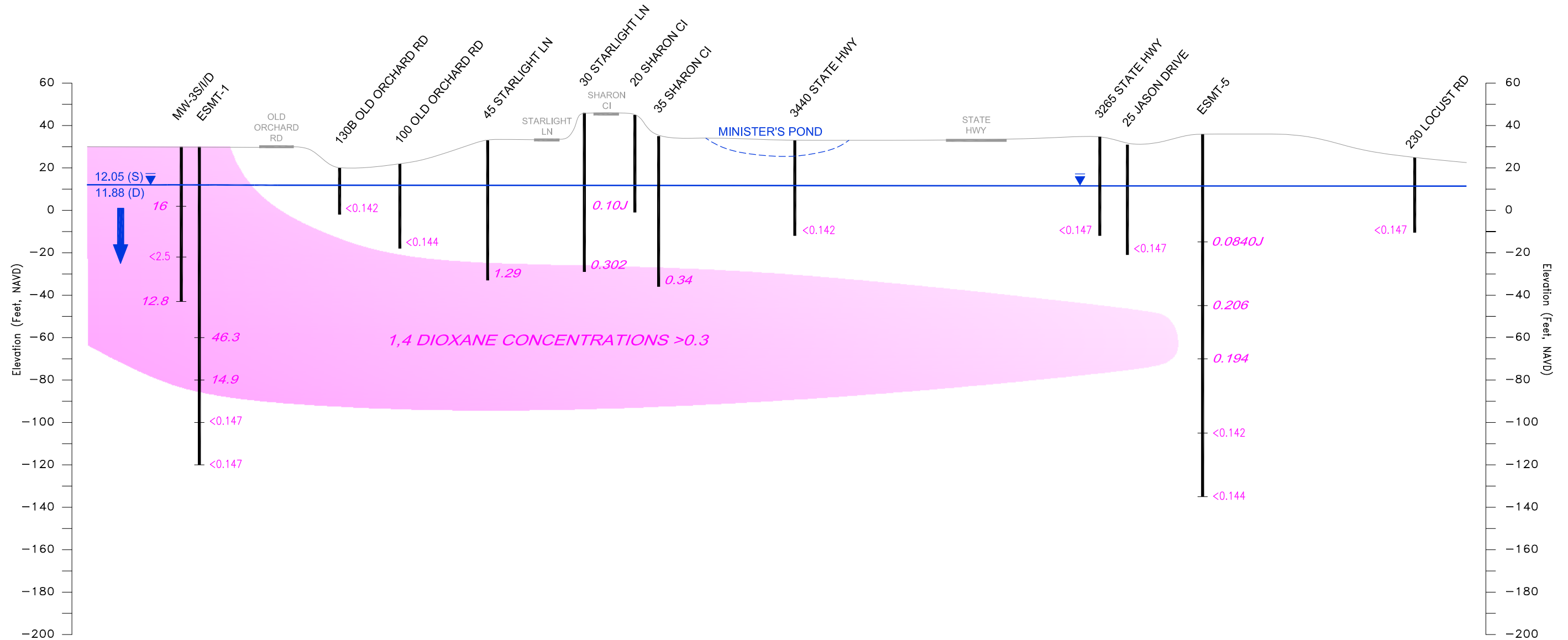
LEGEND

- ◆ MONITORING WELL
 - ▲ WATER SUPPLY WELL
 - * Drinking water well located at 290 Old Orchard Rd is shared with 250 Old Orchard, 320 Old Orchard, and 167/169 Meetinghouse Rd.
 - PIEZOMETER
 - ◆ TEMPORARY VERTICAL PROFILE WELL
 - ELECTRICAL CONDUCTIVITY BORING
 - 52' WELL DEPTH BELOW GROUND SURFACE
 - VACANT PROPERTY / NO WELL
 - 1,4 DIOXANE DETECTED AT OR ABOVE 0.3 ug/L
 - 1,4 DIOXANE DETECTED BELOW 0.3 ug/L
 - 1,4 DIOXANE NOT DETECTED
 - PROPERTY NOT TESTED
- The color coding is based on the highest concentration of 1,4 dioxane detected in drinking water samples collected at the property.
- LINE OF CROSS-SECTION



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TITLE			
SECTION LINES			
PREPARED FOR			
TOWN OF EASTHAM			
LOCATION			
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS			
DRAWN	PM	DH	LSP
DATE	PROJECT		DH
	12/14/2016		2016-055
RTN	FILENAME		
4-24301	EASTHAM LANDFILL 2016.DWG		
FIGURE 2			

SECTION 1



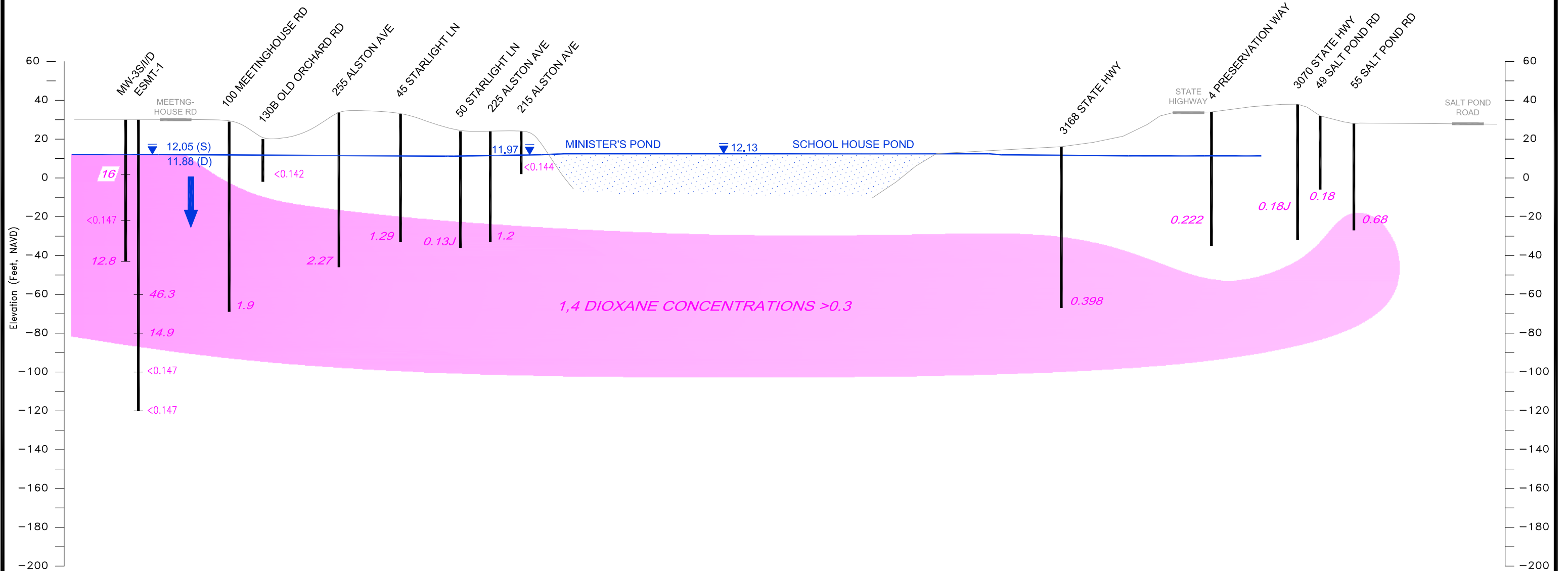
LEGEND

- APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
- WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
- 1.9 1,4 DIOXANE DETECTED IN ug/L
- <0.20 BELOW DETECTION LIMIT
- APPROXIMATE WATER TABLE
- 11.97 WATER TABLE ELEVATION GAUGED 10/30/2014
- VERTICAL GROUNDWATER GRADIENT

50'
250'
Horizontal: 1"=250'
Vertical Exaggeration: 1"=50'

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TITLE		
SECTION 1		
PREPARED FOR		
TOWN OF EASTHAM		
LOCATION		
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS		
DRAWN	PM	LSP
DMR	DH	DH
DATE	PROJECT NUMBER	
12/14/2016	2016-055	
RTN	FILENAME	
4-24301	EASTHAM LANDFILL 2016.DWG	
FIGURE 3-1		

SECTION 2A



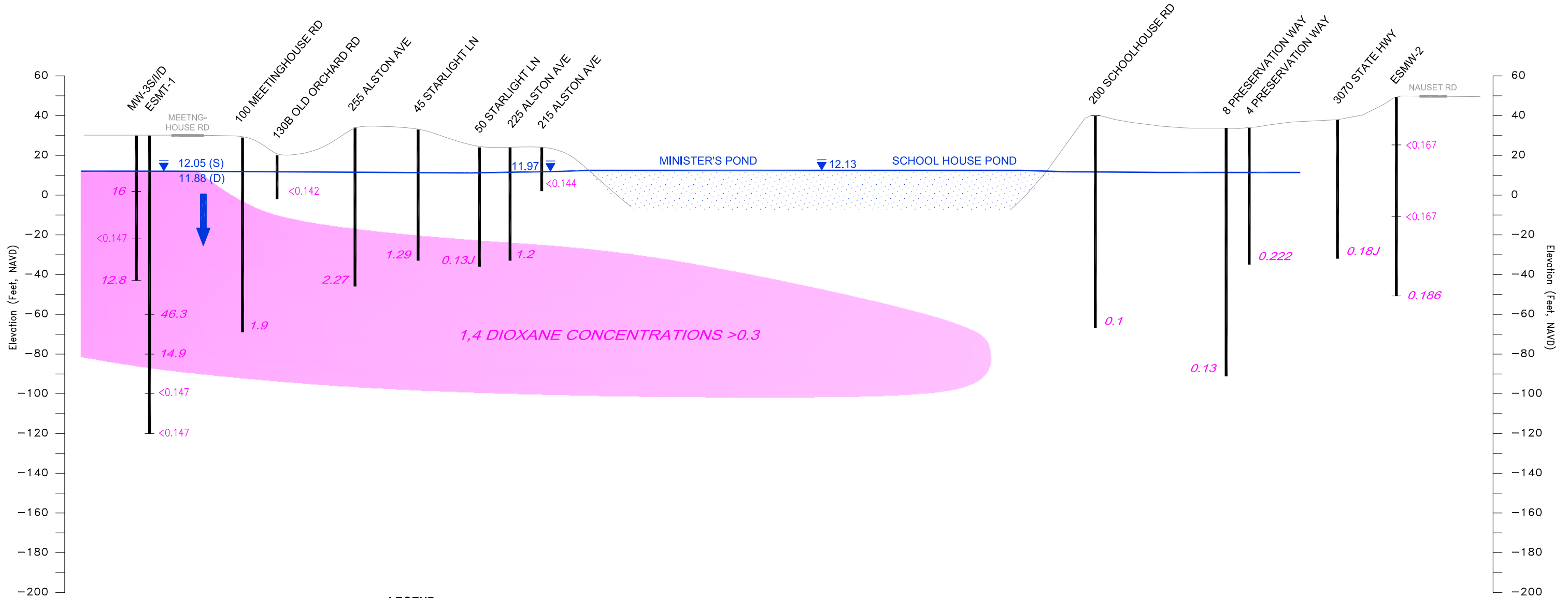
LEGEND

- APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
- WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
- 1.9 1,4 DIOXANE DETECTED IN ug/L
- <0.20 BELOW DETECTION LIMIT
- APPROXIMATE WATER TABLE
- 11.97 WATER TABLE ELEVATION GAUGED 10/30/2014
- VERTICAL GROUNDWATER GRADIENT

50'
250'
Horizontal: 1"=250'
Vertical Exaggeration: 1"=50'

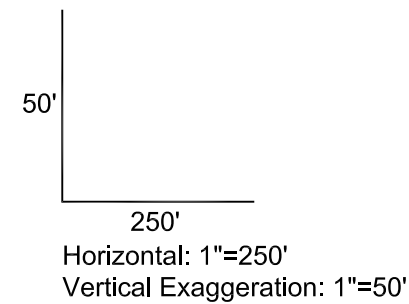
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TITLE			
SECTION 2A			
PREPARED FOR			
TOWN OF EASTHAM			
LOCATION			
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS			
DRAWN	PM	LSP	DH
DMR	DH	DH	
DATE		PROJECT NUMBER	
12/14/2016		2016-055	
RTN	FILENAME		
4-24301	EASTHAM LANDFILL 2016.DWG		
FIGURE 3-2A			

SECTION 2B



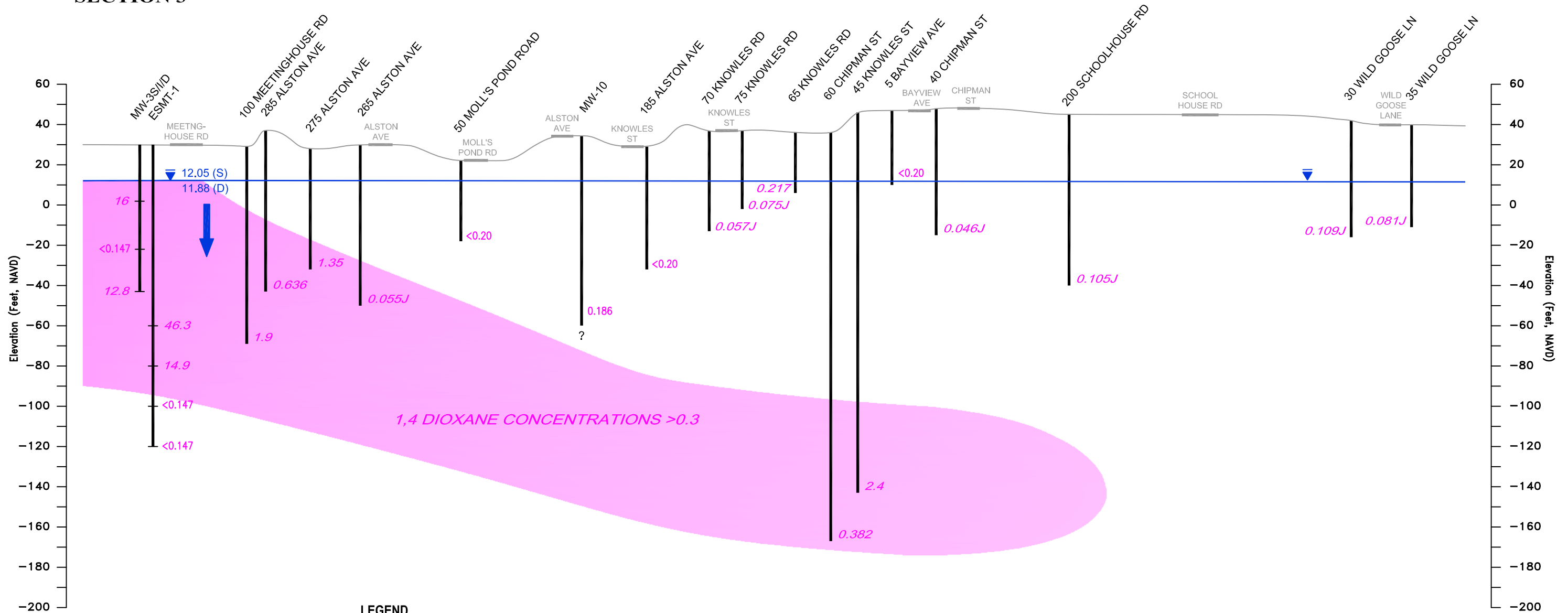
LEGEND

- APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
- WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
- 1.9 1,4 DIOXANE DETECTED IN ug/L
- <0.20 BELOW DETECTION LIMIT
- APPROXIMATE WATER TABLE
- 11.97 WATER TABLE ELEVATION GAUGED 10/30/2014
- VERTICAL GROUNDWATER GRADIENT



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TITLE			
SECTION 2B			
PREPARED FOR			
TOWN OF EASTHAM			
LOCATION			
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS			
DRAWN	PM	LSP	DH
DMR		DH	DH
DATE		PROJECT NUMBER	
12/14/2016		2016-055	
RTN	FILENAME		
4-24301	EASTHAM LANDFILL 2016.DWG		
FIGURE 3-2B			

SECTION 3



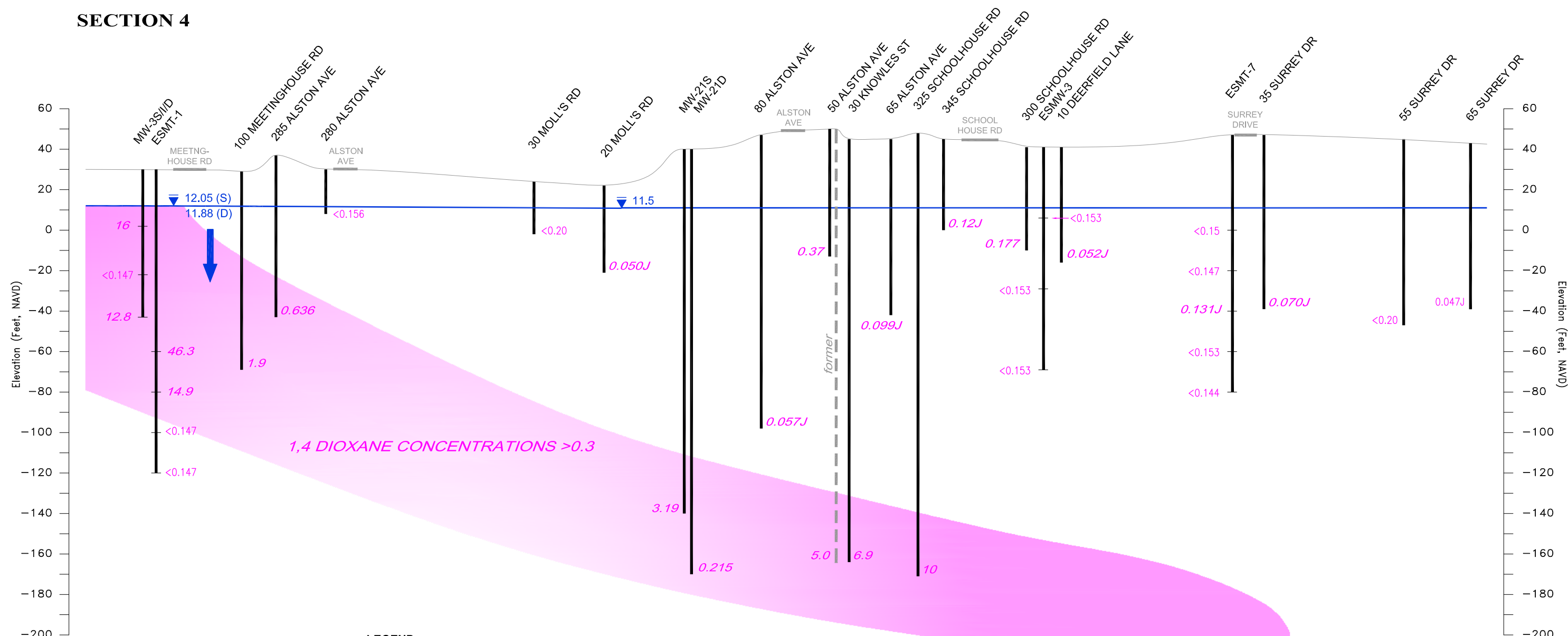
LEGEND

- APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
- WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
- 1.9 1,4 DIOXANE DETECTED IN ug/L
- <0.20 BELOW DETECTION LIMIT
- APPROXIMATE WATER TABLE
- 11.97 WATER TABLE ELEVATION GAUGED 10/30/2014
- VERTICAL GROUNDWATER GRADIENT

50'
250'
Horizontal: 1"=250'
Vertical Exaggeration: 1"=50'

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TITLE		
SECTION 3		
PREPARED FOR		
TOWN OF EASTHAM		
LOCATION		
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS		
DRAWN	PM	LSP
DMR	DH	DH
DATE	PROJECT NUMBER	
12/14/2016	2016-055	
RTN	FILENAME	
4-24301	EASTHAM LANDFILL 2016.DWG	
FIGURE 3-3		

SECTION 4



1,4 DIOXANE CONCENTRATIONS > 0.3

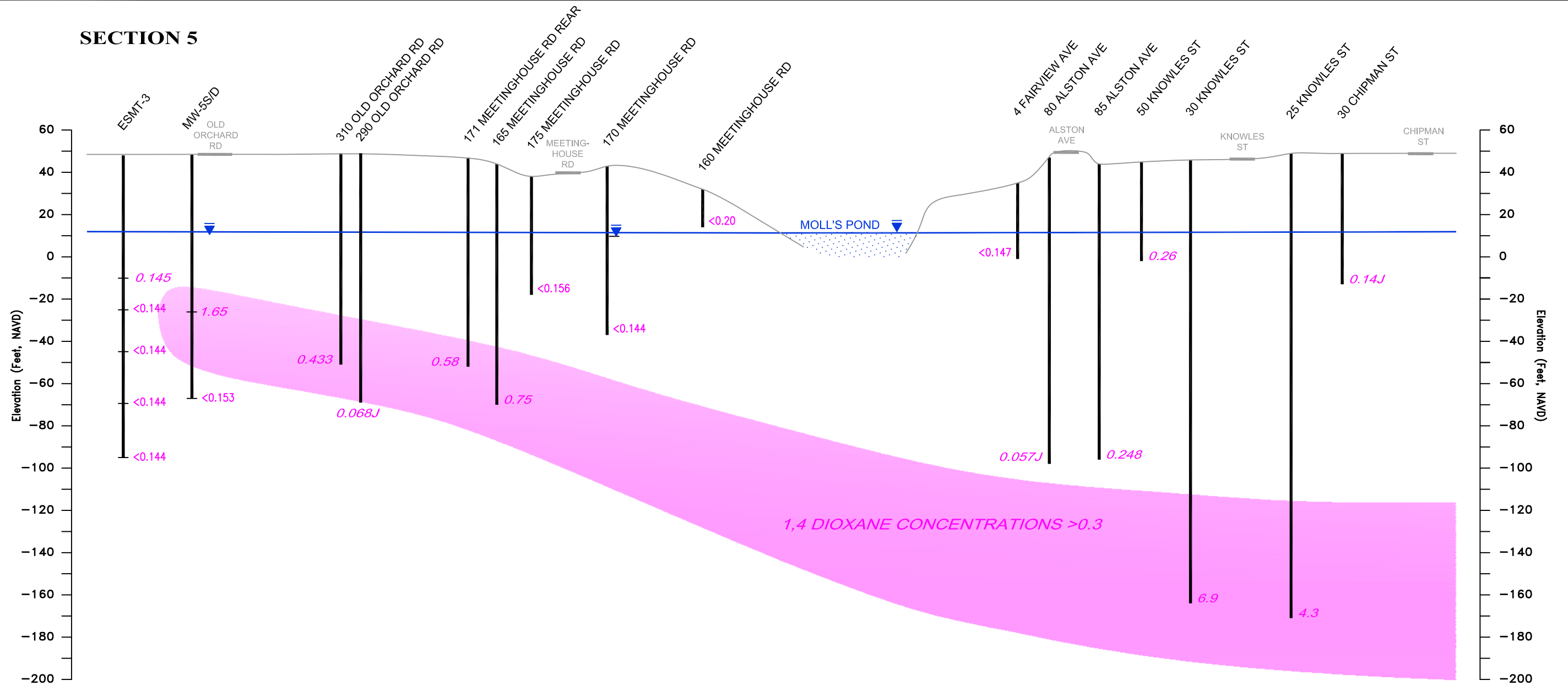
LEGEND

- APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
- WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
- 1.9 1,4 DIOXANE DETECTED IN ug/L
- <0.20 BELOW DETECTION LIMIT
- APPROXIMATE WATER TABLE
- 11.97 WATER TABLE ELEVATION GAUGED 10/30/2014
- VERTICAL GROUNDWATER GRADIENT

50'
250'
Horizontal: 1"=250'
Vertical Exaggeration: 1"=50'

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TITLE			
SECTION 4			
PREPARED FOR			
TOWN OF EASTHAM			
LOCATION			
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS			
DRAWN	PM	LSP	DH
DMR	DH		
DATE		PROJECT NUMBER	
12/14/2016		2016-055	
RTN	FILENAME		
4-24301	EASTHAM LANDFILL 2016.DWG		
FIGURE 3-4			

SECTION 5



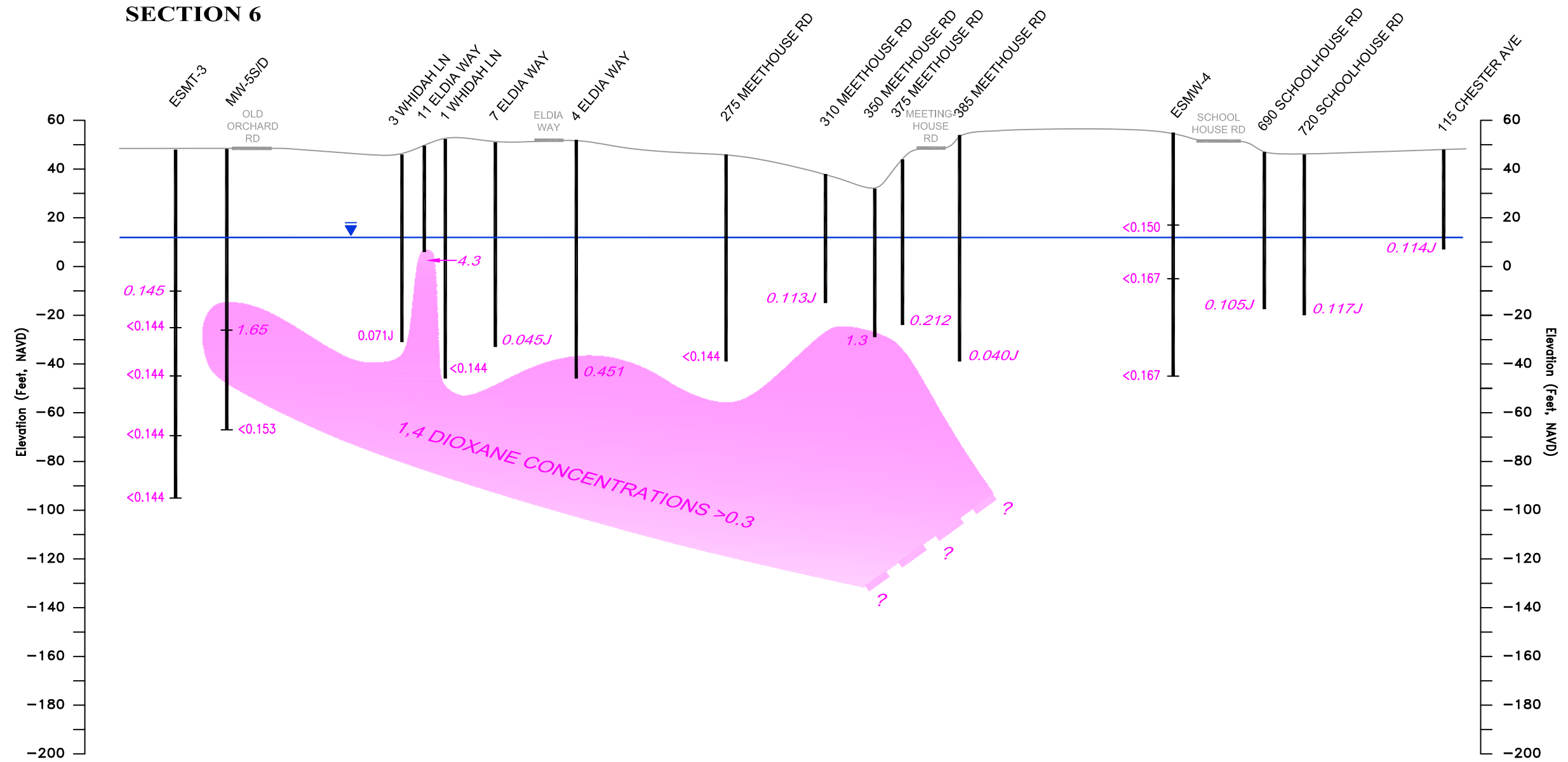
LEGEND

- APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
- WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
- 1.9 1,4 DIOXANE DETECTED IN ug/L
- <0.20 BELOW DETECTION LIMIT
- APPROXIMATE WATER TABLE

50'
250'
Horizontal: 1"=250'
Vertical Exaggeration: 1"=50'

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TITLE		
SECTION 5		
PREPARED FOR		
TOWN OF EASTHAM		
LOCATION		
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS		
DRAWN	PM	LSP
DMR	DH	DH
DATE	PROJECT NUMBER	
12/14/2016	2016-055	
RTN	FILENAME	
4-24301	EASTHAM LANDFILL 2016.DWG	
FIGURE 3-5		

SECTION 6



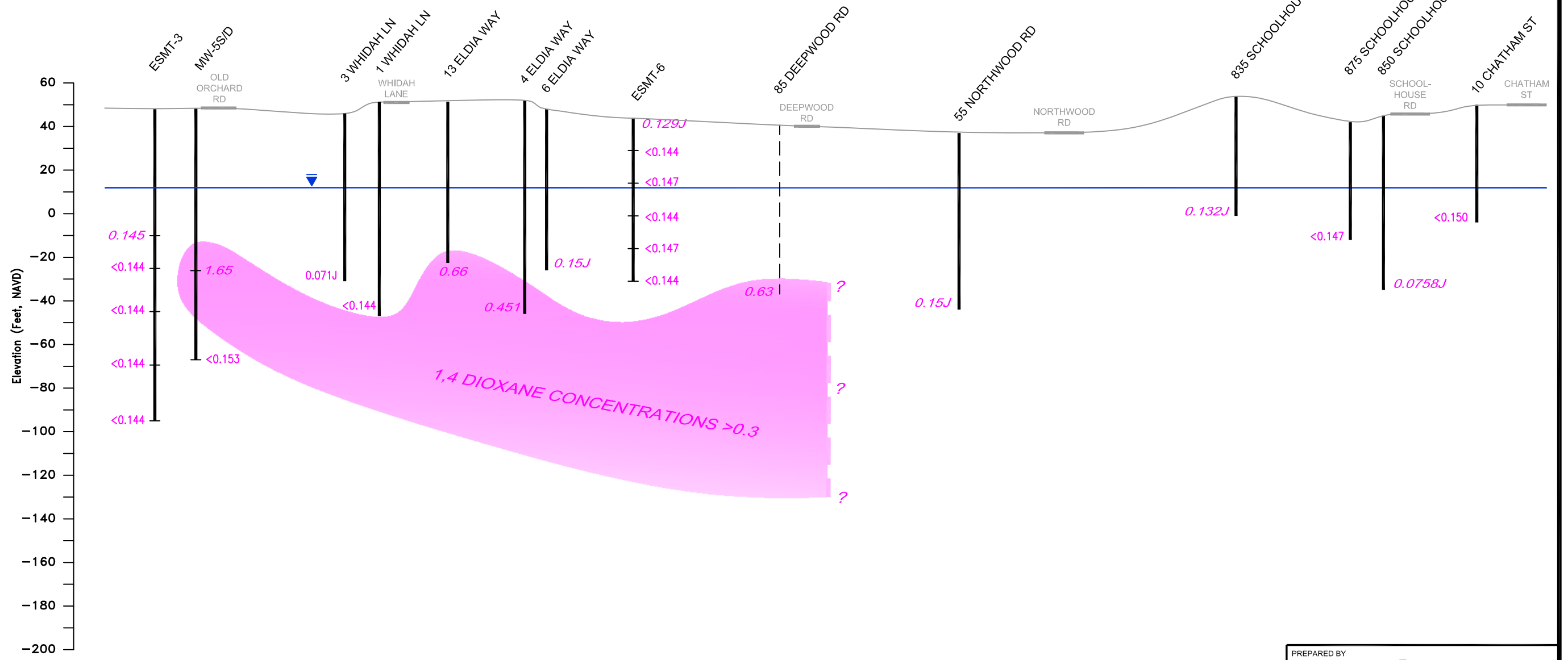
LEGEND

- APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
- WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
- 1.9 1,4 DIOXANE DETECTED IN ug/L
- <0.20 BELOW DETECTION LIMIT
- APPROXIMATE WATER TABLE

50'
250'
Horizontal: 1"=250'
Vertical Exaggeration: 1"=50'

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TITLE			
SECTION 6			
PREPARED FOR			
TOWN OF EASTHAM			
LOCATION			
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS			
DRAWN	PM	LSP	DH
DMR	DH		
DATE		PROJECT NUMBER	
12/14/2016		2016-055	
RTN	FILENAME		
4-24301	EASTHAM LANDFILL 2016.DWG		
FIGURE 3-6			

SECTION 7

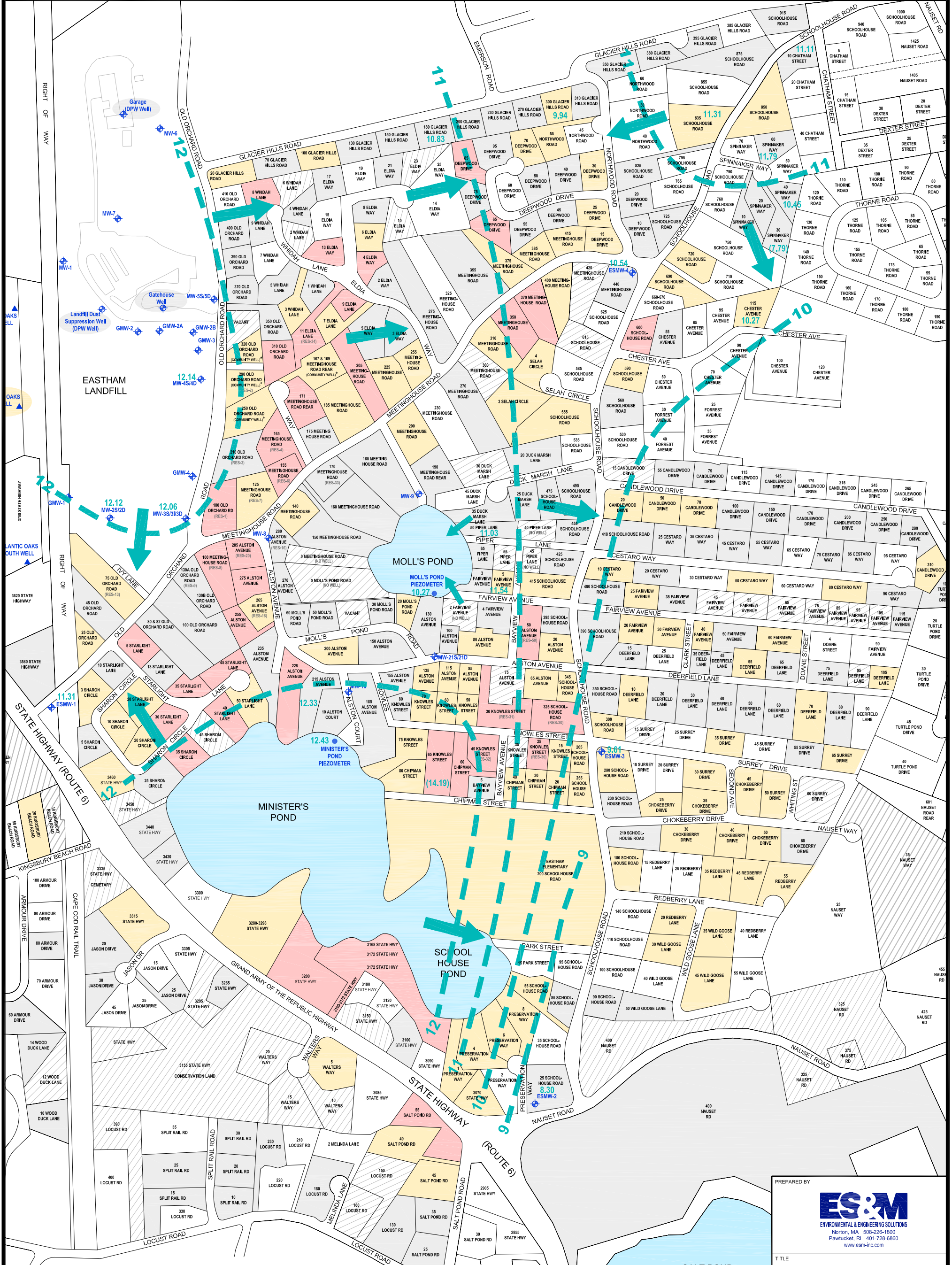


LEGEND

APPROXIMATE WELL LOCATION AND DEPTH ON PROPERTY INDICATED
 WELL DEPTH AND SURFACE ELEVATION NOT KNOWN
1.9 1,4 DIOXANE DETECTED IN ug/L
<0.20 BELOW DETECTION LIMIT
 APPROXIMATE WATER TABLE

50'
 250'
 Horizontal: 1"=250'
 Vertical Exaggeration: 1"=50'

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TITLE		
SECTION 7		
PREPARED FOR		
TOWN OF EASTHAM		
LOCATION		
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS		
DRAWN	PM	LSP
DMR	DH	DH
DATE	PROJECT NUMBER	
12/15/2016	2016-055	
RTN	FILENAME	
4-24301	EASTHAM LANDFILL 2016.DWG	
FIGURE 3-7		



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TITLE
 WATER TABLE ELEVATION
 CONTOUR MAP
 DECEMBER 10, 2015

PREPARED FOR
 TOWN OF EASTHAM

LOCATION
 OLD ORCHARD ROAD
 EASTHAM, MASSACHUSETTS

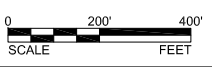
DRAWN DMR	CHECKED LF	APPROVED DH
DATE 12/14/2016	PROJECT NUMBER 2015-038	
RTN 4-24301	FILE EASTHAM LANDFILL 2016.DWG	

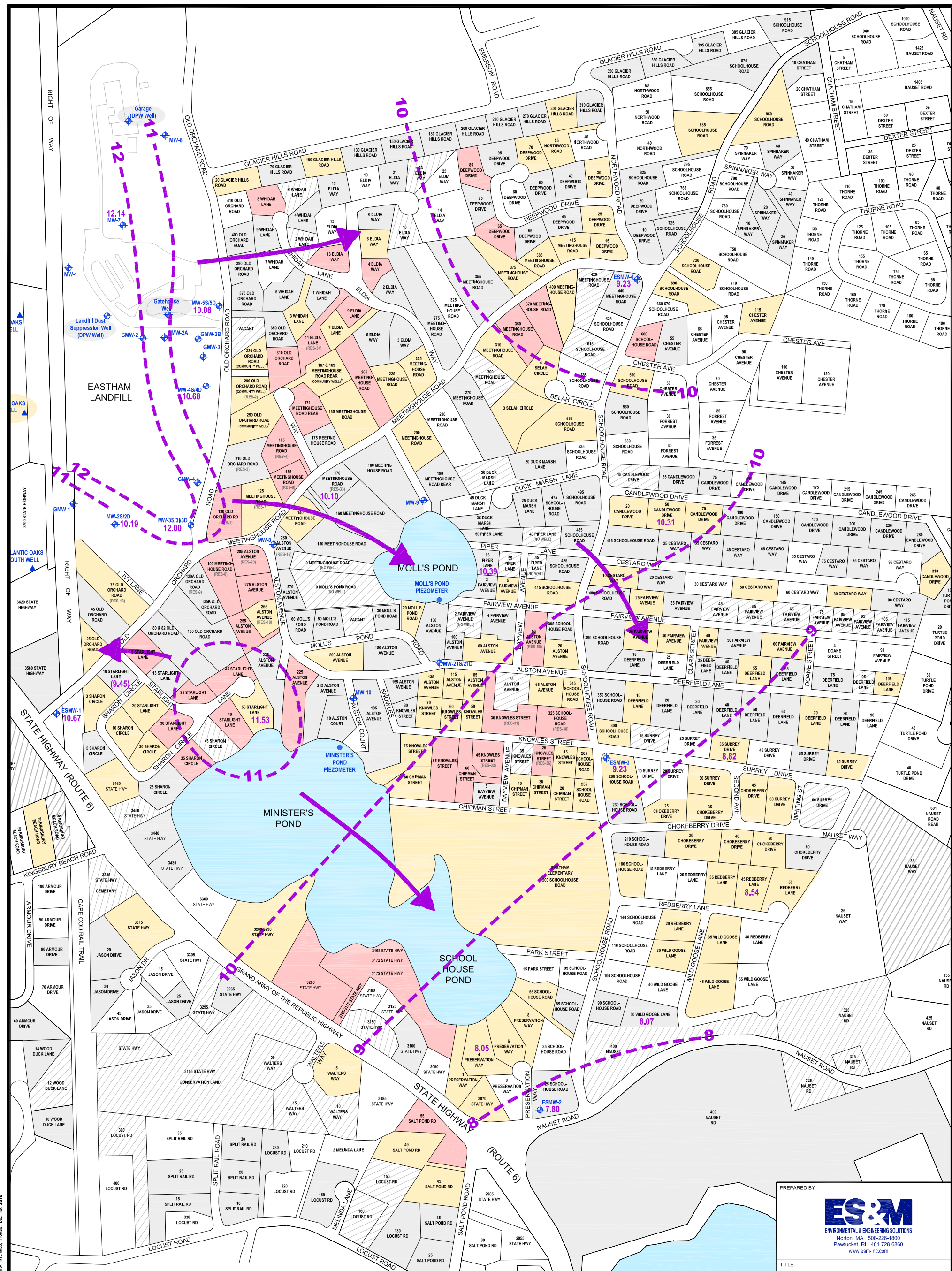
FIGURE 4

LEGEND

- MONITORING WELL**
- WATER SUPPLY WELL**
- PIEZOMETER**
- TEMPORARY VERTICAL PROFILE WELL**
- ELECTRICAL CONDUCTIVITY BORING**
- WELL DEPTH BELOW GROUND SURFACE**
- VACANT PROPERTY / NO WELL**

- 12.33 WATER TABLE ELEVATION**
 - INFERRED WATER TABLE CONTOUR (DATA NOT USED IN PARENTHESES)**
 - APPROXIMATE SHALLOW GROUNDWATER FLOW DIRECTION**
 - 1,4 DIOXANE DETECTED AT OR ABOVE 0.3 ug/L**
 - 1,4 DIOXANE DETECTED BELOW 0.3 ug/L**
 - 1,4 DIOXANE NOT DETECTED**
 - PROPERTY NOT TESTED**
- The color coding is based on the highest concentration of 1,4 dioxane detected in drinking water samples collected at the property.





LEGEND

- ◆ MONITORING WELL
- ▲ WATER SUPPLY WELL
- PIEZOMETER
- ◆ TEMPORARY VERTICAL PROFILE WELL
- ⊙ ELECTRICAL CONDUCTIVITY BORING
- 52' WELL DEPTH BELOW GROUND SURFACE
- ▨ VACANT PROPERTY / NO WELL

* Drinking water well located at 290 Old Orchard Rd is shared with 250 Old Orchard, 320 Old Orchard, and 167/169 Meetinghouse Rd.

10.31 POTENTIOMETRIC SURFACE ELEVATION (INTERMEDIATE ZONE)

--- POTENTIOMETRIC SURFACE CONTOUR (INTERMEDIATE ZONE)

→ APPROXIMATE GROUNDWATER FLOW DIRECTION -10' TO -40' INTERVAL

1,4 DIOXANE DETECTED AT OR ABOVE 0.3 ug/L

1,4 DIOXANE DETECTED BELOW 0.3 ug/L

1,4 DIOXANE NOT DETECTED

PROPERTY NOT TESTED

The color coding is based on the highest concentration of 1,4 dioxane detected in drinking water samples collected at the property.

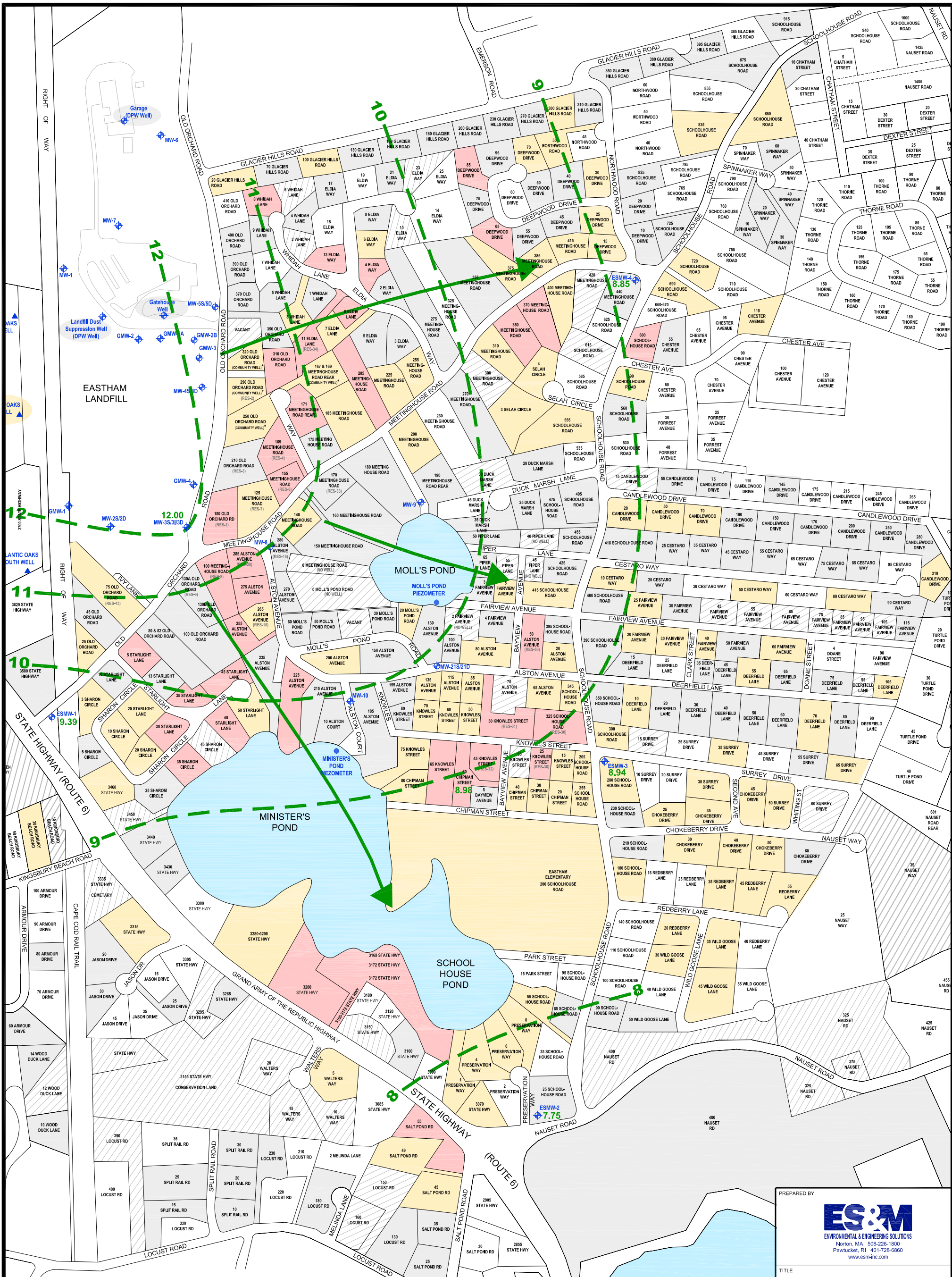
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 www.esm-inc.com

**POTENTIOMETRIC SURFACE
 CONTOUR MAP
 INTERMEDIATE ZONE
 DECEMBER 10, 2015**

PREPARED FOR TOWN OF EASTHAM		
LOCATION OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS		
DRAWN DMR	CHECKED LF	APPROVED DH
DATE 12/14/2016	PROJECT NUMBER 2015-038	
RTN 4-24301	FILE EASTHAM LANDFILL 2016.DWG	

FIGURE 5





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POTENTIOMETRIC SURFACE CONTOUR MAP DEEP ZONE DECEMBER 10, 2015			
PREPARED FOR TOWN OF EASTHAM			
LOCATION OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS			
DRAWN DMR	CHECKED LF	APPROVED DH	
DATE 12/14/2016		PROJECT NUMBER 2015-038	
RTN 4-24301	FILE EASTHAM LANDFILL 2016.DWG		
FIGURE 6			

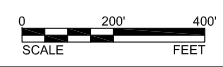
LEGEND

- MONITORING WELL
- WATER SUPPLY WELL
- PIEZOMETER
- TEMPORARY VERTICAL PROFILE WELL
- ELECTRICAL CONDUCTIVITY BORING
- WELL DEPTH BELOW GROUND SURFACE
- VACANT PROPERTY / NO WELL

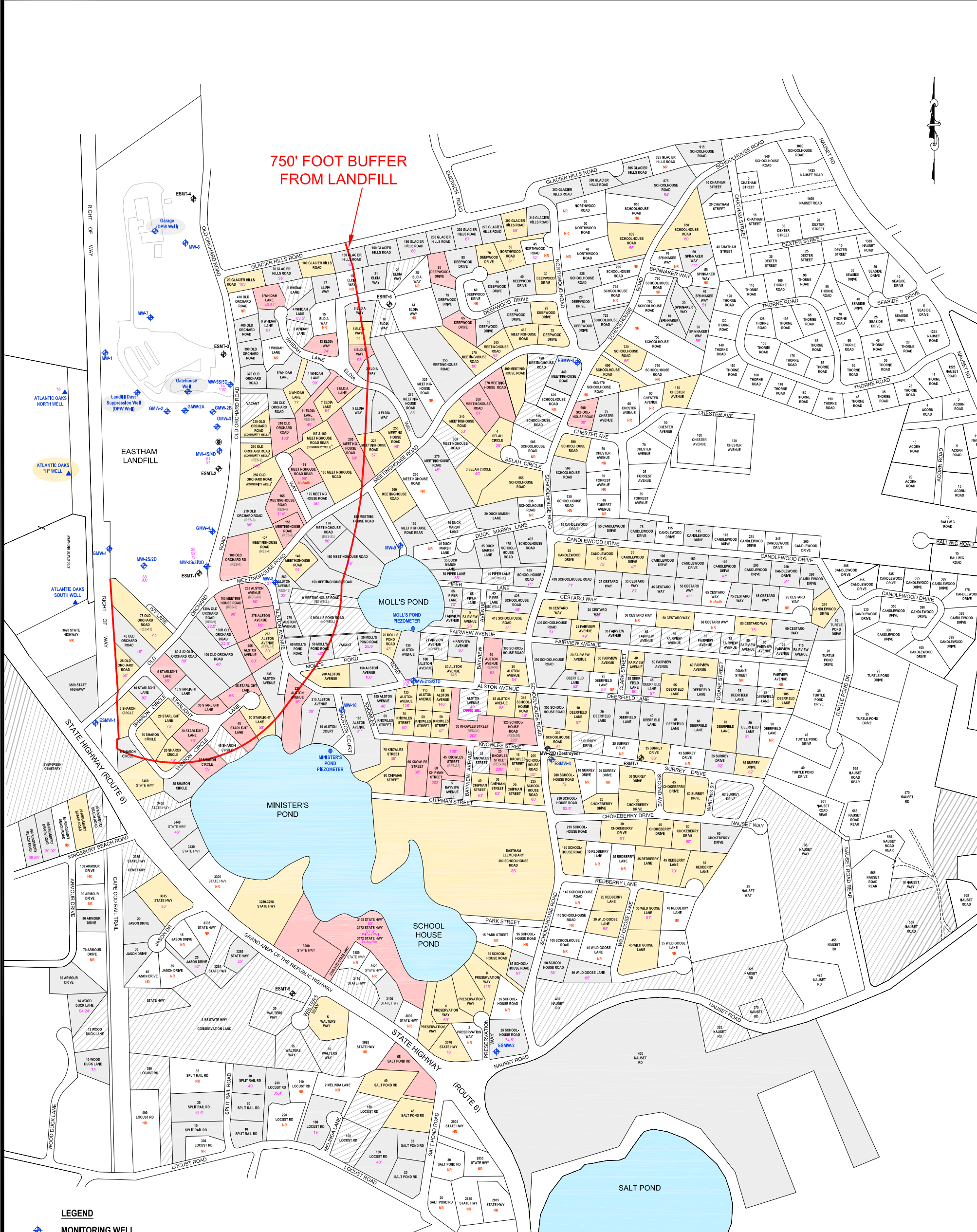
- 8.98 POTENTIOMETRIC SURFACE ELEVATION (DEEP ZONE)
- INFERRED POTENTIOMETRIC SURFACE CONTOUR (DEEP ZONE)
- APPROXIMATE GROUNDWATER FLOW DIRECTION -10' TO 10' INTERVAL

- 1,4 DIOXANE DETECTED AT OR ABOVE 0.3 ug/L
- 1,4 DIOXANE DETECTED BELOW 0.3 ug/L
- 1,4 DIOXANE NOT DETECTED
- PROPERTY NOT TESTED

The color coding is based on the highest concentration of 1,4 dioxane detected in drinking water samples collected at the property.



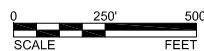
750' FOOT BUFFER FROM LANDFILL



LEGEND

- MONITORING WELL
- WATER SUPPLY WELL
- PIEZOMETER
- TEMPORARY VERTICAL PROFILE WELL
- ELECTRICAL CONDUCTIVITY BORING
- WELL DEPTH BELOW GROUND SURFACE
- VACANT PROPERTY / NO WELL
- 1,4 DIOXANE DETECTED AT OR ABOVE 0.3 ug/L
- 1,4 DIOXANE DETECTED BELOW 0.3 ug/L
- 1,4 DIOXANE NOT DETECTED
- PROPERTY NOT TESTED

The color coding is based on the highest concentration of 1,4 dioxane detected in drinking water samples collected at the property.



PROPERTY LINES ARE APPROXIMATELY LOCATED AND ACQUIRED FROM ON-LINE SITE: WWW.MAPSONLINE.NET/EASTHAMMA.

PREPARED BY			
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TITLE			
SITE MAP WITH 750' LANDFILL BUFFER ZONE			
PREPARED FOR			
TOWN OF EASTHAM			
LOCATION			
OLD ORCHARD ROAD EASTHAM, MASSACHUSETTS			
DRAWN	PM	DH	LSP
DATE	PROJECT		
12/14/2016	2016-055		
RTN	FILENAME		
4-24301	EASTHAM LANDFILL 2016.DWG		
FIGURE 7			

**TABLE 1
SUMMARY OF
PRIVATE WELL SAMPLING PROGRAM ANALYTICAL RESULTS
1,4 DIOXANE
Residential Drinking Water Wells
Eastham, MA
(All results in ug/l)**

Property	Date	Duplicate	1,4 Dioxane
Study Area Samples			
20 ALSTON AVENUE	2/22/2013		0.18J
50 ALSTON AVENUE	3/2/2015		0.278
	3/2/2015	Duplicate	0.264
	4/14/2014		0.218
	4/14/2014	Duplicate	0.210
	9/18/2013		0.37
	7/25/2013		0.18J
	6/27/2013		0.18J
	5/29/2013		0.20
	5/1/2013		0.18J
	3/14/2013		0.20
	3/4/2013		0.23
	3/4/2013		0.23
	2/14/2013		5.1
	2/14/2013	Duplicate	5.0
65 ALSTON AVENUE	3/24/2014		0.0813J
	2/19/2013		0.099J
80 ALSTON AVENUE	3/28/2014		<0.150
	8/27/2013		0.057J
	2/11/2013		<0.20
85 ALSTON AVENUE	10/26/2016		<0.147
	7/21/2016		0.168
	7/21/2016	Duplicate	0.184
	5/13/2016		0.135J
	2/12/2016		0.125J
	11/11/2015		0.130J
	8/12/2015		0.175
	8/12/2015	Duplicate	0.194
	5/13/2015		0.207
	5/13/2015	Duplicate	0.196
	2/13/2015		0.163
	11/20/2014		0.248
	11/20/2014	Duplicate	0.236
	5/5/2014		0.236
	5/5/2014	Duplicate	0.210
	2/12/2013		0.20
100 ALSTON AVENUE	2/11/2013		<0.20
115 ALSTON AVENUE	7/22/2013		0.12J
130 ALSTON AVENUE	2/19/2013		<0.20
135 ALSTON AVENUE	2/11/2013		0.11J
150 ALSTON AVENUE	2/15/2013		<0.20
155 ALSTON AVENUE	2/11/2013		<0.20
185 ALSTON AVENUE	2/14/2013		<0.20
200 ALSTON AVENUE	7/21/2016		<0.144
	5/9/2014		<0.144
	12/2/2013		0.15J
	5/1/2013		0.21
215 ALSTON AVENUE	7/31/2014		<0.144
	2/12/2013		<0.20

4Q2016

Notes: NS - Not Sampled
 J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
 B - Analyte detected in Blank and Sample
 L - LCS or LCSD exceeded the control limits. Results may be biased high.
 GW-1 Standard and ORSG for 1,4 dioxane is 0.3 ug/L



Property	Date	Duplicate	1,4 Dioxane	
225 ALSTON AVENUE	5/6/2014		0.350	
	5/6/2014	Duplicate	0.365	
	4/29/2013		1.2	
235 ALSTON AVENUE	8/5/2014		<0.142	
	7/31/2013		<0.20	
255 ALSTON AVENUE	Inf 2/13/2015		2.14	
	Inf 1/23/2015		2.13	
	Inf 11/19/2014		2.27	
	Inf 8/3/2014		2.03	
	Inf 6/19/2014		2.12	
	8/27/2013		1.8	
	5/6/2013		1.8	
	5/6/2013	Duplicate	1.5	
	2/14/2013		1.9	
	2/14/2013	Duplicate	1.8	
265 ALSTON AVENUE	5/12/2016		<0.147	
	4/1/2015		<0.148	
	3/28/2014		<0.139	
	12/18/2013		<0.20	
	3/14/2013		0.055J	
270 ALSTON AVENUE	8/4/2014		<0.142	
	2/11/2013		<0.20	
275 ALSTON AVENUE	7/17/2014		1.28	
	7/17/2014	Duplicate	1.35	
	5/16/2013		1.3	
280 ALSTON AVENUE	5/16/2013	Duplicate	0.99	
	5/12/2016		<0.147	
285 ALSTON AVENUE	5/13/2015		<0.156	
	12/17/2014		<0.142	
	12/18/2013		<0.20	
	2/22/2013		<0.20	
	9/18/2014		0.416	
	3/14/2014		0.636	
10 ALSTON COURT	11/20/2013		0.51	
	5/8/2013		0.35	
	2/22/2013		0.37	
	2/22/2013	Duplicate	0.33	
	2/14/2013		<0.20	
60 ARMOUR DRIVE	10/26/2016		<0.147	4Q2016
80 ARMOUR DRIVE	10/26/2016		<0.147	4Q2016
ATLANTIC OAKS 'H' WELL	7/21/2016		0.0778J	
	7/25/2013		<0.20	
ATLANTIC OAKS NORTH WELL	7/21/2016		<0.156	
	7/25/2013		<0.20	
ATLANTIC OAKS-SOUTH WELL	7/21/2016		<0.147	
	7/23/2013		<0.20	
5 BAYVIEW AVENUE	8/1/2014		<0.147	
	2/25/2013		<0.20	
20 CANDLEWOOD DRIVE	5/29/2013		0.056J	
50 CANDLEWOOD DRIVE	5/3/2013		0.092J	
55 CANDLEWOOD DRIVE	7/25/2013		<0.20	
70 CANDLEWOOD DRIVE	5/3/2013		0.073J	
75 CANDLEWOOD DRIVE	7/17/2014		<0.147	
100 CANDLEWOOD DRIVE	5/3/2013		<0.20	
145 CANDLEWOOD DRIVE	5/2/2013		<0.20	
150 CANDLEWOOD DRIVE	5/2/2013		<0.20	
170 CANDLEWOOD DRIVE	7/25/2013		<0.20	
200 CANDLEWOOD DRIVE	5/8/2013		<0.20	
250 CANDLEWOOD DRIVE	5/7/2013		<0.20	

Notes: NS - Not Sampled
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GW-1 Standard and ORSG for 1,4 dioxane is 0.3 ug/L



Property	Date	Duplicate	1,4 Dioxane
280 CANDLEWOOD DRIVE	5/6/2013		<0.20
310 CANDLEWOOD DRIVE	9/19/2014		<0.15
	4/30/2013		0.060J
10 CESTARO WAY	4/30/2013		0.11J
20 CESTARO WAY	5/2/2013		<0.20
25 CESTARO WAY	12/3/2013		<0.20
35 CESTARO WAY	4/30/2013		<0.20
45 CESTARO WAY	5/2/2013		<0.20
50 CESTARO WAY	5/6/2013		0.077J
55 CESTARO WAY	5/2/2013		<0.20
75 CESTARO WAY	5/6/2013		<0.20
80 CESTARO WAY	2/21/2013		0.061J
85 CESTARO WAY	12/3/2013		<0.20
90 CESTARO WAY	5/2/2013		<0.20
10 CHATHAM STREET	10/6/2015		<0.150
55 CHESTER AVE	1/30/2015		<0.144
115 CHESTER AVENUE	10/5/2015		0.114J
20 CHIPMAN STREET	7/25/2013		0.041J
30 CHIPMAN STREET	3/27/2014		0.0969J
	2/11/2013		0.14J
40 CHIPMAN STREET	6/26/2014		<0.139
	7/31/2013		0.046J
60 CHIPMAN STREET	5/8/2014		0.382
	5/8/2014	Duplicate	0.341
	12/6/2013		0.27
	12/6/2013	Duplicate	0.30
	4/30/2013		0.29
80 CHIPMAN STREET	2/15/2013		0.047J
25 CHOKEBERRY DRIVE	12/2/2013		0.15J
30 CHOKEBERRY DRIVE	5/7/2013		0.17J
35 CHOKEBERRY DRIVE	5/3/2013		0.050J
40 CHOKEBERRY DRIVE	5/2/2013		0.069J
45 CHOKEBERRY DRIVE	5/16/2013		0.11J
50 CHOKEBERRY DRIVE	5/10/2013		0.058J
60 CHOKEBERRY DRIVE	4/11/2014		<0.142
10 DEEPWOOD DR	1/30/2015		<0.142
15 DEEPWOOD DRIVE	9/17/2013		0.051J
20 DEEPWOOD DRIVE	5/29/2015		<0.147
25 DEEPWOOD DRIVE	2/12/2016		<0.147
	11/11/2015		<0.150
	7/30/2013		0.073J
30 DEEPWOOD DRIVE	7/31/2013		0.040J
40 DEEPWOOD DRIVE	7/24/2013		<0.20
45 DEEPWOOD DRIVE	7/24/2013		<0.20
50 DEEPWOOD DRIVE	1/23/2015		<0.150
	12/3/2013		<0.20
55 DEEPWOOD DRIVE	8/25/2014		<0.139
	7/25/2013		<0.20
65 DEEPWOOD DRIVE	3/17/2015		0.481
	3/28/2014		0.297
	3/28/2014	Duplicate	0.336
	7/30/2013		0.29
	7/30/2013	Duplicate	0.24
70 DEEPWOOD DRIVE	7/30/2013		0.073J
75 DEEPWOOD DRIVE	8/1/2014		<0.144
	7/30/2013		<0.20
85 DEEPWOOD DRIVE	9/17/2013		0.63
95 DEEPWOOD DRIVE	3/17/2015		<0.158
	12/3/2013		<0.20

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Property	Date	Duplicate	1,4 Dioxane
10 DEERFIELD LANE	5/1/2013		0.052J
15 DEERFIELD LANE	4/30/2013		<0.20
20 DEERFIELD LANE	5/8/2013		<0.20
30 DEERFIELD LANE	7/22/2013		<0.20
35 DEERFIELD LANE	2/25/2013		<0.20
40 DEERFIELD LANE	5/1/2013		<0.20
45 DEERFIELD LANE	5/2/2013		<0.20
50 DEERFIELD LANE	5/3/2013		<0.20
55 DEERFIELD LANE	4/29/2013		0.062J
60 DEERFIELD LANE	5/6/2013		<0.20
65 DEERFIELD LANE	5/6/2013		<0.20
70 DEERFIELD LANE	5/8/2013		0.048J
75 DEERFIELD LANE	7/25/2013		<0.20
80 DEERFIELD LANE	5/1/2013		<0.20
105 DEERFIELD LANE	5/8/2013		0.067J
DPW GARAGE	2/7/2014		<0.20
GATEHOUSE AT TRANSFER STATION	2/11/2014		<0.20
DPW NON-POTABLE WELL	2/25/2013		<0.20
20 DUCKMARSH LANE	4/30/2013		<0.20
25 DUCKMARSH LANE	5/2/2013		<0.20
35 DUCK MARSH LANE	12/6/2013		<0.20
2 ELDIA WAY	8/4/2014		<0.142
	8/2/2013		<0.20
3 ELDIA WAY	5/3/2013		<0.20
4 ELDIA WAY	8/4/2014		<0.144
	5/7/2014		0.451
	5/7/2014	Duplicate	0.449
	5/8/2013		0.089J
5 ELDIA WAY	1/23/2015		<0.163
	4/30/2013		<0.20
6 ELDIA WAY	5/9/2014		<0.144
	12/5/2013		0.15J
7 ELDIA WAY	3/24/2014		<0.150
	5/10/2013		0.045J
8 ELDIA WAY	12/5/2013		<0.20
9 ELDIA WAY	5/6/2014		0.309
	5/6/2014	Duplicate	0.284
	12/5/2013		0.31
	12/5/2013	Duplicate	0.27
	5/2/2013		0.25
11 ELDIA WAY	5/7/2014		3.58
	5/7/2014	Duplicate	3.61
	9/17/2013		3.7
	7/25/2013		3.0
	6/27/2013		4.3
	6/27/2013	Duplicate	3.4
	5/29/2013		4.3
	5/29/2013	Duplicate	3.9B
	4/29/2013		4.2
	4/29/2013	Duplicate	3.3
	3/14/2013		2.9
	3/14/2013	Duplicate	3.1
13 ELDIA WAY	5/9/2014		0.660
	5/9/2014	Duplicate	0.659
	7/24/2013		0.33
17 ELDIA WAY	5/6/2013		<0.20
21 ELDIA WAY	12/5/2013		<0.20
3 FAIRVIEW AVENUE	5/10/2013		<0.20

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Property	Date	Duplicate	1,4 Dioxane	
4 FAIRVIEW AVENUE	8/15/2014		<0.147	
	4/29/2013		<0.20	
5 FAIRVIEW AVENUE	5/8/2014		<0.144	
	2/14/2013		0.047J	
20 FAIRVIEW AVENUE	5/7/2013		0.093J	
25 FAIRVIEW AVENUE	5/7/2013		0.041J	
30 FAIRVIEW AVENUE	12/3/2013		0.063J	
35 FAIRVIEW AVENUE	5/2/2013		<0.20	
40 FAIRVIEW AVENUE	5/16/2013		0.065J	
50 FAIRVIEW AVENUE	5/2/2013		<0.20	
60 FAIRVIEW AVENUE	5/1/2013		0.041J	
115 FAIRVIEW AVENUE	7/22/2013		<0.20	
15 GLACIER HILLS ROAD	3/13/2014		<0.139	
20 GLACIER HILLS ROAD	5/6/2014		<0.144	
	2/22/2013		0.071J	
70 GLACIER HILLS ROAD	8/4/2014		<0.142	
	7/22/2013		<0.20	
75 GLACIER HILLS ROAD	6/17/2014		<0.142	
100 GLACIER HILLS ROAD	5/8/2013		0.058J	
115 GLACIER HILLS ROAD	4/14/2014		<0.144	
130 GLACIER HILLS ROAD	7/23/2013		<0.20	
145 GLACIER HILLS ROAD	4/14/2014		<0.144	
150 GLACIER HILLS ROAD	7/24/2013		<0.20	
165 GLACIER HILLS ROAD	3/13/2014		<0.139	
175 GLACIER HILLS ROAD	3/14/2014		<0.139	
180 GLACIER HILLS ROAD	8/25/2014		<0.142	
	8/2/2013		<0.20	
200 GLACIER HILLS ROAD	8/5/2014		<0.144	
	7/31/2013		<0.20	
205 GLACIER HILLS ROAD	3/14/2014		<0.139	
230 GLACIER HILLS ROAD	7/25/2013		<0.20	
270 GLACIER HILLS ROAD	3/11/2014		<0.150	
300 GLACIER HILLS ROAD	7/31/2013		0.077J	
310 GLACIER HILLS ROAD	7/25/2013		<0.20	
350 GLACIER HILLS ROAD	10/9/2015		<0.142	
380 GLACIER HILLS ROAD	10/9/2015		<0.147	
395 GLACIER HILLS ROAD	10/6/2015		<0.153	
20 JASON DRIVE	3/12/2014		<0.150	
25 JASON DRIVE	4/14/2014		<0.147	
30 JASON DRIVE	3/10/2014		<0.147	
20 KINGSBURY BEACH ROAD	7/21/2016		0.0819J	
80 KINGSBURY BEACH ROAD	10/5/2016		<0.147	4Q2016
100 KINGSBURY BEACH ROAD	10/5/2016		<0.147	4Q2016
15 KNOWLES STREET	5/13/2015		<0.147	
	4/26/2013		0.078J	
25 KNOWLES STREET	5/8/2014		3.72	
	5/8/2014	Duplicate	3.58	
	9/18/2013		4.3	
	8/27/2013		3.2	
	7/25/2013		2.8	
	6/27/2013		2.8	
	6/27/2013	Duplicate	3.0	
	5/29/2013		2.7	
	5/29/2013	Duplicate	2.8B	
	4/26/2013		2.8	
	4/26/2013	Duplicate	2.6	
	2/21/2013		3.1	
	2/21/2013	Duplicate	2.9	

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Property	Date	Duplicate	1,4 Dioxane	
30 KNOWLES STREET	5/6/2014		4.79	
	5/6/2014	Duplicate	4.92	
	9/17/2013		5.4	
	8/28/2013		5.6	
	7/30/2013		5.1	
	7/30/2013	Duplicate	5.1	
	6/27/2013		5.0	
	6/27/2013	Duplicate	5.1	
	5/29/2013		4.9	
	5/29/2013	Duplicate	5.9B	
	4/29/2013		6.0	
	4/29/2013	Duplicate	5.2	
	2/19/2013		6.9	
	2/19/2013	Duplicate	6.4	
45 KNOWLES STREET	5/6/2014		2.22	
	5/6/2014	Duplicate	2.38	
	8/28/2013		2.0	
	5/1/2013		2.3	
50 KNOWLES STREET	5/1/2013	Duplicate	2.4	
	7/21/2016		0.0809J	
	11/11/2015		<0.144	
	8/12/2015		<0.144	
	8/12/2015	Duplicate	<0.144	
	2/16/2015		0.195	
	6/19/2014		0.0910J	
	4/14/2014		<0.144	
	2/19/2013		0.26	
	2/19/2013	Duplicate	0.23	
60 KNOWLES STREET	3/2/2015		<0.150	
	3/2/2015	Duplicate	<0.152	
	12/4/2013		0.049J	
	2/21/2013		0.063J	
65 KNOWLES STREET	10/28/2014		0.102J	
	6/16/2014		0.209	
	6/16/2014	Duplicate	0.217	
	3/27/2014		5.03	
	3/27/2014	Duplicate	5.42	
70 KNOWLES STREET	7/23/2013		0.11J	
	6/16/2014		<0.147	
	2/20/2013		0.057J	
75 KNOWLES STREET	5/8/2014		<0.144	
	4/30/2013		0.075J	
80 KNOWLES STREET	8/12/2015		<0.144	
	8/12/2015	Duplicate	<0.144	
130 LOCUST ROAD	10/26/2016		<0.147	4Q2016
180 LOCUST ROAD	10/26/2016		<0.147	4Q2016
230 LOCUST ROAD	10/5/2016		<0.147	4Q2016
100 MEETINGHOUSE ROAD	9/19/2014		1.75	
	5/6/2014		1.90	
	3/14/2014		1.73	
	11/20/2013		1.3	
	8/27/2013		1.9	
	5/8/2013		1.8	
	5/8/2013	Duplicate	1.7	
	2/14/2013		1.6	
	2/14/2013	Duplicate	1.5	
	125 MEETINGHOUSE ROAD	7/21/2016		0.193
7/21/2016		Duplicate	0.111J	
5/8/2013			0.15J	

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Property	Date	Duplicate	1,4 Dioxane
140 MEETINGHOUSE ROAD	3/24/2014		<0.150
	5/10/2013		0.11J
150 MEETINGHOUSE ROAD	2/22/2013		<0.20
155 MEETINGHOUSE ROAD	8/15/2014		0.379
	8/15/2014	Duplicate	0.36
	7/31/2013		0.46
	7/31/2013	Duplicate	0.35
160 MEETINGHOUSE ROAD	2/12/2013		<0.20
165 MEETINGHOUSE ROAD	5/9/2014		0.746
	5/9/2014	Duplicate	0.748
	2/15/2013		0.75
	2/15/2013	Duplicate	0.67
170 MEETINGHOUSE ROAD	5/12/2016		<0.147
	5/13/2015		<0.144
	8/15/2014		<0.144
	2/15/2013		<0.20
171 MEETINGHOUSE ROAD REAR	5/1/2013		0.58
175 MEETINGHOUSE ROAD	9/19/2014		<0.156
	5/2/2013		<0.20
180 MEETINGHOUSE ROAD	5/1/2013		<0.20
185 MEETINGHOUSE ROAD	3/27/2014		<0.139
	4/30/2013		0.081J
190 MEETINGHOUSE ROAD REAR	5/9/2014		<0.142
200 MEETINGHOUSE ROAD	7/23/2014		<0.147
	5/3/2013		0.093J
205 MEETINGHOUSE ROAD	5/5/2014		0.310
	5/5/2014	Duplicate	0.319
	12/3/2013		0.30
	12/3/2013	Duplicate	0.26
225 MEETINGHOUSE ROAD	5/9/2014		0.196
	5/9/2014	Duplicate	0.178
	5/10/2013		0.13J
255 MEETINGHOUSE ROAD	4/26/2013		0.065J
270 MEETINGHOUSE ROAD	2/16/2015		<0.146
275 MEETINGHOUSE ROAD	8/1/2014		<0.144
	7/23/2013		<0.20
310 MEETINGHOUSE ROAD	8/12/2015		0.103J
	8/12/2015	Duplicate	0.113J
350 MEETINGHOUSE ROAD	5/5/2014		1.23
	5/5/2014	Duplicate	1.24
	7/25/2013		1.3
	7/25/2013	Duplicate	1.2
355 MEETINGHOUSE ROAD	12/5/2013		<0.20
370 MEETINGHOUSE ROAD	5/8/2014		0.339
	5/8/2014	Duplicate	0.316
	4/30/2013		0.19J
	2/12/2016		0.133J
375 MEETINGHOUSE ROAD	11/11/2015		0.138J
	4/1/2015		0.114J
	11/20/2014		0.212
	11/20/2014	Duplicate	0.187
	3/24/2014		0.175
	3/24/2014	Duplicate	0.156
385 MEETINGHOUSE ROAD	8/2/2013		0.19J
	8/1/2014		<0.142
	7/24/2013		0.040J
400 MEETINGHOUSE ROAD	7/24/2013		0.12J
415 MEETINGHOUSE ROAD	12/3/2013		0.14J
440 MEETINGHOUSE ROAD	7/31/2013		<0.20

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Property	Date	Duplicate	1,4 Dioxane
20 MOLLS POND ROAD	2/19/2013		0.050J
30 MOLLS POND ROAD	2/15/2013		<0.20
50 MOLLS POND ROAD	2/11/2013		<0.20
60 MOLLS POND ROAD	2/11/2013		<0.20
400 NAUSET ROAD-SALT PND VIS CTR	8/12/2014		<0.144
	12/2/2013		<0.20
55 NORTHWOOD ROAD	8/2/2013		0.15J
25 OLD ORCHARD ROAD	5/6/2013		0.064J
45 OLD ORCHARD ROAD	3/17/2015		<0.167
	2/22/2013		<0.20
75 OLD ORCHARD ROAD	5/12/2016		0.100J
	8/15/2014		<0.150
	2/21/2013		0.17J
80 OLD ORCHARD ROAD	7/31/2014		<0.144
	2/12/2013		<0.20
100 OLD ORCHARD ROAD	7/31/2014		<0.144
	2/12/2013		<0.20
130A OLD ORCHARD ROAD	5/29/2015		<0.153
	12/17/2014		<0.142
	12/18/2013		<0.20
	2/25/2013		<0.20
130B OLD ORCHARD ROAD	5/13/2016		<0.142
	5/29/2015		<0.147
	12/17/2014		<0.142
	12/18/2013		<0.20
	2/25/2013		<0.20
180 OLD ORCHARD ROAD	9/18/2014		0.137J
	5/6/2014		0.527
	3/14/2014		0.0953J
	11/20/2013		0.17J
	8/28/2013		0.46
	6/27/2013		0.45
	5/8/2013		0.52
	2/22/2013		0.045J
210 OLD ORCHARD ROAD	5/13/2016		<0.144
	12/18/2013		<0.20
	2/15/2013		<0.20
290 OLD ORCHARD ROAD	5/12/2016		<0.147
	Effluent 3/2/2015		<0.144
	Untreated 3/2/2015		<0.156
	7/23/2014		<0.144
	5/16/2013		0.068J
	2/15/2013		<0.20
310 OLD ORCHARD ROAD	5/6/2014		0.431
	5/6/2014	Duplicate	0.433
	4/29/2013		0.41
350 OLD ORCHARD ROAD	8/1/2014		<0.142
	5/3/2013		<0.20
370 OLD ORCHARD ROAD	5/2/2013		<0.20
390 OLD ORCHARD ROAD	5/7/2013		<0.20
400 OLD ORCHARD ROAD	5/7/2013		<0.20
50 PIPER LANE	2/20/2013		<0.20
65 PIPER LANE	7/31/2013		<0.20
1 PRESERVATION WAY	8/25/2014		0.174
	8/25/2014	Duplicate	0.199
	12/2/2013		0.19J

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Property	Date	Duplicate	1,4 Dioxane	
4 PRESERVATION WAY	10/26/2016		0.198	4Q2016
	10/26/2016	Duplicate	0.217	4Q2016
	7/21/2016		0.248	
	7/21/2016	Duplicate	0.173	
	5/13/2016		0.197	
	5/13/2016	Duplicate	0.21	
	2/12/2016		0.209	
	2/12/2016	Duplicate	0.208	
	11/11/2015		0.204	
	11/11/2015	Duplicate	0.165	
	8/12/2015		0.211	
	8/12/2015	Duplicate	0.222	
	4/1/2015		0.183	
	4/1/2015	Duplicate	0.207	
	10/28/2014		0.208	
	7/17/2014		0.192	
	7/17/2014	Duplicate	0.217	
	3/25/2014		0.208	
	3/25/2014	Duplicate	0.196	
	12/3/2013		0.18J	
4/30/2013		0.21		
6 PRESERVATION WAY	12/2/2013		0.11J	
8 PRESERVATION WAY	12/2/2013		0.13J	
20 REDBERRY LANE	7/23/2013		0.046J	
35 REDBERRY LANE	12/2/2013		0.070J	
45 REDBERRY LANE	3/28/2014		0.105J	
55 REDBERRY LANE	7/22/2013		0.047J	
25 SALT POND ROAD	10/5/2016		<0.147	4Q2016
35 SALT POND ROAD	10/5/2016		<0.147	4Q2016
45 SALT POND ROAD	7/21/2016		0.195	
	7/21/2016	Duplicate	0.188	
49 SALT POND ROAD	3/11/2014		0.177	
	3/11/2014	Duplicate	0.166	
55 SALT POND ROAD	9/1/2016		0.681	4Q2016
	7/21/2016		0.596	
25 SCHOOLHOUSE ROAD	3/10/2014		<0.150	
55 SCHOOLHOUSE ROAD	12/4/2013		0.044J	
85 SCHOOLHOUSE ROAD	12/5/2013		<0.20	
90 SCHOOLHOUSE ROAD	6/23/2014		<0.139	
180 SCHOOLHOUSE ROAD	7/23/2013		0.093J	

Notes: NS - Not Sampled
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L - LCS or LCSD exceeded the control limits. Results may be biased high.
GW-1 Standard and ORSG for 1,4 dioxane is 0.3 ug/L



Property	Date	Duplicate	1,4 Dioxane	
200 SCHOOLHOUSE ROAD	7/21/2016		0.0799J	
	5/13/2016		<0.144	
	2/12/2016		0.0763J	
	11/18/2015		<0.142	
	8/12/2015		0.0961J	
	8/12/2015	Duplicate	0.106J	
	5/13/2015		0.100J	
	2/13/2015		0.0892J	
	11/20/2014		0.0884J	
	11/20/2014	Duplicate	0.0808J	
	8/4/2014		0.0822J	
	PRE (filter) 5/6/2014		0.105J	
	POST (filter) 2/14/2014		0.094J	
	PRE (filter) 2/14/2014		0.083J	
	PRE (filter) 2/14/2014	Duplicate	0.076J	
	POST (filter) 2/11/2014		0.096J	
	PRE (filter) 2/11/2014		0.081J	
	PRE (filter) 2/11/2014	Duplicate	0.086J	
		2/12/2013		<0.20
	210 SCHOOLHOUSE ROAD	5/6/2013		<0.20
230 SCHOOLHOUSE ROAD	5/8/2013		<0.20	
255 SCHOOLHOUSE ROAD	7/22/2013		0.055J	
265 SCHOOLHOUSE ROAD	7/23/2014		0.0945J	
	2/21/2013		0.053J	
280 SCHOOLHOUSE ROAD	2/22/2013		0.071J	
300 SCHOOLHOUSE ROAD	5/7/2014		0.168	
	5/7/2014	Duplicate	0.177	
	2/19/2013		0.14J	

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Property		Date	Duplicate	1,4 Dioxane
325 SCHOOLHOUSE ROAD	Untreated	9/19/2013		10
	Effluent	9/19/2013		0.68
	Mid System	9/19/2013		0.095J
	Mid System	8/27/2013		<0.20
	Effluent	8/27/2013		<0.20
	Untreated	8/27/2013		7.7
	Effluent	7/31/2013		<0.20
	Untreated	7/31/2013		9.4
	Mid System	7/31/2013		<0.20
	Untreated	7/31/2013	Duplicate	8.8
	Untreated	6/27/2013		8.2
	Effluent	6/27/2013		<0.20
	Mid System	6/27/2013		0.041J
	Untreated	6/27/2013	Duplicate	8.8
	Effluent	5/29/2013		<0.20
	Mid System	5/29/2013		<0.20
	Untreated	5/29/2013		7.8
	Untreated	5/29/2013	Duplicate	9.8B
	Mid System	4/29/2013		<0.20
	Effluent	4/29/2013		<0.20
	Untreated	4/29/2013		9.8
	Untreated	4/29/2013	Duplicate	8.3
	Mid System	3/21/2013		<0.20
	Effluent	3/21/2013		<0.20
	Effluent	3/14/2013		<0.20
	Mid System	3/14/2013		<0.20
	Mid System	3/8/2013		<0.20
	Effluent	3/8/2013		<0.20
	Effluent	2/25/2013		<0.20
	Mid System	2/25/2013		<0.20
	Untreated	2/22/2013		10
	Untreated	2/22/2013	Duplicate	9.7
345 SCHOOLHOUSE ROAD		5/7/2014		<0.153
		2/12/2013		0.12J
350 SCHOOLHOUSE ROAD		8/2/2013		<0.20
390 SCHOOLHOUSE ROAD		5/7/2013		<0.20
395 SCHOOLHOUSE ROAD		9/19/2013		<0.20
400 SCHOOLHOUSE ROAD		5/16/2013		<0.20
415 SCHOOLHOUSE ROAD		1/23/2015		<0.144
		8/5/2014		0.0895J
		2/25/2013		<0.20
418 SCHOOLHOUSE ROAD		5/2/2013		<0.20
425 SCHOOLHOUSE ROAD		2/25/2013		<0.20
455 SCHOOLHOUSE ROAD		5/6/2013		<0.20
475 SCHOOLHOUSE ROAD		12/6/2013		<0.20
495 SCHOOLHOUSE ROAD		12/6/2013		<0.20
555 SCHOOLHOUSE ROAD		5/29/2013		0.048J
560 SCHOOLHOUSE ROAD		10/5/2015		<0.142
590 SCHOOLHOUSE ROAD		5/13/2015		0.107J
600 SCHOOLHOUSE ROAD		10/28/2014		0.347
		6/26/2014		0.226
		6/26/2014	Duplicate	0.206
690 SCHOOLHOUSE ROAD		3/11/2014		0.105J
720 SCHOOLHOUSE ROAD		10/5/2015		0.117J
725 SCHOOLHOUSE ROAD		2/16/2015		<0.146
825 SCHOOLHOUSE ROAD		10/9/2015		<0.153

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Property	Date	Duplicate	1,4 Dioxane	
835 SCHOOLHOUSE ROAD	10/6/2015		0.132J	
850 SCHOOLHOUSE ROAD	10/5/2015		0.0758J	
875 SCHOOLHOUSE ROAD	10/5/2015		<0.147	
915 SCHOOLHOUSE ROAD	10/6/2015		<0.142	
3 SELAH CIRCLE	4/30/2013		0.072J	
4 SELAH CIRCLE	5/6/2014		<0.143	
	9/18/2013		0.065J	
3 SHARON CIRCLE	7/31/2013		0.064J	
5 SHARON CIRCLE	5/3/2013		<0.20	
10 SHARON CIRCLE	5/16/2013		0.088J	
20 SHARON CIRCLE	3/24/2014		0.104J	
	4/30/2013		0.10J	
25 SHARON CIRCLE	9/19/2014		<0.15	
	9/19/2013		<0.20	
35 SHARON CIRCLE	6/19/2014		0.143	
	6/19/2014	Duplicate	0.154	
	5/1/2013		0.34	
20 SPINNAKER WAY	11/18/2015		<0.147	
30 SPINNAKER WAY	10/6/2015		<0.142	
40 SPINNAKER WAY	10/9/2015		<0.147	
60 SPINNAKER WAY	10/9/2015		<0.142	
10 SPLIT RAIL ROAD	10/5/2016		<0.147	4Q2016
15 SPLIT RAIL ROAD	10/26/2016		<0.147	4Q2016
20 SPLIT RAIL ROAD	10/26/2016		<0.147	4Q2016
25 SPLIT RAIL ROAD	10/26/2016		<0.144	4Q2016
30 SPLIT RAIL ROAD	10/26/2016		<0.156	4Q2016
5 STARLIGHT LANE	5/5/2014		0.394	
	5/5/2014	Duplicate	0.362	
	2/21/2013		0.37	
	2/21/2013	Duplicate	0.37	
10 STARLIGHT LANE	8/4/2014		<0.144	
	5/10/2013		<0.20	
13 STARLIGHT LANE	8/1/2014		<0.142	
	5/10/2013		<0.20	
20 STARLIGHT LANE	1/30/2015		0.164	
	1/30/2015	Duplicate	0.171	
	5/7/2013		<0.20	
30 STARLIGHT LANE	6/26/2014		0.279	
	6/26/2014	Duplicate	0.302	
	3/25/2014		0.278	
	3/25/2014	Duplicate	0.249	
	12/4/2013		0.22	
	12/4/2013	Duplicate	0.17J	
	5/3/2013		0.21	
35 STARLIGHT LANE	4/1/2015		0.315	
	12/4/2013		0.37	
	12/4/2013	Duplicate	0.30	
	2/15/2013		0.26	
40 STARLIGHT LANE	6/26/2014		0.874	
	6/26/2014	Duplicate	0.936	
	7/23/2013		0.83	
45 STARLIGHT LANE	3/2/2015		1.21	
	3/2/2015	Duplicate	1.29	
	2/12/2013		1.1	
	2/12/2013	Duplicate	0.93	
50 STARLIGHT LANE	3/27/2014		<0.139	
	7/31/2013		0.13J	
3070 STATE HWY	12/6/2013		0.18J	

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Property	Date	Duplicate	1,4 Dioxane	
3100 A STATE HWY	10/28/2014		<0.150	
	3/13/2014		<0.139	
3168 STATE HWY	3/17/2015		0.398	
	5/5/2014		0.334	
	5/5/2014	Duplicate	0.350	
	12/6/2013		0.33	
3172 STATE HWY BACKUP WELL	12/6/2013	Duplicate	0.27	
	3/25/2014		0.335	
3172 STATE HWY PRIMARY WELL	3/25/2014	Duplicate	0.338	
	3/17/2015		0.345	
3200 STATE HWY	3/25/2014		0.326	
	3/25/2014	Duplicate	0.306	
	12/6/2013		0.20	
	12/6/2013	Duplicate	0.21	
	5/8/2014		0.424	
3265 STATE HWY	5/8/2014	Duplicate	0.418	
	12/6/2013		0.31	
3280 STATE HWY	12/6/2013	Duplicate	0.32	
	3/10/2014		<0.147	
3315 STATE HWY	4/14/2014		0.248	
	4/14/2014	Duplicate	0.198	
3430 STATE HWY	3/12/2014		0.232	
	3/12/2014	Duplicate	0.194	
3440 STATE HWY	12/2/2013		<0.20	
3460 STATE HWY	4/11/2014		<0.142	
3580 STATE HWY	12/6/2013		0.14J	
	4/30/2013		0.10J	
30 SURREY DRIVE	10/26/2016		<0.147	4Q2016
35 SURREY DRIVE	9/17/2013		0.14J	
50 SURREY DRIVE	7/31/2013		0.070J	
55 SURREY DRIVE	4/30/2013		0.058J	
65 SURREY DRIVE	5/1/2013		<0.20	
10 TURTLE POND ROAD	7/22/2013		0.047J	
5 WALTERS WAY	5/10/2013		<0.20	
1 WHIDAH LANE	4/11/2014		0.147	
	4/11/2014	Duplicate	<0.144	
3 WHIDAH LANE	7/31/2014		<0.144	
	4/29/2013		<0.20	
4 WHIDAH LANE	5/5/2014		<0.144	
	5/16/2013		0.071J	
5 WHIDAH LANE	7/24/2013		<0.20	
8 WHIDAH LANE	7/30/2013		<0.20	
9 WHIDAH LANE	9/19/2013		0.57	
30 WILD GOOSE LANE	7/31/2014		<0.144	
	5/7/2013		<0.20	
35 WILD GOOSE LANE	6/23/2014		0.109J	
45 WILD GOOSE LANE	12/6/2013		0.081J	
50 WILD GOOSE LANE	12/3/2013		0.058J	
10 WOOD DUCK LANE	12/4/2013		<0.20	
14 WOOD DUCK LANE	10/26/2016		<0.147	4Q2016
10 SPINNAKER WAY	10/5/2016		<0.147	4Q2016
	8/25/2014		<0.142	

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Property	Date	Duplicate	1,4 Dioxane
Background Samples			
5 ACORN ROAD	5/3/2013		0.042J
10 BALLWIC ROAD	3/13/2014		<0.139
215 BAYSIDE DRIVE	6/19/2014		<0.142
60 BISHOP ROAD	3/11/2014		<0.147
550 BRACKET ROAD	9/19/2014		0.119J
1825 BRIDGE ROAD	3/11/2014		<0.150
60 BRIGGS FIELD ROAD	5/1/2013		<0.20
395 CANDLEWOOD DRIVE	5/8/2013		<0.20
CCNS Stevens House 105 Brownell Rd.	8/13/2014		<0.147
CCNS Delfino House 880 Cable Rd.	8/13/2014		<0.144
CCNS Coast Guard Beach Doane Rd. Rear	8/12/2014		<0.144
CCNS Doane Rock Picnic Area Doane Rd.	8/12/2014		0.116J
CCNS Young House 585 Doane Rd. Rear	8/13/2014		<0.147
CCNS Humphrey House 25 MacPherson Wy.	8/12/2014		<0.144
CCNS Nauset Light Beach Ocean View Dr.	8/12/2014		<0.144
CCNS Nauset Ranger Station 1050 Nauset Rd.	8/12/2014		<0.147
CCNS Sparrow House 600 Nauset Rd.	8/12/2014		<0.147
CCNS Withus House 850 Nauset Rd.	8/12/2014		<0.147
CCNS Bartett House 40 Ocean View Dr.	8/13/2014		<0.15
CCNS Deane House 22 Tomahawk Trail	8/13/2014		<0.15
CCNS Lyman House 28 Tomahawk Trail	8/13/2014		<0.147
CCNS Benz House 30 Tomahawk Trail	8/13/2014		<0.144
20 CEDAR LANE	5/7/2014		<0.144
25 CEDAR LANE	5/7/2014		<0.144
30 CEDAR LANE	3/25/2014		0.289
	3/25/2014	Duplicate	0.285
35 CEDAR LANE	5/7/2014		<0.142
52 DYER PRINCE ROAD	7/17/2014		<0.144
235 ELDREDGE DRIVE	7/17/2014		<0.144
20 GUERRA WAY #42	4/29/2013		<0.20
20 GUERRA WAY #59	4/29/2013		0.15J
65 KETTLE HOLE ROAD	4/26/2013		<0.20
80 KETTLE HOLE ROAD	5/1/2013		<0.20
115 KINGSBURY BEACH ROAD	3/12/2014		<0.150
155 MARY CHASE ROAD	4/14/2014		<0.145
295 MASSASOIT ROAD	3/10/2014		<0.144
130 MASSASOIT TRAIL	6/26/2014		0.156
	6/26/2014	Duplicate	0.151
155 MEADOW DRIVE	3/13/2014		<0.139
1525 NAUSET ROAD	3/10/2014		<0.153
265 NORTH SUNKEN MEADOW ROAD	3/13/2014		<0.139
40 ROGERS LANE	6/23/2014		<0.139
190 SAMOSET ROAD	12/6/2013		0.048J
1000 SCHOOLHOUSE ROAD	7/23/2014		<0.144
20 SEASHELL LANE	6/23/2014		<0.139
44 SQUIRREL RUN	7/17/2014		<0.142

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**TABLE 2
SUMMARY OF
WATER TABLE ELEVATION MEASUREMENTS
Eastham Landfill
Eastham, MA**

Well ID	Date	Casing Elevation (feet)	Depth to Water (feet)	Corrected Water Elevation (feet)
ALSTON AVE_215	12/10/2015	23.10	10.77	12.33
	11/09/2015	23.10	10.82	12.28
	10/29/2014	23.10	11.13	11.97
CANDLEWOOD DR_050	12/10/2015	49.58	39.27	10.31
	11/09/2015	49.58	39.07	10.51
	10/29/2014	49.58	39.39	10.19
CHATHAM ST_010	12/10/2015	49.75	38.64	11.11
	11/09/2015	49.75	38.67	11.08
	10/29/2014	49.75	NM	
CHESTER AVE_115	12/10/2015	47.99	37.72	10.27
	11/09/2015	47.99	37.79	10.20
	10/29/2014	47.99	NM	
CHIPMAN ST_060	12/10/2015	50.19	41.21	8.98
	11/09/2015	50.19	41.26	8.93
	10/29/2014	50.19	41.39	8.80
ESMW-1S (40-50')	09/20/2016	48.43	36.81	11.62
	12/10/2015	48.43	37.12	11.31
	11/09/2015	48.43	36.99	11.44
ESMW-1I (60-70')	09/20/2016	48.61	37.71	10.90
	12/10/2015	48.61	37.44	11.17
	11/09/2015	48.61	37.44	11.17
ESMW-1D (100-110')	09/20/2016	48.60	39.12	9.48
	12/10/2015	48.60	39.21	9.39
	11/09/2015	48.60	39.24	9.36
ESMW-2S (40-50')	09/20/2016	45.23	37.15	8.08
	12/10/2015	45.23	36.93	8.30
	11/09/2015	45.23	37.08	8.15
ESMW-2I (60-70')	09/20/2016	44.93	37.37	7.56
	12/10/2015	44.93	37.13	7.80
	11/09/2015	44.93	37.79	7.14
ESMW-2D (100-110')	09/20/2016	44.55	36.63	7.92
	12/10/2015	44.55	36.80	7.75
	11/09/2015	44.55	36.99	7.56
ESMW-3S (35-45')	09/20/2016	50.53	40.51	10.02
	12/10/2015	50.53	40.92	9.61
	11/09/2015	50.53	40.78	9.75
ESMW-3I (70-80')	09/20/2016	50.73	41.20	9.53
	12/10/2015	50.73	41.50	9.23
	11/09/2015	50.73	41.03	9.70
ESMW-3D (110-120')	09/20/2016	50.71	41.38	9.33
	12/10/2015	50.71	41.77	8.94
	11/09/2015	50.71	41.69	9.02
ESMW-4S (38-48')	09/20/2016	55.53	44.11	11.42
	12/10/2015	55.53	44.99	10.54
	11/09/2015	55.53	DRY	
ESMW-4I (60-70')	09/20/2016	55.48	45.90	9.58
	12/10/2015	55.48	46.25	9.23
	11/09/2015	55.48	46.3	9.18
ESMW-4D (100-110')	09/20/2016	55.51	46.23	9.28
	12/10/2015	55.51	46.66	8.85
	11/09/2015	55.51	46.51	9.00

Notes: NM - Not Measured
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ND - Not Detected



Well ID	Date	Casing Elevation (feet)	Depth to Water (feet)	Corrected Water Elevation (feet)
FAIRVIEW AVE_005	12/10/2015	28.58	17.04	11.54
	11/09/2015	28.58	17.09	11.49
	10/29/2014	28.58	17.27	11.31
GLACIER HILLS RD_180	12/10/2015	56.57	45.74	10.83
	11/09/2015	56.57	45.6	10.97
	10/29/2014	56.57	45.84	10.73
GLACIER HILLS RD_300	12/10/2015	39.05	29.11	9.94
	11/09/2015	39.05	29.02	10.03
	10/29/2014	39.05	29.17	9.88
KNOWLES ST_065	12/10/2015	38.89	24.70	14.19
	11/09/2015	38.89	24.65	14.24
	10/29/2014	38.89	24.63	14.26
MEETINGHOUSE RD_170	12/10/2015	46.18	36.08	10.10
	11/09/2015	46.18	36.14	10.04
	10/29/2014	46.18	36.49	9.69
Minister's Pond Piezometer	12/10/2015	15.29	2.86	12.43
	11/09/2015	15.29	DESTROYED	
	10/29/2014	15.29	3.16	12.13
Moll's Pond Piezometer	12/10/2015	13.70	3.43	10.27
	11/09/2015	13.70	DESTROYED	
	10/29/2014	13.70	2.27	11.43
MW-2D	12/10/2015	34.30	24.11	10.19
	11/09/2015	34.30	24.16	10.14
	10/29/2014	34.30	24.2	10.10
MW-2S	12/10/2015	33.92	21.80	12.12
	11/09/2015	33.92	21.84	12.08
	10/29/2014	33.92	22.01	11.91
MW-3D	12/10/2015	32.79	20.79	12.00
	11/09/2015	32.79	20.74	12.05
	10/29/2014	32.79	20.91	11.88
MW-3I	12/10/2015	33.10	21.10	12.00
	11/09/2015	33.10	20.96	12.14
	10/29/2014	33.10	20.03	13.07
MW-3S	12/10/2015	33.15	21.09	12.06
	11/09/2015	33.15	21.03	12.12
	10/29/2014	33.15	21.1	12.05
MW-4D	12/10/2015	60.93	50.25	10.68
	11/09/2015	60.93	50.3	10.63
	10/29/2014	60.93	50.37	10.56
MW-4S	12/10/2015	60.88	48.74	12.14
	11/09/2015	60.88	48.81	12.07
	10/29/2014	60.88	48.95	11.93
MW-5D	12/10/2015	57.12	46.26	10.86
	11/09/2015	57.12	46.17	10.95
	10/29/2014	57.12	45.83	11.29
MW-5S	12/10/2015	56.93	46.85	10.08
	11/09/2015	56.93	45.72	11.21
	10/29/2014	56.93	46.3	10.63
MW-7	12/10/2015	34.22	22.08	12.14
	11/09/2015	34.22	21.94	12.28
	10/29/2014	34.22	22.17	12.05
PIPER LN_050	12/10/2015	39.99	28.96	11.03
	11/09/2015	39.99	28.94	11.05
	10/29/2014	39.99	29.12	10.87
PIPER LN_065	12/10/2015	33.30	22.91	10.39
	11/09/2015	33.30	22.88	10.42
	10/29/2014	33.30	23.08	10.22

Notes: NM - Not Measured
NA - Not Applicable
ND - Not Detected

12/14/2016 EasthamLandfill
Table 2 Page 2 of 3
Report: CSA Gauging Table
Database: Eastham Gauging Entry



Well ID	Date	Casing Elevation (feet)	Depth to Water (feet)	Corrected Water Elevation (feet)
PRESERVATION WAY_004	12/10/2015	46.89	38.84	8.05
	11/09/2015	46.89	39.02	7.87
	10/29/2014	46.89	39.1	7.79
REDBERRY LN_045	12/10/2015	48.80	40.26	8.54
	11/09/2015	48.80	40.21	8.59
	10/29/2014	48.80	40.66	8.14
SCHOOLHOUSE RD_835	12/10/2015	53.86	42.55	11.31
	11/09/2015	53.86	42.58	11.28
	10/29/2014	53.86	NM	
SPINNAKER WAY_030	12/10/2015	49.43	41.64	7.79
	11/09/2015	49.43	41.67	7.76
	10/29/2014	49.43	NM	
SPINNAKER WAY_040	12/10/2015	51.02	40.57	10.45
	11/09/2015	51.02	40.4	10.62
	10/29/2014	51.02	NM	
SPINNAKER WAY_060	12/10/2015	44.63	32.84	11.79
	11/09/2015	44.63	32.66	11.97
STARLIGHT LN_010	11/09/2015	59.31	49.89	9.42
SPINNAKER WAY_060	10/29/2014	44.63	NM	
STARLIGHT LN_010	12/10/2015	59.31	49.86	9.45
	10/29/2014	59.31	49.72	9.59
	12/10/2015	26.05	14.52	11.53
STARLIGHT LN_050	11/09/2015	26.05	14.57	11.48
	10/29/2014	26.05	14.84	11.21
	12/10/2015	53.18	44.36	8.82
SURREY DR_035	11/09/2015	53.18	44.41	8.77
	10/29/2014	53.18	44.57	8.61
	12/10/2015	45.46	37.39	8.07
WILD GOOSE LN_050	11/09/2015	45.46	37.44	8.02
	10/29/2014	45.46	37.53	7.93

Notes: NM - Not Measured
NA - Not Applicable
ND - Not Detected

12/14/2016 EasthamLandfill
Table 2 Page 3 of 3
Report: CSA Gauging Table
Database: Eastham Gauging Entry

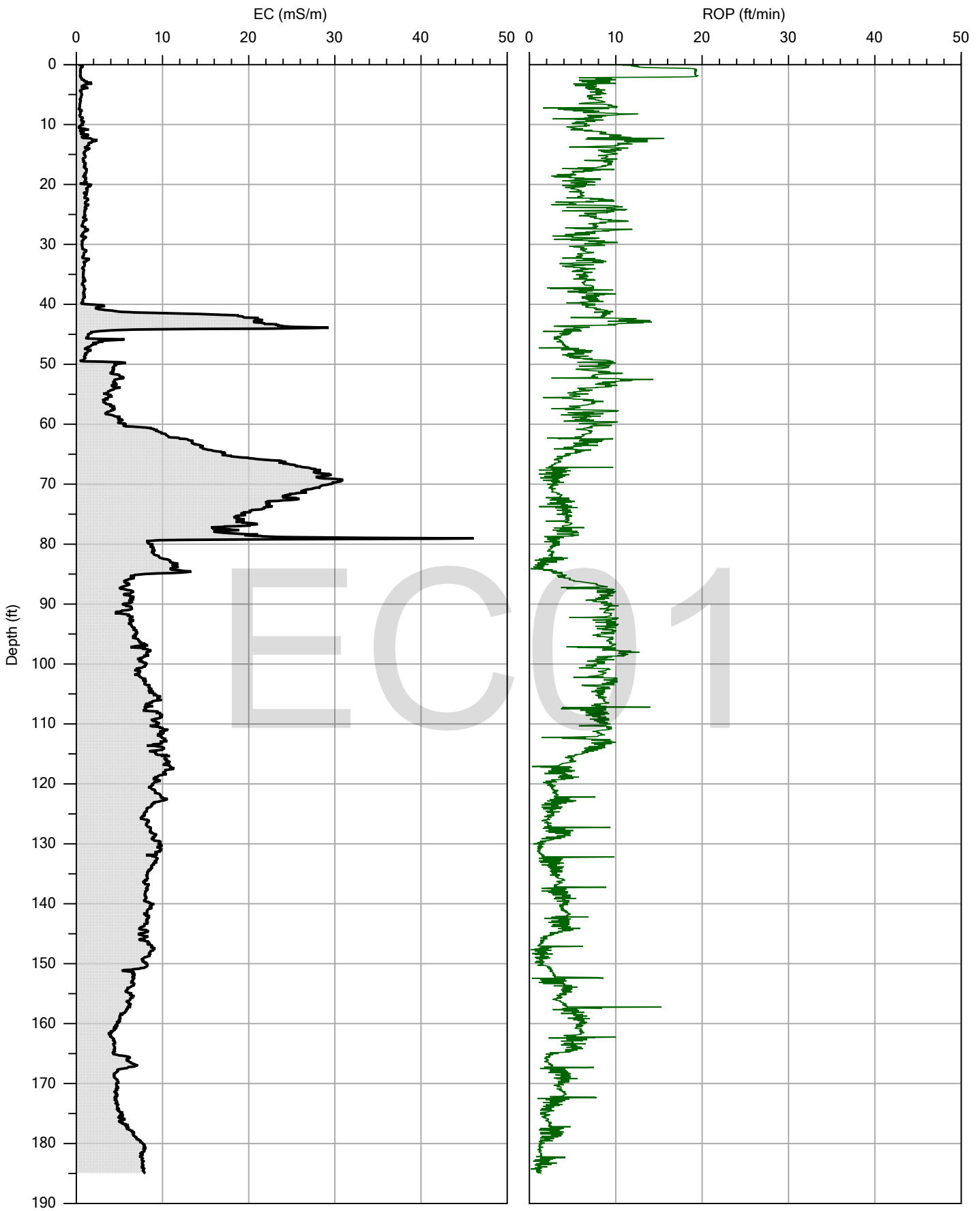


**TABLE 3
SUMMARY OF
GROUNDWATER ANALYTICAL RESULTS
1,4 Dioxane**

**Eastham Landfill Monitoring Plan
Eastham, MA
(All results in ug/l)**

Property	Date	Lab ID	1,4-Dioxane
DPW WELL	11/29/2016	L1638614-07	<0.142
	11/24/2015	L1530960-07	<0.144
	12/16/2014	L1430246-06	0.0793J
ESMT-1 (-60')	10/15/2014	L1424558-09	46.3
ESMT-1 (-80')	10/15/2014	L1424558-08	14.9
ESMT-1 (-100')	10/15/2014	L1424558-07	<0.147
ESMT-1 (-120')	10/15/2014	L1424558-06	<0.147
ESMT-2 (-15')	10/15/2014	L1424558-04	0.72
ESMT-2 (-60')	10/15/2014	L1424558-03	<0.144
ESMT-2 (-90')	10/15/2014	L1424558-02	<0.144
ESMT-2 (-120')	10/15/2014	L1424558-01	<0.153
ESMT-3 (-10')	10/16/2014	L1424775-07	0.145
ESMT-3 (-25')	10/16/2014	L1424775-06	<0.144
ESMT-3 (-45')	10/16/2014	L1424775-03	<0.144
ESMT-3 (-70')	10/16/2014	L1424775-02	<0.144
ESMT-3 (-95')	10/16/2014	L1424775-01	<0.144
	10/16/2014	duplicate L1424775-04	<0.144
ESMT-4 (0')	10/21/2014	L1425110-05	<0.147
ESMT-4 (-15')	10/21/2014	L1425110-04	<0.144
ESMT-4 (-40')	10/21/2014	L1425110-03	<0.147
ESMT-4 (-60')	10/21/2014	L1425110-02	<0.147
ESMT-4 (-80')	10/21/2014	L1425110-01	<0.150
ESMT-5 (-15')	10/16/2014	L1424775-08	0.0840J
ESMT-5 (-45')	10/16/2014	L1424775-12	0.206
ESMT-5 (-70')	10/16/2014	L1424775-11	0.194
ESMT-5 (-105')	10/16/2014	L1424775-10	<0.142
ESMT-5 (-135')	10/16/2014	L1424775-09	<0.144
ESMT-6 (0')	10/17/2014	L1424804-06	0.129J
ESMT-6 (-15')	10/17/2014	L1424804-05	<0.144
ESMT-6 (-30')	10/17/2014	L1424804-04	<0.147
ESMT-6 (-45')	10/17/2014	L1424804-03	<0.144
ESMT-6 (-60')	10/17/2014	L1424804-02	<0.147
ESMT-6 (-75')	10/17/2014	L1424804-01	<0.144
ESMT-7 (0')	10/21/2014	L1425110-11	<0.150
ESMT-7 (-20')	10/21/2014	L1425110-10	<0.147
ESMT-7 (-40')	10/21/2014	L1425110-09	0.131J
ESMT-7 (-60')	10/21/2014	L1425110-07	<0.153
ESMT-7 (-80')	10/21/2014	L1425110-06	<0.144
ESMW-1S (40-50')	9/21/2016	L1629795-01	1.39
	11/10/2015	L1529351-01	0.726
ESMW-1I (60-70')	9/21/2016	L1629795-02	0.244
	11/10/2015	L1529351-02	<0.147
ESMW-1D (100-110')	9/21/2016	L1629795-03	<0.144
	11/10/2015	L1529351-03	<0.147

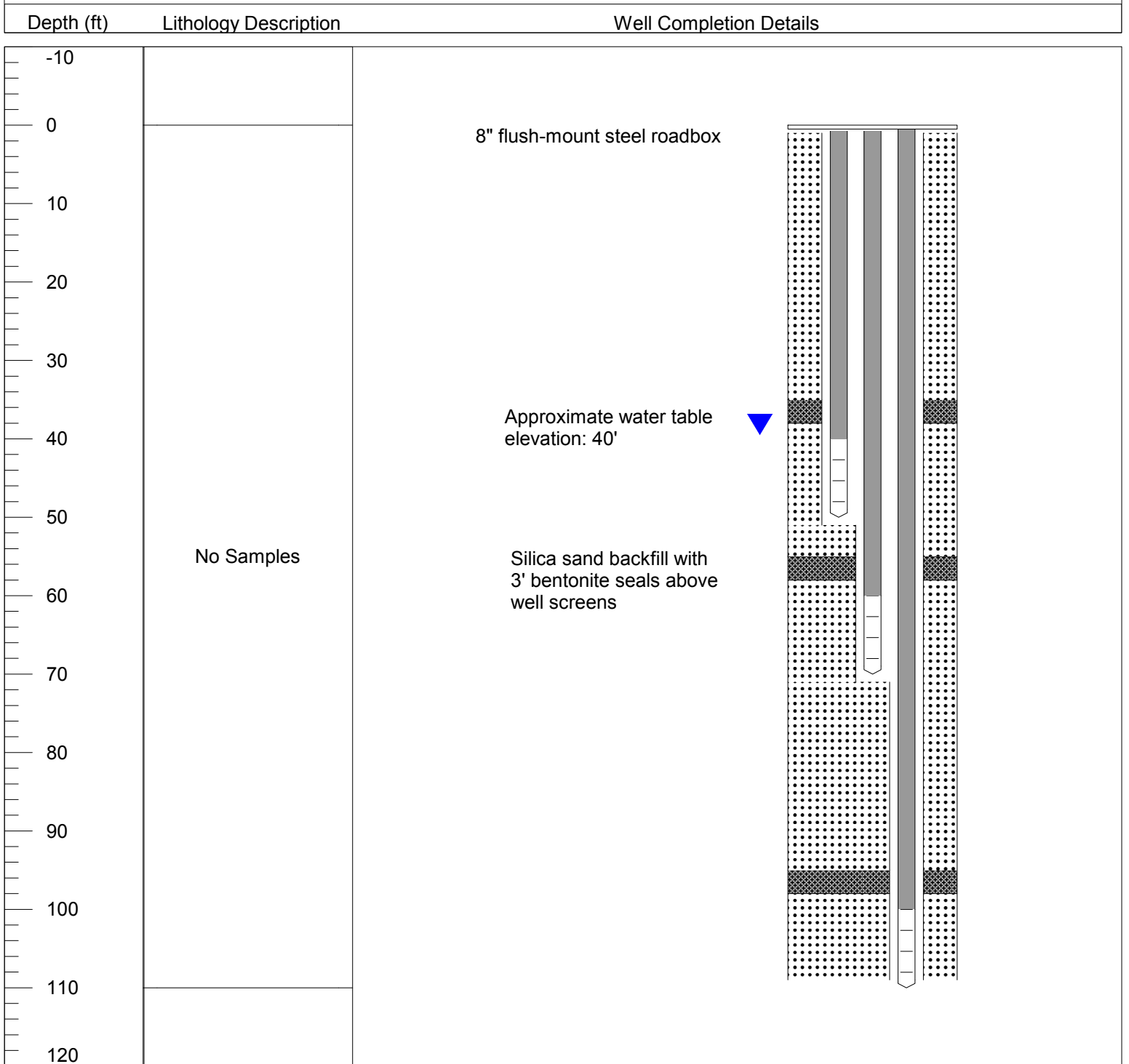
Property	Date	Lab ID	1,4-Dioxane
ESMW-2S (40-50')	9/21/2016	L1629795-04	<0.156
	11/10/2015	L1529351-04	<0.167
ESMW-2I (60-70')	9/21/2016	L1629795-05	<0.147
	11/10/2015	L1529351-05	<0.167
ESMW-2D (100-110')	9/21/2016	L1629795-06	0.172
	11/10/2015	L1529351-06	0.186
ESMW-3S (35-45')	9/21/2016	L1629795-07	0.145
	11/10/2015	L1529351-07	<0.153
ESMW-3I (70-80')	9/21/2016	L1629795-08	0.123J
	11/10/2015	L1529351-08	<0.153
ESMW-3D (110-120')	9/21/2016	L1629795-09	0.107J
	11/10/2015	L1529351-09	<0.153
ESMW-4S (38-48')	11/18/2015	L1530332-01	<0.150
ESMW-4I (60-70')	9/21/2016	L1629795-10	<0.147
	11/10/2015	L1529351-10	<0.167
ESMW-4D (100-110')	9/21/2016	L1629795-11	<0.147
	11/10/2015	L1529351-11	<0.167
MW-2S	11/29/2016	L1638614-03	0.373
	11/24/2015	L1530960-01	0.633
	12/16/2014	L1430246-02	0.337
MW-3I	11/29/2016	L1638614-01	<0.144
	11/24/2015	L1530960-02	<0.147
	12/16/2014	L1430246-01	< 0.142
	11/10/2014	148436901	< 2.5
MW-3D	11/29/2016	L1638614-02	6.37
	11/24/2015	L1530960-03	8.65
	11/10/2014	148436902	< 2.5
	11/10/2014	Duplicate 148436903	< 2.5
	10/27/2014	L1425582-01	12.8
MW-4S	11/29/2016	L1638614-04	1.18
	11/24/2015	L1530960-04	0.842
	10/27/2014	L1425582-02	0.652
MW-4D	10/27/2014	L1425582-03	<0.150
MW-5S	11/29/2016	L1638614-05	1.17
	10/27/2014	L1425582-04	1.65
	11/24/2015	L1530960-05	1.39
	12/16/2014	L1430246-04	< 250
MW-5D	10/27/2014	L1425582-05	<0.153
MW-7	10/27/2014	L1425582-06	<0.150
MW-8	11/29/2016	L1638614-06	0.376
	11/24/2015	L1530960-06	0.238
	12/16/2014	L1430246-05	0.283
MW-10	10/27/2014	L1425582-07	0.186
MW-21S	10/27/2014	L1425582-08	2.93
MW-21D	10/27/2014	L1425582-09	0.215



Company:	ZEBRA	Operator:	WM	File:	EC1.DAT
Project ID:	Eastham	Client:	ES&M	Date:	10/14/2014
				Location:	

Project: Eastham Landfill
Project #: 2015-038
Drill Date: November 3, 2015
Geologist: E. Cucé

Well: ESMW-1s/i/d



Environmental Strategies & Management, Inc.
 273 West Main Street
 Norton, MA 02766
 508-226-1800

Borehole Depth: 110'
Drill Method: Casing Drive
Screen Intervals:
 -1s: 40-50'
 -1i: 60-70'
 -1d: 100-110'

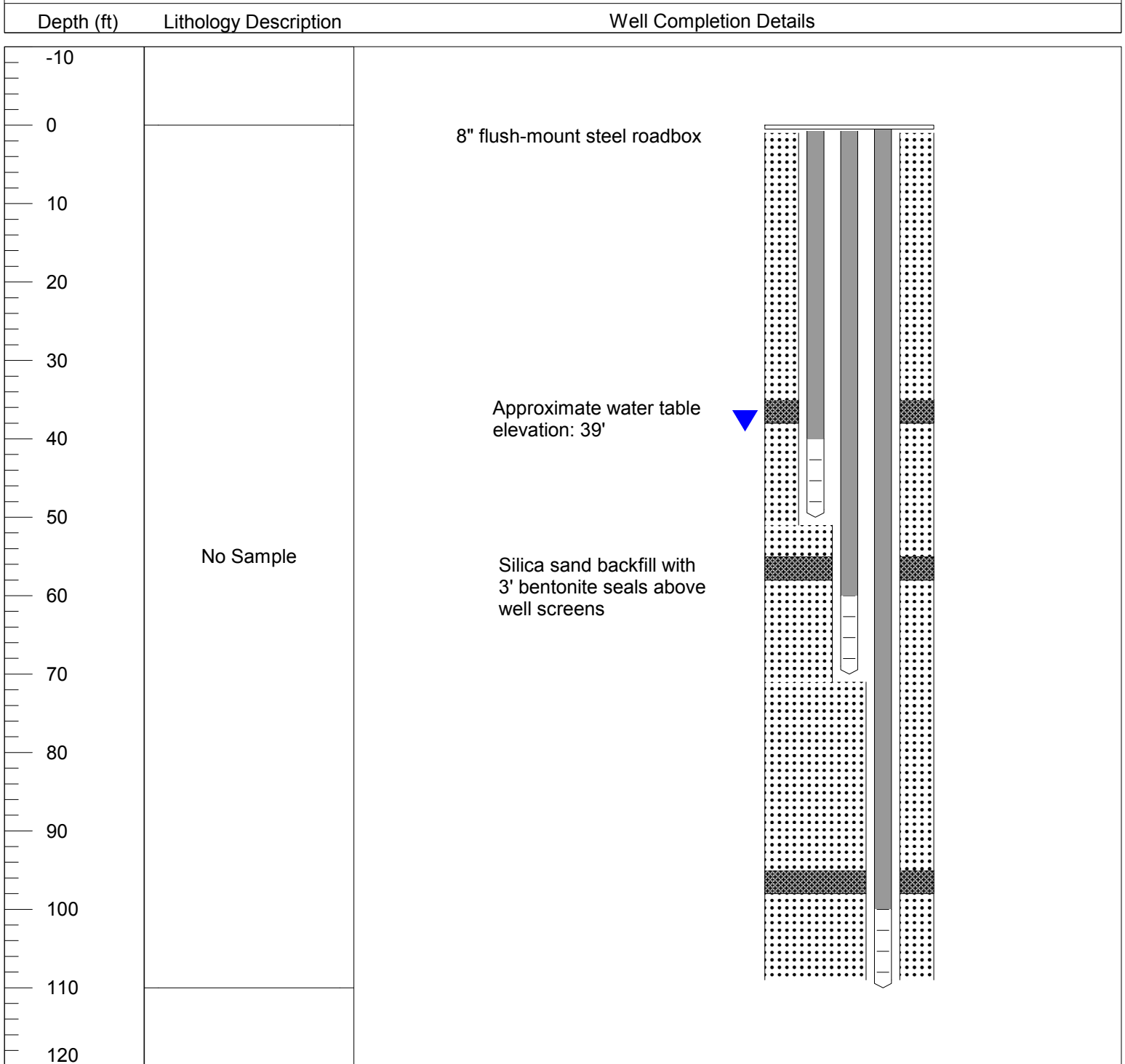
Driller: Technical Drilling Services, Inc.
Borehole Diameter: 4"
Well diameter: 3/4" PVC
Sample Type: none

Project: Eastham Landfill
Project #: 2015-038
Drill Date: November 4, 2015
Geologist: E. Cucé



*Environmental
 Strategies
 & Management*

Well: ESMW-2s/i/d



Environmental Strategies & Management, Inc.
 273 West Main Street
 Norton, MA 02766
 508-226-1800

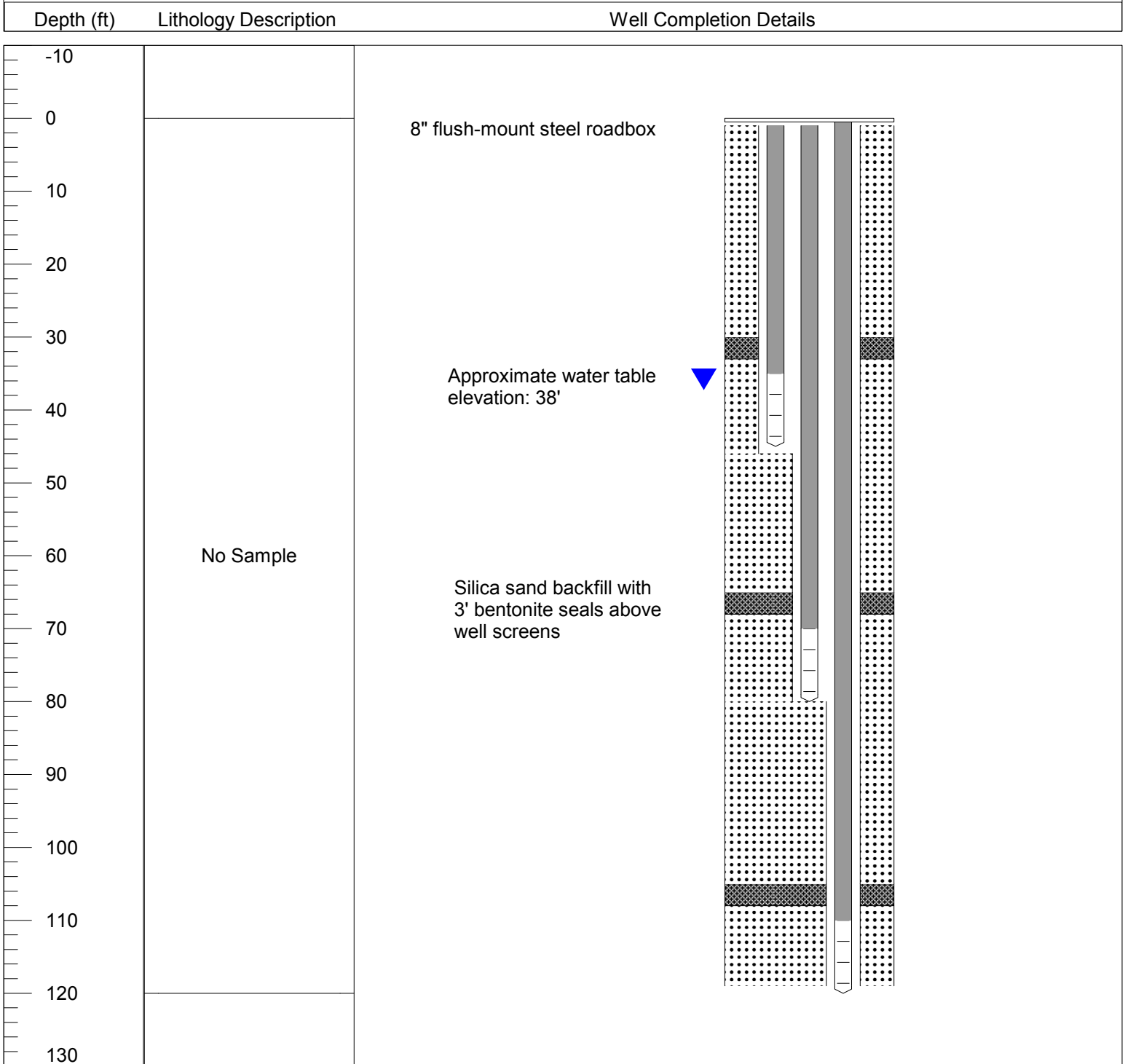
Borehole Depth: 110'
Drill Method: Casing Drive
Screen Intervals:
 -2s: 40-50'
 -2i: 60-70'
 -2d: 100-110'

Driller: Technical Drilling Services, Inc.
Borehole Diameter: 4"
Well diameter: 3/4" PVC
Sample Type: none

Project: Eastham Landfill
Project #: 2015-038
Drill Date: November 6, 2015
Geologist: E. Cucé



Well: ESMW-3s/i/d



Borehole Depth: 120'
Drill Method: Casing Drive
Screen Intervals:
 -3s: 35-45'
 -3i: 70-80'
 -3d: 110-120'

Environmental Strategies & Management, Inc.
 273 West Main Street
 Norton, MA 02766
 508-226-1800

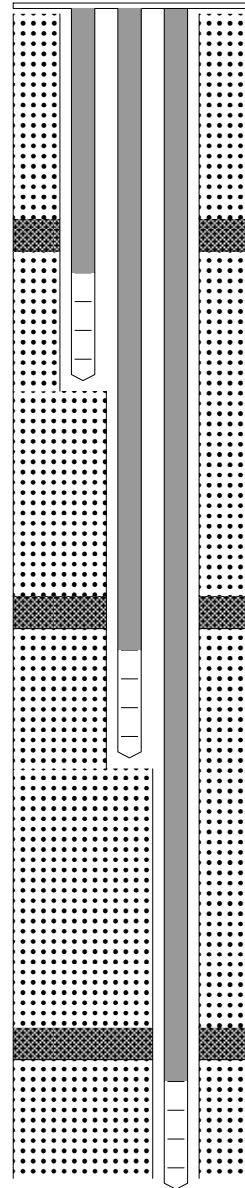
Driller: Technical Drilling Services, Inc.
Borehole Diameter: 4"
Well diameter: 3/4" PVC
Sample Type: none

Project: Eastham Landfill
Project #: 2015-038
Drill Date: November 9, 2015
Geologist: E. Cucé



Well: ESMW-4s/i/d

Depth (ft)	Lithology Description	Well Completion Details
-10		
0		8" flush-mount steel roadbox
10		
20		
30		
40		
50	No Sample	
60		Silica sand backfill with 3' bentonite seals above well screens
70		
80		
90		
100		
110		
120		



Environmental Strategies & Management, Inc.
 273 West Main Street
 Norton, MA 02766
 508-226-1800

Borehole Depth: 110'
Drill Method: Casing Drive
Screen Intervals:
 -4s: 25-35'
 -4i: 60-70'
 -4d: 100-110'

Driller: Technical Drilling Services, Inc.
Borehole Diameter: 4"
Well Diameter: 3/4" PVC
Sample Type: none

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1424558	10/15/2014	Ground water	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
ESMT-2 (-120')	10/15/2014	L1424558-1	GW	8270	ESMT-1 (-120')	10/15/2014	L1424558-6	GW	8270
ESMT-2 (-90')	10/15/2014	L1424558-2	GW	8270	ESMT-1 (-100')	10/15/2014	L1424558-7	GW	8270
ESMT-2 (-60')	10/15/2014	L1424558-3	GW	8270	ESMT-1 (-80')	10/15/2014	L1424558-8	GW	8270
ESMT-2 (-15')	10/15/2014	L1424558-4	GW	8270	ESMT-1 (-60')	10/15/2014	L1424558-9	GW	8270
Trip Blank	10/15/2014	L1424558-5	GW	8270					

Sample L1424558-04 contained sediment in sample container. The sample was decanted prior to extraction to minimize the amount of sediment introduced into the extraction procedure.

All QAQC data, including surrogate, trip blank, method blank, laboratory control sample (LCS), and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 10/31/14.



ANALYTICAL REPORT

Lab Number:	L1424558
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	Not Specified
Report Date:	10/23/14

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

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1424558-01	ESMT-2 (-120')	WATER	EASTHAM, MA	10/15/14 10:40	10/15/14
L1424558-02	ESMT-2 (-90')	WATER	EASTHAM, MA	10/15/14 11:05	10/15/14
L1424558-03	ESMT-2 (-60')	WATER	EASTHAM, MA	10/15/14 11:30	10/15/14
L1424558-04	ESMT-2 (-15')	WATER	EASTHAM, MA	10/15/14 11:50	10/15/14
L1424558-05	TRIP BLANK	WATER	EASTHAM, MA	10/15/14 00:00	10/15/14
L1424558-06	ESMT-1 (-120')	WATER	EASTHAM, MA	10/15/14 14:20	10/15/14
L1424558-07	ESMT-1 (-100')	WATER	EASTHAM, MA	10/15/14 14:35	10/15/14
L1424558-08	ESMT-1 (-80')	WATER	EASTHAM, MA	10/15/14 14:55	10/15/14
L1424558-09	ESMT-1 (-60')	WATER	EASTHAM, MA	10/15/14 15:25	10/15/14

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

Case Narrative (continued)

MCP Related Narratives

In reference to question I:

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

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Semivolatile Organics by SIM

Sample L1424558-04 contained sediment in sample container. The sample was decanted prior to extraction to minimize the amount of sediment introduced into the extraction procedure.

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:



Elizabeth Porta

Title: Technical Director/Representative

Date: 10/23/14

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-01
 Client ID: ESMT-2 (-120')
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/22/14 06:16
 Analyst: CM

Date Collected: 10/15/14 10:40
 Date Received: 10/15/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.153	0.0765	1
-------------	----	--	------	-------	--------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-02
 Client ID: ESMT-2 (-90')
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/22/14 07:05
 Analyst: CM

Date Collected: 10/15/14 11:05
 Date Received: 10/15/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
-------------	----	--	------	-------	--------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-03
 Client ID: ESMT-2 (-60')
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/22/14 07:53
 Analyst: CM

Date Collected: 10/15/14 11:30
 Date Received: 10/15/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
-------------	----	--	------	-------	--------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-04
Client ID: ESMT-2 (-15')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/22/14 08:42
Analyst: CM

Date Collected: 10/15/14 11:50
Date Received: 10/15/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.720		ug/l	0.150	0.0750	1
-------------	-------	--	------	-------	--------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-05
 Client ID: TRIP BLANK
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/22/14 09:31
 Analyst: CM

Date Collected: 10/15/14 00:00
 Date Received: 10/15/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-06
 Client ID: ESMT-1 (-120')
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/22/14 10:19
 Analyst: CM

Date Collected: 10/15/14 14:20
 Date Received: 10/15/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-07
Client ID: ESMT-1 (-100')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/22/14 11:08
Analyst: CM

Date Collected: 10/15/14 14:35
Date Received: 10/15/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-08
Client ID: ESMT-1 (-80')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/22/14 11:56
Analyst: CM

Date Collected: 10/15/14 14:55
Date Received: 10/15/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	14.9		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

SAMPLE RESULTS

Lab ID: L1424558-09
 Client ID: ESMT-1 (-60')
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/22/14 12:45
 Analyst: CM

Date Collected: 10/15/14 15:25
 Date Received: 10/15/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/20/14 18:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	46.3		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM DW

Lab Number: L1424558

Project Number: Not Specified

Report Date: 10/23/14

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8270D-SIM

Extraction Method: EPA 3510C

Analytical Date: 10/21/14 21:16

Extraction Date: 10/20/14 18:46

Analyst: CM

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-09 Batch: WG732610-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	20		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-09 Batch: WG732610-2 WG732610-3								
1,4-Dioxane	104		107		40-140	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	21		20		15-110

Project Name: EASTHAM DW

Lab Number: L1424558

Project Number: Not Specified

Report Date: 10/23/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent
B Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1424558-01A	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-01B	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-02A	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-02B	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-03A	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-03B	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-04A	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-04B	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-05A	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-05B	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-05C	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-05D	Amber 500ml unpreserved	A	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-06A	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-06B	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-07A	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-07B	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-08A	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-08B	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-09A	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424558-09B	Amber 500ml unpreserved	B	7	4.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1424558
Report Date: 10/23/14

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

Last revised April 15, 2014

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

Westborough Facility

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

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

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

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

EPA 625: 4-Chloroaniline, 4-Methylphenol.

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

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

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

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

Drinking Water

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

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

EPA 332: Perchlorate.

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

Non-Potable Water

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

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

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

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

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

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

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



CHAIN OF CUSTODY

PAGE 1 OF 1

Project Information

Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9193 FAX: 508-822-3288

Project Name: Eastham DW

Client Information

Client: Environmental Strategies & Mgmt.

Project Location: Eastham, MA

Address: 273 West Main Street

Project #:

Norton, MA 02766

Project Manager: Lisa Flynn

Phone: 508-226-1800

ALPHA Quote #:

Fax:

Turn-Around Time

Email: lflynn@esm-inc.com

Standard Rush (ONLY IF PRE-APPROVED)

These samples have been Previously analyzed by Alpha

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab:

ALPHA Job #: L1424558

Report Information Data Deliverables

Billing Information

FAX EMAIL
 ADEx Add'l Deliverables

Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

Yes No Are MCP Analytical Methods Required?
 Yes No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

1,4 DIOXANE by 8270	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials																		
		Date	Time			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
<u>24558</u> 01	ESMT-2 (-120')	10/15/14	1040	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
02	ESMT-2 (-90')	10/15/14	1105	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
03	ESMT-2 (-60')	10/15/14	1130	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
04	ESMT-2 (-15')	10/15/14	1150	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
05	TRIPBLANK					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
06	ESMT-1 (-120')	10/15/14	1420	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
07	ESMT-1 (-100')	10/15/14	1435	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
08	ESMT-1 (-80')	10/15/14	1455	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
09	ESMT-1 (-60')	10/15/14	1525	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

PLEASE ANSWER QUESTIONS ABOVE!

Container Type	A	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	A	-	-	-	-	-	-	-	-	-	-	-	-	-

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(I)
(rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	10/15/14 1735	<i>[Signature]</i>	10.15.14 17:35

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 Payment Terms.

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1424775	10/16/2014	Ground water	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
ESMT-3 (-95')	10/16/2014	L1424775-1	GW	8270	ESMT-3 (-10')	10/16/2014	L1424775-7	GW	8270
ESMT-3 (-70')	10/16/2014	L1424775-2	GW	8270	ESMT-5 (-15')	10/16/2014	L1424775-8	GW	8270
ESMT-3 (-45')	10/16/2014	L1424775-3	GW	8270	ESMT-5 (-135')	10/16/2014	L1424775-9	GW	8270
Duplicate 1	10/16/2014	L1424775-4	GW	8270	ESMT-5 (-105')	10/16/2014	L1424775-10	GW	8270
Trip Blank	10/16/2014	L1424775-5	GW	8270	ESMT-5 (-70')	10/16/2014	L1424775-11	GW	8270
ESMT-3 (-25')	10/16/2014	L1424775-6	GW	8270	ESMT-5 (-45')	10/16/2014	L1424775-12	GW	8270

All QAQC data, including surrogate, trip blank, method blank, field duplicate, laboratory control sample (LCS), and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 11/11/14.



ANALYTICAL REPORT

Lab Number:	L1424775
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	2013-027
Report Date:	11/03/14

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

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1424775-01	ESMT-3 (-95')	WATER	EASTHAM,MA	10/16/14 10:15	10/16/14
L1424775-02	ESMT-3 (-70')	WATER	EASTHAM,MA	10/16/14 10:35	10/16/14
L1424775-03	ESMT-3 (-45')	WATER	EASTHAM,MA	10/16/14 10:55	10/16/14
L1424775-04	DUPLICATE 1	WATER	EASTHAM,MA	10/16/14 11:00	10/16/14
L1424775-05	TRIPBLANK	WATER	EASTHAM,MA	10/16/14 00:00	10/16/14
L1424775-06	ESMT-3 (-25')	WATER	EASTHAM,MA	10/16/14 11:20	10/16/14
L1424775-07	ESMT-3 (-10')	WATER	EASTHAM,MA	10/16/14 11:45	10/16/14
L1424775-08	ESMT-5 (-15')	WATER	EASTHAM,MA	10/16/14 15:30	10/16/14
L1424775-09	ESMT-5 (-135')	WATER	EASTHAM,MA	10/16/14 14:10	10/16/14
L1424775-10	ESMT-5 (-105')	WATER	EASTHAM,MA	10/16/14 14:30	10/16/14
L1424775-11	ESMT-5 (-70')	WATER	EASTHAM,MA	10/16/14 14:50	10/16/14
L1424775-12	ESMT-5 (-45')	WATER	EASTHAM,MA	10/16/14 15:15	10/16/14

Project Name: EASTHAM DW

Lab Number: L1424775

Project Number: 2013-027

Report Date: 11/03/14

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

Case Narrative (continued)

Report Reissue

This report replaces the report issued on October 24, 2014. The sample ID for L1424775-08 has been corrected from ESMT-3 (-15') to ESMT-5 (-15').

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

MCP Related Narratives

In reference to question I:

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

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

Authorized Signature:



Elizabeth Porta

Title: Technical Director/Representative

Date: 11/03/14

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-01
 Client ID: ESMT-3 (-95')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/23/14 20:31
 Analyst: CM

Date Collected: 10/16/14 10:15
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	22		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-02
 Client ID: ESMT-3 (-70')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/23/14 21:20
 Analyst: CM

Date Collected: 10/16/14 10:35
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-03
 Client ID: ESMT-3 (-45')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/23/14 22:08
 Analyst: CM

Date Collected: 10/16/14 10:55
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	0.0721	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	30		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-04
 Client ID: DUPLICATE 1
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 00:41
 Analyst: CM

Date Collected: 10/16/14 11:00
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-05
 Client ID: TRIPBLANK
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 01:30
 Analyst: CM

Date Collected: 10/16/14 00:00
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-06
 Client ID: ESMT-3 (-25')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 02:18
 Analyst: CM

Date Collected: 10/16/14 11:20
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-07
 Client ID: ESMT-3 (-10')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 03:07
 Analyst: CM

Date Collected: 10/16/14 11:45
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.145		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-08
 Client ID: ESMT-5 (-15')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 03:56
 Analyst: CM

Date Collected: 10/16/14 15:30
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.0840	J	ug/l	0.150	0.0750	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	32		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-09
 Client ID: ESMT-5 (-135')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 04:44
 Analyst: CM

Date Collected: 10/16/14 14:10
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-10
Client ID: ESMT-5 (-105')
Sample Location: EASTHAM,MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/24/14 05:33
Analyst: CM

Date Collected: 10/16/14 14:30
Date Received: 10/16/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.142	0.0708	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	32		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-11
 Client ID: ESMT-5 (-70')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 06:22
 Analyst: CM

Date Collected: 10/16/14 14:50
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.194		ug/l	0.142	0.0708	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	37		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

SAMPLE RESULTS

Lab ID: L1424775-12
 Client ID: ESMT-5 (-45')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/24/14 07:10
 Analyst: CM

Date Collected: 10/16/14 15:15
 Date Received: 10/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.206		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	35		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 10/23/14 14:01
Analyst: CM

Extraction Method: EPA 3510C
Extraction Date: 10/22/14 14:28

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-12 Batch: WG733450-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	21		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-12 Batch: WG733450-2 WG733450-3								
1,4-Dioxane	105		107		40-140	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	21		23		15-110

Project Name: EASTHAM DW

Project Number: 2013-027

Lab Number: L1424775

Report Date: 11/03/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1424775-01A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-01B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-02A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-02B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-03A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-03B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-04A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-04B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-05A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-05B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-06A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-06B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-07A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-07B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-08A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-08B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-09A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-09B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-10A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-10B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-11A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-11B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-12A	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424775-12B	Amber 500ml unpreserved	A	7	3.6	Y	Absent	A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

Data Qualifiers

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

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424775
Report Date: 11/03/14

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

Last revised April 15, 2014

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

Westborough Facility

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

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

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

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

EPA 625: 4-Chloroaniline, 4-Methylphenol.

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

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

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

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

Drinking Water

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

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

EPA 332: Perchlorate.

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

Non-Potable Water

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

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

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

EPA 353.2: Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

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



CHAIN OF CUSTODY

PAGE 1 OF 2

Project Information

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Project Name: Eastham DW

Client Information

Client: Environmental Strategies & Mgmt.

Project Location: Eastham, MA

Address: 273 West Main Street

Project #:

Norton, MA 02766

Project Manager: Lisa Flynn

Phone: 508-226-1800

ALPHA Quote #:

Fax: Standard Rush (ONLY IF PRE-APPROVED)

Email: lflynn@esm-inc.com

Turn-Around Time

These samples have been Previously analyzed by Alpha Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab:

ALPHA Job #: **11424775**

Report Information Data Deliverables

FAX EMAIL
 ADEX Add'l Deliverables

Billing Information

Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

Yes No Are MCP Analytical Methods Required?
 Yes No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

1,4 DIOXANE by 8270	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials																
		Date	Time																		
24775.01	ESMT-3 (-95')	10/16/14	1015	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
02	ESMT-3 (-70')	10/16/14	1035	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
03	ESMT-3 (-45')	10/16/14	1055	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
04	Duplicate 1	10/16/14	1100	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
05	TRIPBLANK					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
06	ESMT-3 (-25')	10/16/14	1120	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
07	ESMT-3 (-10')	10/16/14	1145	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
08	ESMT-5 (-15')	10/16/14	1530	DW	EC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
				DW		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(1)
 (rev. 5-JAN-12)

Container Type	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Relinquished By:	Date/Time		Received By:				Date/Time										
<i>[Signature]</i>	10/16/14 1740		<i>[Signature]</i>				10/16/14 17:40										

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

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1424804	10/17/2014	Ground water	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis
ESMT-6 (-75')	10/17/2014	L1424804-1	GW	8270
ESMT-6 (-60')	10/17/2014	L1424804-2	GW	8270
ESMT-6 (-45')	10/17/2014	L1424804-3	GW	8270
ESMT-6 (-30')	10/17/2014	L1424804-4	GW	8270
ESMT-6 (-15')	10/17/2014	L1424804-5	GW	8270
ESMT-6 (-0')	10/17/2014	L1424804-6	GW	8270
Tripblank	10/17/2014	L1424804-7	GW	8270

All QAQC data, including surrogate, trip blank, method blank, laboratory control sample (LCS), and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 11/11/14.



ANALYTICAL REPORT

Lab Number:	L1424804
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	2013-027
Report Date:	10/27/14

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Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1424804-01	ESMT-6 (-75')	WATER	EASTHAM,MA	10/17/14 09:45	10/17/14
L1424804-02	ESMT-6 (-60')	WATER	EASTHAM,MA	10/17/14 10:10	10/17/14
L1424804-03	ESMT-6 (-45')	WATER	EASTHAM,MA	10/17/14 10:30	10/17/14
L1424804-04	ESMT-6 (-30')	WATER	EASTHAM,MA	10/17/14 10:45	10/17/14
L1424804-05	ESMT-6 (-15')	WATER	EASTHAM,MA	10/17/14 11:05	10/17/14
L1424804-06	ESMT-6 (0')	WATER	EASTHAM,MA	10/17/14 11:25	10/17/14
L1424804-07	TRIPBLANK	WATER	EASTHAM,MA	10/17/14 00:00	10/17/14

Project Name: EASTHAM DW

Lab Number: L1424804

Project Number: 2013-027

Report Date: 10/27/14

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

MCP Related Narratives

In reference to question I:

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:



Elizabeth Porta

Title: Technical Director/Representative

Date: 10/27/14

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

SAMPLE RESULTS

Lab ID: L1424804-01
 Client ID: ESMT-6 (-75')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/27/14 07:46
 Analyst: CM

Date Collected: 10/17/14 09:45
 Date Received: 10/17/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/24/14 18:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

SAMPLE RESULTS

Lab ID: L1424804-02
 Client ID: ESMT-6 (-60')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/27/14 08:35
 Analyst: CM

Date Collected: 10/17/14 10:10
 Date Received: 10/17/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/24/14 18:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	47		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

SAMPLE RESULTS

Lab ID: L1424804-03
 Client ID: ESMT-6 (-45')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/27/14 09:23
 Analyst: CM

Date Collected: 10/17/14 10:30
 Date Received: 10/17/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/24/14 18:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	49		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

SAMPLE RESULTS

Lab ID: L1424804-04
 Client ID: ESMT-6 (-30')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/27/14 10:12
 Analyst: CM

Date Collected: 10/17/14 10:45
 Date Received: 10/17/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/24/14 18:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	52		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

SAMPLE RESULTS

Lab ID: L1424804-05
 Client ID: ESMT-6 (-15')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/27/14 11:00
 Analyst: CM

Date Collected: 10/17/14 11:05
 Date Received: 10/17/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/24/14 18:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	49		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

SAMPLE RESULTS

Lab ID: L1424804-06
 Client ID: ESMT-6 (0')
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/27/14 11:49
 Analyst: CM

Date Collected: 10/17/14 11:25
 Date Received: 10/17/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/24/14 18:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.129	J	ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

SAMPLE RESULTS

Lab ID: L1424804-07
 Client ID: TRIPBLANK
 Sample Location: EASTHAM,MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/27/14 12:38
 Analyst: CM

Date Collected: 10/17/14 00:00
 Date Received: 10/17/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/24/14 18:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.150	0.0750	1
-------------	----	--	------	-------	--------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	53		15-110

Project Name: EASTHAM DW

Lab Number: L1424804

Project Number: 2013-027

Report Date: 10/27/14

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8270D-SIM

Extraction Method: EPA 3510C

Analytical Date: 10/27/14 05:21

Extraction Date: 10/24/14 18:49

Analyst: CM

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-07 Batch: WG734262-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	50		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-07 Batch: WG734262-2 WG734262-3								
1,4-Dioxane	105		103		40-140	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	46		57		15-110

Project Name: EASTHAM DW

Lab Number: L1424804

Project Number: 2013-027

Report Date: 10/27/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1424804-01A	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-01B	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-02A	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-02B	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-03A	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-03B	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-04A	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-04B	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-05A	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-05B	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-06A	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-06B	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-07A	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1424804-07B	Amber 500ml unpreserved	A	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1424804
Report Date: 10/27/14

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

Last revised April 15, 2014

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

Westborough Facility

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

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

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

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

EPA 625: 4-Chloroaniline, 4-Methylphenol.

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

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

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

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

Drinking Water

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

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

EPA 332: Perchlorate.

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

Non-Potable Water

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

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

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

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

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

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

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

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1425110	10/21/2014	Ground water	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
ESMT-4 (-80')	10/21/2014	L1425110-1	GW	8270	ESMT-7 (-60')	10/21/2014	L1425110-7	GW	8270
ESMT-4 (-60')	10/21/2014	L1425110-2	GW	8270	Tripblank	10/21/2014	L1425110-8	GW	8270
ESMT-4 (-40')	10/21/2014	L1425110-3	GW	8270	ESMT-7 (-40')	10/21/2014	L1425110-9	GW	8270
ESMT-4 (-15')	10/21/2014	L1425110-4	GW	8270	ESMT-7 (-20')	10/21/2014	L1425110-10	GW	8270
ESMT-4 (0')	10/21/2014	L1425110-5	GW	8270	ESMT-7 (0')	10/21/2014	L1425110-11	GW	8270
ESMT-7 (-80')	10/21/2014	L1425110-6	GW	8270					

The surrogate recovery for L1425110-01 was outside the acceptance criteria for 1,4-Dioxane-d8 (11%); however, the criteria were achieved upon re-extraction outside of holding time. The results of both extractions are reported.

All QAQC data, including trip blank, method blank, laboratory control sample (LCS) and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 11/11/14.



ANALYTICAL REPORT

Lab Number:	L1425110
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	Not Specified
Report Date:	11/04/14

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

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1425110-01	ESMT-4 (-80')	DRINKING WATER	EASTHAM, MA	10/21/14 09:45	10/21/14
L1425110-02	ESMT-4 (-60')	DRINKING WATER	EASTHAM, MA	10/21/14 10:15	10/21/14
L1425110-03	ESMT-4 (-40')	DRINKING WATER	EASTHAM, MA	10/21/14 10:30	10/21/14
L1425110-04	ESMT-4 (-15')	DRINKING WATER	EASTHAM, MA	10/21/14 10:45	10/21/14
L1425110-05	ESMT-4 (0')	DRINKING WATER	EASTHAM, MA	10/21/14 10:55	10/21/14
L1425110-06	ESMT-7 (-80')	DRINKING WATER	EASTHAM, MA	10/21/14 13:00	10/21/14
L1425110-07	ESMT-7 (-60')	DRINKING WATER	EASTHAM, MA	10/21/14 13:15	10/21/14
L1425110-08	TRIP BLANK	DRINKING WATER	EASTHAM, MA		10/21/14
L1425110-09	ESMT-7 (-40')	DRINKING WATER	EASTHAM, MA	10/21/14 13:30	10/21/14
L1425110-10	ESMT-7 (-20')	DRINKING WATER	EASTHAM, MA	10/21/14 13:45	10/21/14
L1425110-11	ESMT-7 (0')	DRINKING WATER	EASTHAM, MA	10/21/14 14:00	10/21/14

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

Case Narrative (continued)

MCP Related Narratives

In reference to question I:

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

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Semivolatile Organics by SIM

The surrogate recovery for L1425110-01 was outside the acceptance criteria for 1,4-Dioxane-d8 (11%); however, the criteria were achieved upon re-extraction outside of holding time. The results of both extractions are reported.

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:



Elizabeth Porta

Title: Technical Director/Representative

Date: 11/04/14

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-01
Client ID: ESMT-4 (-80')
Sample Location: EASTHAM, MA
Matrix: Drinking Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/29/14 14:34
Analyst: CM

Date Collected: 10/21/14 09:45
Date Received: 10/21/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.150	0.0750	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	11	Q	15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-01 RE
 Client ID: ESMT-4 (-80')
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/04/14 05:31
 Analyst: CM

Date Collected: 10/21/14 09:45
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/30/14 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.150	0.0750	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	40		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-02
 Client ID: ESMT-4 (-60')
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/29/14 15:20
 Analyst: CM

Date Collected: 10/21/14 10:15
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	34		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-03
 Client ID: ESMT-4 (-40')
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/29/14 16:05
 Analyst: CM

Date Collected: 10/21/14 10:30
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	32		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-04
Client ID: ESMT-4 (-15')
Sample Location: EASTHAM, MA
Matrix: Drinking Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/29/14 16:50
Analyst: CM

Date Collected: 10/21/14 10:45
Date Received: 10/21/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	34		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-05
 Client ID: ESMT-4 (0')
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/29/14 17:36
 Analyst: CM

Date Collected: 10/21/14 10:55
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-06
 Client ID: ESMT-7 (-80')
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/29/14 18:21
 Analyst: CM

Date Collected: 10/21/14 13:00
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.144	0.0721	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-07
Client ID: ESMT-7 (-60')
Sample Location: EASTHAM, MA
Matrix: Drinking Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/29/14 19:07
Analyst: CM

Date Collected: 10/21/14 13:15
Date Received: 10/21/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.153	0.0765	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	38		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-08
 Client ID: TRIP BLANK
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/29/14 21:19
 Analyst: CM

Date Collected:
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.156	0.0781	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	40		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-09
Client ID: ESMT-7 (-40')
Sample Location: EASTHAM, MA
Matrix: Drinking Water
Analytical Method: 97,8270D-SIM
Analytical Date: 10/29/14 22:04
Analyst: CM

Date Collected: 10/21/14 13:30
Date Received: 10/21/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.131	J	ug/l	0.150	0.0750	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	36		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-10
 Client ID: ESMT-7 (-20')
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/29/14 22:50
 Analyst: CM

Date Collected: 10/21/14 13:45
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	33		15-110

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

SAMPLE RESULTS

Lab ID: L1425110-11
 Client ID: ESMT-7 (0')
 Sample Location: EASTHAM, MA
 Matrix: Drinking Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/29/14 23:36
 Analyst: CM

Date Collected: 10/21/14 14:00
 Date Received: 10/21/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/28/14 18:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.150	0.0750	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	37		15-110

Project Name: EASTHAM DW

Lab Number: L1425110

Project Number: Not Specified

Report Date: 11/04/14

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8270D-SIM

Extraction Method: EPA 3510C

Analytical Date: 10/29/14 12:18

Extraction Date: 10/28/14 18:57

Analyst: CM

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 02-11 Batch: WG735271-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM DW

Lab Number: L1425110

Project Number: Not Specified

Report Date: 11/04/14

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8270D-SIM

Extraction Method: EPA 3510C

Analytical Date: 11/04/14 03:20

Extraction Date: 10/30/14 17:11

Analyst: CM

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01 Batch: WG736072-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	41		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 02-11 Batch: WG735271-2 WG735271-3								
1,4-Dioxane	109		110		40-140	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	26		26		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01 Batch: WG736072-2 WG736072-3								
1,4-Dioxane	105		107		40-140	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	39		35		15-110

Project Name: EASTHAM DW

Lab Number: L1425110

Project Number: Not Specified

Report Date: 11/04/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1425110-01A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-01B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-02A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-02B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-03A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-03B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-04A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-04B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-05A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-05B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-06A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-06B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-07A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-07B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-08A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-08B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-09A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-09B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-10A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-10B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-11A	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425110-11B	Amber 500ml unpreserved	A	7	3.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: Not Specified

Lab Number: L1425110
Report Date: 11/04/14

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

Last revised April 15, 2014

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

Westborough Facility

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

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

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

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

EPA 625: 4-Chloroaniline, 4-Methylphenol.

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

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

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

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

Drinking Water

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

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

EPA 332: Perchlorate.

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

Non-Potable Water

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

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

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

EPA 353.2: Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

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

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1425582	10/27/2014	Ground water	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
MW-3D	10/27/2014	L1425582-1	GW	dioxane, boron, nitrogen, nitrate	MW-7	10/27/2014	L1425582-6	GW	dioxane, boron, nitrogen, nitrate
MW-4S	10/27/2014	L1425582-2	GW	dioxane, boron, nitrogen, nitrate	MW-10	10/27/2014	L1425582-7	GW	dioxane, boron, nitrogen, nitrate
MW-4D	10/27/2014	L1425582-3	GW	dioxane, boron, nitrogen, nitrate	MW-21S	10/27/2014	L1425582-8	GW	dioxane, boron, nitrogen, nitrate
MW-5S	10/27/2014	L1425582-4	GW	dioxane, boron, nitrogen, nitrate	MW-21D	10/27/2014	L1425582-9	GW	dioxane, boron, nitrogen, nitrate
MW-5D	10/27/2014	L1425582-5	GW	dioxane, boron, nitrogen, nitrate	Trip Blank	10/27/2014	L1425582-10	GW	dioxane, boron, nitrogen, nitrate

All QAQC data, including surrogate, trip blank, method blank, laboratory control sample (LCS), LCS duplicate, matrix spike, and lab duplicate results were reviewed. This report was deemed usable by Angela Boyd on 11/11/14.



ANALYTICAL REPORT

Lab Number:	L1425582
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM LANDFILL
Project Number:	2013-027
Report Date:	11/05/14

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Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1425582-01	MW-3D	WATER	EASTHAM, MA	10/27/14 12:45	10/27/14
L1425582-02	MW-4S	WATER	EASTHAM, MA	10/27/14 10:55	10/27/14
L1425582-03	MW-4D	WATER	EASTHAM, MA	10/27/14 11:40	10/27/14
L1425582-04	MW-5S	WATER	EASTHAM, MA	10/27/14 11:30	10/27/14
L1425582-05	MW-5D	WATER	EASTHAM, MA	10/27/14 11:00	10/27/14
L1425582-06	MW-7	WATER	EASTHAM, MA	10/27/14 10:15	10/27/14
L1425582-07	MW-10	WATER	EASTHAM, MA	10/27/14 09:30	10/27/14
L1425582-08	MW-21S	WATER	EASTHAM, MA	10/27/14 10:30	10/27/14
L1425582-09	MW-21D	WATER	EASTHAM, MA	10/27/14 09:45	10/27/14
L1425582-10	TRIP BLANK	WATER	EASTHAM, MA	10/27/14 00:00	10/27/14

Project Name: EASTHAM LANDFILL

Lab Number: L1425582

Project Number: 2013-027

Report Date: 11/05/14

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

MCP Related Narratives

Sample Receipt

L1425582-01 was received without the container for the Total Metals analysis. An aliquot was taken from an unpreserved container and preserved appropriately.

Metals

In reference to question I:

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

Non-MCP Related Narratives

Sample Receipt

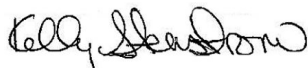
L1425582-01 was received without the container for the Total Nitrogen analyses. An aliquot was taken from an unpreserved container and preserved appropriately.

Nitrogen, Nitrate/Nitrite

L1425582-04 has an elevated detection limit due to the dilution required by the sample matrix.

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:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 11/05/14

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-01
 Client ID: MW-3D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/04/14 19:38
 Analyst: CM

Date Collected: 10/27/14 12:45
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	12.8		ug/l	0.144	0.0721	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-02
 Client ID: MW-4S
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/04/14 20:21
 Analyst: CM

Date Collected: 10/27/14 10:55
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.652		ug/l	0.150	0.0750	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-03
 Client ID: MW-4D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/04/14 21:05
 Analyst: CM

Date Collected: 10/27/14 11:40
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.150	0.0750	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-04
 Client ID: MW-5S
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/04/14 21:49
 Analyst: CM

Date Collected: 10/27/14 11:30
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	1.65		ug/l	0.150	0.0750	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-05
 Client ID: MW-5D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/04/14 22:33
 Analyst: CM

Date Collected: 10/27/14 11:00
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.153	0.0765	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	21		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-06
 Client ID: MW-7
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/04/14 23:16
 Analyst: CM

Date Collected: 10/27/14 10:15
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.150	0.0750	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-07
 Client ID: MW-10
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/05/14 00:00
 Analyst: CM

Date Collected: 10/27/14 09:30
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.186		ug/l	0.144	0.0721	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-08
 Client ID: MW-21S
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/05/14 00:44
 Analyst: CM

Date Collected: 10/27/14 10:30
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	2.93		ug/l	0.150	0.0750	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-09
 Client ID: MW-21D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/05/14 01:27
 Analyst: CM

Date Collected: 10/27/14 09:45
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.215		ug/l	0.150	0.0750	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-10
 Client ID: TRIP BLANK
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/05/14 03:48
 Analyst: CM

Date Collected: 10/27/14 00:00
 Date Received: 10/27/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/03/14 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.156	0.0781	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM LANDFILL

Lab Number: L1425582

Project Number: 2013-027

Report Date: 11/05/14

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8270D-SIM

Extraction Method: EPA 3510C

Analytical Date: 11/04/14 17:27

Extraction Date: 11/03/14 12:30

Analyst: CM

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-10 Batch: WG736900-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-10 Batch: WG736900-2 WG736900-3								
1,4-Dioxane	106		108		40-140	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	32		30		15-110

METALS

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-01
 Client ID: MW-3D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 12:45
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.982		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 17:44	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-02
 Client ID: MW-4S
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 10:55
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.065		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 17:47	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-03
 Client ID: MW-4D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 11:40
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.039		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 17:51	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-04
 Client ID: MW-5S
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 11:30
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.110		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 17:55	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-05
 Client ID: MW-5D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 11:00
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.048		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 17:59	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-06
 Client ID: MW-7
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 10:15
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.044		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 18:03	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-07
 Client ID: MW-10
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 09:30
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.043		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 18:07	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-08
 Client ID: MW-21S
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 10:30
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.269		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 18:10	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-09
 Client ID: MW-21D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 10/27/14 09:45
 Date Received: 10/27/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Boron, Total	0.107		mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 18:14	EPA 3005A	97,6010C	TT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Westborough Lab for sample(s): 01-09 Batch: WG736465-1									
Boron, Total	ND	mg/l	0.030	0.007	1	10/28/14 13:37	10/31/14 17:28	97,6010C	TT

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM LANDFILL

Lab Number: L1425582

Project Number: 2013-027

Report Date: 11/05/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Westborough Lab Associated sample(s): 01-09 Batch: WG736465-2 WG736465-3								
Boron, Total	106		106		80-120	0		20

INORGANICS & MISCELLANEOUS

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-01
Client ID: MW-3D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 12:45
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	ND		mg/l	0.100	0.015	1	-	10/28/14 07:10	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	0.015	1	-	10/30/14 03:44	30,4500NO3-F	DB
Total Nitrogen	80.		mg/l	7.5	7.5	25	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	80.5		mg/l	7.50	2.32	25	10/28/14 09:38	10/28/14 22:17	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-02
Client ID: MW-4S
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 10:55
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	0.091	J	mg/l	0.100	0.015	1	-	10/28/14 07:10	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	0.14		mg/l	0.10	0.015	1	-	10/30/14 03:48	30,4500NO3-F	DB
Total Nitrogen	5.2		mg/l	0.30	0.30	1	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	5.05		mg/l	0.300	0.093	1	10/28/14 09:38	10/28/14 22:18	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-03
Client ID: MW-4D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 11:40
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	3.52		mg/l	0.100	0.015	1	-	10/28/14 07:11	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	3.3		mg/l	0.10	0.015	1	-	10/30/14 03:50	30,4500NO3-F	DB
Total Nitrogen	4.0		mg/l	0.30	0.30	1	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	0.707		mg/l	0.300	0.093	1	10/28/14 09:38	10/28/14 22:08	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-04
Client ID: MW-5S
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 11:30
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	ND		mg/l	0.100	0.015	1	-	10/28/14 07:12	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.50	0.076	5	-	10/30/14 04:27	30,4500NO3-F	DB
Total Nitrogen	11.		mg/l	0.60	0.60	2	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	11.3		mg/l	0.600	0.186	2	10/28/14 09:38	10/28/14 22:09	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-05
Client ID: MW-5D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 11:00
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	3.14		mg/l	0.100	0.015	1	-	10/28/14 07:12	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	3.0		mg/l	0.10	0.015	1	-	10/30/14 03:56	30,4500NO3-F	DB
Total Nitrogen	3.0		mg/l	0.30	0.30	1	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	0.179	J	mg/l	0.300	0.093	1	10/28/14 09:38	10/28/14 22:10	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-06
Client ID: MW-7
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 10:15
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	ND		mg/l	0.100	0.015	1	-	10/28/14 07:13	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	0.052	J	mg/l	0.10	0.015	1	-	10/30/14 03:58	30,4500NO3-F	DB
Total Nitrogen	0.97		mg/l	0.60	0.60	2	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	0.968		mg/l	0.600	0.186	2	10/28/14 09:38	10/28/14 22:11	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-07
Client ID: MW-10
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 09:30
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	1.12		mg/l	0.100	0.015	1	-	10/28/14 07:14	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	1.0		mg/l	0.10	0.015	1	-	10/30/14 03:59	30,4500NO3-F	DB
Total Nitrogen	2.0		mg/l	0.30	0.30	1	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	0.959		mg/l	0.300	0.093	1	10/28/14 09:38	10/28/14 22:12	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-08
Client ID: MW-21S
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 10:30
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	1.08		mg/l	0.100	0.015	1	-	10/28/14 07:17	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	1.0		mg/l	0.10	0.015	1	-	10/30/14 04:00	30,4500NO3-F	DB
Total Nitrogen	8.8		mg/l	0.30	0.30	1	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	7.77		mg/l	0.300	0.093	1	10/28/14 09:38	10/28/14 22:12	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

SAMPLE RESULTS

Lab ID: L1425582-09
Client ID: MW-21D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 10/27/14 09:45
Date Received: 10/27/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Nitrate	0.055	J	mg/l	0.100	0.015	1	-	10/28/14 07:17	30,4500NO3-F	DB
Nitrogen, Nitrate/Nitrite	0.025	J	mg/l	0.10	0.015	1	-	10/30/14 04:01	30,4500NO3-F	DB
Total Nitrogen	3.1		mg/l	1.5	1.5	5	-	10/31/14 10:30	41,-	JO
Nitrogen, Total Kjeldahl	3.07		mg/l	1.50	0.465	5	10/28/14 09:38	10/28/14 22:13	30,4500N-C	AT



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-09 Batch: WG734951-1										
Nitrogen, Nitrate	0.050	J	mg/l	0.100	0.015	1	-	10/28/14 06:42	30,4500NO3-F	DB
General Chemistry - Westborough Lab for sample(s): 01-09 Batch: WG735087-1										
Nitrogen, Total Kjeldahl	0.098	J	mg/l	0.300	0.031	1	10/28/14 09:38	10/28/14 21:54	30,4500N-C	AT
General Chemistry - Westborough Lab for sample(s): 01-09 Batch: WG735778-1										
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	0.015	1	-	10/30/14 02:05	30,4500NO3-F	DB

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM LANDFILL

Project Number: 2013-027

Lab Number: L1425582

Report Date: 11/05/14

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 01-09 Batch: WG734951-2								
Nitrogen, Nitrate	106		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-09 Batch: WG735087-2								
Nitrogen, Total Kjeldahl	94		-		78-122	-		
General Chemistry - Westborough Lab Associated sample(s): 01-09 Batch: WG735778-2								
Nitrogen, Nitrate/Nitrite	106		-		90-110	-		20

Matrix Spike Analysis Batch Quality Control

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG734951-4 QC Sample: L1425608-01 Client ID: MS Sample												
Nitrogen, Nitrate	6.84	4	12.5	125	Q	-	-		83-113	-		17
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG735087-4 QC Sample: L1424721-03 Client ID: MS Sample												
Nitrogen, Total Kjeldahl	0.784	8	8.58	97		-	-		77-111	-		24
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG735778-4 QC Sample: L1425582-01 Client ID: MW-3D												
Nitrogen, Nitrate/Nitrite	ND	4	4.2	106		-	-		80-120	-		20

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L1425582
Report Date: 11/05/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG734951-3 QC Sample: L1425608-01 Client ID: DUP Sample						
Nitrogen, Nitrate	6.84	6.87	mg/l	1		17
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG735087-3 QC Sample: L1424721-03 Client ID: DUP Sample						
Nitrogen, Total Kjeldahl	0.784	0.841	mg/l	7		24
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG735778-3 QC Sample: L1425582-01 Client ID: MW-3D						
Nitrogen, Nitrate/Nitrite	ND	ND	mg/l	NC		20

Project Name: EASTHAM LANDFILL

Lab Number: L1425582

Project Number: 2013-027

Report Date: 11/05/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent
B Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1425582-01A	Plastic 250ml H2SO4 preserved sp	A	<2	4.7	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-01B	Plastic 120ml HNO3 preserved spl	A	<2	4.7	Y	Absent	MCP-B-6010T-10(180)
L1425582-01C	Plastic 250ml unpreserved split	A	7	4.7	Y	Absent	NO3-4500(2)
L1425582-01D	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-01E	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-01F	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-02A	Plastic 250ml H2SO4 preserved	A	<2	4.7	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-02B	Plastic 120ml HNO3 preserved	A	<2	4.7	Y	Absent	MCP-B-6010T-10(180)
L1425582-02C	Plastic 250ml unpreserved	A	7	4.7	Y	Absent	NO3-4500(2)
L1425582-02D	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-02E	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-03A	Plastic 250ml H2SO4 preserved	A	<2	4.7	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-03B	Plastic 120ml HNO3 preserved	A	<2	4.7	Y	Absent	MCP-B-6010T-10(180)
L1425582-03C	Plastic 250ml unpreserved	A	7	4.7	Y	Absent	NO3-4500(2)
L1425582-03D	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-03E	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-04A	Plastic 250ml H2SO4 preserved	B	<2	5.3	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-04B	Plastic 120ml HNO3 preserved	B	<2	5.3	Y	Absent	MCP-B-6010T-10(180)
L1425582-04C	Plastic 250ml unpreserved	B	7	5.3	Y	Absent	NO3-4500(2)
L1425582-04D	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-04E	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-05A	Plastic 250ml H2SO4 preserved	B	<2	5.3	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-05B	Plastic 120ml HNO3 preserved	B	<2	5.3	Y	Absent	MCP-B-6010T-10(180)

*Values in parentheses indicate holding time in days

Project Name: EASTHAM LANDFILL

Project Number: 2013-027

Lab Number: L1425582

Report Date: 11/05/14

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1425582-05C	Plastic 250ml unpreserved	B	7	5.3	Y	Absent	NO3-4500(2)
L1425582-05D	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-05E	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-06A	Plastic 250ml H2SO4 preserved	B	<2	5.3	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-06B	Plastic 120ml HNO3 preserved	B	<2	5.3	Y	Absent	MCP-B-6010T-10(180)
L1425582-06C	Plastic 250ml unpreserved	B	7	5.3	Y	Absent	NO3-4500(2)
L1425582-06D	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-06E	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-07A	Plastic 250ml H2SO4 preserved	B	<2	5.3	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-07B	Plastic 120ml HNO3 preserved	B	<2	5.3	Y	Absent	MCP-B-6010T-10(180)
L1425582-07C	Plastic 250ml unpreserved	B	7	5.3	Y	Absent	NO3-4500(2)
L1425582-07D	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-07E	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-08A	Plastic 250ml H2SO4 preserved	B	<2	5.3	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-08B	Plastic 120ml HNO3 preserved	B	<2	5.3	Y	Absent	MCP-B-6010T-10(180)
L1425582-08C	Plastic 250ml unpreserved	B	7	5.3	Y	Absent	NO3-4500(2)
L1425582-08D	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-08E	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-09A	Plastic 250ml H2SO4 preserved	A	<2	4.7	Y	Absent	TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1425582-09B	Plastic 120ml HNO3 preserved	A	<2	4.7	Y	Absent	MCP-B-6010T-10(180)
L1425582-09C	Plastic 250ml unpreserved	A	7	4.7	Y	Absent	NO3-4500(2)
L1425582-09D	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-09E	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-10A	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-10B	Amber 500ml unpreserved	A	7	4.7	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-10C	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1425582-10D	Amber 500ml unpreserved	B	7	5.3	Y	Absent	A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

Data Qualifiers

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

Project Name: EASTHAM LANDFILL
Project Number: 2013-027

Lab Number: L1425582
Report Date: 11/05/14

REFERENCES

- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
- 41 Alpha Analytical Labs Internally-developed Performance-based Method.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

Last revised April 15, 2014

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

Westborough Facility

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

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

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

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

EPA 625: 4-Chloroaniline, 4-Methylphenol.

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

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

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

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

Drinking Water

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

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

EPA 332: Perchlorate.

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

Non-Potable Water

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

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

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

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

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

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

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

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1529351	11/10/2015	GW	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
ESMW-1S (40-50')	11/10/2015	L1529351-1	GW	8270	ESMW-3S (35-45')	11/10/2015	L1529351-7	GW	8270
ESMW-1I (60-70')	11/10/2015	L1529351-2	GW	8270	ESMW-3I (70-80')	11/10/2015	L1529351-8	GW	8270
ESMW-1D (100-110')	11/10/2015	L1529351-3	GW	8270	ESMW-3D (110-120')	11/10/2015	L1529351-9	GW	8270
ESMW-2S (40-50')	11/10/2015	L1529351-4	GW	8270	ESMW-4i (60-70')	11/10/2015	L1529351-10	GW	8270
ESMW-2I (60-70')	11/10/2015	L1529351-5	GW	8270	ESMW-4d (100-110')	11/10/2015	L1529351-11	GW	8270
ESMW-2D (100-110')	11/10/2015	L1529351-6	GW	8270					

All QAQC data, including surrogate, method blank, laboratory control sample (LCS), and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 11/17/15.



ANALYTICAL REPORT

Lab Number:	L1529351
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	2013-027
Report Date:	11/16/15

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Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), ME (MA00030), PA (68-02089), VA (460194), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), USFWS (Permit #LE2069641), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

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Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1529351-01	ESMW-1S (40-50')	WATER	EASTHAM, MA	11/10/15 12:30	11/10/15
L1529351-02	ESMW-1I (60-70')	WATER	EASTHAM, MA	11/10/15 12:00	11/10/15
L1529351-03	ESMW-1D (100-110')	WATER	EASTHAM, MA	11/10/15 11:35	11/10/15
L1529351-04	ESMW-2S (40-50')	WATER	EASTHAM, MA	11/10/15 10:10	11/10/15
L1529351-05	ESMW-2I (60-70')	WATER	EASTHAM, MA	11/10/15 09:45	11/10/15
L1529351-06	ESMW-2D (100-110')	WATER	EASTHAM, MA	11/10/15 09:20	11/10/15
L1529351-07	ESMW-3S (35-45')	WATER	EASTHAM, MA	11/10/15 09:15	11/10/15
L1529351-08	ESMW-3I (70-80')	WATER	EASTHAM, MA	11/10/15 09:45	11/10/15
L1529351-09	ESMW-3D (110-120')	WATER	EASTHAM, MA	11/10/15 10:35	11/10/15
L1529351-10	ESMW-4I (60-70')	WATER	EASTHAM, MA	11/10/15 11:45	11/10/15
L1529351-11	ESMW-4D (100-110')	WATER	EASTHAM, MA	11/10/15 11:00	11/10/15

Project Name: EASTHAM DW

Lab Number: L1529351

Project Number: 2013-027

Report Date: 11/16/15

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

MCP Related Narratives

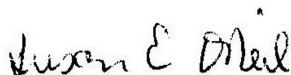
Semi-Volatile Organics

In reference to question I:

All samples were analyzed for a subset of MCP analytes 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:



Susan O'Neil

Title: Technical Director/Representative

Date: 11/16/15

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-01
Client ID: ESMW-1S (40-50')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 13:13
Analyst: SF

Date Collected: 11/10/15 12:30
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	0.726		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	32		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-02
Client ID: ESMW-1I (60-70')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 13:58
Analyst: SF

Date Collected: 11/10/15 12:00
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	37		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-03
Client ID: ESMW-1D (100-110')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 14:44
Analyst: SF

Date Collected: 11/10/15 11:35
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	0.0735	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-04
Client ID: ESMW-2S (40-50')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 15:30
Analyst: SF

Date Collected: 11/10/15 10:10
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.167	0.0833	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	41		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-05
Client ID: ESMW-2I (60-70')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 16:16
Analyst: SF

Date Collected: 11/10/15 09:45
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.167	0.0833	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	36		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-06
Client ID: ESMW-2D (100-110')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 17:02
Analyst: SF

Date Collected: 11/10/15 09:20
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	0.186		ug/l	0.167	0.0833	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	38		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-07
Client ID: ESMW-3S (35-45')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 17:48
Analyst: SF

Date Collected: 11/10/15 09:15
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.153	0.0765	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	39		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-08
Client ID: ESMW-3I (70-80')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 18:34
Analyst: SF

Date Collected: 11/10/15 09:45
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.153	0.0765	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-09
Client ID: ESMW-3D (110-120')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 19:20
Analyst: SF

Date Collected: 11/10/15 10:35
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.153	0.0765	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	31		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-10
Client ID: ESMW-4I (60-70')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 21:32
Analyst: SF

Date Collected: 11/10/15 11:45
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.167	0.0833	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	32		15-110

Project Name: EASTHAM DW**Lab Number:** L1529351**Project Number:** 2013-027**Report Date:** 11/16/15**SAMPLE RESULTS**

Lab ID: L1529351-11
Client ID: ESMW-4D (100-110')
Sample Location: EASTHAM, MA
Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 22:18
Analyst: SF

Date Collected: 11/10/15 11:00
Date Received: 11/10/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.167	0.0833	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	30		15-110

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 11/12/15 10:55
Analyst: SF

Extraction Method: EPA 3510C
Extraction Date: 11/11/15 20:27

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-11 Batch: WG839741-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	47		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-11 Batch: WG839741-2 WG839741-3								
1,4-Dioxane	99		100		40-140	1		20

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
1,4-Dioxane-d8	45		49		15-110

Project Name: EASTHAM DW

Project Number: 2013-027

Lab Number: L1529351

Report Date: 11/16/15

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal**Cooler**

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1529351-01A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-01B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-02A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-02B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-03A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-03B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-04A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-04B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-05A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-05B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-06A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-06B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-07A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-07B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-08A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-08B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-09A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-09B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-10A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-10B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-11A	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1529351-11B	Amber 500ml unpreserved	A	7	4.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

Data Qualifiers

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

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: 2013-027

Lab Number: L1529351
Report Date: 11/16/15

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

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

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

EPA 625: 4-Chloroaniline, 4-Methylphenol.

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

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

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

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

Drinking Water

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

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

EPA 332: Perchlorate.

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

Non-Potable Water

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

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

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

EPA 353.2: Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT,

Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

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

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

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



CHAIN OF CUSTODY

PAGE 2 OF 2

Project Information

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Project Name: Eastham DW

Client Information

Client: Environmental Strategies & Managemen
 Address: 273 West Main Street
 Norton, MA 02703
 Phone: 508-226-1800
 Fax: 508-226-1811
 Email: lflynn@esm-inc.com

Project Location: Eastham MA

Project #: 2013-027

Project Manager: Lisa Flynn

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: Time:

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 email results to lflynn@esm-inc.com and aboyd@esm-inc.com

PLEASE BILL EASTHAM BOARD OF HEALTH

Date Rec'd in Lab: 11/10/15 ALPHA Job #: L1529351

Report Information	Data Deliverables	Billing Information	
<input type="checkbox"/> FAX	<input checked="" type="checkbox"/> EMAIL	<input type="checkbox"/> Same as Client info	PO #:
<input checked="" type="checkbox"/> ADEX	<input type="checkbox"/> Add'l Deliverables		

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
8270 - MCP	0.15 ug/l for 1,4 dioxane, GW-1

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Are MCP Analytical Methods Required?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS																SAMPLE HANDLING	TOTAL # BOTTLES	
1,4 DIOXANE BY 8270																		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Filtration <input type="checkbox"/> Done <input type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
29351, 10	ESMW-4i (60-70')	10/11/15	11:45	GW	MW
11	ESMW-4d (100-110')	10/11/15	11:00	GW	MW

PLEASE ANSWER QUESTIONS ABOVE!

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**IS YOUR PROJECT
 MA MCP or CT RCP?**

FORM NO. 01-01(i)
 (rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	11/10/15 15:00	<i>[Signature]</i>	11/10/15 1500

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 Payment Terms.

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1627501	9/1/2016	DW	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis
SALT POND RD_055	9/1/2016	L1627501-01	DW	8270
SALT POND RD_055 DUP	9/1/2016	L1627501-02	DW	Not Analyzed

All QAQC data, including surrogate, method blank, laboratory control sample (LCS), and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 9/16/16.



ANALYTICAL REPORT

Lab Number:	L1627501
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	2015-038
Report Date:	09/08/16

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

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), ME (MA00030), PA (68-02089), VA (460194), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), USFWS (Permit #LE2069641), USDA (Permit #P330-11-00109), 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: EASTHAM DW
Project Number: 2015-038

Lab Number: L1627501
Report Date: 09/08/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1627501-01	SALT POND RD_055	DW	EASTHAM, MA	09/01/16 09:05	09/01/16
L1627501-02	SALT POND RD_055 DUP	WATER	EASTHAM, MA	09/01/16 09:10	09/01/16

Project Name: EASTHAM DW

Lab Number: L1627501

Project Number: 2015-038

Report Date: 09/08/16

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: 2015-038

Lab Number: L1627501
Report Date: 09/08/16

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: 2015-038

Lab Number: L1627501
Report Date: 09/08/16

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

MCP Related Narratives

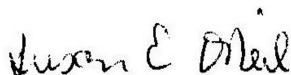
Semivolatiles

In reference to question I:

All samples were analyzed for a subset of MCP analytes 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:



Susan O'Neil

Title: Technical Director/Representative

Date: 09/08/16

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW**Lab Number:** L1627501**Project Number:** 2015-038**Report Date:** 09/08/16**SAMPLE RESULTS**

Lab ID: L1627501-01
Client ID: SALT POND RD_055
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 09/06/16 22:09
Analyst: WR

Date Collected: 09/01/16 09:05
Date Received: 09/01/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 09/03/16 09:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	0.681		ug/l	0.142	0.071	1
-------------	-------	--	------	-------	-------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM DW

Lab Number: L1627501

Project Number: 2015-038

Report Date: 09/08/16

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8270D-SIM

Extraction Method: EPA 3510C

Analytical Date: 09/06/16 19:57

Extraction Date: 09/03/16 09:15

Analyst: WR

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01 Batch: WG928756-1					
1,4-Dioxane	ND		ug/l	0.150	0.075

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	30		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM DW
Project Number: 2015-038

Lab Number: L1627501
Report Date: 09/08/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01 Batch: WG928756-2 WG928756-3								
1,4-Dioxane	120		120		40-140	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	32		29		15-110

Project Name: EASTHAM DW**Project Number:** 2015-038**Lab Number:** L1627501**Report Date:** 09/08/16**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information Custody Seal**Cooler**

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1627501-01A	Amber 500ml unpreserved	A	7	3.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1627501-01B	Amber 500ml unpreserved	A	7	3.8	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1627501-02A	Amber 500ml unpreserved	A	7	3.8	Y	Absent	HOLD-1,4DIOX(7)
L1627501-02B	Amber 500ml unpreserved	A	7	3.8	Y	Absent	HOLD-1,4DIOX(7)

*Values in parentheses indicate holding time in days

Project Name: EASTHAM DW
Project Number: 2015-038

Lab Number: L1627501
Report Date: 09/08/16

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: 2015-038

Lab Number: L1627501
Report Date: 09/08/16

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
 - D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
 - E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
 - G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
 - H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
 - I** - The lower value for the two columns has been reported due to obvious interference.
 - M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
 - NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
 - P** - The RPD between the results for the two columns exceeds the method-specified criteria.
 - Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
 - R** - Analytical results are from sample re-analysis.
 - RE** - Analytical results are from sample re-extraction.
 - S** - Analytical results are from modified screening analysis.
 - J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
 - ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM DW
Project Number: 2015-038

Lab Number: L1627501
Report Date: 09/08/16

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624: m/p-xylene, o-xylene

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

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: **EPA 3050B**

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

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

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

Non-Potable Water

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

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

EPA 245.1 Hg.

SM2340B

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

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1629795	9/21/2016	GW	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
ESMW-1S	9/21/2016	L1629795-1	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential	ESMW-3S	9/21/2016	L1629795-7	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential
ESMW-1I	9/21/2016	L1629795-2	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential	ESMW-3I	9/21/2016	L1629795-8	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential
ESMW-1D	9/21/2016	L1629795-3	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential	ESMW-3D	9/21/2016	L1629795-9	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential
ESMW-2S	9/21/2016	L1629795-4	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential	ESMW-4I	9/21/2016	L1629795-10	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential
ESMW-2I	9/21/2016	L1629795-5	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential	ESMW-4D	9/21/2016	L1629795-11	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential
ESMW-2D	9/21/2016	L1629795-6	GW	8270, metals, pH, ammonia, nitrate, nitrite, total nitrogen, total kjeldahl nitrogen, sulfate, dissolved organic carbon, oxidation/ reduction potential					

Dissolved Organic Carbon - The samples were field filtered; a filter blank was not received.

The Nitrate WG934864-4 MS recovery (78%), performed on L1629795-01, does not apply because the sample concentration is greater than four times the spike amount added.

Nitrate/Nitrite - The WG934866-4 MS recovery (75%), performed on L1629795-01, does not apply because the sample concentration is greater than four times the spike amount added.

All QAQC data, including surrogate, method blank, laboratory control sample (LCS), LCS duplicate, matrix spike and lab duplicate results were reviewed. This report was deemed usable by Angela Boyd on 10/7/16.



ANALYTICAL REPORT

Lab Number:	L1629795
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM LANDFILL
Project Number:	2015-038
Report Date:	09/28/16

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

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

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



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1629795-01	ESMW-1S	WATER	EASTHAM, MA	09/21/16 09:15	09/21/16
L1629795-02	ESMW-1I	WATER	EASTHAM, MA	09/21/16 09:20	09/21/16
L1629795-03	ESMW-1D	WATER	EASTHAM, MA	09/21/16 09:45	09/21/16
L1629795-04	ESMW-2S	WATER	EASTHAM, MA	09/21/16 08:15	09/21/16
L1629795-05	ESMW-2I	WATER	EASTHAM, MA	09/21/16 08:20	09/21/16
L1629795-06	ESMW-2D	WATER	EASTHAM, MA	09/21/16 08:35	09/21/16
L1629795-07	ESMW-3S	WATER	EASTHAM, MA	09/21/16 11:15	09/21/16
L1629795-08	ESMW-3I	WATER	EASTHAM, MA	09/21/16 11:20	09/21/16
L1629795-09	ESMW-3D	WATER	EASTHAM, MA	09/21/16 11:45	09/21/16
L1629795-10	ESMW-4I	WATER	EASTHAM, MA	09/21/16 10:20	09/21/16
L1629795-11	ESMW-4D	WATER	EASTHAM, MA	09/21/16 10:25	09/21/16

Project Name: EASTHAM LANDFILL

Lab Number: L1629795

Project Number: 2015-038

Report Date: 09/28/16

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

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

HOLD POLICY

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

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

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

MCP Related Narratives

1,4-Dioxane by 8270-SIM

In reference to question I:

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

Metals

In reference to question I:

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

Non-MCP Related Narratives

Nitrogen, Total Kjeldahl

L1629795-01: The sample has an elevated detection limit due to the dilution required by the sample matrix.

Dissolved Organic Carbon

The samples were field filtered; a filter blank was not received.

Nitrogen, Ammonia

L1629795-07, -09, -10, and -11: The sample has an elevated detection limit due to the dilution required by the sample matrix.

Nitrogen, Nitrate

The WG934864-4 MS recovery (78%), performed on L1629795-01, does not apply because the sample concentration is greater than four times the spike amount added.

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

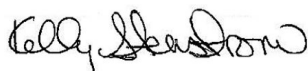
Case Narrative (continued)

Nitrogen, Nitrate/Nitrite

The WG934866-4 MS recovery (75%), performed on L1629795-01, does not apply because the sample concentration is greater than four times the spike amount added.

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:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 09/28/16

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-01
 Client ID: ESMW-1S
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/23/16 19:57
 Analyst: WR

Date Collected: 09/21/16 09:15
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	1.39		ug/l	0.144	0.0721	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	22		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-02
 Client ID: ESMW-11
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/23/16 20:43
 Analyst: WR

Date Collected: 09/21/16 09:20
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.244		ug/l	0.147	0.0735	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	24		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-03
 Client ID: ESMW-1D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 16:45
 Analyst: WR

Date Collected: 09/21/16 09:45
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	0.0721	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-04
 Client ID: ESMW-2S
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 17:31
 Analyst: WR

Date Collected: 09/21/16 08:15
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.156	0.0781	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	33		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-05
 Client ID: ESMW-2I
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 18:17
 Analyst: WR

Date Collected: 09/21/16 08:20
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	0.0735	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-06
 Client ID: ESMW-2D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 19:03
 Analyst: WR

Date Collected: 09/21/16 08:35
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.172		ug/l	0.144	0.0721	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-07
 Client ID: ESMW-3S
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 19:49
 Analyst: WR

Date Collected: 09/21/16 11:15
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.145		ug/l	0.142	0.0708	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	30		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-08
 Client ID: ESMW-3I
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 20:34
 Analyst: WR

Date Collected: 09/21/16 11:20
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.123	J	ug/l	0.144	0.0721	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-09
 Client ID: ESMW-3D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 21:20
 Analyst: WR

Date Collected: 09/21/16 11:45
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.107	J	ug/l	0.147	0.0735	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	34		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-10
 Client ID: ESMW-4I
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 22:06
 Analyst: WR

Date Collected: 09/21/16 10:20
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	0.0735	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-11
 Client ID: ESMW-4D
 Sample Location: EASTHAM, MA
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 09/25/16 22:52
 Analyst: WR

Date Collected: 09/21/16 10:25
 Date Received: 09/21/16
 Field Prep: Field Filtered (Dissolved Metals)
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	0.0735	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM LANDFILL

Lab Number: L1629795

Project Number: 2015-038

Report Date: 09/28/16

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
 Analytical Date: 09/23/16 16:52
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 09/23/16 11:45

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-11 Batch: WG935140-1					
1,4-Dioxane	ND		ug/l	0.150	0.0750

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	37		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-11 Batch: WG935140-2 WG935140-3								
1,4-Dioxane	97		97		40-140	0		30

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
1,4-Dioxane-d8	39		39		15-110

METALS

Project Name: EASTHAM LANDFILL

Lab Number: L1629795

Project Number: 2015-038

Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-01

Date Collected: 09/21/16 09:15

Client ID: ESMW-1S

Date Received: 09/21/16

Sample Location: EASTHAM, MA

Field Prep: Field Filtered
(Dissolved
Metals)

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	0.002	J	mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.182		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Chromium, Dissolved	ND		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.002	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Iron, Dissolved	0.02	J	mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Lead, Dissolved	ND		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.576		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:14	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.012	J	mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:07	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-02
 Client ID: ESMW-1I
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 09:20
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	ND		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.056		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Chromium, Dissolved	0.0032	J	mg/l	0.0100	0.0020	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.002	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Iron, Dissolved	0.96		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Lead, Dissolved	ND		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.060		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:16	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.008	J	mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:11	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-03
 Client ID: ESMW-1D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 09:45
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	ND		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.006	J	mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Chromium, Dissolved	ND		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Copper, Dissolved	ND		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Iron, Dissolved	1.1		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Lead, Dissolved	0.002	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.308		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:18	EPA 7470A	97,7470A	EA
Selenium, Dissolved	0.003	J	mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB
Zinc, Dissolved	ND		mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:15	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-04
 Client ID: ESMW-2S
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 08:15
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	ND		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.034		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Chromium, Dissolved	0.02		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.006	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Iron, Dissolved	4.4		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Lead, Dissolved	0.005	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.056		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:23	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.012	J	mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:20	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-05
 Client ID: ESMW-2I
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 08:20
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	0.016		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.204		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	0.001	J	mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Chromium, Dissolved	0.20		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.151		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Iron, Dissolved	51		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Lead, Dissolved	0.065		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.424		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:25	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.289		mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:24	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL

Lab Number: L1629795

Project Number: 2015-038

Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-06
 Client ID: ESMW-2D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 08:35
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	ND		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.003	J	mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Chromium, Dissolved	ND		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Copper, Dissolved	ND		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Iron, Dissolved	0.31		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Lead, Dissolved	ND		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.098		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:27	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB
Zinc, Dissolved	ND		mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:45	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-07
 Client ID: ESMW-3S
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 11:15
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	0.021		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.126		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Chromium, Dissolved	0.18		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.049		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Iron, Dissolved	56		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Lead, Dissolved	0.039		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.785		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:28	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.175		mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:49	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-08
 Client ID: ESMW-3I
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 11:20
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	0.015		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.071		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Chromium, Dissolved	0.08		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.028		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Iron, Dissolved	32		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Lead, Dissolved	0.021		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Manganese, Dissolved	1.79		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:30	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.095		mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:53	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-09
 Client ID: ESMW-3D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 11:45
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	0.058		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.331		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	0.001	J	mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Chromium, Dissolved	0.40		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.169		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Iron, Dissolved	140		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Lead, Dissolved	0.140		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Manganese, Dissolved	1.47		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:32	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.527		mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 02:58	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-10
 Client ID: ESMW-4I
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 10:20
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	ND		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.011		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Chromium, Dissolved	ND		mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.002	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Iron, Dissolved	0.09		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Lead, Dissolved	ND		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.201		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:33	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB
Zinc, Dissolved	ND		mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 03:02	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-11
 Client ID: ESMW-4D
 Sample Location: EASTHAM, MA
 Matrix: Water

Date Collected: 09/21/16 10:25
 Date Received: 09/21/16
 Field Prep: Field Filtered
 (Dissolved
 Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Arsenic, Dissolved	ND		mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Barium, Dissolved	0.015		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Cadmium, Dissolved	ND		mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Chromium, Dissolved	0.0037	J	mg/l	0.0100	0.0020	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Copper, Dissolved	0.004	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Iron, Dissolved	2.3		mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Lead, Dissolved	0.003	J	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Manganese, Dissolved	0.087		mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Mercury, Dissolved	ND		mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:35	EPA 7470A	97,7470A	EA
Selenium, Dissolved	ND		mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Silver, Dissolved	ND		mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB
Zinc, Dissolved	0.009	J	mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 03:06	EPA 3005A	97,6010C	FB



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-11 Batch: WG934712-1									
Mercury, Dissolved	ND	mg/l	0.0002	0.0002	1	09/22/16 11:24	09/23/16 17:06	97,7470A	EA

Prep Information

Digestion Method: EPA 7470A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-11 Batch: WG935084-1									
Arsenic, Dissolved	ND	mg/l	0.005	0.002	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Barium, Dissolved	ND	mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Cadmium, Dissolved	ND	mg/l	0.004	0.001	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Chromium, Dissolved	ND	mg/l	0.01	0.002	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Copper, Dissolved	ND	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Iron, Dissolved	ND	mg/l	0.05	0.02	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Lead, Dissolved	ND	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Manganese, Dissolved	ND	mg/l	0.010	0.002	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Selenium, Dissolved	ND	mg/l	0.010	0.003	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Silver, Dissolved	ND	mg/l	0.007	0.002	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB
Zinc, Dissolved	ND	mg/l	0.050	0.007	1	09/23/16 10:10	09/24/16 01:03	97,6010C	FB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM LANDFILL

Project Number: 2015-038

Lab Number: L1629795

Report Date: 09/28/16

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-11 Batch: WG934712-2 WG934712-3								
Mercury, Dissolved	84		80		80-120	5		20
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-11 Batch: WG935084-2 WG935084-3								
Arsenic, Dissolved	108		106		80-120	2		20
Barium, Dissolved	98		96		80-120	2		20
Cadmium, Dissolved	111		110		80-120	1		20
Chromium, Dissolved	95		95		80-120	0		20
Copper, Dissolved	97		95		80-120	2		20
Iron, Dissolved	90		88		80-120	2		20
Lead, Dissolved	103		101		80-120	2		20
Manganese, Dissolved	93		90		80-120	3		20
Selenium, Dissolved	112		109		80-120	3		20
Silver, Dissolved	101		98		80-120	3		20
Zinc, Dissolved	101		99		80-120	2		20

INORGANICS & MISCELLANEOUS

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-01
Client ID: ESMW-1S
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 09:15
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.1		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	2.60		mg/l	0.150	0.057	2	09/27/16 10:22	09/27/16 22:44	121,4500NH3-BH	AT
Nitrogen, Nitrite	0.029	J	mg/l	0.050	0.010	1	-	09/22/16 21:34	121,4500NO3-F	MR
Nitrogen, Nitrate	32.8		mg/l	1.00	0.188	10	-	09/23/16 00:02	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	33.		mg/l	1.0	0.19	10	-	09/23/16 00:02	121,4500NO3-F	MR
Total Nitrogen	33.		mg/l	3.0	3.0	10	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	0.807	J	mg/l	3.00	0.660	10	09/27/16 15:36	09/27/16 23:19	121,4500N-C	AT
Sulfate	13.		mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	2.0		mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	250		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-02
Client ID: ESMW-1I
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 09:20
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.4		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	0.097		mg/l	0.075	0.028	1	09/22/16 11:39	09/26/16 23:47	121,4500NH3-BH	AT
Nitrogen, Nitrite	0.012	J	mg/l	0.050	0.010	1	-	09/22/16 21:42	121,4500NO3-F	MR
Nitrogen, Nitrate	16.4		mg/l	0.500	0.094	5	-	09/23/16 00:08	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	16.		mg/l	0.50	0.094	5	-	09/23/16 00:08	121,4500NO3-F	MR
Total Nitrogen	16.		mg/l	0.50	0.48	1.6	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	0.131	J	mg/l	0.300	0.066	1	09/22/16 15:22	09/26/16 23:11	121,4500N-C	AT
Sulfate	6.4	J	mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	0.61	J	mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	230		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-03
Client ID: ESMW-1D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 09:45
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.7		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	ND		mg/l	0.075	0.028	1	09/22/16 11:39	09/26/16 23:50	121,4500NH3-BH	AT
Nitrogen, Nitrite	0.029	J	mg/l	0.050	0.010	1	-	09/22/16 21:43	121,4500NO3-F	MR
Nitrogen, Nitrate	1.71		mg/l	0.100	0.018	1	-	09/23/16 00:09	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	1.7		mg/l	0.10	0.019	1	-	09/23/16 00:09	121,4500NO3-F	MR
Total Nitrogen	2.2		mg/l	0.30	0.30	1	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	0.479		mg/l	0.300	0.066	1	09/22/16 15:22	09/26/16 23:12	121,4500N-C	AT
Sulfate	8.3	J	mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	0.55	J	mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	190		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-04
Client ID: ESMW-2S
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 08:15
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.7		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	0.476		mg/l	0.075	0.028	1	09/22/16 11:39	09/26/16 23:51	121,4500NH3-BH	AT
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 21:45	121,4500NO3-F	MR
Nitrogen, Nitrate	ND		mg/l	0.100	0.018	1	-	09/22/16 21:45	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	0.019	1	-	09/22/16 21:45	121,4500NO3-F	MR
Total Nitrogen	1.2		mg/l	0.30	0.30	1	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	1.24		mg/l	0.300	0.066	1	09/22/16 15:22	09/26/16 23:13	121,4500N-C	AT
Sulfate	1.8	J	mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	3.4		mg/l	2.0	0.08	2	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	120		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-05
Client ID: ESMW-2I
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 08:20
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.7		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	1.64		mg/l	0.375	0.142	5	09/22/16 11:39	09/26/16 23:52	121,4500NH3-BH	AT
Nitrogen, Nitrite	0.013	J	mg/l	0.050	0.010	1	-	09/22/16 21:46	121,4500NO3-F	MR
Nitrogen, Nitrate	0.030	J	mg/l	0.100	0.018	1	-	09/22/16 21:46	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	0.031	J	mg/l	0.10	0.019	1	-	09/22/16 21:46	121,4500NO3-F	MR
Total Nitrogen	5.7		mg/l	1.5	1.5	5	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	5.71		mg/l	1.50	0.330	5	09/22/16 15:22	09/26/16 23:14	121,4500N-C	AT
Sulfate	2.2	J	mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	7.5		mg/l	2.0	0.08	2	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	68		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-06
Client ID: ESMW-2D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 08:35
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.0		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	ND		mg/l	0.075	0.028	1	09/22/16 11:39	09/26/16 23:53	121,4500NH3-BH	AT
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 21:47	121,4500NO3-F	MR
Nitrogen, Nitrate	ND		mg/l	0.100	0.018	1	-	09/22/16 21:47	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	0.019	1	-	09/22/16 21:47	121,4500NO3-F	MR
Total Nitrogen	0.34		mg/l	0.30	0.30	1	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	0.340		mg/l	0.300	0.066	1	09/22/16 15:22	09/26/16 23:15	121,4500N-C	AT
Sulfate	14.		mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	0.39	J	mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	130		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-07
Client ID: ESMW-3S
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 11:15
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.6		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	0.085	J	mg/l	0.150	0.057	2	09/22/16 11:39	09/26/16 23:54	121,4500NH3-BH	AT
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 21:52	121,4500NO3-F	MR
Nitrogen, Nitrate	1.59		mg/l	0.100	0.018	1	-	09/22/16 21:52	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	1.6		mg/l	0.10	0.019	1	-	09/22/16 21:52	121,4500NO3-F	MR
Total Nitrogen	4.5		mg/l	0.60	0.60	2	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	2.94		mg/l	0.600	0.132	2	09/22/16 15:22	09/26/16 23:16	121,4500N-C	AT
Sulfate	18.		mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	1.0		mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	200		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-08
Client ID: ESMW-3I
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 11:20
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.3		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	0.492		mg/l	0.375	0.142	5	09/22/16 11:39	09/26/16 23:55	121,4500NH3-BH	AT
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 21:54	121,4500NO3-F	MR
Nitrogen, Nitrate	ND		mg/l	0.100	0.018	1	-	09/22/16 21:54	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	0.019	1	-	09/22/16 21:54	121,4500NO3-F	MR
Total Nitrogen	3.4		mg/l	1.5	1.5	5	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	3.38		mg/l	1.50	0.330	5	09/22/16 15:22	09/26/16 23:16	121,4500N-C	AT
Sulfate	6.5	J	mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	0.84	J	mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	130		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-09
Client ID: ESMW-3D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 11:45
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.8		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	0.191	J	mg/l	0.375	0.142	5	09/22/16 11:39	09/26/16 23:56	121,4500NH3-BH	AT
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 21:55	121,4500NO3-F	MR
Nitrogen, Nitrate	1.23		mg/l	0.100	0.018	1	-	09/22/16 21:55	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	1.2		mg/l	0.10	0.019	1	-	09/22/16 21:55	121,4500NO3-F	MR
Total Nitrogen	9.0		mg/l	1.5	1.5	5	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	7.80		mg/l	1.50	0.330	5	09/22/16 15:22	09/26/16 23:17	121,4500N-C	AT
Sulfate	10.		mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	0.99	J	mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	200		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-10
Client ID: ESMW-4I
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 10:20
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.1		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	ND		mg/l	0.150	0.057	2	09/22/16 11:39	09/26/16 23:56	121,4500NH3-BH	AT
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 21:56	121,4500NO3-F	MR
Nitrogen, Nitrate	4.31		mg/l	0.100	0.018	1	-	09/22/16 21:56	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	4.3		mg/l	0.10	0.019	1	-	09/22/16 21:56	121,4500NO3-F	MR
Total Nitrogen	7.0		mg/l	1.5	1.5	5	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	2.68		mg/l	1.50	0.330	5	09/22/16 15:22	09/26/16 23:21	121,4500N-C	AT
Sulfate	7.4	J	mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
Dissolved Organic Carbon	0.59	J	mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	190		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

SAMPLE RESULTS

Lab ID: L1629795-11
Client ID: ESMW-4D
Sample Location: EASTHAM, MA
Matrix: Water

Date Collected: 09/21/16 10:25
Date Received: 09/21/16
Field Prep: Field Filtered
(Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	5.9		SU	-	NA	1	-	09/22/16 02:46	121,4500H+-B	KA
Nitrogen, Ammonia	0.196	J	mg/l	0.375	0.142	5	09/22/16 11:39	09/26/16 23:57	121,4500NH3-BH	AT
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 21:58	121,4500NO3-F	MR
Nitrogen, Nitrate	2.80		mg/l	0.100	0.018	1	-	09/22/16 21:58	121,4500NO3-F	MR
Nitrogen, Nitrate/Nitrite	2.8		mg/l	0.10	0.019	1	-	09/22/16 21:58	121,4500NO3-F	MR
Total Nitrogen	6.9		mg/l	1.5	1.5	5	-	09/28/16 11:31	107,-	JO
Nitrogen, Total Kjeldahl	4.10		mg/l	1.50	0.330	5	09/22/16 15:22	09/26/16 23:22	121,4500N-C	AT
Sulfate	5.8	J	mg/l	10	1.4	1	09/23/16 13:00	09/23/16 13:00	1,9038	MP
Dissolved Organic Carbon	0.34	J	mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
Oxidation/Reduction Potential	210		mv	-	NA	1	-	09/22/16 01:06	12,1498	AS



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 02-11 Batch: WG934606-1										
Nitrogen, Total Kjeldahl	0.088	J	mg/l	0.300	0.022	1	09/22/16 15:22	09/26/16 22:58	121,4500N-C	AT
General Chemistry - Westborough Lab for sample(s): 02-11 Batch: WG934613-1										
Nitrogen, Ammonia	ND		mg/l	0.075	0.028	1	09/22/16 11:39	09/26/16 23:27	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-11 Batch: WG934864-1										
Nitrogen, Nitrate	ND		mg/l	0.100	0.018	1	-	09/22/16 20:35	121,4500NO3-F	MR
General Chemistry - Westborough Lab for sample(s): 01-11 Batch: WG934866-1										
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	0.019	1	-	09/22/16 20:35	121,4500NO3-F	MR
General Chemistry - Westborough Lab for sample(s): 01-11 Batch: WG934867-1										
Nitrogen, Nitrite	ND		mg/l	0.050	0.010	1	-	09/22/16 20:37	121,4500NO3-F	MR
General Chemistry - Westborough Lab for sample(s): 01-10 Batch: WG935023-1										
Dissolved Organic Carbon	ND		mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
General Chemistry - Westborough Lab for sample(s): 11 Batch: WG935024-1										
Dissolved Organic Carbon	ND		mg/l	1.0	0.04	1	09/26/16 07:40	09/26/16 07:40	1,9060A	DW
General Chemistry - Westborough Lab for sample(s): 01-10 Batch: WG935039-1										
Sulfate	1.9	J	mg/l	10	1.4	1	09/23/16 11:00	09/23/16 11:00	1,9038	MP
General Chemistry - Westborough Lab for sample(s): 11 Batch: WG935040-1										
Sulfate	1.9	J	mg/l	10	1.4	1	09/23/16 13:00	09/23/16 13:00	1,9038	MP
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG936116-1										
Nitrogen, Total Kjeldahl	0.105	J	mg/l	0.300	0.022	1	09/27/16 15:36	09/27/16 23:14	121,4500N-C	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG936120-1										
Nitrogen, Ammonia	ND		mg/l	0.075	0.028	1	09/27/16 10:22	09/27/16 22:27	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM LANDFILL

Project Number: 2015-038

Lab Number: L1629795

Report Date: 09/28/16

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 01-11 Batch: WG934527-1								
Oxidation/Reduction Potential	101		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-11 Batch: WG934542-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 02-11 Batch: WG934606-2								
Nitrogen, Total Kjeldahl	95		-		78-122	-		
General Chemistry - Westborough Lab Associated sample(s): 02-11 Batch: WG934613-2								
Nitrogen, Ammonia	90		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-11 Batch: WG934864-2								
Nitrogen, Nitrate	99		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-11 Batch: WG934866-2								
Nitrogen, Nitrate/Nitrite	98		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-11 Batch: WG934867-2								
Nitrogen, Nitrite	99		-		90-110	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM LANDFILL

Project Number: 2015-038

Lab Number: L1629795

Report Date: 09/28/16

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-10 Batch: WG935023-2					
Dissolved Organic Carbon	102	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 11 Batch: WG935024-2					
Dissolved Organic Carbon	102	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 01-10 Batch: WG935039-2					
Sulfate	90	-	84-119	-	
General Chemistry - Westborough Lab Associated sample(s): 11 Batch: WG935040-2					
Sulfate	90	-	84-119	-	
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG936116-2					
Nitrogen, Total Kjeldahl	92	-	78-122	-	
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG936120-2					
Nitrogen, Ammonia	88	-	80-120	-	20

Matrix Spike Analysis Batch Quality Control

Project Name: EASTHAM LANDFILL

Lab Number: L1629795

Project Number: 2015-038

Report Date: 09/28/16

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934864-4 QC Sample: L1629795-01 Client ID: ESMW-1S												
Nitrogen, Nitrate	32.8	4	35.9	78	Q	-	-	-	83-113	-	-	17
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934866-4 QC Sample: L1629795-01 Client ID: ESMW-1S												
Nitrogen, Nitrate/Nitrite	33.	4	36	75	Q	-	-	-	80-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934867-4 QC Sample: L1629795-01 Client ID: ESMW-1S												
Nitrogen, Nitrite	0.029J	4	4.08	102	-	-	-	-	80-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-10 QC Batch ID: WG935023-4 QC Sample: L1629795-01 Client ID: ESMW-1S												
Dissolved Organic Carbon	2.0	4	6.1	103	-	-	-	-	79-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 11 QC Batch ID: WG935024-4 QC Sample: L1629795-11 Client ID: ESMW-4D												
Dissolved Organic Carbon	0.34J	8	8.6	108	-	-	-	-	79-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-10 QC Batch ID: WG935039-4 QC Sample: L1629795-01 Client ID: ESMW-1S												
Sulfate	13.	20	37	120	-	-	-	-	55-147	-	-	14

Lab Duplicate Analysis

Batch Quality Control

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934527-2 QC Sample: L1629795-01 Client ID: ESMW-1S						
Oxidation/Reduction Potential	250	250	mv	0		20
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934542-2 QC Sample: L1629795-01 Client ID: ESMW-1S						
pH (H)	5.1	5.0	SU	2		5
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934864-3 QC Sample: L1629795-01 Client ID: ESMW-1S						
Nitrogen, Nitrate	32.8	32.6	mg/l	0		17
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934866-3 QC Sample: L1629795-01 Client ID: ESMW-1S						
Nitrogen, Nitrate/Nitrite	33.	32	mg/l	3		20
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG934867-3 QC Sample: L1629795-01 Client ID: ESMW-1S						
Nitrogen, Nitrite	0.029J	0.039J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-10 QC Batch ID: WG935023-3 QC Sample: L1629795-05 Client ID: ESMW-2I						
Dissolved Organic Carbon	7.5	7.6	mg/l	1		20
General Chemistry - Westborough Lab Associated sample(s): 11 QC Batch ID: WG935024-3 QC Sample: L1629795-11 Client ID: ESMW-4D						
Dissolved Organic Carbon	0.34J	0.37J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-10 QC Batch ID: WG935039-3 QC Sample: L1629795-01 Client ID: ESMW-1S						
Sulfate	13.	13	mg/l	0		14

Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler

A Absent
 B Absent
 C Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1629795-01A	Vial H2SO4 preserved	A	N/A	5.9	Y	Absent	DOC-9060(28)
L1629795-01B	Vial H2SO4 preserved	A	N/A	5.9	Y	Absent	DOC-9060(28)
L1629795-01D	Plastic 500ml HNO3 preserved	A	<2	5.9	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-01E	Plastic 500ml H2SO4 preserved	A	<2	5.9	Y	Absent	NH3-4500(28)
L1629795-01F	Plastic 250ml unpreserved	A	7	5.9	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-01G	Amber 500ml unpreserved	A	7	5.9	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-01H	Amber 500ml unpreserved	A	7	5.9	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-02A	Vial H2SO4 preserved	A	N/A	5.9	Y	Absent	DOC-9060(28)
L1629795-02B	Vial H2SO4 preserved	A	N/A	5.9	Y	Absent	DOC-9060(28)
L1629795-02D	Plastic 500ml HNO3 preserved	A	<2	5.9	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-02E	Plastic 500ml H2SO4 preserved	A	<2	5.9	Y	Absent	NH3-4500(28)
L1629795-02F	Plastic 250ml unpreserved	A	7	5.9	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-02G	Amber 500ml unpreserved	A	7	5.9	Y	Absent	A2-14-DIOXANESIM-PPB(7)

*Values in parentheses indicate holding time in days

Project Name: EASTHAM LANDFILL

Project Number: 2015-038

Lab Number: L1629795

Report Date: 09/28/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1629795-02H	Amber 500ml unpreserved	A	7	5.9	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-03A	Vial H2SO4 preserved	A	N/A	5.9	Y	Absent	DOC-9060(28)
L1629795-03B	Vial H2SO4 preserved	A	N/A	5.9	Y	Absent	DOC-9060(28)
L1629795-03D	Plastic 500ml HNO3 preserved	A	<2	5.9	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-03E	Plastic 500ml H2SO4 preserved	A	<2	5.9	Y	Absent	NH3-4500(28)
L1629795-03F	Plastic 250ml unpreserved	A	7	5.9	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-03G	Amber 500ml unpreserved	A	7	5.9	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-03H	Amber 500ml unpreserved	A	7	5.9	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-04A	Vial H2SO4 preserved	C	N/A	5.2	Y	Absent	DOC-9060(28)
L1629795-04B	Vial H2SO4 preserved	C	N/A	5.2	Y	Absent	DOC-9060(28)
L1629795-04D	Plastic 500ml HNO3 preserved	C	<2	5.2	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-04E	Plastic 500ml H2SO4 preserved	C	<2	5.2	Y	Absent	NH3-4500(28)
L1629795-04F	Plastic 250ml unpreserved	C	7	5.2	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-04G	Amber 100ml unpreserved	C	7	5.2	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-04H	Amber 100ml unpreserved	C	7	5.2	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-05A	Vial H2SO4 preserved	C	N/A	5.2	Y	Absent	DOC-9060(28)
L1629795-05B	Vial H2SO4 preserved	C	N/A	5.2	Y	Absent	DOC-9060(28)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1629795-05D	Plastic 500ml HNO3 preserved	C	<2	5.2	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-05E	Plastic 500ml H2SO4 preserved	C	<2	5.2	Y	Absent	NH3-4500(28)
L1629795-05F	Plastic 250ml unpreserved	C	7	5.2	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-05G	Amber 500ml unpreserved	C	7	5.2	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-05H	Amber 500ml unpreserved	C	7	5.2	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-06A	Vial H2SO4 preserved	C	N/A	5.2	Y	Absent	DOC-9060(28)
L1629795-06B	Vial H2SO4 preserved	C	N/A	5.2	Y	Absent	DOC-9060(28)
L1629795-06D	Plastic 500ml HNO3 preserved	C	<2	5.2	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-06E	Plastic 500ml H2SO4 preserved	C	<2	5.2	Y	Absent	NH3-4500(28)
L1629795-06F	Plastic 250ml unpreserved	C	7	5.2	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-06G	Amber 500ml unpreserved	C	7	5.2	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-06H	Amber 500ml unpreserved	C	7	5.2	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-07A	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-07B	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-07D	Plastic 500ml HNO3 preserved	B	<2	5.6	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM LANDFILL

Project Number: 2015-038

Lab Number: L1629795

Report Date: 09/28/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1629795-07E	Plastic 500ml H2SO4 preserved	B	<2	5.6	Y	Absent	NH3-4500(28)
L1629795-07F	Plastic 250ml unpreserved	B	7	5.6	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-07G	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-07H	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-08A	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-08B	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-08D	Plastic 500ml HNO3 preserved	B	<2	5.6	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-08E	Plastic 500ml H2SO4 preserved	B	<2	5.6	Y	Absent	NH3-4500(28)
L1629795-08F	Plastic 250ml unpreserved	B	7	5.6	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-08G	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-08H	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-09A	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-09B	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-09D	Plastic 500ml HNO3 preserved	B	<2	5.6	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-09E	Plastic 500ml H2SO4 preserved	B	<2	5.6	Y	Absent	NH3-4500(28)
L1629795-09F	Plastic 250ml unpreserved	B	7	5.6	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-09G	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-09H	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-10A	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-10B	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1629795-10D	Plastic 500ml HNO3 preserved	B	<2	5.6	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-10E	Plastic 500ml H2SO4 preserved	B	<2	5.6	Y	Absent	NH3-4500(28)
L1629795-10F	Plastic 250ml unpreserved	B	7	5.6	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-10G	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-10H	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-11A	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-11B	Vial H2SO4 preserved	B	N/A	5.6	Y	Absent	DOC-9060(28)
L1629795-11D	Plastic 500ml HNO3 preserved	B	<2	5.6	Y	Absent	MCP-CD-6010S-10(180),MCP-FE-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-BA-6010S-10(180),MCP-MN-6010S-10(180),MCP-PB-6010S-10(180),MCP-CU-6010S-10(180),MCP-SE-6010S-10(180)
L1629795-11E	Plastic 500ml H2SO4 preserved	B	<2	5.6	Y	Absent	NH3-4500(28)
L1629795-11F	Plastic 250ml unpreserved	B	7	5.6	Y	Absent	ORP(1),SO4-9038(28),NO3-4500(2),NO2-4500NO3(2),PH-4500(.01)
L1629795-11G	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)
L1629795-11H	Amber 500ml unpreserved	B	7	5.6	Y	Absent	A2-14-DIOXANESIM-PPB(7)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM LANDFILL
Project Number: 2015-038

Lab Number: L1629795
Report Date: 09/28/16

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
 - D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
 - E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
 - G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
 - H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
 - I** - The lower value for the two columns has been reported due to obvious interference.
 - M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
 - NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
 - P** - The RPD between the results for the two columns exceeds the method-specified criteria.
 - Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
 - R** - Analytical results are from sample re-analysis.
 - RE** - Analytical results are from sample re-extraction.
 - S** - Analytical results are from modified screening analysis.
 - J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
 - ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: EASTHAM LANDFILL**Lab Number:** L1629795**Project Number:** 2015-038**Report Date:** 09/28/16

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 107 Alpha Analytical - In-house calculation method.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624: m/p-xylene, o-xylene

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

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

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

Biological Tissue Matrix: **EPA 3050B**

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

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

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

Non-Potable Water

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

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

EPA 245.1 Hg.

SM2340B

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



CHAIN OF CUSTODY

PAGE 1 OF 2

Westborough, MA **Mansfield, MA**
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Environmental Strategies & Management
 Address: 273 West Main Street
 Norton, MA 02703
 Phone: 508-226-1800
 Fax: 508-226-1811
 Email: lflynn@esm-inc.com

These samples have been Previously analyzed by Alpha

Project Information

Project Name: Eastham Landfill

Project Location: Eastham MA

Project #: 2015-038

Project Manager: Lisa Flynn

ALPHA Quote #: Q1325

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Results emailed to Lisa Flynn at ES&M lflynn@esm-inc.com
 Invoices to Eastham Board of Health

Date Rec'd in Lab: 9/21/16 ALPHA Job #: U 629795

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program: 8270 & Metals - MCP Criteria: 0.15 ug/l for 1,4 dioxane, GW-1

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

Yes No Are MCP Analytical Methods Required?
 Yes No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

1,4 DIOXANE BY 8270 SIM	Dissolved Organic Carbon EPA 9060A	dissolved metals: As, Ba, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Se, Ag, Zn	Ammonia Nitrogen - SM 4500	Nitrite Nitrogen - SM 4500	Nitrate Nitrogen - SM 4500	Oxidation/Reduction Potential	pH-Hydrogen ion concentration - SM 4500	Dissolved Metals Preparation	Sulfate - SM 4500	Total Nitrogen Package - SM 4500 N
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										Sample Specific Comments	
		Date	Time			1,4 DIOXANE BY 8270 SIM	Dissolved Organic Carbon EPA 9060A	dissolved metals: As, Ba, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Se, Ag, Zn	Ammonia Nitrogen - SM 4500	Nitrite Nitrogen - SM 4500	Nitrate Nitrogen - SM 4500	Oxidation/Reduction Potential	pH-Hydrogen ion concentration - SM 4500	Dissolved Metals Preparation	Sulfate - SM 4500		Total Nitrogen Package - SM 4500 N
29795-01	ESMW-1S	9/21/16	915	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-02	ESMW-1I	9/21/16	920	GW	MD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-03	ESMW-1D	9/21/16	945	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-04	ESMW-2S	9/21/16	815	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-05	ESMW-2I	9/21/16	820	GW	MD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-06	ESMW-2D	9/21/16	835	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-07	ESMW-3S	9/21/16	115	GW	MD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-08	ESMW-3I	9/21/16	11:20	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-09	ESMW-3D	9/21/16	1145	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

PLEASE ANSWER QUESTIONS ABOVE!

Container Type: - - - - -
 Preservative: - - - - -

**IS YOUR PROJECT
 MA MCP or CT RCP?**

FORM NO: 01-01(1)
 (rev. 5-JAN-12)

Relinquished By: <i>[Signature]</i>	Date/Time: 9/21/16 1405	Received By: <i>[Signature]</i>	Date/Time: 9/21/16 1405
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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 Payment Terms.



CHAIN OF CUSTODY

PAGE 1 OF 2

Project Information

Project Name: Eastham Landfill

Project Location: Eastham MA

Project #: 2015-038

Project Manager: Lisa Flynn

ALPHA Quote #: Q1325

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Environmental Strategies & Management

Address: 273 West Main Street

Norton, MA 02703

Phone: 508-226-1800

Fax: 508-226-1811

Email: lflynn@esm-inc.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Results emailed to Lisa Flynn at ES&M lflynn@esm-inc.com
 Invoices to Eastham Board of Health

Date Rec'd in Lab: 9/21/16

ALPHA Job #: U 629795

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

8270 & Metals - MCP

0.15 ug/l for 1,4 dioxane, GW-1

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

Yes No Are MCP Analytical Methods Required?
 Yes No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

1,4 DIOXANE BY 8270 SIM	Dissolved Organic Carbon EPA 9060A	dissolved metals: As, Ba, Cd, Cr, Cu, Fe,	- Pb, Mn, Hg, Se, Ag, Zn	Ammonia Nitrogen - SM 4500	Nitrite Nitrogen - SM 4500	Nitrate Nitrogen - SM 4500	Oxidation/Reduction Potential	pH-Hydrogen ion concentration - SM 4500	Dissolved Metals Preparation	Sulfate - SM 4500	Total Nitrogen Package - SM 4500 N
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS											Sample Specific Comments
		Date	Time			1,4 DIOXANE BY 8270 SIM	Dissolved Organic Carbon EPA 9060A	dissolved metals: As, Ba, Cd, Cr, Cu, Fe,	- Pb, Mn, Hg, Se, Ag, Zn	Ammonia Nitrogen - SM 4500	Nitrite Nitrogen - SM 4500	Nitrate Nitrogen - SM 4500	Oxidation/Reduction Potential	pH-Hydrogen ion concentration - SM 4500	Dissolved Metals Preparation	Sulfate - SM 4500	
29795-01	ESMW-1S	9/21/16	915	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-02	ESMW-1I	9/21/16	920	GW	MD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-03	ESMW-1D	9/21/16	945	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-04	ESMW-2S	9/21/16	815	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-05	ESMW-2I	9/21/16	820	GW	MD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-06	ESMW-2D	9/21/16	835	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-07	ESMW-3S	9/21/16	115	GW	MD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-08	ESMW-3I	9/21/16	1020	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-09	ESMW-3D	9/21/16	1145	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

PLEASE ANSWER QUESTIONS ABOVE!

Container Type

Preservative

IS YOUR PROJECT
 MA MCP or CT RCP?

FORM NO: 01-01(1)
 (rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9/21/16 1405	<i>[Signature]</i>	9/21/16 1405

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CHAIN OF CUSTODY

PAGE 2 OF 2

Project Information

Project Name: Eastham Landfill

Project Location: Eastham MA

Project #: 2015-038

Project Manager: Lisa Flynn

ALPHA Quote #: Q1325

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Environmental Strategies & Managemen

Address: 273 West Main Street

Norton, MA 02703

Phone: 508-226-1800

Fax: 508-226-1811

Email: lflynn@esm-inc.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Results emailed to Lisa Flynn at ES&M lflynn@esm-inc.com
 Invoices to Eastham Board of Health

Date Rec'd in Lab: 9/21/16

ALPHA Job #: L1629795

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

8270 & Metals - MCP

0.15 ug/l for 1,4 dioxane, GW-1

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

Yes No Are MCP Analytical Methods Required?
 Yes No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

1,4 DIOXANE BY 8270 SIM	<input checked="" type="checkbox"/>	Dissolved Organic Carbon EPA 9060A	<input checked="" type="checkbox"/>	dissolved metals: As, Ba, Cd, Cr, Cu, Fe,	<input checked="" type="checkbox"/>	- Pb, Mn, Hg, Se, Ag, Zn	<input checked="" type="checkbox"/>	Ammonia Nitrogen - SM 4500	<input checked="" type="checkbox"/>	Nitrite Nitrogen - SM 4500	<input checked="" type="checkbox"/>	Nitrate Nitrogen - SM 4500	<input checked="" type="checkbox"/>	Oxidation/Reduction Potential	<input checked="" type="checkbox"/>	pH-Hydrogen ion concentration - SM 4500	<input checked="" type="checkbox"/>	Dissolved Metals Preparation	<input checked="" type="checkbox"/>	Sulfate - SM 4500	<input checked="" type="checkbox"/>	Total Nitrogen Package - SM 4500 N	<input checked="" type="checkbox"/>
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SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS																	
		Date	Time			1,4 DIOXANE BY 8270 SIM	Dissolved Organic Carbon EPA 9060A	dissolved metals: As, Ba, Cd, Cr, Cu, Fe, - Pb, Mn, Hg, Se, Ag, Zn	Ammonia Nitrogen - SM 4500	Nitrite Nitrogen - SM 4500	Nitrate Nitrogen - SM 4500	Oxidation/Reduction Potential	pH-Hydrogen ion concentration - SM 4500	Dissolved Metals Preparation	Sulfate - SM 4500	Total Nitrogen Package - SM 4500 N							
	ESMW-4S			GW		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-10	ESMW-4I	9/21/16	1020	GW	MD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-11	ESMW-4D	9/21/16	1025	GW	DB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
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						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9/21/16 1405	<i>[Signature]</i>	9/21/16 14:05

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 Payment Terms.

FORM NO: 01-01(I)
(rev. 5-JAN-12)

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1631760	10/5/2016	dw	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
SALT POND RD_025	10/5/2016	L1631760-1	dw	8270D					
SALT POND RD_025 DUP	10/5/2016	L1631760-2	dw	Not Analyzed					
KINGSBURY BEACH RD_080	10/5/2016	L1631760-3	dw	8270D					
KINGSBURY BEACH RD_080 DUP	10/5/2016	L1631760-4	dw	Not Analyzed					
WOOD DUCK LN_014	10/5/2016	L1631760-5	dw	8270D					
WOOD DUCK LN_014 DUP	10/5/2016	L1631760-6	dw	Not Analyzed					
LOCUS RD_230	10/5/2016	L1631760-7	dw	8270D					
LOCUS RD_230 DUP	10/5/2016	L1631760-8	dw	Not Analyzed					
SALT POND RD_035	10/5/2016	L1631760-9	dw	8270D					
SALT POND RD_035 DUP	10/5/2016	L1631760-10	dw	Not Analyzed					
SPLIT RAIL RD_010	10/5/2016	L1631760-11	dw	8270D					
SPLIT RAIL RD_010 DUP	10/5/2016	L1631760-12	dw	Not Analyzed					
KINGSBURY BEACH_100 RD	10/5/2016	L1631760-13	dw	8270D					
KINGSBURY BEACH RD_100 DUP	10/5/2016	L1631760-14	dw	Not Analyzed					

All QAQC data, including surrogate, method blank, laboratory control sample (LCS), and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 10/20/16.



ANALYTICAL REPORT

Lab Number:	L1631760
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	2016-055
Report Date:	10/10/16

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

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

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



Project Name: EASTHAM DW

Project Number: 2016-055

Lab Number: L1631760

Report Date: 10/10/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1631760-01	SALT POND RD_025	DW	EASTHAM, MA	10/05/16 13:00	10/05/16
L1631760-02	SALT POND RD_025 DUP	DW	EASTHAM, MA	10/05/16 13:05	10/05/16
L1631760-03	KINGSBURY BEACH RD_080	DW	EASTHAM, MA	10/05/16 13:40	10/05/16
L1631760-04	KINGSBURY BEACH RD_080 DUP	DW	EASTHAM, MA	10/05/16 13:45	10/05/16
L1631760-05	WOOD DUCK LN_014	DW	EASTHAM, MA	10/05/16 14:30	10/05/16
L1631760-06	WOOD DUCK LN_014 DUP	DW	EASTHAM, MA	10/05/16 14:35	10/05/16
L1631760-07	LOCUS RD_230	DW	EASTHAM, MA	10/05/16 09:30	10/05/16
L1631760-08	LOCUS RD_230 DUP	DW	EASTHAM, MA	10/05/16 09:35	10/05/16
L1631760-09	SALT POND RD_035	DW	EASTHAM, MA	10/05/16 10:50	10/05/16
L1631760-10	SALT POND RD_035 DUP	DW	EASTHAM, MA	10/05/16 10:55	10/05/16
L1631760-11	SPLIT RAIL RD_010	DW	EASTHAM, MA	10/05/16 12:35	10/05/16
L1631760-12	SPLIT RAIL RD_010 DUP	DW	EASTHAM, MA	10/05/16 12:40	10/05/16
L1631760-13	KINGSBURY BEACH_100 RD	DW	EASTHAM, MA	10/05/16 11:25	10/05/16
L1631760-14	KINGSBURY BEACH RD_100 DUP	DW	EASTHAM, MA	10/05/16 11:30	10/05/16

Project Name: EASTHAM DW

Lab Number: L1631760

Project Number: 2016-055

Report Date: 10/10/16

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

Case Narrative (continued)

MCP Related Narratives

In reference to question I:

All samples were analyzed for a subset of MCP analytes 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:



Elizabeth Porta

Title: Technical Director/Representative

Date: 10/10/16

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW**Lab Number:** L1631760**Project Number:** 2016-055**Report Date:** 10/10/16**SAMPLE RESULTS**

Lab ID: L1631760-01
Client ID: SALT POND RD_025
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 10/08/16 06:35
Analyst: WR

Date Collected: 10/05/16 13:00
Date Received: 10/05/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	22		15-110

Project Name: EASTHAM DW**Lab Number:** L1631760**Project Number:** 2016-055**Report Date:** 10/10/16**SAMPLE RESULTS**

Lab ID: L1631760-03
Client ID: KINGSBURY BEACH RD_080
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 10/08/16 07:18
Analyst: WR

Date Collected: 10/05/16 13:40
Date Received: 10/05/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	--	1
-------------	----	--	------	-------	----	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	24		15-110

Project Name: EASTHAM DW**Lab Number:** L1631760**Project Number:** 2016-055**Report Date:** 10/10/16**SAMPLE RESULTS**

Lab ID: L1631760-05
Client ID: WOOD DUCK LN_014
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 10/08/16 08:01
Analyst: WR

Date Collected: 10/05/16 14:30
Date Received: 10/05/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	24		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

SAMPLE RESULTS

Lab ID: L1631760-07
 Client ID: LOCUS RD_230
 Sample Location: EASTHAM, MA
 Matrix: Dw
 Analytical Method: 97,8270D-SIM
 Analytical Date: 10/08/16 08:43
 Analyst: WR

Date Collected: 10/05/16 09:30
 Date Received: 10/05/16
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM DW**Lab Number:** L1631760**Project Number:** 2016-055**Report Date:** 10/10/16**SAMPLE RESULTS**

Lab ID: L1631760-09
Client ID: SALT POND RD_035
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 10/08/16 09:26
Analyst: WR

Date Collected: 10/05/16 10:50
Date Received: 10/05/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM DW**Lab Number:** L1631760**Project Number:** 2016-055**Report Date:** 10/10/16**SAMPLE RESULTS**

Lab ID: L1631760-11
Client ID: SPLIT RAIL RD_010
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 10/08/16 10:09
Analyst: WR

Date Collected: 10/05/16 12:35
Date Received: 10/05/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	24		15-110

Project Name: EASTHAM DW**Lab Number:** L1631760**Project Number:** 2016-055**Report Date:** 10/10/16**SAMPLE RESULTS**

Lab ID: L1631760-13
Client ID: KINGSBURY BEACH_100 RD
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 10/08/16 10:51
Analyst: WR

Date Collected: 10/05/16 11:25
Date Received: 10/05/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	--	1
-------------	----	--	------	-------	----	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 10/07/16 17:36
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 10/07/16 11:30

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01,03,05,07,09,11,13 Batch: WG939866-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	30		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01,03,05,07,09,11,13 Batch: WG939866-2 WG939866-3								
1,4-Dioxane	100		101		40-140	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	29		32		15-110

Project Name: EASTHAM DW

Project Number: 2016-055

Lab Number: L1631760

Report Date: 10/10/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal**Cooler**

A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1631760-01A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-01B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-02A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-02B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-03A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-03B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-04A	Amber 500ml unpreserved	A	8	3.5	Y	Absent	HOLD(14)
L1631760-04B	Amber 500ml unpreserved	A	8	3.5	Y	Absent	HOLD(14)
L1631760-05A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-05B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-06A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-06B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-07A	Amber 500ml unpreserved	A	8	3.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-07B	Amber 500ml unpreserved	A	8	3.5	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-08A	Amber 500ml unpreserved	A	8	3.5	Y	Absent	HOLD(14)
L1631760-08B	Amber 500ml unpreserved	A	8	3.5	Y	Absent	HOLD(14)
L1631760-09A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-09B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-10A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-10B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-11A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-11B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-12A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-12B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-13A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-13B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1631760-14A	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)
L1631760-14B	Amber 500ml unpreserved	B	8	3.1	Y	Absent	HOLD(14)

*Values in parentheses indicate holding time in days



Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: Data Usability Report



Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
 - D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
 - E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
 - G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
 - H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
 - I** - The lower value for the two columns has been reported due to obvious interference.
 - M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
 - NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
 - P** - The RPD between the results for the two columns exceeds the method-specified criteria.
 - Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
 - R** - Analytical results are from sample re-analysis.
 - RE** - Analytical results are from sample re-extraction.
 - S** - Analytical results are from modified screening analysis.
 - J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
 - ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1631760
Report Date: 10/10/16

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624: m/p-xylene, o-xylene

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

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: **EPA 3050B**

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

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

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

Non-Potable Water

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

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

EPA 245.1 Hg.

SM2340B

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

ES&M QAQC Review Log

Lab	Project Number	Sample Date	Matrix	CAM Form Included?	Lab Presumptive Certainty?	QC Performance Standards Met?	Reporting Limits Achieved?	All Analytes Reported?	Data Usability Status
Alpha	L1634677	10/26/2016	DW	Yes	Yes	Yes	Yes	No	Usable - CAM Compliant

Sample ID	Date	Lab ID	Matrix	Analysis	Sample ID	Date	Lab ID	Matrix	Analysis
WOOD DUCK LN_010	10/26/2016	L1634677-1	DW	8270	ARMOUR DR_060	10/26/2016	L1634677-13	DW	8270
WOOD DUCK LN_010 DUP	10/26/2016	L1634677-2	DW	Not Analyzed	ARMOUR DR_060 DUP	10/26/2016	L1634677-14	DW	Not Analyzed
LOCUST RD_130	10/26/2016	L1634677-3	DW	8270	PRESERVATION WAY_004	10/26/2016	L1634677-15	DW	8270
LOCUST RD_130 DUP	10/26/2016	L1634677-4	DW	Not Analyzed	PRESERVATION WAY_004 DUP	10/26/2016	L1634677-16	DW	8270
SPLIT RAIL RD_015	10/26/2016	L1634677-5	DW	8270	ALSTON AVE_085	10/26/2016	L1634677-17	DW	8270
SPLIT RAIL RD_015 DUP	10/26/2016	L1634677-6	DW	Not Analyzed	ALSTON AVE_085 DUP	10/26/2016	L1634677-18	DW	Not Analyzed
LOCUST RD_180	10/26/2016	L1634677-7	DW	8270	SPLIT RAIL RD_030	10/26/2016	L1634677-21	DW	8270
LOCUST RD_180 DUP	10/26/2016	L1634677-8	DW	Not Analyzed	SPLIT RAIL RD_030 DUP	10/26/2016	L1634677-22	DW	Not Analyzed
STATE HWY_3580	10/26/2016	L1634677-9	DW	8270	SPLIT RAIL RD_020	10/26/2016	L1634677-23	DW	8270
STATE HWY_3580 DUP	10/26/2016	L1634677-10	DW	Not Analyzed	SPLIT RAIL RD_020 DUP	10/26/2016	L1634677-24	DW	Not Analyzed
ARMOUR DR_080	10/26/2016	L1634677-11	DW	8270	SPLIT RAIL RD_025	10/26/2016	L1634677-25	DW	8270
ARMOUR DR_080 DUP	10/26/2016	L1634677-12	DW	Not Analyzed	SPLIT RAIL RD_025 DUP	10/26/2016	L1634677-26	DW	Not Analyzed

All QAQC data, including surrogate, method blank, laboratory control sample (LCS), and LCS duplicate results were reviewed. This report was deemed usable by Angela Boyd on 11/9/16.



ANALYTICAL REPORT

Lab Number:	L1634677
Client:	Environmental Strategies & Mgmt. 273 West Main Street Norton, MA 02766
ATTN:	Lisa Flynn
Phone:	(508) 226-1800
Project Name:	EASTHAM DW
Project Number:	2016-055
Report Date:	11/04/16

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



Project Name: EASTHAM DW

Project Number: 2016-055

Lab Number: L1634677

Report Date: 11/04/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1634677-01	WOOD DUCK LN_010	DW	EASTHAM, MA	10/26/16 08:45	10/27/16
L1634677-02	WOOD DUCK LN_010 DUP	DW	EASTHAM, MA	10/26/16 08:45	10/27/16
L1634677-03	LOCUST RD_130	DW	EASTHAM, MA	10/26/16 09:15	10/27/16
L1634677-04	LOCUST RD_130 DUP	DW	EASTHAM, MA	10/26/16 09:15	10/27/16
L1634677-05	SPLIT RAIL RD_015	DW	EASTHAM, MA	10/26/16 10:30	10/27/16
L1634677-06	SPLIT RAIL RD_015 DUP	DW	EASTHAM, MA	10/26/16 10:30	10/27/16
L1634677-07	LOCUST RD_180	DW	EASTHAM, MA	10/26/16 11:15	10/27/16
L1634677-08	LOCUST RD_180 DUP	DW	EASTHAM, MA	10/26/16 11:15	10/27/16
L1634677-09	STATE HWY_3580	DW	EASTHAM, MA	10/26/16 10:00	10/27/16
L1634677-10	STATE HWY_3580 DUP	DW	EASTHAM, MA	10/26/16 10:00	10/27/16
L1634677-11	ARMOUR DR_080	DW	EASTHAM, MA	10/26/16 11:00	10/27/16
L1634677-12	ARMOUR DR_080 DUP	DW	EASTHAM, MA	10/26/16 11:00	10/27/16
L1634677-13	ARMOUR DR_060	DW	EASTHAM, MA	10/26/16 12:00	10/27/16
L1634677-14	ARMOUR DR_060 DUP	DW	EASTHAM, MA	10/26/16 12:00	10/27/16
L1634677-15	PRESERVATION WAY_004	DW	EASTHAM, MA	10/26/16 12:30	10/27/16
L1634677-16	PRESERVATION WAY_004 DUP	DW	EASTHAM, MA	10/26/16 12:30	10/27/16
L1634677-17	ALSTON AVE_085	DW	EASTHAM, MA	10/26/16 14:00	10/27/16
L1634677-18	ALSTON AVE_085 DUP	DW	EASTHAM, MA	10/26/16 14:00	10/27/16
L1634677-21	SPLIT RAIL RD_030	DW	EASTHAM, MA	10/26/16 13:15	10/27/16
L1634677-22	SPLIT RAIL RD_030 DUP	DW	EASTHAM, MA	10/26/16 13:15	10/27/16
L1634677-23	SPLIT RAIL RD_020	DW	EASTHAM, MA	10/26/16 13:45	10/27/16
L1634677-24	SPLIT RAIL RD_020 DUP	DW	EASTHAM, MA	10/26/16 13:45	10/27/16
L1634677-25	SPLIT RAIL RD_025	DW	EASTHAM, MA	10/26/16 13:30	10/27/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1634677-26	SPLIT RAIL RD_025 DUP	DW	EASTHAM, MA	10/26/16 13:30	10/27/16

Project Name: EASTHAM DW

Lab Number: L1634677

Project Number: 2016-055

Report Date: 11/04/16

MADEP MCP Response Action Analytical Report Certification

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

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

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



Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

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

HOLD POLICY

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

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

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

Case Narrative (continued)

MCP Related Narratives

In reference to question I:

All samples were analyzed for a subset of MCP analytes 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:



Elizabeth Porta

Title: Technical Director/Representative

Date: 11/04/16

ORGANICS

SEMIVOLATILES

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-01
Client ID: WOOD DUCK LN_010
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 01:08
Analyst: SF

Date Collected: 10/26/16 08:45
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
--	--	--	--	--	--	--

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-03
Client ID: LOCUST RD_130
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 01:54
Analyst: SF

Date Collected: 10/26/16 09:15
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-05
Client ID: SPLIT RAIL RD_015
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 02:40
Analyst: SF

Date Collected: 10/26/16 10:30
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-07
Client ID: LOCUST RD_180
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 03:26
Analyst: SF

Date Collected: 10/26/16 11:15
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	28		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

SAMPLE RESULTS

Lab ID: L1634677-09
 Client ID: STATE HWY_3580
 Sample Location: EASTHAM, MA
 Matrix: Dw
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/01/16 04:13
 Analyst: SF

Date Collected: 10/26/16 10:00
 Date Received: 10/27/16
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	30		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

SAMPLE RESULTS

Lab ID: L1634677-11
 Client ID: ARMOUR DR_080
 Sample Location: EASTHAM, MA
 Matrix: Dw
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/01/16 04:59
 Analyst: SF

Date Collected: 10/26/16 11:00
 Date Received: 10/27/16
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	33		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

SAMPLE RESULTS

Lab ID: L1634677-13
 Client ID: ARMOUR DR_060
 Sample Location: EASTHAM, MA
 Matrix: Dw
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/01/16 05:45
 Analyst: SF

Date Collected: 10/26/16 12:00
 Date Received: 10/27/16
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

SAMPLE RESULTS

Lab ID: L1634677-15
 Client ID: PRESERVATION WAY_004
 Sample Location: EASTHAM, MA
 Matrix: Dw
 Analytical Method: 97,8270D-SIM
 Analytical Date: 11/01/16 06:31
 Analyst: SF

Date Collected: 10/26/16 12:30
 Date Received: 10/27/16
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	0.198		ug/l	0.144	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-16
Client ID: PRESERVATION WAY_004 DUP
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/03/16 14:08
Analyst: SF

Date Collected: 10/26/16 12:30
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/02/16 17:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	0.217		ug/l	0.144	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	33		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

SAMPLE RESULTS

Lab ID: L1634677-17
Client ID: ALSTON AVE_085
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 07:17
Analyst: SF

Date Collected: 10/26/16 14:00
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab

1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	30		15-110

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-21
Client ID: SPLIT RAIL RD_030
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 08:03
Analyst: SF

Date Collected: 10/26/16 13:15
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.156	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	33		15-110

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-23
Client ID: SPLIT RAIL RD_020
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 08:50
Analyst: SF

Date Collected: 10/26/16 13:45
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.147	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	33		15-110

Project Name: EASTHAM DW**Lab Number:** L1634677**Project Number:** 2016-055**Report Date:** 11/04/16**SAMPLE RESULTS**

Lab ID: L1634677-25
Client ID: SPLIT RAIL RD_025
Sample Location: EASTHAM, MA
Matrix: Dw
Analytical Method: 97,8270D-SIM
Analytical Date: 11/01/16 09:36
Analyst: SF

Date Collected: 10/26/16 13:30
Date Received: 10/27/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
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1,4-Dioxane	ND		ug/l	0.144	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 10/31/16 16:45
Analyst: SF

Extraction Method: EPA 3510C
Extraction Date: 10/31/16 13:00

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01,03,05,07,09,11,13,15,17,21,23,25 Batch: WG947545-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	32		15-110

Project Name: EASTHAM DW

Lab Number: L1634677

Project Number: 2016-055

Report Date: 11/04/16

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8270D-SIM

Extraction Method: EPA 3510C

Analytical Date: 11/03/16 11:59

Extraction Date: 11/02/16 17:18

Analyst: SF

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 16 Batch: WG948478-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	31		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01,03,05,07,09,11,13,15,17,21,23,25 Batch: WG947545-2 WG947545-3								
1,4-Dioxane	96		98		40-140	2		20

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
1,4-Dioxane-d8	33		32		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 16 Batch: WG948478-2 WG948478-3								
1,4-Dioxane	108		106		40-140	2		20

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
1,4-Dioxane-d8	35		36		15-110

Project Name: EASTHAM DW

Project Number: 2016-055

Lab Number: L1634677

Report Date: 11/04/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler

A	Absent
D	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1634677-01A	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-01B	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-02A	Amber 500ml unpreserved	A	7	6.0	Y	Absent	HOLD-SVOC(180)
L1634677-02B	Amber 500ml unpreserved	A	7	6.0	Y	Absent	HOLD-SVOC(180)
L1634677-03A	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-03B	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-04A	Amber 500ml unpreserved	A	7	6.0	Y	Absent	HOLD-SVOC(180)
L1634677-04B	Amber 500ml unpreserved	A	7	6.0	Y	Absent	HOLD-SVOC(180)
L1634677-05A	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-05B	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-06A	Amber 500ml unpreserved	A	7	6.0	Y	Absent	HOLD-SVOC(180)
L1634677-06B	Amber 500ml unpreserved	A	7	6.0	Y	Absent	HOLD-SVOC(180)
L1634677-07A	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-07B	Amber 500ml unpreserved	A	7	6.0	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-08A	Amber 500ml unpreserved	B	7	5.4	Y	Absent	HOLD-SVOC(180)
L1634677-08B	Amber 500ml unpreserved	B	7	5.4	Y	Absent	HOLD-SVOC(180)
L1634677-09A	Amber 500ml unpreserved	B	7	5.4	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-09B	Amber 500ml unpreserved	B	7	5.4	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-10A	Amber 500ml unpreserved	B	7	5.4	Y	Absent	HOLD-SVOC(180)
L1634677-10B	Amber 500ml unpreserved	B	7	5.4	Y	Absent	HOLD-SVOC(180)
L1634677-11A	Amber 500ml unpreserved	C	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-11B	Amber 500ml unpreserved	C	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-12A	Amber 500ml unpreserved	C	7	3.9	Y	Absent	HOLD-SVOC(180)
L1634677-12B	Amber 500ml unpreserved	C	7	3.9	Y	Absent	HOLD-SVOC(180)
L1634677-13A	Amber 500ml unpreserved	C	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-13B	Amber 500ml unpreserved	C	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days

Project Name: EASTHAM DW

Project Number: 2016-055

Lab Number: L1634677

Report Date: 11/04/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1634677-14A	Amber 500ml unpreserved	C	7	3.9	Y	Absent	HOLD-SVOC(180)
L1634677-14B	Amber 500ml unpreserved	C	7	3.9	Y	Absent	HOLD-SVOC(180)
L1634677-15A	Amber 500ml unpreserved	C	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-15B	Amber 500ml unpreserved	C	7	3.9	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-16A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-16B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-17A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-17B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-18A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)
L1634677-18B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)
L1634677-21A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-21B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-22A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)
L1634677-22B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)
L1634677-23A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-23B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-24A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)
L1634677-24B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)
L1634677-25A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-25B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	A2-MCP-14DX-SIM-PPB(7)
L1634677-26A	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)
L1634677-26B	Amber 500ml unpreserved	D	7	5.2	Y	Absent	HOLD-SVOC(180)

*Values in parentheses indicate holding time in days

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: Data Usability Report



Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
 - D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
 - E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
 - G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
 - H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
 - I** - The lower value for the two columns has been reported due to obvious interference.
 - M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
 - NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
 - P** - The RPD between the results for the two columns exceeds the method-specified criteria.
 - Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
 - R** - Analytical results are from sample re-analysis.
 - RE** - Analytical results are from sample re-extraction.
 - S** - Analytical results are from modified screening analysis.
 - J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
 - ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: EASTHAM DW
Project Number: 2016-055

Lab Number: L1634677
Report Date: 11/04/16

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624: m/p-xylene, o-xylene

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

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: **EPA 3050B**

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

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

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

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

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

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

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

Non-Potable Water

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

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

EPA 245.1 Hg.

SM2340B

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



CHAIN OF CUSTODY

PAGE 1 OF 2

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Environmental Strategies & Management
 Address: 273 West Main Street
 Norton, MA 02703
 Phone: 508-226-1800
 Fax: 508-226-1811
 Email: lflynn@esm-inc.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 email results to lflynn@esm-inc.com and aboyd@esm-inc.com

please invoice Eastham

Project Information

Project Name: Eastham DW

Project Location: Eastham MA

Project #: 2016-055

Project Manager: Lisa Flynn

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 10/27/16

ALPHA Job #: L1034677

Report Information Data Deliverables

FAX EMAIL
 ADEX Add'l Deliverables

Billing Information

Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program Criteria
 8270 - MCP 0.15 ug/l for 1,4 dioxane, GW-1

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

Yes No Are MCP Analytical Methods Required?
 Yes No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

1,4 dioxane by 8270																				

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials															
		Date	Time																	
34677-09	STATE HWY_3580	10/26/16	1000	DW	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	STATE HWY_3580 DUP	10/26/16	1000	DW	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	ARMOUR DR_080	10/26/16	1100	dw	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	ARMOUR DR_080 DUP	10/26/16	1100	dw	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	ARMOUR DR_060	10/26/16	1200	dw	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	ARMOUR DR_060 DUP	10/26/16	1200	dw	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	PRESERVATION WAY_004	10/26/16	1230	dw	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	PRESERVATION WAY_004 DUP	10/26/16	1230	dw	BP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PLEASE ANSWER QUESTIONS ABOVE!

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(I)
(rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
<i>Casper</i>	10/26/16 855	<i>Kim</i>	10/27/16 855

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 Payment Terms.

