

May 12, 2014



Waste Management Division  
NH Department of Environmental Services  
PO Box 95, 29 Hazen Drive  
Concord, NH 03302

Attn: Rebecca S. Williams, PG

Re: Technical Evaluation – Proposed Scope of Work  
Hampton Rod & Gun Club, Atlantic Avenue  
North Hampton, NH  
NHDES Site #201310001 Project #31644  
Terracon Project No. J1147133

Dear Ms. Williams,

This letter is being submitted on behalf of our client, Ms. Monaghan, a citizen in North Hampton whose concerns about operational practices at the Hampton Rod & Gun Club (NHDES Site #201310001) led to the Town's complaint to NHDES. We were asked to review the proposed Scope of Work (SOW) submitted by Exeter Environmental, dated March 2014, and provide comments directly to you. Please accept this letter as our response to their request.

In summary, our concerns described in comments and recommendations below group into three main categories:

- Incomplete Scope of Work – the proposed Scope of Work (SOW) is lacking a description of XRF protocols to assure representativeness of the field screening data, lacks pH testing of range soils for assessment of soil leachability characteristics and range standard operating procedures, and lacks a comprehensive survey to allow an accurate analysis of surface and groundwater interrelationships.
- Timing and sequence of the historical practices of wetlands disturbance and filling – the interpretation of the 1962 aerial photograph as (sole) evidence of nonjurisdictional wetlands filling/disturbance is insufficient and contradictory with more recent aerial photos. This work should be augmented with a more comprehensive search of applicable photos with a quantifiable (e.g. georeferenced) interpretation of filling/disturbance done and reported, such that jurisdictional questions can be based on a more accurate and comprehensive analysis.
- Phasing of site characterization – the SOW suggests that sufficient data may be derived from limited testing of the rifle/pistol range such that NHDES could allow for reopening of that portion of the range this summer, prior to completion of the entire site study. This recommendation is flawed since it requests that NHDES make a decision based on

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incomplete site data for a range that admits to have been operating in wetlands and over open water in an area of the state dependent upon groundwater supplies for area residents.

## 1.0 BACKGROUND

Terracon reviewed the following information in technically evaluating the proposed SOW:

- Letter dated Dec 3, 2013 from NHDES to James Clemence, Club President of Hampton Rod & Gun Club, Inc.
- Wetlands Delineation letter dated Feb 14, 2014 by West Environmental, Inc. addressed to Eben Lews of NHDES Wetlands Bureau.
- Proposed Scope of Work for a Site Investigation, dated Mar 10, 2014 by Exeter Environmental addressed to Rebecca Williams of the Waste Management Division of the NHDES.
- Correspondence dated Mar 18, 2014 from NHDES to James Clemence.
- Letter dated December 10, 2013 from Richard Uchida, Esq. to R. Williams and E. Lewis of the NHDES.
- USGS Historical Aerial Photos dated 1960, 1973, 1978 for the site area.
- Website for the Hampton Rod & Gun Club, [www.hamptonrodgunclub.org](http://www.hamptonrodgunclub.org).
- Rockingham Planning Commission Surface Water Resources map for North Hampton.
- Town of North Hampton website [www.northhampton-nh.gov](http://www.northhampton-nh.gov).
- Best Management Practices for Lead at Outdoor Shooting Ranges, EPA -902-B-01-001, Mapping Revised June 2005.
- Army Small Arms Training Range Environmental Best Management Practices (BMPs) Manual, US Army DTC Project No. 9-CO-160-000-504, dated December 2005.

- Environmental Management at Operating Outdoor Small Arms Firing Ranges, ITRC Technical Guideline, dated February 2005.

## 2.0 TECHNICAL COMMENTS

The NHDES requested that the Gun Club perform onsite wetlands mapping and submit a Scope of Work to evaluate the environmental impacts from the onsite range activities. These requests originated from an August 15, 2013 site inspection performed by NHDES personnel who observed filling and shot fallout in wetland areas.

- **Comment 1** – the letter submitted by West Environmental concludes that the wetlands filling occurred historically, before EPA/NHDES jurisdiction and points to a 1962 aerial photo as evidence. Terracon does not concur that the 1962 photo shows wetlands disturbance to the extent seen today. In addition, our brief research yielded additional aerial photographs (1973 and 1978) that also do not support wetland filling/disturbance at nearly the extent as seen in recent aerial photos. **Recommendation 1:** Terracon recommends that the NHDES request that the Club provide georeferenced aerial photos and an aerial photography interpretation to show the progression of site disturbance through the years to determine what portions of the site were filled/disturbed in what period to document jurisdiction.
- **Comment 2** – the West Environmental wetlands mapping letter, as does the Hinkley Allen letter, acknowledges that shooting activities are occurring over and in wetlands and surface waters on the property. The attached wetlands boundary map in the West Environmental report is not of a sufficient scale as to be useful for guiding field work. **Recommendation 2:** Terracon recommends that the NHDES request a wetlands map of a more detailed scale.
- **Comment 3** – the Air Photo Site Plan included in the Exeter Environmental proposed scope of work does not match the aerial photo labeled Hampton Rod & Gun Club in the West Environmental report (e.g. grid is more extensive; monitoring wells are in different locations). **Recommendation 3:** Terracon thinks these differences may reflect different site understandings between West Environmental and Exeter Environmental. NHDES should request the basis for their variations, to determine if the wetlands mapping led West Environmental to different conclusions regarding site hydrogeology and investigation areas versus what Exeter Environmental may be concluding.
- **Comment 4** – The Exeter Environmental SOW suggests a two phased study, such that the pistol range might re-open prior to the entire site characterization report being

complete. **Recommendation 4** – Terracon feels that this is premature for NHDES to consider decision making about reopening a portion of the site on only partial data. This site is located in wetlands which has received lead shot/bullets/spent targets for decades. There is no Plan on file with the Town that shows how the Club operates its facility and whether it follows any of the published Best Management Practices for outdoor ranges, such as regular inspection and repair of its backstops/berms and/or removal of spent ammunition, or monitoring/maintaining of soil pH to minimize leaching. The Club acknowledges that it has been violating wetlands rules by shooting over and within wetlands, so a comprehensive site assessment is an important document upon which NHDES can decide the next appropriate steps.

- **Comment 5** – an XRF unit is proposed by Exeter Environmental for field screening soil samples onsite, with 20% of the samples being submitted to the laboratory for confirmatory analysis. The SOW does not describe the handling of the samples for field screening such that NHDES would have confidence in the comparison of results across the site {e.g. sieving of samples; drying of samples which contain more than 20% moisture to avoid instrument interference}. **Recommendation 5** - Terracon recommends that NHDES request that Exeter Environmental provide sample handling protocols for its field XRF work, so as to assure that results are accurate and also request what criteria will be used to select the 20% of samples for laboratory confirmation.
- **Comment 6** – the proposed SOW does not suggest testing of soil for pH, yet this is one of the key parameters in leachability of metals into the groundwater. These data would also give an idea as to whether the Club has followed this BMP in operating their range and the data will be helpful in interpreting the groundwater data and evaluating mitigative measures. **Recommendation 6** – Terracon suggests that the NHDES request that all soil samples be tested by the laboratory for pH.
- **Comment 7** – the Exeter Environmental SOW proposes/illustrates the locations of 4 monitoring wells. The SOW does not specifically indicate that a survey will be done of the wells and tied into several surface water stations onsite, such that an accurate interpretation of the surface water/groundwater interconnection is possible. **Recommendation 7** – Terracon feels that the hydrogeological data for the site obtained through an accurate survey will be essential for NHDES evaluation of the site data. It is recommended that NHDES confirm that this survey will be part of the Site Investigation report.

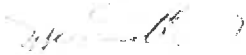
### 3.0 CONCLUSIONS

The Hampton Rod & Gun Club acknowledges that it has been filling and shooting over and in wetlands and surface water and, thus, has voluntarily suspended its operations pending the results of the Site Investigation. The site appears to not meet the recommended optimal site characteristics for an outdoor range, as described in the EPA, ITRC and Army references listed in this comment letter. In addition, Best Management Practices (BMPs) are essential to ensure ranges operate with a minimal of environmental impact, practices that are not documented to be in place at this range, as it is currently configured. NHDES in its evaluation of site data from the Site Investigation report should factor into account how this range has operated through the decades, such that it does not create an environmental hazard to surface water, wetlands or to groundwater, upon which North Hampton residents are 100% dependent on for their drinking water supply.

Thank you for considering our comments and if you have any questions about our recommendations, please do not hesitate to contact me at [msrobinette@terracon.com](mailto:msrobinette@terracon.com).

Sincerely,

**Terracon Consultants, Inc.**



Muriel S. Robinette, PG

Senior Environmental Hydrogeologist / Principal

Cc: Town of North Hampton; Attn: Jim Maggiore, Select Board Chair  
Town of North Hampton; Attn: Larry Miller, Selectman  
Town of North Hampton; Attn: Richard Stanton, Selectman





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May 22, 2014

Mr. James Clemence, Sr., President  
Hampton Rod & Gun Club, Inc.  
P. O. Box 826  
North Hampton, NH 03842-0826

Re: Environmental Sampling Report – Pistol/Rifle Range  
Hampton Rod & Gun Club Property (DES # 201310001)  
Atlantic Avenue, North Hampton, New Hampshire

Dear Mr. Clemence:

We have completed the first phase of our Site Investigation at this property, which includes soil, sediment, surface water and groundwater sampling of the pistol/rifle range. This sampling was conducted as part of an investigation to satisfy the NH Department of Environmental Services (DES) regulations Env-Or 606.01. A Site Investigation of the entire property was requested by DES in their letter dated December 3, 2013. As discussed in our meeting with DES on February 18, 2014, we have divided our Site Investigation into two phases: the pistol/rifle range and the shotgun range.

The results of our investigation into the pistol/rifle range are contained in this report. Please feel free to call if you have any questions or comments.

Sincerely,

Steven  
Shope

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EEA 1814.01



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## **ENVIRONMENTAL SAMPLING REPORT**

**PISTOL/RIFLE RANGE  
HAMPTON ROD & GUN CLUB PROPERTY  
ATLANTIC AVENUE  
NORTH HAMPTON, NEW HAMPSHIRE  
DES Site # 201310001**

### **REPORT PREPARED FOR:**

**Hampton Rod & Gun Club, Inc  
P. O. Box 826  
North Hampton, NH 03824-0826  
Attn: Mr. James Clemence, Sr.**

**May 22, 2014**

**EEA 1814.01**



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## **1.0 INTRODUCTION and BACKGROUND**

This report presents the results of soil, sediment, groundwater and surface water sampling conducted at the pistol/rifle range of the Hampton Rod and Gun Club. The property is identified on Town of North Hampton Tax Map 13 as lot 83, and is located off Atlantic Avenue in North Hampton, New Hampshire.

To date the investigation has included: a site walkover and utility clearance; the installation of four groundwater monitoring wells, one complete round of groundwater sampling, analysis of the groundwater samples for the presence of dissolved lead, copper, and arsenic; collection of 24 soil samples, XRF and laboratory analysis of all samples for lead, and analysis of three soil samples for copper and arsenic; collection of three sediment samples and laboratory analysis for lead; the collection of two surface water samples and laboratory analysis for lead; a potential receptor survey; and preparation of this report.

On August 15, 2013, personnel from the Department of Environmental Services (DES) conducted an inspection of the gun club property, and observed that an area of forested wetland and perennial stream had been filled or otherwise impacted as a result of shooting activities and subsequent deposition of clay targets, shotgun wads, and lead shot. DES further observed that the pistol and rifle range berm had a trenched area in front of it that showed evidence of occasional water flow. Club members have described that the trench is a drainage swale that was constructed 20± years ago.

DES has requested that a Site Investigation be performed in accordance with Env-Or 606.01 Contaminated Site Management Rules. As discussed in our meeting with DES on February 18, 2014, we have divided our Site Investigation into two phases: the pistol/rifle range and the shotgun range. The results of our assessment of the pistol/rifle range are contained in this report.

The investigation of the shotgun range will be conducted during the summer of 2014, and a complete Site Investigation report of the entire property will be submitted to DES by the end of December 2014.

This investigation is subject to the limitations stated in Section 10.0 of this report.

## **2.0 SITE DESCRIPTION AND SURFICIAL GEOLOGY**

The Hampton Rod & Gun Club property is located off the northern side of Route 111 in North Hampton, New Hampshire. The property includes two adjacent parcels of land; Tax Map 13 Lot 81 and Lot 83. The two parcels collectively cover 36.44 acres of land. Lot 81 consists of undeveloped land. Lot 83 is developed with a single building that is currently used to house the club's meetings. In addition to the primary club building, the property is developed with a garage located adjacent to the club building, one structure associated with target shooting at the pistol/rifle range, and four structures associated with target shooting at the trap range. The site location is shown on the attached US Geological Survey topographic map (Figure 1). The site layout is shown on a site plan that is provided as Figure 2. Sampling locations for the pistol/rifle range are shown in Figure 3.

The club building is constructed on a poured slab-on-grade foundation with a concrete floor. There are no floor drains in the building. The building is heated with fuel oil and serviced by an on-site drilled bedrock well and a septic leachfield. The depth of the well is not known. The location of the well, the septic tank, and the leachfield are shown on Figure 2.

The club building is surrounded by asphalt paving to the northeast, and by wooded land on all other sides. The overall topography of the site slopes down gently to the north, towards Little River which bisects the subject property. The distance between the rifle

range and Little River is approximately 800 feet. The property is abutted by undeveloped woods on all sides.

The soil over the northern majority of the property has been mapped<sup>1</sup> as marine silt and clay, which is typically characterized by a relatively low permeability to groundwater flow. The soil in the southern portion of the property containing the gun club building has been mapped as glacial till. Glacial till soils were laid down during the last advance the Pleistocene ice sheet, and are also typically characterized by a relatively low permeability to groundwater flow.

### **3.0 FIELD INVESTIGATIONS**

**3.1 Soil Borings and Monitoring Well Installations.** A total of four groundwater monitoring wells have been installed as part of this investigation. The wells were installed with a track-mount drill rig operated by Technical Drilling Services of Sterling, MA on March 7, 2014. The monitoring wells are identified as MW-1 through MW-4, as shown on Figure 2.

Soil samples were collected at five-foot intervals using a split-spoon sampler. The samples were logged on-site by Julie Shope and Brian Campelia of Exeter Environmental Associates, Inc. The soil boring logs and well construction details are provided in *Appendix I*.

The overburden material was found to consist of a dense glacial till near the clubhouse building (MW-1), a coarse sand and gravel (MW-2) and a fine silty sand unit overlying clay (MW-3, MW-4). Bedrock was not encountered in any of the borings. The water table was encountered at a depth of one to four feet below grade. A geologic cross-

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<sup>1</sup> Koteff et al., 1989. Surficial Geologic Map of the Hampton 7.5 Minute Quadrangle (East Half of the Exeter 7.5 x 15 Minute Quadrangle), New Hampshire-Massachusetts.

section is not provided in this report due to the shallow nature the subsurface investigations (15± feet).

The monitoring wells were constructed of two-inch PVC well screen and riser casing and were installed with traditional sand and bentonite filling the annular space as shown on the well construction logs. Upon completion, each well was developed with a dedicated Waterra hand pump to remove the fine sediments.

**3.2 Water Elevation Survey and Groundwater Flow.** The top of the riser pipe for each monitoring well was surveyed on March 23, 2014 by Jones & Beach Engineers. The static water levels were measured at the four monitoring locations with an electronic water level indicator on April 1, 2014. The results of the water elevation survey are presented in Table 1 and shown on Figure 2.

Based upon the water elevations measured during this study, the inferred direction of shallow groundwater flow is to the east-northeast, towards Little River.

We have measured a relatively flat horizontal water table gradient of 0.01 feet per feet across the shooting range.

**3.3 Groundwater Sampling and Analyses.** One complete round of groundwater samples was collected from the site monitoring wells on April 1, 2014. Prior to sampling, the depth to water was measured and the wells were purged of three well volumes using dedicated Waterra hand pumps. The wells were sampled with a peristaltic pump and dedicated Teflon tubing lowered to the mid-depth of the well. Each of the groundwater samples was observed to be relatively silty at the time of sample collection. The samples were field-filtered using a 45-micron filter and collected into 40 mL plastic bottles preserved with nitric acid.

The samples were placed in an ice-containing cooler, and delivered by courier to Eastern Analytical, Inc. (EAI) for laboratory analysis. The samples were analyzed by EPA Method 200.8 for dissolved lead, copper and arsenic. A copy of the laboratory report is provided in *Appendix II*. A summary of the groundwater results is presented in Table 2.

As shown in Table 2, arsenic, copper, and lead were each detected in at least one of the monitoring wells, and in the bedrock supply well. The concentrations detected were below Ambient Groundwater Quality Standards. Dissolved lead was only detected in one location (MW-3), at a concentration of  $2\ \mu\text{g/L}$ . Copper was also only detected in one location (MW-1), at a concentration of  $2\ \mu\text{g/L}$ . Arsenic was detected in each of the four locations. The downgradient concentrations of arsenic are observed to be higher than the upgradient concentrations. This trend does not indicate a groundwater impact from the site activities, however, as the arsenic is not correlated with the lead. In summary, shallow site groundwater does not appear to have been impacted by the historical gun club activities. The one location where lead was detected (MW-3) is characterized by a concentration significantly lower than applicable DES standards.

**3.4 Surface Water Sampling and Analysis.** Two surface water samples were collected from the pistol/rifle range on April 1, 2014. The samples were collected from the man-made drainage swale located between the shooting area and the berm. Sample locations are shown on Figure 3 and are identified as SW-1 and SW-2. As requested by DES, the downgradient sample was collected from the middle of the range along the firing line. The upgradient sample was collected from the southern end of the swale. At the time of sampling, there was no observable flow in the swale, which contained approximately four inches of water.

The samples were collected into 40-mL plastic bottles preserved with nitric acid, and delivered by courier to Eastern Analytical, Inc. (EAI) for laboratory analysis. Both

samples were analyzed by EPA Method 200.8 for dissolved lead. SW-2 was analyzed for total hardness.

A summary of the laboratory results is included as Table 3. Prior to analyzing the results, the DES Water Quality Criteria<sup>2</sup> were adjusted based on the total hardness of the water as measured in sample SW-2. The criteria were adjusted using the equations shown in Env-Wq 1703.24, and the resulting values are included in Table 3.

The criteria were not adjusted using a water effect ratio. Due to the fact that laboratory water used to establish these standards typically has a lower hardness and pH than surface waters, these criteria are typically conservative, and adjusting the value based on a water effect ratio would likely increase the standard. However, total hardness in the surface water is relatively low, and the detected lead concentrations are significantly higher than the unadjusted criteria, therefore it is not likely that applying a water effect ratio would have a significant affect on the data.

Lead was detected at concentrations exceeding the DES Water Quality Criteria at both sampling locations. A concentration of 63  $\mu\text{g/L}$  was detected in the downgradient sample, and a concentration of 72  $\mu\text{g/L}$  was detected in the upgradient sample. The higher lead concentration detected in the upstream sample could be explained by the fact that at the time of sampling there was no observable flow in the swale. To determine a background value of lead in the surface water at the site, an additional sample was collected on May 12, 2014. The sample is identified as SW-6 on Figure 2. Based on this sample, a background value of total lead in surface water at this site is 3  $\mu\text{g/L}$  (Table 3).

**3.5 Soil Sampling and Analysis.** A total of 24 soil samples were collected as part of the pistol/rifle range investigation. The soil sample locations are shown on Figure 3. For each location, samples were collected from a test pit at depths of 0-6 and 6-12

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<sup>2</sup> NH DES, Env-Wq 1700, Table 1703.01, Water Quality Criteria for Toxic Substances.

inches. The shallow samples are identified as "A" on Table 4 and the deeper samples are identified as "B". The test pits were dug with a narrow soil spade, which was cleaned with distilled water between locations. Each test pit was sub-sampled with a stainless steel spoon that was also cleaned between samples.

Soil samples were collected into zip-lock bags and brought to a preparation table, where they were screened for the presence of bullets and bullet shards. A log of the soil description and the presence of visible lead was kept. An aliquot was then separated into a smaller zip-lock bag and screened using an XRF analyzer operated by Absolute Resource Associates (Portsmouth, NH). On the basis of the XRF results, five samples were collected for laboratory analysis of total lead, including three for analysis of arsenic and copper. Laboratory results were plotted against XRF results in an effort to correlate the two data sets (Figure 4). The coefficient of determination was found to be 0.1, which is considered to be poor (1.0 is a perfect correlation). On this basis, it was determined that the XRF was not a good approximation for lead concentrations, and the remaining soil samples were submitted for laboratory analysis. Copies of the laboratory reports are included in *Appendix II*.

A site plan depicting sampling locations and laboratory results is included as Figure 3, and laboratory data are summarized in Table 4. Lead concentrations exceeded DES Soil Remediation Standards<sup>3</sup> at several locations: S-2, S-3, S-5, S-6, S-8, and S-9. These sampling locations correspond with the central and northern portions of the pistol/rifle range, and are all located in upland areas. With the exception of S-5, the concentrations are close to or below the DES standard at a depth of 6-12 inches below ground surface. The anomalous result found at S-5, where a much higher concentration was detected at a depth of 6-12 inches (5B) than was at 0-6 inches (5A), is likely attributable to ground disturbance in that area. For example, Michael Harris has described the pistol berm was formerly located in this area, and was later relocated to the main berm. As noted in the sampling logs, a lead bullet was observed in the S-5B location (the bullet was removed

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<sup>3</sup> NH DES, Env-Or 606.19, Table 600-2, Soil Remediation Standards.



from the sample prior to analysis). A bullet was also observed at the S-9B location, which is also characterized by a higher lead concentration at depth, although not as dramatic.

**3.6 Sediment Sampling and Analysis.** Three sediment samples were collected from the top six inches of the base of the drainage swale on April 1, 2014. The sampling locations are shown on Figure 3, identified as SED-1, SED-2 and SED-3. As requested by DES, each of the three samples was collected along the firing line in front of the backstop berm. The samples were collected with a stainless steel spoon that was cleaned with distilled water between locations.

Lead concentrations ranging from 440 to 1,000 mg/Kg were identified in the sediment samples (Table 4). These concentrations are considered to be elevated relative to both DES soil remediation standards and New Hampshire sediment quality guidelines<sup>4</sup>. The DES soil remediation standard is 400 mg/Kg. The New Hampshire sediment quality guidelines do not include look-up tables, but rather refer to an ecological risk assessment approach that includes sediment chemistry, toxicity bioassays, and a field assessment of the benthic community. This type of ecological risk assessment is out of the scope of a Site Investigation as defined by DES regulations. The guidelines do refer to EPA sediment screening levels<sup>5</sup>, which in the case of inorganic lead is 47 mg/Kg. The EPA screening level is a conservative Effects Range Low (ERL) value. The ERL value represents the lower 10th-percentile concentration associated with observation of biological effects. Accordingly, concentrations below the ERL should rarely be associated with adverse effects.

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<sup>4</sup> NHDES, 2005. Evaluation of Sediment Quality Guidance Document.

<sup>5</sup> US Environmental Protection Agency, 1996 Ecotox Thresholds, (USEPA EPA 540/F-95/038).

#### 4.0 CONCEPTUAL SITE MODEL

Our conceptual model of contaminant transport is as follows. Shooting activities have resulted in deposition of lead bullets and bullet fragments/dust in the upland portion of the pistol and rifle range, including the backstop berm. A pistol backstop berm was formerly located between the shooting area and the rifle berm. The pistol berm was combined with the rifle berm at some point in the past, resulting in some of the lead bullets becoming buried deeper, up to 12 inches. Lead is also likely to enter the shallow soil around the firing line from the vaporization of the lead out of the gun muzzle and subsequent deposition onto the ground<sup>6</sup>. We have not estimated the mass of lead in the soil using the laboratory concentrations measured as part of this investigation, as this mass will be *de-minimus* as compared to the mass of the lead bullets which have not been measured.

Inorganic lead is not considered to be a mobile compound in the environment<sup>6</sup> except in cases of low or high pH, which do not pertain to the site. Dissolved lead has not been identified in the overburden groundwater, confirming that it is not mobile at the Hampton Rod and Gun Club property. Therefore, we have not estimated a seepage velocity for dissolved lead.

Lead has been identified in both the sediment and surface water of the drainage swale. Most likely, given its limited mobility in a neutral or slightly acidic environment, the lead entered the sediment directly through bullet fragments, rather than from seepage from the soil. The lead has leached into the surface water of the swale, either from the sediment or the surrounding soil.

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<sup>6</sup> ITRC, 2003. Characterization and Remediation of Soils at Closed Small Arms Firing Ranges.

## 5.0 POTENTIAL RECEPTOR SURVEY

For the purposes of this site investigation, potential receptors are considered to include the following categories: soil, groundwater, surface waters, and sediment. Indoor air is not considered a potential receptor, as the compounds of interest are not volatile.

Soil. Soil on the floor of the pistol/rifle range is impacted with elevated concentrations of lead due to historical shooting activities. Gun club members and guests using the range are considered to be potential receptors.

Surface Water and Surface Water Supplies. Surface waters at the site include the drainage swale of the pistol/rifle range, a small stream that traverses the trap range and the associated wetland areas surrounding that stream, and Little River, which is located near the northern property line. Little river flows in an easterly direction, and eventually empties into the Atlantic Ocean.

The investigation of this report is focusing on the pistol/rifle range. To that end, the drainage swale is identified as a potential receptor, as lead has been detected in the sediment and surface water. The remaining surface water bodies will be evaluated during the summer and fall of 2014.

Groundwater and Groundwater Supplies. Groundwater has not been significantly impacted by the historical site activities. Lead was only detected at one location (MW-3) at a concentration of 2 µg/L. Lead was not detected in the remaining three monitoring wells. Arsenic shows a potential trend of groundwater impact, as the downgradient data are elevated relative to the upgradient data. However, the results do not correlate with lead, suggesting that the data represent a natural trend rather than an anthropogenic impact.

Properties located within a 1,000-foot radius of the release area are shown on Figure 5, *Potential Receptor Map*. The well that services the subject property is currently the only drilled bedrock supply well located within the 1,000-foot radius; therefore, neighborhood supply wells are not considered to be potential receptors relative to the gun club property. The depth of the on-site supply well has not been determined. This well has been tested as part of this investigation. Lead was detected at a concentration of 7 µg/L, which is less than the AGQS of 15 µg/L. Additional testing would be required to determine if the lead is coming from the piping vs. the bedrock groundwater. Copper and arsenic were not detected above DES standards in the supply well sample.

## **6.0 PRESUMPTIVE REMEDY**

Elevated concentrations of heavy metals (lead, copper, and arsenic) have been detected in the soil of the upland floor of the pistol/rifle range. We have no recommendation for further assessment or remediation of the upland soils, including the berm, as the gun range is considered to be active. It is the desire of the gun club to continue shooting at the pistol/rifle range once the wetland issues have been addressed.

It is our opinion that excavation can be considered a presumptive remedy to remediate the elevated concentration of lead detected in the sediment samples at the pistol/rifle range. As stated in the Interstate Technology and Regulatory Council (ITRC) document referenced previously, soil excavation “has a proven record of success.”

DES considers a remedy to be presumptive if it accomplishes the goals as summarized below:

- (a) Human health and the environment will be protected;
- (b) Groundwater quality criteria (ambient groundwater quality standards) will be met;
- (c) Sources of contamination will be controlled to reduce or eliminate further discharges;

- (d) Contaminated soil will be removed, treated, or contained;
- (e) The risk to human health and the environment will be reduced to the greatest extent practicable;
- (f) Long-term management, including operation and maintenance of the remediation equipment and site monitoring requirements, will be minimized;
- (g) The potential need for modification of the remedy will be minimized;
- (h) Resource value of groundwater impacted by the contamination will be protected to the greatest extent practicable taking into account current and anticipated future land use;
- (i) Long-term institutional and engineering controls will be reliable; and
- (j) Financial assurance will be available.

It is our opinion that the sediment excavation will accomplish the goals described above, as they pertain to the drainage swale.

The objective of the excavation will be to reduce lead concentrations in sediment to below the applicable soil standard of 400 mg/kg. The technique will involve a minimum of engineering controls as opposed to an alternative system, such as soil washing or soil stabilization. Human health and the environment will be protected, as the excavation technique has the certainty of removing the impacted soil in the drainage swale. The placement of fill to upland grade will ensure that future shooting activities do not impact the swale and associated surface water.

The soil removal effort will be conducted by gun club members or their subcontractors using level D safety precautions. The approximate area of excavation is shown in Figure 2. Assuming a distance of 125 feet, a width of five feet and a depth of one foot, we estimate that a total of approximately 19 yd<sup>3</sup> of material will be removed. Wetland permits will be applied for and no work will proceed until authorization is obtained. Confirmatory soil samples will be collected and analyzed for total lead prior to the placement of clean fill. It is anticipated that the excavation and confirmatory sampling process will require one to two weeks to complete.

## 7.0 CONCLUSIONS

Exeter Environmental Associates, Inc. has completed an environmental sampling program of the pistol/rifle range at the Hampton Rod and Gun Club property, located off Atlantic Avenue in North Hampton, New Hampshire. The following conclusions and opinions are offered, based upon the information collected to date.

- The inferred direction of shallow groundwater flow is to the east-northeast, towards Little River. Site soils range from a dense glacial till in the uplands to both a coarse sand and gravel and a fine silty sand overlying clay in the wetlands. The depth to groundwater is generally between one and four feet below grade.
- One round of groundwater samples was collected from the site monitoring wells and the on-site supply well on April 1, 2014. The samples were analyzed for dissolved lead, copper and arsenic. Arsenic, copper, and lead were each detected in at least one of the monitoring wells, and in the bedrock supply well. The concentrations detected were below Ambient Groundwater Quality Standards. In summary, shallow site groundwater does not appear to have been impacted by the historical gun club activities. The one location where lead was detected (MW-3) is characterized by a concentration significantly lower than applicable DES standards.
- A total of 24 soil samples were collected as part of the pistol/rifle range investigation. For each location, samples were collected from a test pit at depths of 0-6 and 6-12 inches. Lead concentrations exceeded DES Soil Remediation Standards at six locations in the central and northern portions of the pistol/rifle range; all located in upland areas. With the exception of S-5, the concentrations are close to or below the DES standard at a depth of 6-12 inches below ground surface.

- Two surface water samples were collected from the pistol/rifle range. The samples were collected from the drainage swale located between the shooting area and the berm. At the time of sampling, there was no observable flow in the swale, which contained approximately four inches of water. Lead was detected at concentrations exceeding the DES Water Quality Criteria at both sampling locations. A concentration of 63  $\mu\text{g/L}$  was detected in the downgradient sample, and a concentration of 72  $\mu\text{g/L}$  was detected in the upgradient sample. A background value of total lead in surface water at this site is 3  $\mu\text{g/L}$ .
- Three sediment samples were collected from the top six inches of the base of the drainage swale. Lead concentrations ranging from 440 to 1,000 mg/Kg were identified in the sediment samples. These concentrations are considered to be elevated relative to both DES soil remediation standards (400 mg/Kg) and EPA Effects Range Low (ERL) guidelines (47 mg/Kg).
- Potential receptors are members of the gun club using the pistol/rifle range through soil exposure and possibly groundwater exposure. An ecological risk assessment has not been conducted as part of this investigation.
- The excavation of sediments in the drainage swale has been selected as a Presumptive Remedy for the treatment of the elevated lead concentrations detected in the swale.

## **8.0 RECOMMENDATIONS**

Based upon the information collected to date, Exeter Environmental Associates, Inc. offers the following recommendations.

- It is our recommendation that the presumptive remedy be implemented as soon as possible. Once this report has been approved by the Waste Management Division of DES, a wetlands impact permit should be filed with the Wetlands Bureau.



## 9.0 LIMITATIONS

The objective of the investigation was to evaluate groundwater quality across the subject property. The work scope was limited to: a site walkover and utility clearance, the installation of 16 groundwater monitoring wells, two complete rounds of groundwater sampling, analysis of the water samples for the presence of volatile organic compounds (VOCs), a potential receptor survey, and preparation of this report. Our work scope did not include an audit of the business for compliance with state and federal hazardous waste regulations.

The conclusions presented in this report are based upon the information available to Exeter Environmental Associates, Inc., as of the date of this report. Any supplementary information that becomes available should be forwarded to Exeter Environmental Associates, Inc. for review and revisions as needed. The conclusions presented in this report are partially based upon information collected and/or provided by others. The accuracy of the opinions and conclusions drawn from this information is, therefore, based upon the accuracy of the information that was provided.

This report has been prepared in accordance with our standard *Terms and Conditions*. No other warranty, expressed or implied, is made.

## **FIGURES**

**USGS Site Locus Map**

**Site Plan**

**Site Plan of Pistol/Rifle Range**

**Potential Receptor Map**

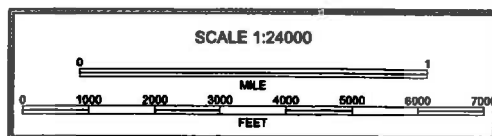
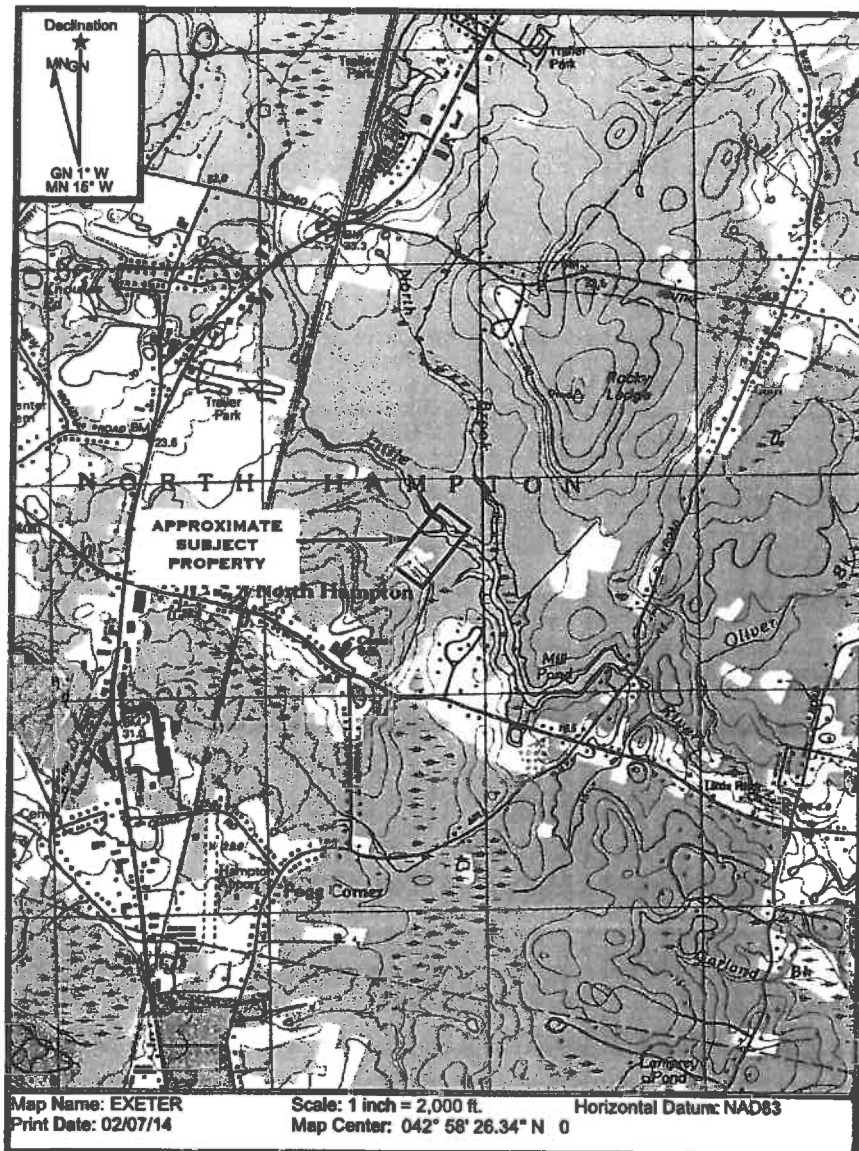
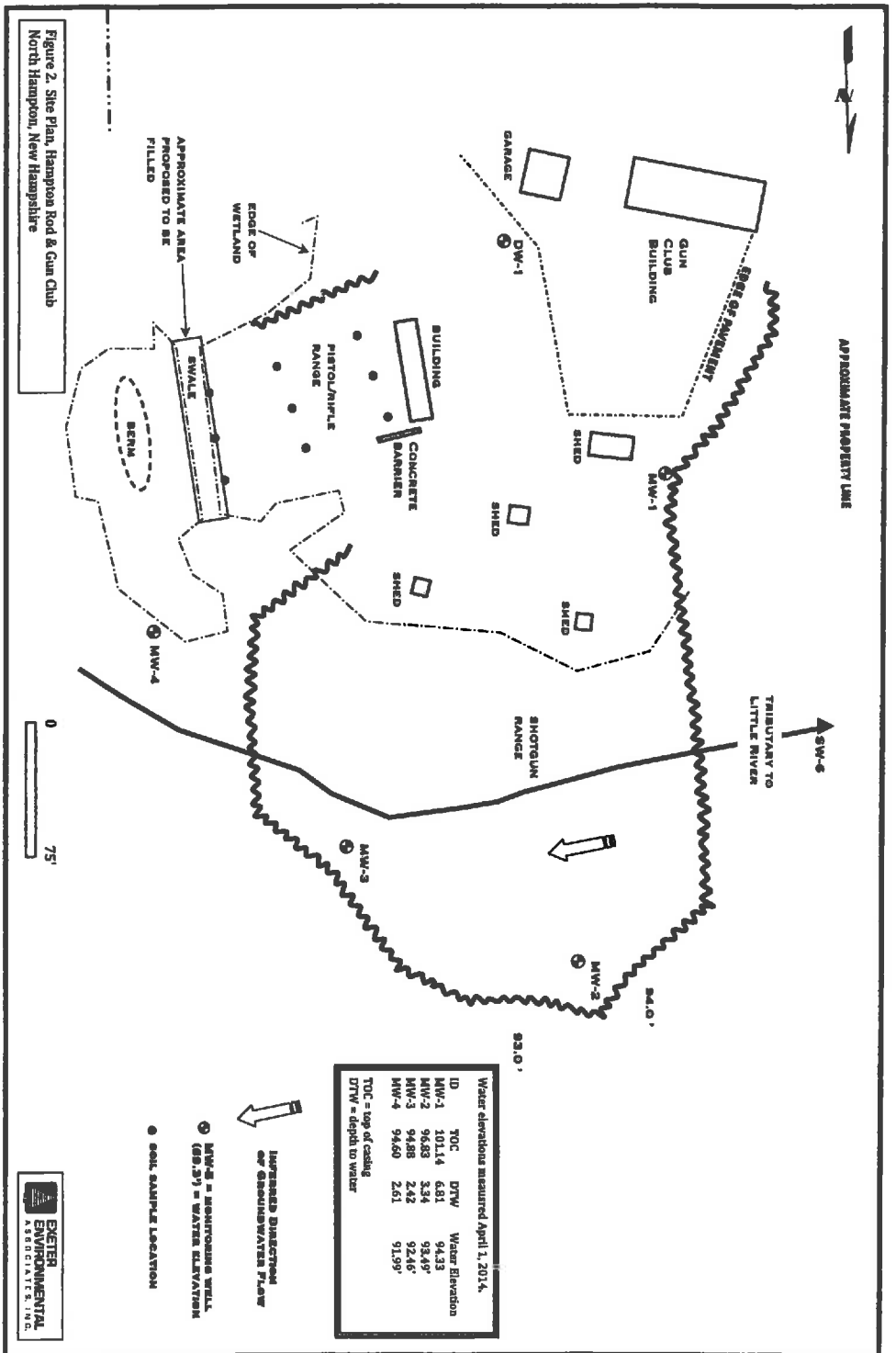
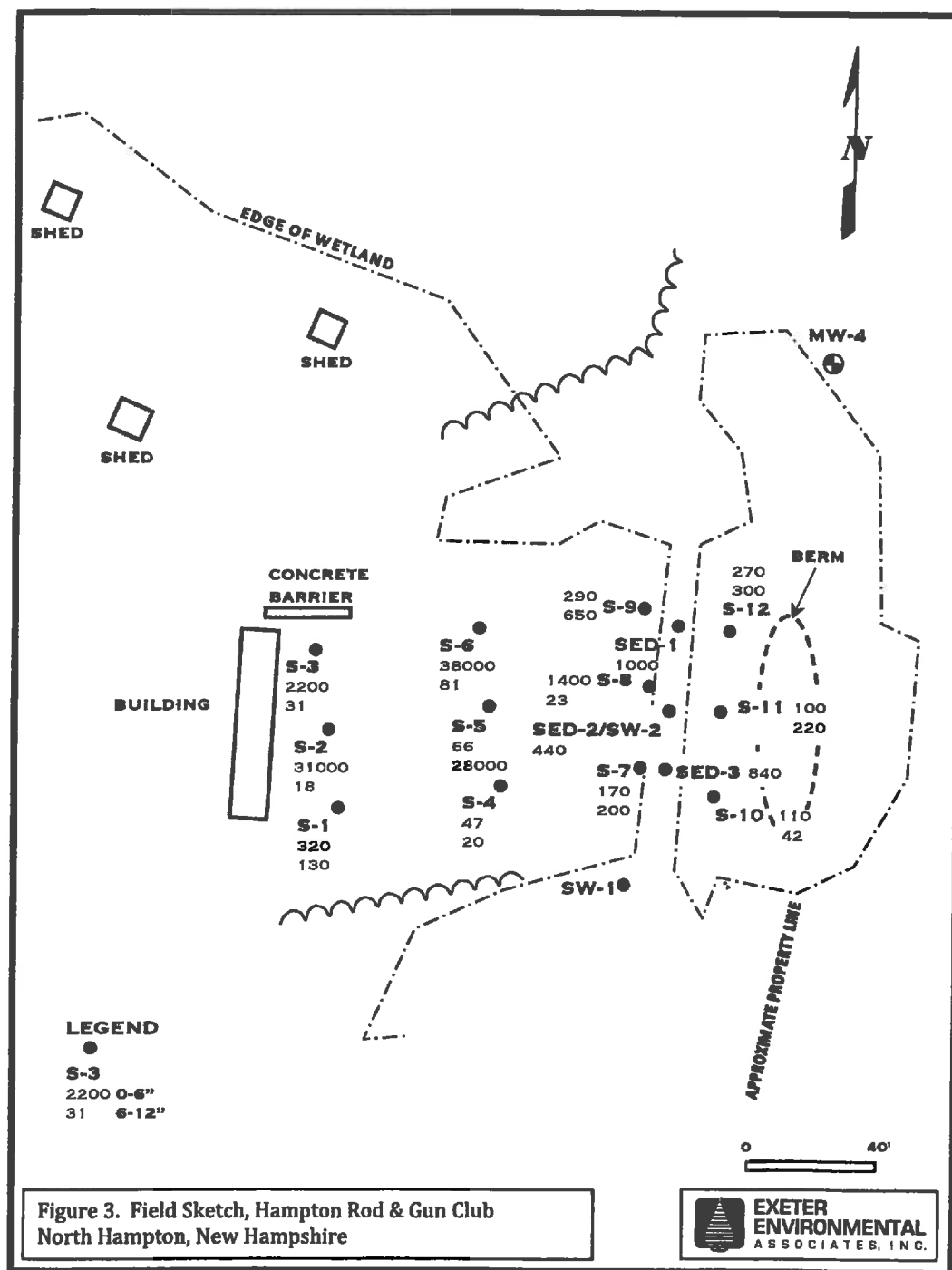


Figure 1. USGS Locus Map  
Hampton Rod & Gun Club  
North Hampton, New Hampshire





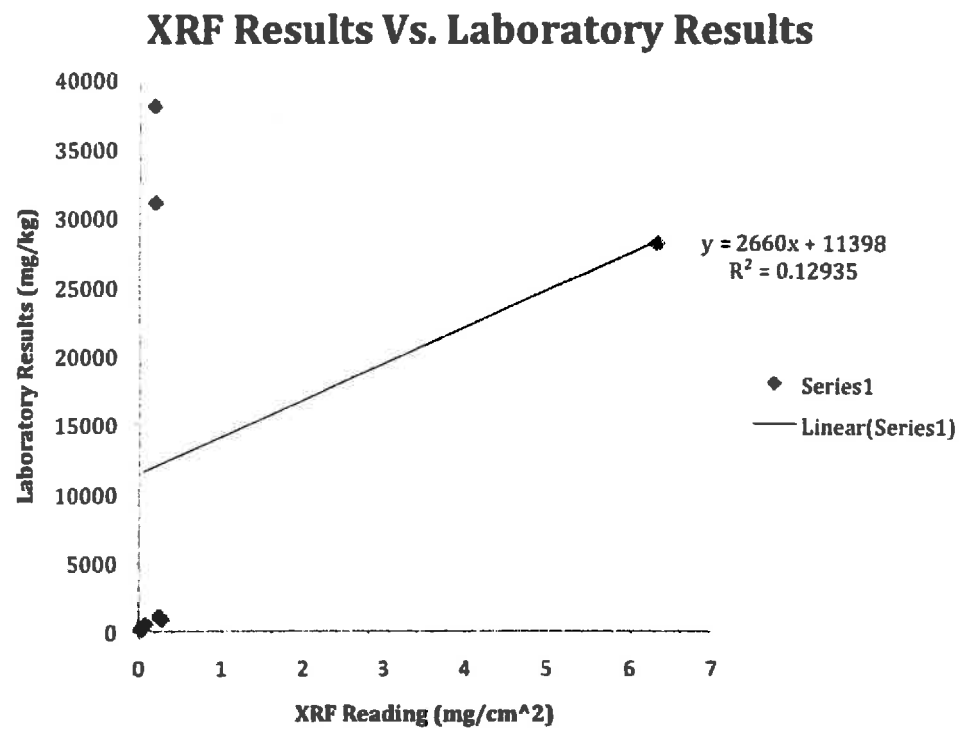
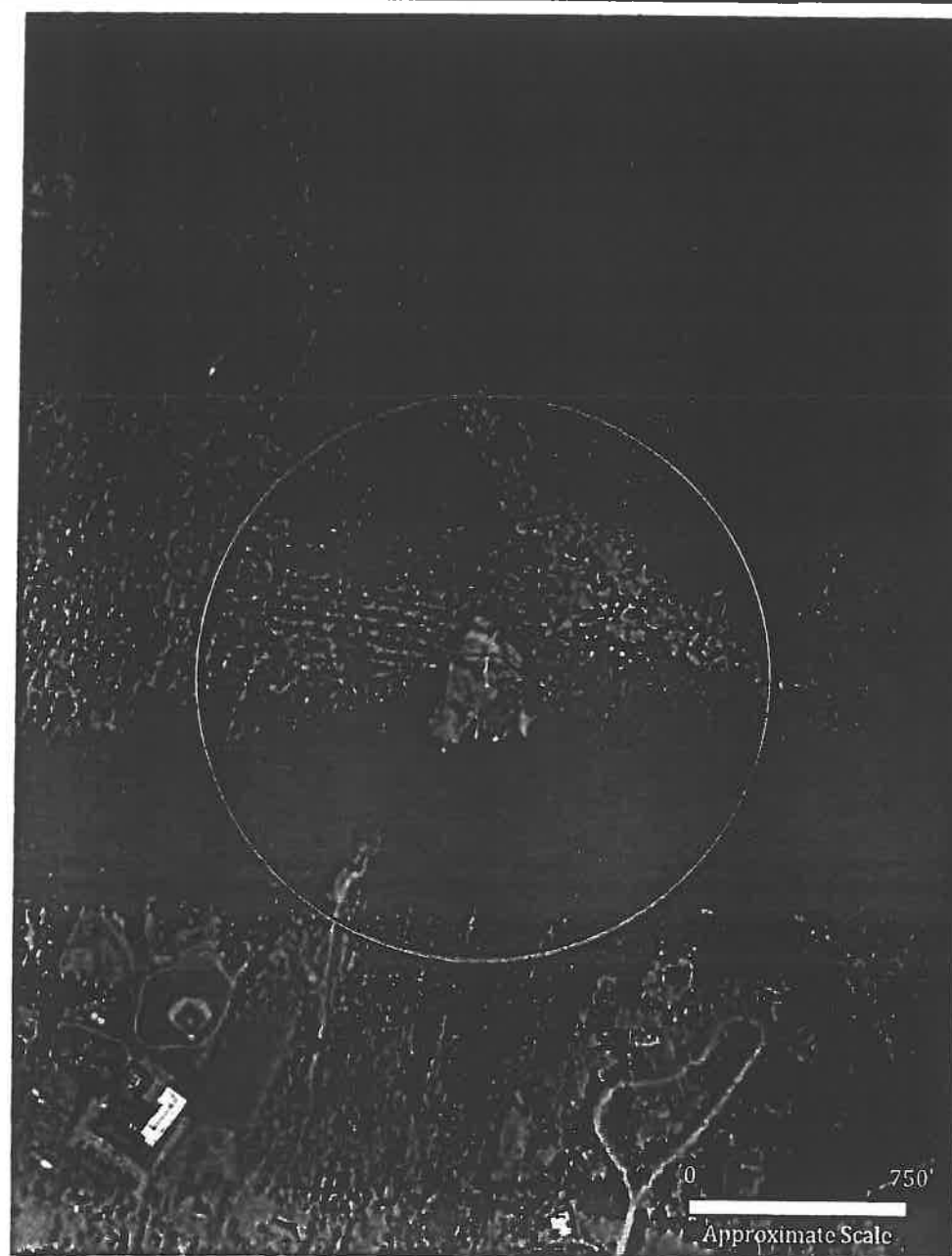


Figure 4. Plot of XRF Results Vs. Laboratory Results  
Hampton Rod & Gun Club North Hampton, New Hampshire



**Figure 5. Potential Receptor Map, 1000 ft Radius  
Hampton Rod & Gun Club, North Hampton, New Hampshire**



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## **TABLES**

**Groundwater Elevation Data**

**Groundwater Quality Data**

**Surface Water Quality Data**

**Soil Data**



**Table 1. Summary of Water Elevation Data. April 1 , 2014**  
**Hampton Rod & Gun Club, North Hampton, NH**

Well ID	Top of Casing Elevation (ft)	4/1/14	4/1/14
		Depth to Water (ft)	Water Elevation (ft)
MW-1	101.14	6.81	94.3
MW-2	96.83	3.34	93.5
MW-3	94.88	2.42	92.5
MW-4	94.60	2.61	92.0

Notes:  
top of casing refers to top of PVC casing.

**Table 2. Summary of Groundwater Analytical Results - Hampton Rod and Gun Club**

COMPOUND	MW-1 4/1/14	MW-2 4/1/14	MW-3 4/1/14	MW-4 4/1/14	DW-1	AGQS (µg/L)
Arsenic	1	4	6	3	ND (<1)	10
Copper	2	ND (<1)	ND (<1)	ND (<1)	81	1300
Lead	ND (<1)	ND (<1)	2	ND (<1)	7	15

**NOTES:**

Only those compounds positively identified on the laboratory report are included in this table.

Concentrations are in micrograms per liter (equivalent to parts per billion, ppb)

ND = None Detected; NS = No Standard; NA = Not Analyzed

Highlighted data indicates the concentration exceeds the applicable standard.

**Table 3. Summary of Surface Water Analytical Results - Hampton Rod and Gun Club**

COMPOUND	SW-1	SW-2	SW-6	Surface Water Standards per Env-wq 1700 (µg/L)	
	4/24/14	4/24/14	5/12/14	Acute	Chronic
Lead	72	63	3	16.15	0.63

**NOTES:**

Only those compounds positively identified on the laboratory report are included in this table.

Concentrations are in micrograms per liter (equivalent to parts per billion, ppb)

ND = None Detected; NS = No Standard; NA = Not Analyzed

SW-6 collected from an upgradient location on the western property line as a measure of background.

**Table 4. Summary of Soil Analytical Results - Hampton Rod and Gun Club**

SAMPLE	Laboratory Results			XRF Results
	Arsenic (11)	Copper (NS)	Lead (400)	Lead
S-1A (0-6")	-	-	320	0.07
S-1B (6-12")	-	-	190	0.05
S-2A (0-6")	46	310	31000	0.20
S-2B (6-12")	-	-	18	0.00
S-3A (0-6")	-	-	2200	0.04
S-3B (6-12")	-	-	31	0.00
S-4A (0-6")	-	-	47	0.00
S-4B (6-12")	-	-	20	0.00
S-5A (0-6")	-	-	66	0.01
S-5B (6-12")	64	600	20000	6.33
S-6A (0-6")	-	-	30000	0.19
S-6B (6-12")	-	-	81	0.07
S-7A (0-6")	-	-	170	0.02
S-7B (6-12")	-	-	200	0.03
S-8A (0-6")	-	-	1400	0.03
S-8B (6-12")	-	-	23	0.00
S-9A (0-6")	-	-	290	0.06
S-9B (6-12")	3.8	7.5	650	0.17
S-10A (0-6")	-	-	110	0.04
S-10B (6-12")	-	-	42	0.01
S-11A (0-6")	-	-	100	0.01
S-11B (6-12")	-	-	220	0.07
S-12A (0-6")	-	-	270	0.07
S-12B (6-12")	-	-	300	0.04
SED-1 (0-6")	-	-	1000	0.25
SED-2 (0-6")	-	-	440	0.08
SED-3 (0-6")	-	-	840	0.28

**NOTES:**

Only those compounds positively identified on the laboratory report are included in this table.

Laboratory concentrations are in milligrams per kilogram, XRF concentrations are in mg/cm<sup>2</sup>

ND = None Detected; NS = No Standard; '-' = Not Analyzed

Highlighted data indicates the concentration exceeds the applicable standard.

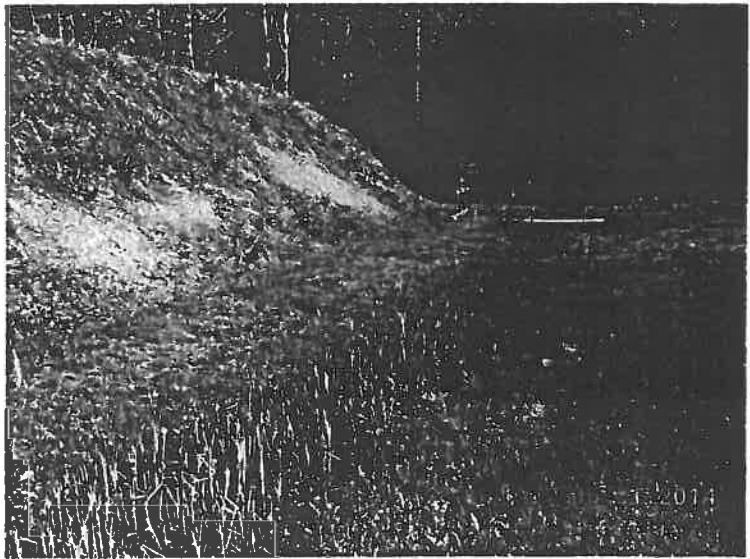
XRF results represent the average of four readings

## **SITE PHOTOGRAPHS**

**EEA 1814.01**



**Photo #1. Overview of the Hampton Rod & Gun Club pistol/rifle range.**



**Photo #2. South facing view of the drainage swale in the pistol/rifle range.**

## **APPENDIX I**

### **Soil Boring Logs and Well Construction Details**

**EEA 1814.01**



**BORING: MW-1**

Sheet #: 1 of 1

Driller: Technical Drilling Services

Geologist: Julie Shope, Brian Campella

depth	sample number	blow counts	sample descriptions and classifications	well constr.	remarks	PIG (ppm)
	S-1 (0-2')	3,2,2,2	N/A		No Recovery	
1						
2						
3					top of bentonite at 3'	
4					top of sand at 4'	
5					top of screen at 5'	
6	S-2 (5-7')	4-8-8-7 R=20"	Brown, fine to coarse sand and gravel, some silt (TILL)			
7						
8						
9						
10						
11	S-3 (10-12')	12-18-22-7 R=8"	Brown/orange-brown fine to coarse sand and fine gravel, some silt, rock fragments (TILL)			
12						
13						
14						
15						
16	S-4 (15-17')	23-32-25-22 R=18"	brown fine to coarse sand, gravel, and rock fragments, little silt changing to fine to coarse sand and gravel, trace silt (TILL)			
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						





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**BORING: MW-2**

Project: Hampton Rod and Gun Club

Sheet #: 1 of 1

Location: see site plan

Driller: Technical Drilling Services

Date: March 7, 2014

Geologist: Julie Shope, Brian Campella

depth	sample number	blow counts	sample descriptions and classifications	well const.	remarks	PIB (ppm)
1	S-1 (0-2')	3-6-7-7 R=12"	3 inches of fibrous organic material changing to dark brown fine sand and silt, fine to coarse sand, trace rock fragments			
2						
3					top of bentonite at 3'	
4					top of sand at 4'	
5					top of screen at 5'	
6	S-2 (5-7')	2-5-6-6 R=12"	Dark gray fine to coarse sand and rock fragments, little silt (MARINE?)			
7						
8						
9						
10						
11	S-3 (10-12')	5-4-4-3 R=6"	Dark gray fine to coarse sand and rock fragments, trace silt			
12						
13						
14						
15					bottom of screen at 15'	
16	S-4 (15-17')	5-7-7-7 R=2"	Fine to coarse sand, trace silt, dark gray			
17					bottom of boring at 17'	
18						
19						
20						
21						
22						
23						
24						
25						
26						

**NOTES:**

- (1) boring advanced with track-mounted hollow-stem auger drill rig
- (2) well constructed of 2" PVC
- (3) well completed with protective standpipe



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P.O. Box 451, Exeter, NH 03833-0451  
tel: 603-778-3988  
www.exeterenvironmental.com

**BORING: MW-3**

Project: Hampton Rod and Gun Club			Sheet #: 1 of 1			
Location: see site plan			Driller: Technical Drilling Services			
Date: March 7, 2014			Geologist: Julie Shope, Brian Campella			
depth	sample number	blow counts	sample descriptions and classifications	well const.	remarks	PID (ppm)
1	S-1 (0-2')	2-2-3-3 R=18"	1 inch of organic material followed by 3 inches of fine silt (gray), then fine sands and silt, with lenses of clay (MARINE)			
2						
3					top of bentonite at 3'	
4					top of sand at 4'	
5					top of screen at 5'	
6	S-2 (5-7')	2-2-2-2 R=10"	Gray, fine to medium sand with little silt, changing to clay (MARINE)			
7						
8						
9						
10						
11	S-3 (10-12')	3-3-3-4 R=24"	Gray clay with lenses of fine sand and silt (MARINE)			
12						
13						
14						
15					bottom of screen at 15'	
16	S-4 (15-17')	1-1-0-0 R=24"	Gray clay changing to silt with some clay (MARINE)			
17					bottom of boring at 17'	
18						
19						
20						
21						
22						
23						
24						
25						
26						
<div>NOTES:</div> <div>(1) boring advanced with track-mounted hollow-stem auger drill rig</div> <div>(2) well constructed of 2" PVC</div> <div>(3) well completed with protective standpipe</div>						



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tel: 603-778-3988  
www.exeterenvironmental.com

**BORING: MW-4**

Project:	Hampton Rod and Gun Club			Sheet #:	1 of 1	
Location:	see site plan			Driller:	Technical Drilling Services	
Date:	March 7, 2014			Geologist:	Julie Shope, Brian Campella	
depth	sample number	blow counts	sample descriptions and classifications	well const.	remarks	PID (ppm)
1	S-1 (0-2')	2-3-4-3 R=24"	Dark brown silt changing to gray and brown fine sand with trace silt, changing to gray clay (MARINE)			
2						
3					top of bentonite at 3'	
4					top of sand at 4'	
5					top of screen at 5'	
6	S-2 (5-7')	2-4-4-3 R=20"	Dark gray fine to coarse sand, some clay, little silt changing to fine sand with some silt, changing to gray clay (MARINE)			
7						
8						
9						
10						
11	S-3 (10-12')	2-1-2-1 R=24"	Dark gray silty clay (MARINE)			
12						
13						
14						
15					bottom of screen at 15'	
16	S-4 (15-17')	8-5-7-18 R=8"	Dark gray silty clay, rock fragments (TILL ~16')			
17					bottom of boring at 17'	
18						
19						
20						
21						
22						
23						
24						
25						
26						

**NOTES:**

- (1) boring advanced with track-mounted hollow-stem auger drill rig
- (2) well constructed of 2" PVC
- (3) well completed with protective standpipe

**APPENDIX II**  
**Laboratory Reports**

**EEA 1814.01**

Steven Shope  
Exeter Environmental Assoc., Inc.  
P.O. Box 451  
Exeter, NH 03833



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 130046  
Client Identification: Hampton Gun Club | 1814.01  
Date Received: 4/2/2014

Dear Mr. Shope:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at [www.eailabs.com](http://www.eailabs.com) for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted

< : "less than" followed by the reporting limit

> : "greater than" followed by the reporting limit

%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

  
Lorraine Olashaw, Lab Director

4.8.14  
Date

3  
# of pages (excluding cover letter)



## SAMPLE CONDITIONS PAGE

EAI ID#: 130046

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | 1814.01

Temperature upon receipt (°C): 2.7

Received on ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
130046.01	MW-1	4/2/14	4/1/14	aqueous		Adheres to Sample Acceptance Policy
130046.02	MW-2	4/2/14	4/1/14	aqueous		Adheres to Sample Acceptance Policy
130046.03	MW-3	4/2/14	4/1/14	aqueous		Adheres to Sample Acceptance Policy
130046.04	MW-4	4/2/14	4/1/14	aqueous		Adheres to Sample Acceptance Policy

*Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.*

*Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.*

*All results contained in this report relate only to the above listed samples.*

**References Include:**

- 1) EPA 600/4-79-020, 1983
- 2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012
- 3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- 4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eailabs.com | 800.287.0525 | customerservice@eailabs.com



# LABORATORY REPORT

EAI ID#: 130046

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | 1814.01

Sample ID:	MW-1	MW-2	MW-3	MW-4					
Lab Sample ID:	130046.01	130046.02	130046.03	130046.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	4/1/14	4/1/14	4/1/14	4/1/14	Analytical Matrix	Units	Date of Analysis	Method	Analyst
Date Received:	4/2/14	4/2/14	4/2/14	4/2/14					
Arsenic	0.001	0.004	0.006	0.003	AqDis	mg/L	4/3/14	200.8	DS
Copper	0.002	< 0.001	< 0.001	< 0.001	AqDis	mg/L	4/3/14	200.8	DS
Lead	< 0.001	< 0.001	0.002	< 0.001	AqDis	mg/L	4/3/14	200.8	DS

## 130046



Steven Shope  
Exeter Environmental Assoc., Inc.  
P.O. Box 451  
Exeter, NH 03833



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 130915

Client Identification: Hampton Gun Club | EEA# 1814.01

Date Received: 4/25/2014

Report revision/reissue: Revision, replaces report dated 5/1/2014

Revision Information: Total Hardness was requested to be analyzed on sample SW-2.

Dear Mr. Shope:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at [www.eailabs.com](http://www.eailabs.com) for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted

< : "less than" followed by the reporting limit

> : "greater than" followed by the reporting limit

%R : % Recovery

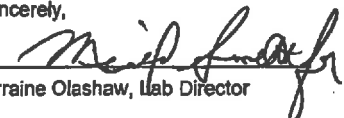
Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

  
Lorraine Olashaw, Lab Director

5/9/14  
Date

6  
# of pages (excluding cover letter)



## SAMPLE CONDITIONS PAGE

EAI ID#: 130915

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | EEA# 1814.01

Temperature upon receipt (°C): 2.8

Received on ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
130915.01	S-2A	4/25/14	4/24/14	soil	67.3	Adheres to Sample Acceptance Policy
130915.02	S-5B	4/25/14	4/24/14	soil	71.9	Adheres to Sample Acceptance Policy
130915.03	S-6A	4/25/14	4/24/14	soil	67.5	Adheres to Sample Acceptance Policy
130915.04	S-9B	4/25/14	4/24/14	soil	80.1	Adheres to Sample Acceptance Policy
130915.05	S-10A	4/25/14	4/24/14	soil	86.8	Adheres to Sample Acceptance Policy
130915.06	SED-1	4/25/14	4/24/14	soil	67.1	Adheres to Sample Acceptance Policy
130915.07	SED-2	4/25/14	4/24/14	soil	73.6	Adheres to Sample Acceptance Policy
130915.08	SED-3	4/25/14	4/24/14	soil	74.2	Adheres to Sample Acceptance Policy
130915.09	SW-1	4/25/14	4/24/14	aqueous		Adheres to Sample Acceptance Policy
130915.1	SW-2	4/25/14	4/24/14	aqueous		Adheres to Sample Acceptance Policy
130915.11	DW-1	4/25/14	4/24/14	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eailabs.com | 800.287.0525 | customerservice@eailabs.com



# LABORATORY REPORT

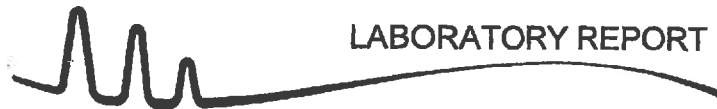
EAI ID#: 130915

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | EEA# 1814.01

Sample ID:	S-2A	S-5B	S-9B					
Lab Sample ID:	130915.01	130915.02	130915.04					
Matrix:	soil	soil	soil					
Date Sampled:	4/24/14	4/24/14	4/24/14	Analytical Matrix	Units	Date of Analysis	Method	Analyst
Date Received:	4/25/14	4/25/14	4/25/14					
Arsenic	46	64	3.8	SoITotDry	mg/kg	4/28/14	6020	DS
Copper	310	600	7.6	SoITotDry	mg/kg	4/28/14	6020	DS
Lead	31000	28000	650	SoITotDry	mg/kg	4/28/14	6020	DS

Sample ID:	SW-2					
Lab Sample ID:	130815.1					
Matrix:	aqueous					
Date Sampled:	4/24/14	Analytical Matrix	Units	Date of Analysis	Method	Analyst
Date Received:	4/25/14					
Lead	0.063	AqTot	mg/L	4/28/14	200.8	DS
Total Hardness (as CaCO3)	28	AqTot	mg/L	4/28/14	200.8	DS



# LABORATORY REPORT

EAI ID#: 130915

Client: **Exeter Environmental Assoc., Inc.**

Client Designation: **Hampton Gun Club | EEA# 1814.01**

Sample ID:	S-6A	S-10A	SED-1	SED-2					
Lab Sample ID:	130915.03	130915.05	130915.06	130915.07					
Matrix:	soil	soil	soil	soil					
Date Sampled:	4/24/14	4/24/14	4/24/14	4/24/14	Analytical Matrix	Units	Date of Analysis	Method	Analyst
Date Received:	4/25/14	4/25/14	4/25/14	4/25/14					
Lead	38000	110	1000	440	SoiTotDry	mg/kg	4/28/14	6020	DS

Sample ID: SED-3

Lab Sample ID: 130915.08

Matrix: soil

Date Sampled: 4/24/14

Date Received: 4/25/14

Lead 840

Analytical Matrix	Units	Date of Analysis	Method	Analyst
SoiTotDry	mg/kg	4/28/14	6020	DS



## LABORATORY REPORT

EAI ID#: 130915

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | EEA# 1814.01

Sample ID: SW-1

Lab Sample ID: 130915.09

Matrix: aqueous

Date Sampled: 4/24/14

Date Received: 4/25/14

Lead 0.072

Analytical Matrix	Units	Date of Analysis	Method	Analyst
AqTot	mg/L	4/28/14	200.8	DS

Sample ID: DW-1

Lab Sample ID: 130915.11

Matrix: aqueous

Date Sampled: 4/24/14

Date Received: 4/25/14

Arsenic < 0.001

Copper 0.081

Lead 0.007

Analytical Matrix	Units	Date of Analysis	Method	Analyst
AqTot	mg/L	4/28/14	200.8	DS
AqTot	mg/L	4/28/14	200.8	DS
AqTot	mg/L	4/28/14	200.8	DS

**CHAIN-OF-CUSTODY RECORD**

130915

**BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.**

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)		VOC		SVOC		METALS		INORGANICS		MICRO		OTHER		NOTES MOH Val. #
		Grab	Composite	1, 2, 3, 4	5, 6, 7, 8, 9, 10, 11, 12	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200	201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300	301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400	401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500	501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600	601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700				
S-2A	4-24-14	11:20	S	6												
S-5B	12:05	S	6													
S-10A	13:10	S	6													
S-9B	13:15	S	6													
S-10A	13:20	S	6													
S-10A	9:30	S	6													
S-10A	9:45	S	6													
S-10A	9:50	S	6													

NOTE: LAMB: 5.50L; ON-GROUND WATER: SW-GRAVE WATER; DW-DRAINAGE WATER; VAPOR-WATER WATER  
PRESERVE: H-HCL; H-HNO<sub>3</sub>; S-H<sub>2</sub>SO<sub>4</sub>; H-H<sub>2</sub>CO<sub>3</sub>; H-HCO<sub>3</sub>

**Project Manager:** Steven Shope  
**Company:** Exeter Environmental Associates, Inc.  
**Address:** P.O. Box 451, Exeter, NH 03833  
**City:** Exeter, NH 03833  
**Phone:** 603-778-3988  
**Fax:** 603-778-3988  
**E-Mail:** steven.shope@exeternh.com  
**Site Name:** Hampton Gun Club  
**Project #:** 1814.01  
**State:** NH MA ME VT OTHER:  
**Regulation Focusing:** NPDES; Air POTW; Stormwater or GW; or RMP, Brownfield or Other:  
**Order #:** PO #:

**DATE NEEDED:** 5 Day  
**QA/QC:** REPORTING LEVEL: A B C OR MA MCP  
**Presumptive Certainty:** NO FAX MAIL PD EQU  
**Reporting Options:** PREPARE: YES OR NO  
**Electronic Options:** NO FAX MAIL PD EQU  
**Relinquished By:** DATE: TIME: SIGNED BY:  
**Relinquished By:** DATE: TIME: SIGNED BY:  
**Relinquished By:** DATE: TIME: SIGNED BY:

**Metals:** 8 HCL 13 PP Fe, Mn Pb, Cu  
**Other Metals:** Arsenic  
**Disposal Metals Field Inventory:** YES NO  
**Note:** (ie: SPECIAL DESIGN LIGHTS, BUILDING INFO, IF DIFFERENT)  
**Remove any visible bullet shards prior to analysis**  
**Site History:**  
**Field Remarks:**  
**Submitted Concentration:**

**Eastern analytical, Inc.** 25 CHEVELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | FAX: 603.228.4591 | E-MAIL: CUSTODIAN@EALAB.COM | WWW.EALAB.COM  
 professional laboratory services  
 (WHITE: ORIGINAL GREEN: PROJECT MANAGER)





Steven Shope  
Exeter Environmental Assoc., Inc.  
P.O. Box 451  
Exeter, NH 03833



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 131197  
Client Identification: Hampton Gun Club | EEA# 1814.01  
Date Received: 5/5/2014

Dear Mr. Shope :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at [www.eailabs.com](http://www.eailabs.com) for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted

< : "less than" followed by the reporting limit

> : "greater than" followed by the reporting limit

%R : % Recovery

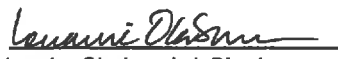
Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

  
Lorraine Olashaw, Lab Director

5-8-14  
Date

7  
# of pages (excluding cover letter)





## SAMPLE CONDITIONS PAGE

EAI ID#: 131197

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | EEA# 1814.01

Temperature upon receipt (°C): 1.7

Received on ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
131197.01	S-1A	5/5/14	4/24/14	soil	70.6	Adheres to Sample Acceptance Policy
131197.02	S-1B	5/5/14	4/24/14	soil	80.0	Adheres to Sample Acceptance Policy
131197.03	S-2B	5/5/14	4/24/14	soil	84.0	Adheres to Sample Acceptance Policy
131197.04	S-3A	5/5/14	4/24/14	soil	78.0	Adheres to Sample Acceptance Policy
131197.05	S-3B	5/5/14	4/24/14	soil	85.5	Adheres to Sample Acceptance Policy
131197.06	S-4A	5/5/14	4/24/14	soil	86.9	Adheres to Sample Acceptance Policy
131197.07	S-4B	5/5/14	4/24/14	soil	88.2	Adheres to Sample Acceptance Policy
131197.08	S-5A	5/5/14	4/24/14	soil	82.6	Adheres to Sample Acceptance Policy
131197.09	S-6B	5/5/14	4/24/14	soil	71.9	Adheres to Sample Acceptance Policy
131197.1	S-7A	5/5/14	4/24/14	soil	80.5	Adheres to Sample Acceptance Policy
131197.11	S-7B	5/5/14	4/24/14	soil	76.5	Adheres to Sample Acceptance Policy
131197.12	S-8A	5/5/14	4/24/14	soil	87.0	Adheres to Sample Acceptance Policy
131197.13	S-8B	5/5/14	4/24/14	soil	82.9	Adheres to Sample Acceptance Policy
131197.14	S-9A	5/5/14	4/24/14	soil	80.2	Adheres to Sample Acceptance Policy
131197.15	S-10B	5/5/14	4/24/14	soil	86.5	Adheres to Sample Acceptance Policy
131197.16	S-11A	5/5/14	4/24/14	soil	85.5	Adheres to Sample Acceptance Policy
131197.17	S-11B	5/5/14	4/24/14	soil	78.8	Adheres to Sample Acceptance Policy
131197.18	S-12A	5/5/14	4/24/14	soil	84.1	Adheres to Sample Acceptance Policy
131197.19	S-12B	5/5/14	4/24/14	soil	78.4	Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis. Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

- 1) EPA 600/4-79-020, 1983
- 2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012
- 3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- 4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc.

www.eallabs.com | 800.287.0525 | customerservice@eallabs.com



## LABORATORY REPORT

EAI ID#: 131197

Client: **Exeter Environmental Assoc., Inc.**

Client Designation: **Hampton Gun Club | EEA# 1814.01**

Sample ID:	S-1A	S-1B	S-2B	S-3A					
Lab Sample ID:	131197.01	131197.02	131197.03	131197.04					
Matrix:	soil	soil	soil	soil					
Date Sampled:	4/24/14	4/24/14	4/24/14	4/24/14	Analytical		Date of		
Date Received:	5/5/14	5/5/14	5/5/14	5/5/14	Matrix	Units	Analysis	Method	Analyst
Lead	320	130	18	2200	SolTotDry	mg/kg	5/7/14	6020	DS

Sample ID:	S-3B	S-4A	S-4B	S-5A					
Lab Sample ID:	131197.05	131197.06	131197.07	131197.08					
Matrix:	soil	soil	soil	soil					
Date Sampled:	4/24/14	4/24/14	4/24/14	4/24/14	Analytical		Date of		
Date Received:	5/5/14	5/5/14	5/5/14	5/5/14	Matrix	Units	Analysis	Method	Analyst
Lead	31	47	20	66	SolTotDry	mg/kg	5/7/14	6020	DS



# LABORATORY REPORT

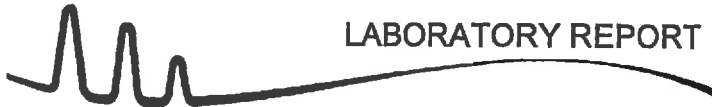
EAI ID#: 131197

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | EEA# 1814.01

Sample ID:	S-6B	S-7A	S-7B	S-8A					
Lab Sample ID:	131197.09	131197.1	131197.11	131197.12					
Matrix:	soil	soil	soil	soil					
Date Sampled:	4/24/14	4/24/14	4/24/14	4/24/14					
Date Received:	5/5/14	5/5/14	5/5/14	5/5/14	Analytical Matrix	Units	Date of Analysis	Method	Analyst
Lead	81	170	200	1400	SoiTotDry	mg/kg	5/7/14	6020	DS

Sample ID:	S-8B	S-9A	S-10B	S-11A					
Lab Sample ID:	131197.13	131197.14	131197.15	131197.16					
Matrix:	soil	soil	soil	soil					
Date Sampled:	4/24/14	4/24/14	4/24/14	4/24/14					
Date Received:	5/5/14	5/5/14	5/5/14	5/5/14	Analytical Matrix	Units	Date of Analysis	Method	Analyst
Lead	23	290	42	100	SoiTotDry	mg/kg	5/7/14	6020	DS



## LABORATORY REPORT

EAI ID#: 131197

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | EEA# 1814.01

Sample ID:	S-11B	S-12A	S-12B					
Lab Sample ID:	131197.17	131197.18	131197.19					
Matrix:	soil	soil	soil					
Date Sampled:	4/24/14	4/24/14	4/24/14	Analytical		Date of		
Date Received:	5/5/14	5/5/14	5/5/14	Matrix	Units	Analysis	Method	Analyst
Lead	220	270	300	SoiTotDry	mg/kg	5/7/14	6020	DS



## CHAIN-OF-CUSTODY RECORD

131197

Bold Fields Required. Please Circle Requested Analysis.

SAMPLE I.D.	SAMPLING DATE/TIME *If COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW) Grab/Composite	VOC		SVOC		METALS		INORGANICS		Micro		OTHER		NOTES MECH. Vial #
			1,4 DIBEN EDB PDBP	HALOS	MEBDO NAPTH	STYLES BIN PAB	LI LI	MEBDO NAPTH	400 PEST/PCB PEST 6001A PCB 0002	OL & GARAGE 1664 TPB 1664	ADH PEST PEB	ADH PEST PEB	ADH PEST PEB	ADH PEST PEB	
S-7A	4-24-14	SG													
S-7B	1225	SG													
S-8A	1305	SG													
S-8B	1235	SG													
S-8B	1300	SG													
S-9A	1310	SG													
S-10B	1340	SG													
S-11A	1340	SG													
S-11B	1345	SG													

WATER: L&H, S&H, G&H, GROUND WATER, SW-SOURCE WATER, DW-SINKING WATER,  
WV-HOT WATER  
PHEMONE: H-HCL, H-HNO<sub>3</sub>, S-H-SO<sub>4</sub>, W-H-HCL, H-HCL

Project Manager: Steven Shope

Company: Exeter Environmental Associates, Inc.

Address: P.O. Box 451, Exeter, NH 03833

City: Exeter, NH State: NH Zip: 03833

Phone: 603-778-3988 Fax: 603-778-3988

E-Mail: stevenshope@comcast.net

Site Name: Kingston Sun Club

Project #: 024 # 1814.01

State: NH MA ME VT Other:

Residual TDS: NPD: RCP POTW STORMWATER

SWP, On PWD, BROWFIELD OR OTHER:

Quote #: PO #:

**eastern analytical, inc.** 25 CHURCH DRIVE  
CONCORD, NH 03301 TEL: 603.228.0525 FAX: 603.228.4591 E-MAIL: CUSTOMER\_SERVICE@EALAB.COM WWW.EALAB.COM

Professional Laboratory Services

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

DATE NEEDED: \_\_\_\_\_

QA/QC: \_\_\_\_\_

REPORTING LEVEL: A B C

OR

MA MCP

RESUMPTIVE CERTAINITY

NO FAX (FAX) (FAX) (FAX)

ELECTRONIC OPTIONS

NO FAX (FAX) (FAX) (FAX)

RECEIVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

TOP: 13

LEFT: 13

NO: 13

METALS: 8 HPA 13 PP 13 NH 13 CO

OTHER METALS: Total Pb

DISCOURSED METALS FIELD TESTING: YES NO

NOTES (IE SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)

See page 1

SHE HISTORY: \_\_\_\_\_

SUSPECTED CONTAMINATION: \_\_\_\_\_

FIELD READING: \_\_\_\_\_

## 131197

131197

7

See page 1



Steven Shope  
Exeter Environmental Assoc., Inc.  
P.O. Box 451  
Exeter, NH 03833



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 131534  
Client Identification: Hampton Gun Club | EEA 1814.01  
Date Received: 5/13/2014

Dear Mr. Shope:

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at [www.eailabs.com](http://www.eailabs.com) for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted

< : "less than" followed by the reporting limit

> : "greater than" followed by the reporting limit

%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

  
Lorraine Olashaw, Lab Director

5.19.14  
Date

3  
# of pages (excluding cover letter)





## SAMPLE CONDITIONS PAGE

EAI ID#: 131534

Client: Exeter Environmental Assoc., Inc.

Client Designation: Hampton Gun Club | EEA 1814.01

Temperature upon receipt (°C): 2.9

Received on Ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-8

Lab ID	Sample ID	Date	Date	Sample	% Dry	Exceptions/Comments (other than thermal preservation)
		Received	Sampled	Matrix	Weight	
131534.01	SW-3	5/13/14	5/12/14	aqueous		Adheres to Sample Acceptance Policy
131534.02	SW-4	5/13/14	5/12/14	aqueous		Adheres to Sample Acceptance Policy
131534.03	SW-5	5/13/14	5/12/14	aqueous		Adheres to Sample Acceptance Policy
131534.04	SW-6	5/13/14	5/12/14	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis. Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.

All results contained in this report relate only to the above listed samples.

References include:

- 1) EPA 800/4-79-020, 1983
- 2) Standard Methods for Examination of Water and Wastewater, 20th Edition, 1998 and 22nd Edition, 2012
- 3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- 4) Hach Water Analysis Handbook, 2nd edition, 1992

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# LABORATORY REPORT

EAI ID#: 131534

Client: **Exeter Environmental Assoc., Inc.**

Client Designation: **Hampton Gun Club | EEA 1814.01**

Sample ID:	SW-3	SW-5	SW-6						
Lab Sample ID:	131534.01	131534.03	131534.04						
Matrix:	aqueous	aqueous	aqueous						
Date Sampled:	5/12/14	5/12/14	5/12/14						
Date Received:	5/13/14	5/13/14	5/13/14						
Lead	0.021	0.003	0.003	Analytical Matrix	Units	Date of Analysis	Method	Analyst	
				AqTot	mg/L	5/14/14	200.8	DS	

Sample ID:	SW-4								
Lab Sample ID:	131534.02								
Matrix:	aqueous								
Date Sampled:	5/12/14								
Date Received:	5/13/14								
Lead	0.005								
Total Hardness (as CaCO3)	73								
				Analytical Matrix	Units	Date of Analysis	Method	Analyst	
				AqTot	mg/L	5/14/14	200.8	DS	
				AqTot	mg/L	5/14/14	200.8	DS	

## 3

**IMPROVING**

**WATER:** H-H<sub>2</sub>O; GW-GROUND WATER; SW-SURFACE WATER; DW-DRAINAGE WATER;  
 WW-WASTE WATER  
**DESIGNATOR:** H-H<sub>2</sub>; B-BIO; C-CO<sub>2</sub>; Na-NAOH; H-HCl  
 H-H<sub>2</sub>SO<sub>4</sub>

603.228.4591 | E-Mail: [customer\\_service@ealabs.com](mailto:customer_service@ealabs.com) | [www.ealabs.com](http://www.ealabs.com)

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**Paul Apple**

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**From:** Carl McMorran <CMcMorran@aquarionwater.com>  
**Sent:** Wednesday, June 04, 2014 4:15 PM  
**To:** Paul Apple  
**Cc:** Bob Landman, North Hampton Water Commission  
**Subject:** RE: Information Request (correction)

The title on the first table I sent was incorrect; it says arsenic, not lead. The numbers were correct, but I neglected to change the title when I revised the report from my database.

Here the corrected table:

Lead			mg/L	
<b>Values</b>				
Row Labels	Count	Maximum	Average	Minimum
Well 8A	2	0.008	0.004	-
Well 10	1	-	-	-
Well 12	1	-	-	-
Well 13A	2	-	-	-
Well 13B	1	-	-	-
Well 14	1	-	-	-
Well 17	2	0.001	0.001	-
Well 18	2	0.001	0.001	-
Well 19	2	0.001	0.001	-
Well 20	3	-	-	-
Well 21	3	0.002	0.001	-
<b>Grand Total</b>	<b>20</b>	<b>0.008</b>	<b>0.001</b>	<b>-</b>

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**From:** Paul Apple [mailto:papple@northhampton-nh.gov]  
**Sent:** Wednesday, June 04, 2014 10:55 AM  
**To:** Carl McMorran  
**Subject:** Information Request

Carl:

Can you provide me with the testing data for the Aquarion wells in North Hampton. The context of the request is this Rod and Gun Club issue that appears to be gaining steam. The complainants allege that there is pollution of ground water. The Board would like to make the point that they've done their due diligence and made sure that there most of the supply is safe. The allegation specifically is lead contamination.

Paul.

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This email has been scanned by the Symantec Email Security.cloud service.

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