Pickpocket Dam Environmental and Hydraulic Impact Analysis

Exeter, New Hampshire

PREPARED FOR

Town of Exeter
10 Front Street
Exeter, New Hampshire

PREPARED BY

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

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Final Report

The goal of this project was to complete components of a study to evaluate the reconstruction or removal of the Pickpocket Dam on the Exeter River in the Town of Exeter. This overall feasibility study is necessary to address the "Letter of Deficiency," dated July 25, 2019, and the "Request for Action," dated August 25, 2021, from the NHDES Dam Bureau that requires that the "High-Hazard" Pickpocket Dam be reconstructed or removed by December 1, 2027.

This final report summarizes all the work enabled by the New Hampshire Coastal Program (NHCP) Coastal Resiliency Grant funding. The following sections follow the general scope of services contained in the grant agreement.

1.1 Project Management

The project management associated with the tasks below have been completed. The project management activities included kick off meetings and general coordination with the survey, site investigation and remediation and engineering teams to complete the tasks below.

1.2 Structure and Topographic Survey

An existing structure survey of the Pickpocket Dam, Fish Weir and Cross Road bridge was completed in October 2016. This effort included a topographic survey of the ground area surrounding the structures. Between the Fall 2022 and Spring of 2023, a boundary survey was completed to document the property boundaries within 500-feet upstream and downstream of the dam. Record plans and deeds were obtained for the dam site and abutting properties. Publicly available GIS Parcel information from the Town of Exeter and Brentwood was used to supplement the record plans and deeds. After the completion of the document research, field efforts were started to locate existing corner monuments and other evidence of property lines such as iron pipes, fences, and walls.

The recovered property corners and evidence of property lines was compared against the document research. The information was reconciled and compiled to develop a final Existing Conditions Plan, shown in Appendix A.

1.3 Bathymetric Survey

Detailed bathymetric survey for both upstream and downstream of the Pickpocket Dam was completed between December 2022 and May 2023. The detailed bathymetric survey 300-feet upstream of the Pickpocket Dam spillway, the 12 cross sections within the impoundment upstream of the dam and the thalweg of the stream at 200-foot intervals was collected via boat utilizing RTK, dual frequency GPS survey methods. For the detailed bathymetry in the immediate vicinity of the dam, spot elevations were collected in a grid pattern utilizing both RTK, dual frequency GPS and conventional survey methods. The data was post-processed to produce 1-foot contour intervals. The bathymetric survey is shown on the final Existing Conditions Plan in Appendix A and delivered electronically in DWG format. Additionally, the cross-section survey locations are shown on Figures 1, 2 and 3 in Appendix A and also delivered electronically in DWG format.

1.4 Sediment Sampling Plan

A Sediment Sampling and Analysis Plan (SAP) was prepared with the objective of characterizing existing sediment conditions to determine proper sediment management protocols to support a feasibility study for the different alternatives that will be carried through the Pickpocket Dam feasibility study, and is included in Appendix B.

The due diligence review of the project area found numerous regulated storage tanks and hazardous waste generator sites located within the watershed of the dam (i.e., area of interest). However, of the 193 remediation sites identified, at least 177 of the sites have been closed or are associated with database listings that require no further response actions. Further review of available database records for the remaining 16 remediation sites indicate that associated release(s) are unlikely to significantly impact sediment quality at the Pickpocket Dam given their proximity to the dam and nature of the release. Two solid waste facilities are located within 1 mile of the project area, the Cross Road Landfill (approximately 900 feet from the Site) and Exeter Transfer Station (approximately 2,500 feet from the Site). No documented releases or violations are documented at the Exeter Transfer Station and therefore this facility is unlikely to impact sediments within the impoundment. Post closure monitoring activities are ongoing for the Cross Road Landfill, a Solid Waste Facility, which is discussed in more detail in the Sediment SAP.

The Sediment SAP documents the field sampling locations, methods, and handling protocols and are consistent with the U.S. Environmental Protection Agency's (USEPA's) 2001 *Methods for Collection, Storage, and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual*.

The sediment samples were submitted to Phoenix Environmental Laboratories, Inc and were tested for volatile organic compounds (VOCs), iron, manganese, chloride, and Total Kjeldahl Nitrogen (TKN) to evaluate for the contaminants of concern associated with the Cross Road Landfill. As discussed in the NHDES Sediment Guidance, pesticides, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) typically bioaccumulate in sediment and are therefore included in the list of analyses. Metals are also commonly present in sediments, particularly along roadways and was also included in the list of analyses. Sediment samples will also be analyzed for total organic content (TOC) by EPA method 9060 and grain size by ASTM method D-422 per the NHDES Sediment Guidance.

The draft Sediment Sampling Plan was submitted to NHDES for review, no comments were received.

1.5 Sediment Analysis

A technical memorandum summarizing the results of the Sediment Sampling and Analysis was prepared by VHB and is provided in Appendix C. On April 18, 2023, VHB completed the sediment sampling at Pickpocket Dam in accordance with the procedures outlined in the March 2023 Sediment SAP. Five (5) sediment samples were collected during the sediment sampling event, including three discrete upstream samples identified as SED-1, SED-2, and SED-5 as well as two composite downstream samples identified as SED-3 and SED-4. Additionally, one field duplicate sample was submitted for SED-2 (i.e., SED-2 FD) for quality control purposes. The five sediment samples and one field duplicate sediment sample were submitted for laboratory analysis of priority pollutant 13 metals, manganese, iron, pesticides, PCBs, and semi-volatile organic compounds (sVOCs). Additionally, SED-1 was also submitted for laboratory analysis of VOCs due to the proximity of the groundwater management zone associated with the Cross Road Landfill.

Based on the sediment analytical results, only metals and PAHs were detected in sediment samples both upstream and downstream of Pickpocket Dam. Based on the risk classification resulting from the NHDES threshold effect concentrations and probably effect concentrations hazard quotients calculation, the concentrations of PAHs detected in sediment samples downstream of the dam have a moderate potential to adversely impact ecological receptors; however, concentrations of PAHs upstream of the dam have a low potential to impact ecological receptors. Concentrations of arsenic both upstream and downstream have a moderate potential to impact ecological receptors; however, based on the distribution and concentrations of arsenic detected in the sediment samples, the concentrations of arsenic identified are likely naturally-occurring. The levels of PAHs detected are typical of urban/suburban areas.

No concentrations of contaminants were detected in excess of the Soil Remediation Standards (SRS) within the sediment samples with the exception of arsenic detected in SED-2 FD (12.4 mg/kg) and SED-5 (13.9 mg/kg), which were both collected upstream of Pickpocket Dam. Concentrations of arsenic for all sediment samples ranged between 4.69 to 13.9 mg/kg with the mean concentrations of arsenic calculated at 9.88 mg/kg. Based on the narrow range of arsenic concentrations reported just above and below the SRS, the detections appear to be indicative of a naturally occurring background conditions. Nevertheless, the concentrations of arsenic exceeding the SRS generally suggest additional assessment and/or risk mitigation may be warranted should excavation/dredging of sediment be proposed as a selected alternative.

Overall, the ecological screening and human health screening results indicate that low levels of PAHs and arsenic are present in sediments both downstream and upstream of Pickpocket Dam.

1.6 Climate Change Evaluation

The existing hydraulic HEC-RAS model was updated with the supplemental survey and bathymetric data collected under Tasks 2 and 3 above. The detailed bathymetric survey created for the 300-feet upstream and 400-feet downstream of the Pickpocket Dam was used to create a new surface and then merged with the existing LiDAR surface. The model features including topographic/bathymetric cross sections, the Pickpocket Dam, fish weir and Cross Road bridge

were all updated based on the supplemental survey data. The 12 cross sections collected upstream were interpolated along the entire Exeter River channel from Haigh Road to the detailed bathymetric survey and used to create a refined digital terrain model of the channel bathymetry. The new channel digital terrain model was merged with the existing LiDAR digital terrain model and used as the basis for the refined existing conditions hydraulic model.

The HEC-RAS model flow data for the 100-year storm event and design flood (2.5 x 100 Year) were updated to evaluate climate change. Per the New Hampshire Coastal Flood Risk Summary – Part II: Guidance for Using Scientific Projections, the projected extreme precipitation estimate is a 15% increase on the best available precipitation data. The 100-year rainfall data was found using NOAA Atlas 14, Volume 10, Version 3 for the Pickpocket Dam coordinates. The 100-year rainfall depths for frequencies up to 24-hours were multiplied by 1.15 to estimate the future increase in rainfall depths. The rainfall data was updated in the project HEC-HMS hydrologic model for the Exeter River which resulted in a 49% increase of the design flood peak flow. Below is a summary of the HEC-HMS peak flow calculations.

Current Day Design Flood (2.5 x 100-year)

- 100 Year – 3,980 cfs
- 2.5 x 100 Year – 10,000 cfs

Design Flood considering Climate Change

- 100 Year – 5,940 cfs
- 2.5 x 100 Year – 14,900 cfs

The design flood values considering climate change were inputted into the refined hydraulic model and will be used to evaluate dam modification/removal alternatives as the feasibility study progresses. Preliminary results, show that if the spillway crest remains as is, the abutments would need to be increased by 7.1-feet to pass the Climate Change Design Flood with 1-foot of freeboard.

1.7 Sediment Transport Potential

The sediment transport potential for the removal of the dam was analyzed using the HEC-18 guidance to determine the critical velocity at which particles begin to move. Critical velocity is a function of the particle size and average flow depth in the channel. The revised hydraulic model was used to estimate the average flow depth in the channel. And the sediment sampling analysis included a sieve test for each sample location, Table 1 below summarizes the grain size distribution of the samples.

Table 1: Summary of Sediment Sample Grain Sizes

	Soil Samples				
	Sed 5	**Sed 1**	**Sed 2**	**Sed 3**	**Sed 4**
Approx. River XS Location	**43020**	**40918**	**40795**	**40570**	**39796**
Grain Size (mm)	**308-23**	**304-23**	**305-23**	**306-23**	**307-23**
D_5	-	-	-	0.1187	0.1765
D_{10}	-	-	-	0.264	0.385
D_{15}	-	-	-	0.4254	0.5741
D_{20}	-	-	-	0.6151	0.8075
D_{30}	-	-	-	1.1835	1.4739
D_{40}	-	-	-	2.1505	2.5287
D_{50}	-	-	0.0893	3.7221	4.0471
D_{60}	-	-	0.1460	5.8022	6.1691
D_{80}	0.1397	0.2443	0.3000	11.3414	11.9399
D_{85}	0.1782	0.3128	0.3457	13.3923	14.1084
D_{90}	0.2404	0.4047	0.4139	16.088	16.9792
D_{95}	0.5653	0.7107	0.5906	20.2531	21.5832

The 2-year storm, a surrogate for bank full conditions, and average base flow conditions were analyzed in both the existing hydraulic model and the hydraulic model with the dam and fish weir removed. The channel velocity and hydraulic depth were used to calculate the critical velocity at each cross section based on the D_{50} for each sample. A D_{50} for two of the samples was unable to be determined, as those grain sizes were below the minimum for the method. However, HEC-18 guidance recommends 0.2 mm as the lower limit for determining critical velocity, as particle below that size have cohesive properties.

VHB evaluated the critical velocities calculated for the sediment samples and compared those to the velocity estimates in the channel based on the existing and with dam removal hydraulic models. As shown in Figure 4 in Appendix D, the velocity in the river starts to increase around River Station 50000 (approximately 2- miles above the dam) for average base flow conditions and returns to existing velocities near River Station 40000 by the Cross Road Bridge just downstream of the dam. Under the 2-Year storm event, velocities being to increase near River Station 57500 (approximately 3.5- miles above the dam), just downstream of the Haigh Road bridge crossing, and return to existing velocities near the Cross Road Bridge.

In general, channel velocities begin to exceed the estimated critical velocity near River Station 44450, approximately 3,700 feet upstream of the Pickpocket Dam. From this location to the Pickpocket Dam, potential sediment transport is expected. Based on the comparison between the channel velocities and estimated critical velocities, it is anticipated that there will be potential sediment accretion in the region of the Railroad Bridge at River Station 31306.15 and the Route 108/Court Street Bridge at River Station 19655.36.

1.8 Stakeholder Engagement

Stakeholder engagement has been ongoing throughout the assignment. Paul Vlasich gave updates on the progress of the study at the monthly Exeter River Advisory Committee meetings.

Jacob San Antonio of VHB presented the project status, including the project survey, climate change hydrology, preliminary results from the hydraulic model runs, and results of the sediment sampling to the Exeter River Advisory Committee on May 18th, 2023. A copy of the presentation is provided in Appendix E.

1.9 Prepare semi-annual and final progress reports

Both the semi-annual progress report and this final progress report have been completed. The first progress report summarized the activities during the period from July 1st, 2022 through December 31st, 2022 and was submitted on January 13th, 2023.

This final report summarizes all of the work enabled by this agreement.

Appendix A: Existing Conditions Plan & Cross Section Survey Locations

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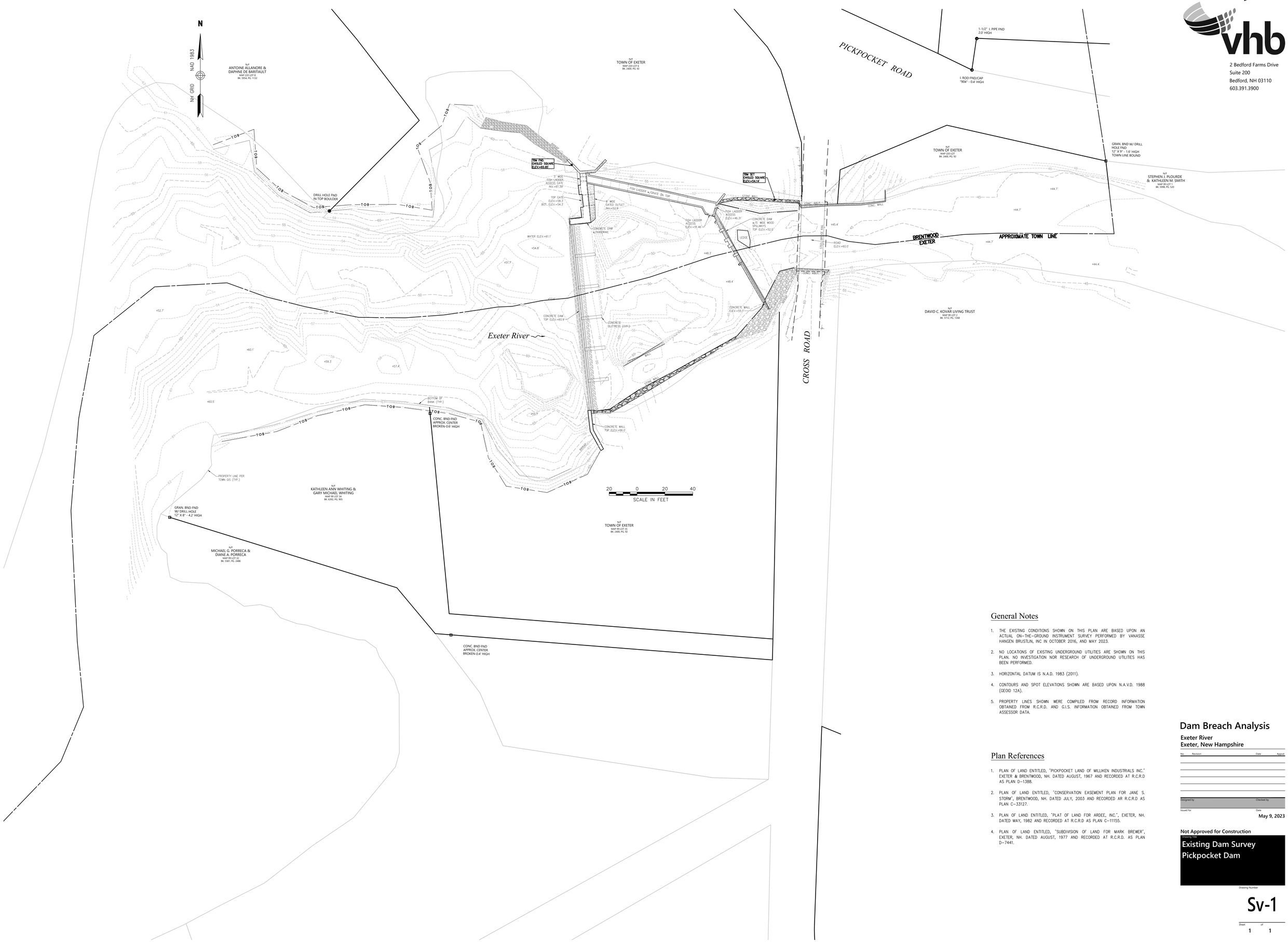


vhb.com

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110
603.391.3900

General Notes

1. THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VANASSE HANGEN BRUSTLIN, INC IN OCTOBER 2016, AND MAY 2023.
2. NO LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THIS PLAN. NO INVESTIGATION NOR RESEARCH OF UNDERGROUND UTILITIES HAS BEEN PERFORMED.
3. HORIZONTAL DATUM IS N.A.D. 1983 (2011).
4. CONTOURS AND SPOT ELEVATIONS SHOWN ARE BASED UPON N.A.V.D. 1988 (GEOID 12A).
5. PROPERTY LINES SHOWN WERE COMPILED FROM RECORD INFORMATION OBTAINED FROM R.C.R.D. AND G.I.S. INFORMATION OBTAINED FROM TOWN ASSESSOR DATA.

Plan References

1. PLAN OF LAND ENTITLED, "PICKPOCKET LAND OF MILLIKEN INDUSTRIALS INC." EXETER & BRENTWOOD, NH. DATED AUGUST, 1967 AND RECORDED AT R.C.R.D AS PLAN D-1388.
2. PLAN OF LAND ENTITLED, "CONSERVATION EASEMENT PLAN FOR JANE S. STORM", BRENTWOOD, NH. DATED JULY, 2003 AND RECORDED AR R.C.R.D AS PLAN C-33127.
3. PLAN OF LAND ENTITLED, "PLAT OF LAND FOR ARDEE, INC.", EXETER, NH. DATED MAY, 1982 AND RECORDED AT R.C.R.D AS PLAN C-11155.
4. PLAN OF LAND ENTITLED, "SUBDIVISION OF LAND FOR MARK BREWER", EXETER, NH. DATED AUGUST, 1977 AND RECORDED AT R.C.R.D. AS PLAN D-7441.

Dam Breach Analysis

Exeter River
Exeter, New Hampshire

No.	Revision	Date	Appvd.

Designed by | Checked by

Issued for | Date

May 9, 2023

Not Approved for Construction

Drawing Title

Existing Dam Survey
Pickpocket Dam

Drawing Number

Sv-1

Sheet 1 of 1

Project Number

52151.06

Figure 1: Cross Section Survey Locations

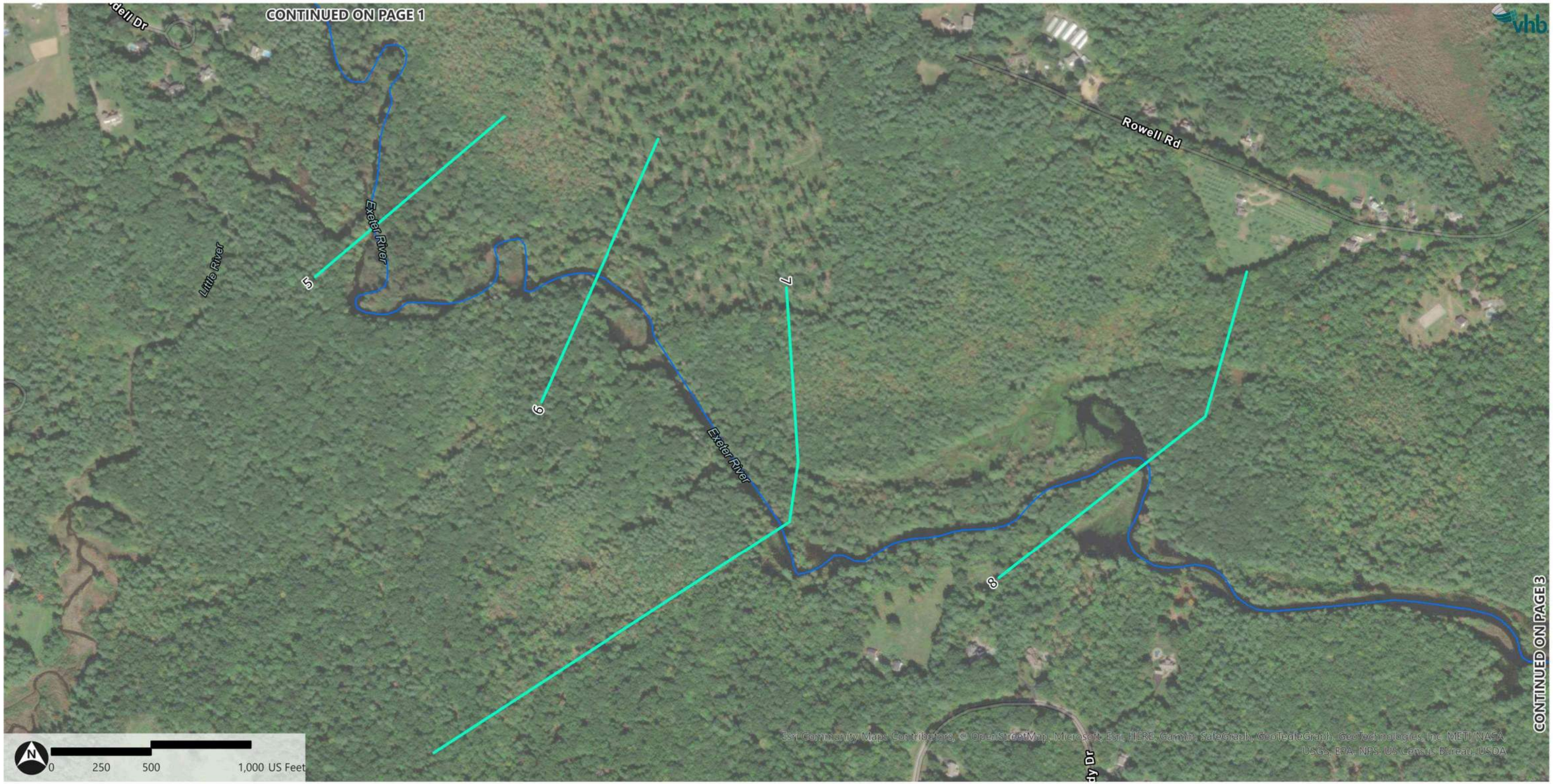
Pickpocket Dam Impoundment | Exeter, New Hampshire

Point Notes Cross Sections Stream Center Line

Source: Esri World Imagery

Figure 2: Cross Section Survey Locations

Pickpocket Dam Impoundment | Exeter, New Hampshire



Cross Sections Stream Center Line

Source: Esri World Imagery

Figure 3: Cross Section Survey Locations

Pickpocket Dam Impoundment | Exeter, New Hampshire

Point Notes Cross Sections Stream Center Line

Source: Esri World Imagery

Appendix B: Sediment Sampling Plan

SEDIMENT SAMPLING AND ANALYSIS PLAN

Pickpocket Dam

Off Cross Road

Brentwood and Exeter, NH

PREPARED FOR

Town of Exeter
10 Front Street
Exeter, NH

PREPARED BY

vhb
101 Walnut Street
Watertown, MA

Report Completion Date: March 23, 2023

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1

Introduction

VHB has prepared this Sediment Sampling and Analysis Plan (SAP) on behalf of the town of Exeter, New Hampshire (the Client) as part of a Feasibility Study (the Study) to evaluate the possible modification or removal of Pickpocket Dam, also identified as New Hampshire Department of Environmental Services (NHDES) Dam 029.7, located off Cross Road in Brentwood and Exeter, New Hampshire and hereinafter referred to as the "Site."

The objective of the Sediment SAP is to characterize existing sediment conditions to determine proper sediment management protocols in the event that Pickpocket Dam is removed and/or modified. The SAP was developed to be consistent with the triad approach as described in the NHDES *Sediment Quality Guidance Document*[1] (NHDES Sediment Guidance).

A key component of the Study is to assess the potential for adverse effects on water quality and benthic conditions downstream of the existing dam location from increased sediment migration following the modification or removal of the dam. Risk factors include the relative amount of sediment likely to be mobilized by dam removal, which is largely dependent on physical nature of the deposits (i.e., thickness, stratigraphy, and grain size distribution), and the level of chemical contamination associated with the sediments. Additional information is needed to adequately characterize sediment at Pickpocket Dam for the larger Study. The purpose of this Sediment SAP is to inform and guide the collection of that supplemental field and analytical data. The subsequent sections of this SAP present the following:

- Background information and nearby properties of concern identified based on a review of the NHDES OneStop Database;
- A recommended sampling program in accordance with the NHDES Sediment Guidance;
- Proposed chemical and bioassay analysis (if applicable) to characterize existing sediment conditions; and
- Identification of the appropriate screening values to using in evaluating sediment data.

[1] NHDES Draft Evaluation of Sediment Quality Guidance Document. April 2005. <wd-04-9 Evaluation of Sediment Quality Guidance Document (nh.gov)>

2

Site Description

2.1 Site Description and Background

The approximate center of the Site is located at 42˚58′11′′ north latitude and 71˚00′01′′ west longitude. Pickpocket Dam is located within the Exeter River, which is surrounded by a primarily residential area of Brentwood and Exeter, New Hampshire. Pickpocket Dam is an earth embankment dam with a concrete spillway with end walls, and was last repaired/rebuilt in 1969. The dam is 15 feet high (from dam toe to top of abutments), 230 feet in total length, and the main spillway length is approximately 130 feet. The contributing drainage area to Pickpocket Dam is approximately 74 square miles. Landcover within the watershed consists predominately of forested, agricultural, and residential uses. The watershed is hilly with a well-defined river channel and bordering wetlands. The river maintains a sinuous and meandering pattern with an average slope of 0.05% upstream of the dam and 0.04% downstream of the dam. In accordance with RSA 482:12 and Env-Wr 302.02, the New Hampshire Department of Environmental Services, Dam Bureau (NHDES) performed a dam inspection of the Pickpocket Dam on September 10, 2010. Based on the results of the inspection, in addition to subsequent analysis, NHDES issued a Letter of Deficiency (LOD) for the Pickpocket Dam on March 28, 2011 and a subsequent updated LOD was also issued June 2019 following a reclassification of the dam to "high-hazard" dam in 2018. The LOD identifies deficiencies and NHDES is requiring remedial measures to bring the dam into compliance or removal of the dam.

A Site Location and Local Area Map showing the location of the Site is provided as **Figure 1**, and a Site Plan depicting the Site and relevant Site features is included as **Figure 2.**

2.2 Due Diligence Review

VHB conducted a review of the searchable online environmental database (OneStop) maintained by NHDES, to identify contaminant sources that may have the potential to impact sediment quality within Pickpocket Dam. The database was queried to identify state regulated sites (e.g., storage tank facilities, hazardous waste generators, remediation sites) located within a one-mile radius of the Site as well as the dam watershed[2] (i.e., area of interest). The results of this due diligence review are summarized in the table below:

[2] The Pickpocket Dam Watershed was determined using the United States Geological Survey (USGS) StreamStats <https://streamstats.usgs.gov/ss/https://streamstats.usgs.gov/ss/>

Table 1 Summary of Environmental Database Search Results

Type of Site	No. of Sites Located within the Dam Watershed
Aboveground Storage Tank (AST) Sites	12
Underground Storage Tank (UST) Sites	44
Remediation Sites	193
Hazardous Waste Generators	36
Solid Waste Facilities	16
NPDES Outfalls	0
Local Potential Contamination Sites	25
TOTAL:	326

While the query results indicate that multiple regulated storage tank and hazardous waste generator sites are located within the area of interest, the presence of these facilities, in and of themselves, is not indicative of a release of contaminants to the environment. Of the 193 remediation sites identified, at least 177[3] of these sites have been closed or are associated with database listings that require no further response actions (i.e., non-domestic wastewater [DNW], underground injection control [UIC], etc.), indicating that associated contaminant release(s) have been mitigated to the satisfaction of the NHDES. Further review of available database records for the remaining 16 remediation sites indicate that associated release(s) are unlikely to significantly impact sediment quality at the Pickpocket Dam given their proximity to the dam and nature of the release.

Eight remediation sites were identified within a mile of the Site; however, all of the remediation sites have been closed, indicating that associated contaminant release(s) have been mitigated to the satisfaction of the NHDES. Additionally, two solid waste facilities are located within 1 mile of the Site associated with the Cross Road Landfill (approximately 900 feet from the Site) and Exeter Transfer Station (approximately 2,500 feet from the Site). No documented releases or violations are documented at the Exeter Transfer Station and therefore this facility is unlikely to impact sediments within the impoundment. Post closure monitoring activities are ongoing for the Cross Road Landfill, a Solid Waste Facility, which is discussed in **Section 2.2.1**.

In addition to this regulated site information, the Onestop Data Mapper provides access to the NHDES Environmental Monitoring Database (EMD), which is a repository of sampling data for a variety of environmental media collected from across the state. According to the EMD, multiple sediment samples collected downstream and upstream of the Site were assessed for methyl tert-butyl ether (MTBE) and 1,4-dioxane as depicted on **Figure 3**. This data can be used to compare potential differences in sediment chemistry to the results of the proposed sampling program. However, supplemental samples are recommended to evaluate sediment conditions as part of this SAP, as discussed in **Section 3**.

2.2.1 Cross Road Landfill, Exeter (NHDES Site #198401081)

The Cross Road Landfill is located off Cross Road in a rural/residential area less than 1,000 feet from the Exeter River. The landfill was capped and closed in October 1994 and post-closure monitoring is actively being conducted for the Cross Road Landfill due to the presence of contaminants in groundwater beneath the landfill. A

[3] Given the size of the Pickpocket Dam watershed, VHB reviewed publicly available data via NHDES Onestop database mapper and address fields. VHB did not independently verify the location of all the environmental listings within the watershed.

Groundwater Management Permit (GMP) was issued for the landfill in December 2013, and an associated Groundwater Management Zone (GMZ) exists that encompasses the landfill and several residential properties north of the landfill. The Cross Road Landfill GMZ extends to the Exeter River and abuts Pickpocket Dam directly to the south, the approximate boundaries of the Cross Road Landfill GMZ are depicted in **Figure 2**.

Contaminants detected in groundwater in excess of the NHDES Ambient Groundwater Quality Standards (AGQS) within the GMZ include arsenic and manganese. Ongoing water quality monitoring has included analysis of the following parameters: volatile organic compounds (VOCs), arsenic, barium, cadmium, chloride, chromium, iron, lead, mercury, manganese, nitrate, total kjeldahl nitrogen (TKN), selenium, silver, and thallium, conductance, pH, and 1,4-dioxane. Additionally, per and polyfluorinated substances (PFAS) sampling was required at certain sample locations in 2020 and 2022 by NHDES. PFAS has been detected in overburden groundwater monitoring wells within the limits of the Cross Road Landfill; however, according to the NHDES PFAS Sampling map, groundwater samples collected between the landfill and Pickpocket Dam have not resulted in the identification of concentrations of PFAS in excess of the applicable AGQS.

According to the latest February 2023 Annual Report for the Cross Road Landfill, results of a surface water sample collected adjacent to Pickpocket Dam (identified as SW-11) indicated elevated concentrations of total iron, manganese, and arsenic in excess of the applicable water Quality Criteria for Toxic Substances (WQCTS) (Water and Fish Ingestion) or Secondary Maximum Contaminant Level (SMCL), but below the NHDES AGQS (if established). Given the proximity of the landfill to the dam, there is also a potential for contaminants associated with the landfill to have affected dam sediments. A copy of the February 2023 Annual Summary Report for the Cross Road Landfill is included in **Appendix D**.

3

Field Sampling Procedures

This section of the SAP outlines the methods and protocols to be implemented during the field sampling and data collection program. In general, the sample collection methods will be consistent with the U.S. Environmental Protection Agency's (USEPA's) 2001 *Methods for Collection, Storage, and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual*.

3.1 Sediment Sampling Locations

A total of five (5) sediment sample locations are planned for this effort at various locations relative to the dam, as described in the following table:

Table 2 Proposed Supplemental Sediment Sampling Scheme

Sample ID(s)	Sample Location Description	Grain Size Analysis	Chemical Analysis	Rationale
SED-1	Upstream of Pickpocket Dam	1	1	Evaluate existing conditions upstream
SED-2[1] SED-2MS; SED-2MSD; SED-2FD	Upstream of Pickpocket Dam	1	4[2]	Evaluate existing conditions upstream
SED-3 A-E SED-4 A-E	Downstream of Pickpocket Dam	2	2	Evaluate current downstream conditions
SED-5	Further upstream of Pickpocket Dam	1	1	Confirm sediment condition near previous 1,4-dioxane detection in surface water
EB-1[2]	Equipment blank	0	1	Equipment blank.
	Total:	5	9	

Notes:
1. VHB plans to collect field quality control samples from this sampling location; however, actual location will be determined in the field based on the amount of material available (i.e., where sufficient sediment material is available). MS - matrix spike; MSD indicates matrix spike duplicate; FD – field duplicate.
2. Three additional sediment samples will be submitted for chemical analysis associated with the MS, MSD and FD at one sample location in addition to the original sample.

3.2 Field Sampling Methods

The proposed sampling locations are depicted in **Figure 2**. The actual locations of all samples will be determined in the field based on a review of local site conditions, availability of access, riverbed substrate, as well as potential equipment limitations. The final sampling location selection will be determined in the field as targeted locations may shift depending on whether there are sufficient sediment deposits available to collect sediment material for all proposed parameters.

The sediment samples will be collected using hand and gravity coring techniques (e.g., Wildco® Hand Corer or similar). The upstream samples will be retrieved as distinct sediment cores and the sampling equipment will be manually advanced through the soft sediments into the underlying silty clay material until refusal is encountered. The downstream samples (i.e., SED-3 and SED-4) will be composited from five sediment cores (labeled A through E) collected from the top one-foot interval of sediment.

Once collected, the following information will be collected from core sample(s):

- Time and date of sample collection and sample identification.
- Water depth and sampling penetration depth.
- Details pertaining to unusual events that may have occurred during sampling (i.e., potential sample contamination, equipment failure).
- Sediment texture, color, texture and consistency, presence of biota or debris, presence of oily sheen, changes in sediment characteristics with depth.
- Photograph of the sample to document stratification (if present).
- Deviations from approved work plans.

All samples submitted for VOC analysis will be collected from a discrete sample location prior to homogenizing the sediment sample for the remaining analyses. Each core sample (or samples in the case of the downstream composite samples) will then be transferred to a clean, stainless-steel bowl and mixed using a stainless-steel spoon or spatula, prior to filling the sample containers. The field sampling activities will be documented using the field data sheet provided in **Appendix B**. Samples will be analyzed for parameters noted in **Section 4**.

Sampling locations will be geo-referenced using a Trimble ProXT GPS Unit (or similar) capable of achieving sub-meter horizontal accuracy. Sampling locations will be reported in latitudes and longitudes (to the nearest hundredth of a second) or in state plane coordinates, relative to the North American datum (NAD) 1983.

3.1 Sample Handling & Custody Protocols

Samples collected for VOC analysis will be collected from discrete sample locations due to volatility of the contaminants of concern. The remainder of the sediment sample will be homogenized and immediately transferred into clean, unused, laboratory-supplied sample containers. Labels will be affixed to each sample container with the following information: project identification (ID), sample ID, sample date/time, sampler's initials, laboratory analysis required, and preservative used (if applicable). The container lids will be fastened securely. Samples and unused sample containers will remain in the sample collector's view at all times, unless locked in a vehicle or other secured location.

VHB will deliver the packed coolers directly to the contracted laboratory or submit to the laboratory via courier, under standard chain-of-custody protocols, to track the possession and handling of individual samples from the time of field collection through laboratory analysis.

3.2 Decontamination & Waste Handling Protocols

All equipment that comes into direct contact with the sediment collected for analysis will be dedicated (i.e., single use) or made of stainless-steel to facilitate proper decontamination. Sampling equipment will be decontaminated at the point-of-use, before introducing it to a sampling location, and after completion of work at a particular sampling point. Trace decontamination of small equipment follows removal of solids and gross contamination and generally consists of washing with a laboratory-grade, phosphate-free, detergent (e.g., Alconox®), and rinsing with ambient (site) or distilled water, prior to a final triple rinse with deionized water. Equipment may be air dried or wiped dry with paper towels. Decontamination (wash/rinse) waters may be discharged to the ground surface in the vicinity of the sampling location provided no evidence of gross contamination is observed.

Excess sediment material not used to fill sample containers may also be returned to the immediate vicinity from which it was collected provided no evidence of gross contamination is observed. All other investigation-derived waste (e.g., personal protective equipment [PPE}, plastic wrappers, etc.) will be collected and appropriately disposed off-site as solid waste.

4

Laboratory Analytical Submittals

4.1 Chemical Analysis

Sediment samples will be submitted to a New Hampshire Environmental Laboratory Accreditation Program (NHELAP)-accredited laboratory for analysis of the following chemical contaminants:

- VOCs including 1,4-Dioxane and MTBE via EPA method 8260
- Priority Pollutant 13 (PP-13) metals
- Iron
- Manganese
- Chloride
- TKN
- Polycyclic aromatic hydrocarbons (PAHs) by EPA method 8270
- Organochlorine pesticides by EPA method 8081
- Polychlorinated biphenyl (PCBs) by EPA method 8082

The sediment samples will be submitted for VOCs, iron, manganese, chloride, and TKN to evaluate for the contaminants of concern associated with the Cross Road Landfill as discussed in **Section 2.2**. As discussed in the NHDES Sediment Guidance, pesticides, PAHs, and PCBS typically bioaccumulate in sediment and are therefore included in the list of analyses. Metals are also commonly present in sediments, particularly along roadways and was also included in the list of analyses.

Sediment samples will also be analyzed for total organic content (TOC) by EPA method 9060 and grain size by ASTM method D-422 per the NHDES Sediment Guidance.

As discussed in **Section 2.2**, PFAS has not been detected in groundwater samples collected from overburden groundwater monitoring wells in excess of the NHDES AGQS between the Cross Road Landfill and Pickpocket Dam. Therefore, a migration pathway for PFAS to migrate from the landfill into sediment within Pickpocket Dam has not been identified and PFAS has not been included in the chemical contaminants analysis.

4.2 Ecological Risk Assessment

During the sediment sampling outlined in **Section 3.0**, VHB will collect enough sediment at all sample locations to hold for toxicity test in the event the Hazard Quotient (HQ) exceed the appliable consensus-based threshold effect concentration (TEC) and probable effect concentration (PEC). In the event that the risk of a contaminant is

determined to be moderate or high, the sediment from the location with the maximum contaminant concentration will be exposed to the following bioassays for freshwater environments for both acute and chronic assessments:

- Alosa Sapidissma
- Catostomus commersonii
- Esox niger
- Perca Flavescens

VHB selected these four bioassays based on the NHDES Sediment Guidance for freshwater environments. Additionally, environmental monitoring data collected upstream of Pickpocket Dam assessed for these four bioassays in September 1983. Therefore, in the event that bioassay analysis is required, VHB will compare to the previous environmental data to determine ecological risk, particularly for downstream environments.

5

Quality Control Measures

This section describes the quality control measures, which will be implemented during the supplemental sampling and analysis program to ensure the validity of the resulting data.

5.1 Field Quality Control

A summary of planned field quality control samples is provided in the table below:

Table 4 Field Quality Control Sample Requirements

QC Item	Frequency	Acceptance Criteria	Corrective Action
Field Duplicate Samples	One per 10 samples	Duplicate results have an RPD of less than or equal to 50% for inorganic analyses.	Reanalyze samples or review similarity of samples.
Matrix Spike/ Matrix Spike Duplicate	One per 20 samples	Matrix spike sample results between 75 and 125% of actual concentrations; RPD between MS and MSD < 15 to 20%	Note deviation in report.
Equipment Blank	One per mobilization (select analyses)	No detections at or above reported detections for associated samples.	Review decontamination procedures. Resample if necessary.
Cooler Temperature Blank	One per cooler	4 ± 2°C	Document in the laboratory report. Alter packing and shipping procedures as required.

The sampling location at which the field quality control samples will be collected will be determined in the field based on the amount of material available (i.e., where sufficient sediment material is available).

5.2 Equipment Maintenance and Calibration

In general, field sampling equipment and instruments including, but not limited to, sediment corer, GPS receiver, and PID, will be maintained, tested, and inspected according to the manufacturer's instructions. All equipment/instruments will be inspected for signs of defects prior to field deployment by VHB. The sediment

corer kit will be inspected to ensure that all the parts to the kit are included; any malfunctioning, broken, or missing components will be repaired or replaced. Field equipment/instrument performance and corrective action requirements are summarized in the table below.

Table 5 Field Equipment Performance and Corrective Action Requirements

Equipment	Activity	Frequency of activity	Acceptance criteria	Corrective action	Person responsible
Sediment Corer	Inspect/ clean	Prior to each sample	No defects/ clean, unused plastic sleeve	Replace as necessary	VHB Field Staff
GPS Receiver (Trimble ProXT or equivalent)	Record sampling location coordinates	At each sample location	Minimum satellite coverage	Post-field Data Analysis	VHB Field Staff

5.3 Data Verification & Validation

Verification and validation of the data generated during the supplemental sampling program will be performed to determine the usability of the data relative to project objectives and to verify that results are generated in accordance with the procedures defined in this SAP. Verification of the field sampling procedures used will be performed first by the field staff or sampler, and then by the VHB Project Manager (or designee). The Project Manager will review all field forms for completeness by making sure all entries on the data sheets are filled out. The Project Manager will also verify any questionable entries by speaking to the field staff/sampler and noting unusual or anomalous data in the project files.

The VHB Project Manager (or designee) will review sediment data results and evaluate laboratory QC notes to assess usability relative to project objectives. The Project Manager's review will include checking holding times, proper chain-of-custody documentation, acceptable detection limits, surrogate recoveries, duplicate results, and MS/MSD results. The results of the data review will be summarized in the final report. Decisions made regarding the usability of the data will be left to the VHB Project Manager; however, the VHB Project Manager may consult with project personnel, the Town of Exeter, or NHDES. Given the scope and objectives of the project, independent third-party verification/validation is not considered necessary.

6

Data Evaluation and Reporting

The selected Census Based (CB) Threshold Effect Concentration (TEC) and Probable Effect Concentration (PEC) values will be used to determine if a Hazard Quotient (HQ) is greater or less and one for a particular contaminant at the sample location. VHB will then determine if the risk of potential at a particular sample location in accordance with the NHDES Sediment Guidance.

Laboratory analytical results obtained during this study will be summarized in cross-tabular format for comparison to applicable screening-level ecological reference values. Specifically, VHB proposes to use the CB TEC and PEC for freshwater species, from the most recent National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRT) Tables, a copy of which is provided in **Appendix C**. Following the procedure outlined in NHDES Sediment Guidance, detected concentrations of target analytes will be qualified as low, moderate, or high risk based on the HQ. In addition, sample results will be compared to applicable NHDES Soil Remediation Standards (SRS) to assess potential handling and/or disposal concerns in the event that sediment removal actions are needed to implement the preferred alternative.

Following data evaluation, VHB will prepare a sediment sampling and analysis report in the form of a technical memorandum, which will document the field activities completed, present an assessment of potential sediment contamination considerations based on the screening-level risk assessment, and provide recommendations for further analysis, if applicable. Report attachments will also include copies of field documentation and laboratory analytical data reports.

7

References/Informational Sources

Buchman, M.F., 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle, WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

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NHDES OneStop Database, accessed March 1, 2023.

NHDES, 2005. Draft Evaluation of Sediment Quality Guidance Document, NHDES-WD-04-9. April.

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NHDES, 2018. Guidelines to the Regulatory Requirements for Dam Removal Projects in New Hampshire, NHDES-WD-03-35. 2003, Revised 2007, 2018.

U.S. Environmental Protection Agency (USEPA), 2001. Methods for Collection, Storage, and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual, EPA-823-B-01-002. October.

\\Vhb\Gbl\Proj\Bedford\52151.06 Pickpocket Dam Feasibili\Reports\SIR\Draft Sediment Sampling And Analysis Plan - Pickpocket Dam_03282023.Docx

Figures

Figure 1: Site Location and Local Area Map

Pickpocket Dam | Brentwood and Exeter, New Hampshire

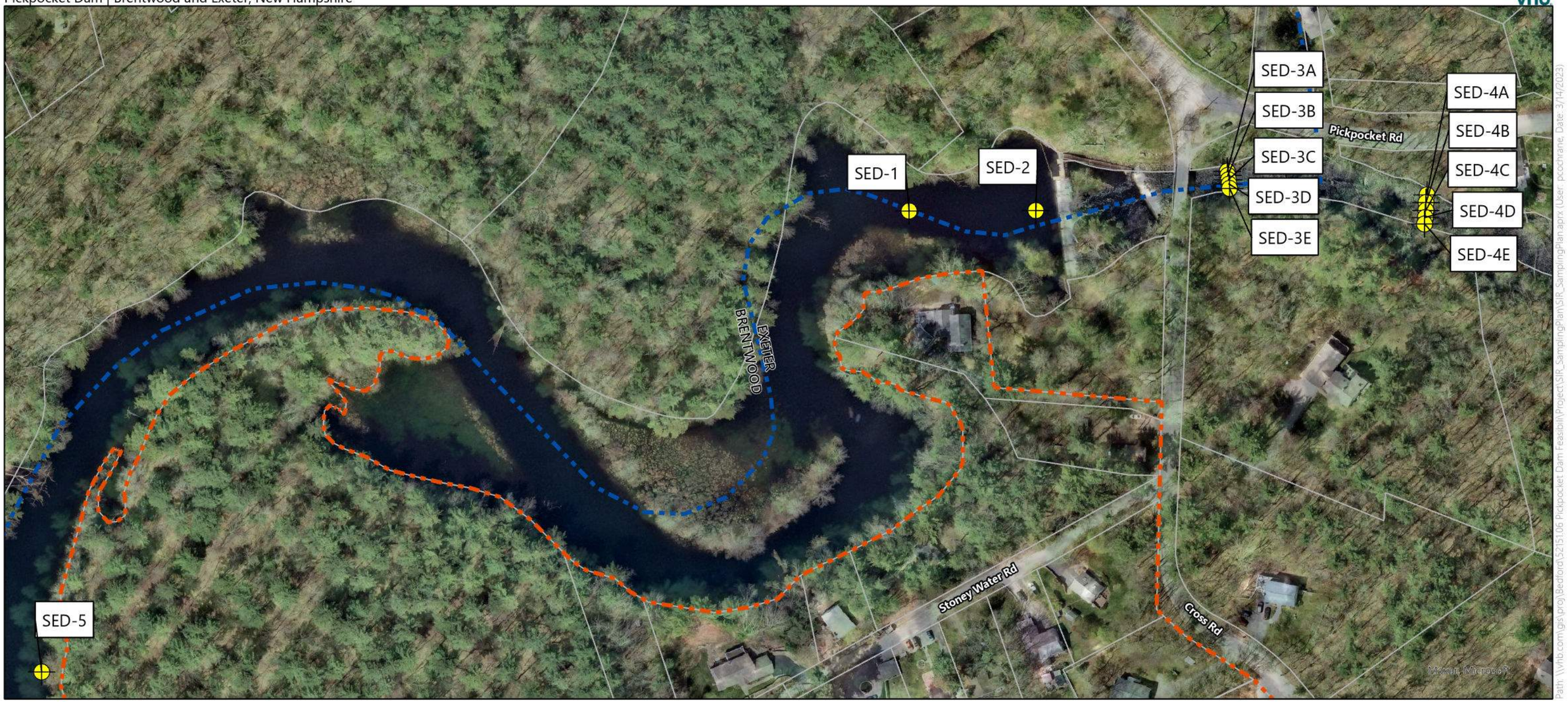
0 2,500 5,000 7,500 US Feet

Source: USGS Topo Map

Path: \\vhb.com\gis\proj\Bedford\52151.06 Pickpocket Dam Feasibili\Project\SIR_SamplingPlan\SIR_SamplingPlan.aprx (User: pcochrane; Date: 3/14/2023)

Figure 2: Sampling Plan

Pickpocket Dam | Brentwood and Exeter, New Hampshire



0 100 200 300 US Feet

Proposed Sediment Sample Location

Parcels

Cross Road Landfill - GMZ

Town Boundary

Source: NearMap Imagery, NHDOT Roads

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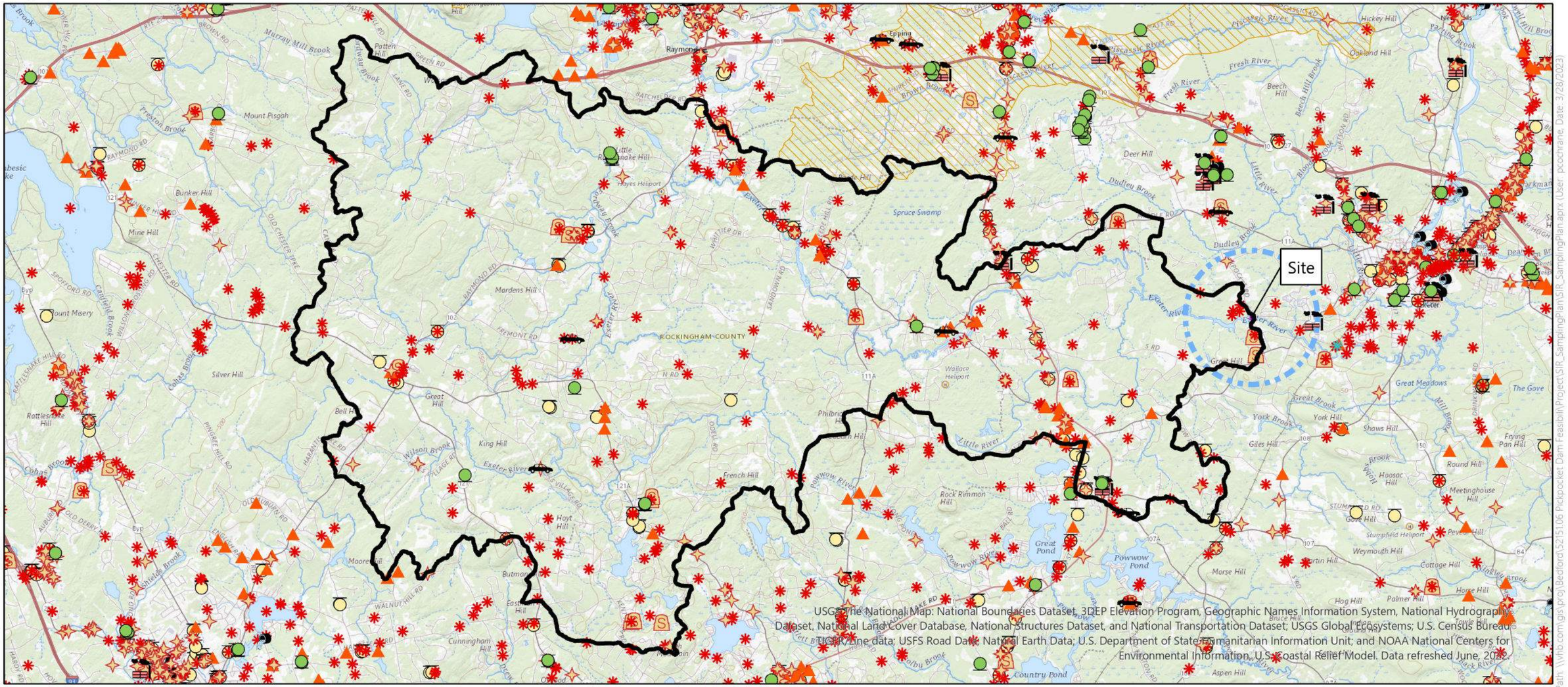
Figure 3: NHDES Environmental Database Results

Pickpocket Dam | Brentwood and Exeter, New Hampshire



0 8,000 16,000 24,000 US Feet

- Pickpocket Dam Watershed
- 1-Mile Radius
- Site
- Aboveground Storage Tank Sites
- Air Facility Systems
- Asbestos Disposal Sites
- Automobile Salvage Yards
- Hazardous Waste Generators
- Local Potential Contamination Sources
- NPDES Outfalls
- Outstanding Resource Water Watersheds
- Remediation Sites
- Solid Waste Facilities
- Underground Storage Tank Sites
- Remediation Sites selection

Note: Watershed Delineation from USGS StreamStats

Appendix A
NHDES Evaluation of Sediment Quality Guidance Document

NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAFT

EVALUATION OF SEDIMENT QUALITY GUIDANCE DOCUMENT

April 2005

NHDES-WD-04-9

NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES

EVALUATION OF SEDIMENT QUALITY
GUIDANCE DOCUMENT

April 2005

Prepared by
Lori S. Siegel, Ph.D.
Watershed Management Bureau
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, NH 03302-0095
www.des.nh.gov

Michael P. Nolin
Commissioner

Harry T. Steward, P.E.
Director, Water Division

EVALUATION OF SEDIMENT QUALITY

BACKGROUND

This document paper sets forth DES guidance for the application of Surface Water Quality Standards to freshwater, estuarine, and marine sediments. The narrative standards of Env-Ws 1703.19 *Biological and Aquatic Community Integrity* and Env-Ws 1703.21 *Water Quality Criteria for Toxic Substances* are applicable to sediment chemistry and biology. In addition, Env-Ws 1703.08 *Benthic Deposits* applies to sediments and refers to the physical, chemical, and biological nature of these substrates.

Sediments found in streams, rivers, lakes, and estuaries are habitat for many forms of aquatic life. This bottom-dwelling aquatic life -- including, but not limited to, amphipods, bivalves, midges, polychaetes, oligochaetes, mayflies, and cladocerans -- is intimately linked via nutrient and energy exchange webs to additional ecological resources, including finfish, shellfish, birds and other wildlife associated with surface water ecosystems. Sediments can serve as a repository and source of persistent and potentially toxic inorganic and organic chemicals. Contaminated sediments may adversely impact these ecological resources or humans who consume these resources.

APPLICABLE LAWS / REGULATIONS

Env-Ws 1703.08 **Benthic Deposits**

a. Class A waters shall contain no benthic deposits, unless naturally occurring.

b. Class B waters shall contain no benthic deposits that have a detrimental impact on the benthic community, unless naturally occurring.

Env-Ws 1703.19 **Biological and Aquatic Community Integrity**

a. The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

b. Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function.

Env-Ws 1703.21 **Water Quality Criteria for Toxic Substances**

a. Unless naturally occurring or allowed under part Env-Ws 1707, all surface waters shall be free from toxic substances or chemical constituents in concentrations or combinations that:

(1) Injure or are inimical to plants, animals, humans or aquatic life; or

(2) Persist in the environment or accumulate in aquatic organisms to levels that result in harmful concentrations in edible portions of fish, shellfish, other aquatic life, or wildlife that might consume aquatic life.

GUIDANCE DOCUMENT

Introduction

Risk posed to sediment-dwelling organisms should be assessed according the Sediment Quality Triad approach, described in Section I below.

Certain contaminants in sediment may bioaccumulate in intermediate to higher trophic organisms. Associated risks, which increase if the contaminant has low water solubility and high lipid solubility (Log K_{ow}>4.2), should be assessed according to Section II on page 10. The document EPA-823-R-00-001 lists the "Important Bioaccumulative Compounds" (USEPA, 2000c). The EPA also addresses these persistent, bioaccumulative, and toxic pollutants (PBTs) according to their multimedia strategy, which aims to protect human and ecosystem health from these highly toxic, long-lasting substances. According to http://www.epa.gov/opptintr/pbt/cheminfo.htm, PBTs include, **but are not limited to**:

- aldrin/dieldrin
- benzo(a)pyrene
- chlordane
- DDT, DDD, DDE
- hexachlorobenzene
- alkyl-lead
- mercury and its compounds
- mirex
- octachlorostyrene
- PCBs
- dioxins and furans
- toxaphene

I. Sediment Quality Triad Approach for Sediment-Dwelling Organisms (addresses Env-Ws 1703.08 and 1703.19)

Adverse effects on sediment aquatic life will be assessed using the Sediment Quality Triad approach (USEPA, 1992). This methodology integrates both chemical and biological data in

order to assess ecological resource risk. The methodology has three components that are applied sequentially and yield complementary data. The components are:

A. Sediment chemical analyses
B. Sediment toxicity bioassays (laboratory)
C. Community assessment (field)

The Sediment Quality Triad (chemistry, toxicity, and community) will be performed as this guidance document specifies in the description of each component. As outlined in the flowchart presented in Figure 1, the assessor will weigh the results of each component, as it becomes necessary to perform, to conclude whether or not the chemical contamination is impacting the benthic community. Considering the weight of evidence, the decision making process follows a matrix of outcomes (Table 1) that, if applicable, also considers the characterization of bioaccumulation risk, as determined according to Section II.

While an exceedance of the appropriate thresholds, determined in Component A of the triad, mandates further risk characterization, the severity of the risk may be so strongly predictive of impairment that the waterbody will be listed as impaired if not further characterized within an assessment period. With further characterization, the assessor may assume that Component B will reveal sediment toxicity. In this case, the assessor could skip Component B and proceed directly to Component C, i.e., community assessment. However, if the community assessment does not reveal any impact, the assumption of positive sediment toxicity must figure into the weight of evidence and typically mandates at least continued monitoring of the site for future impacts. Justification to omit Component B without this mandate may be made site-specifically. For example, any impacts would already have occurred at a site where the contamination source has been eliminated and sediment contaminants have been present for a significant (depending on site conditions) length of time. This determination will be made at the discretion of DES. Another option would be to perform Components B and C concurrently.

In the case of free product and observable ecological impacts that clearly indicate a violation of water quality standards, it may be more efficient to initially skip the triad and move directly to remediation. Following remediation, as a performance standard to ensure effectiveness, sediment sampling should be performed and the triad applied as applicable.

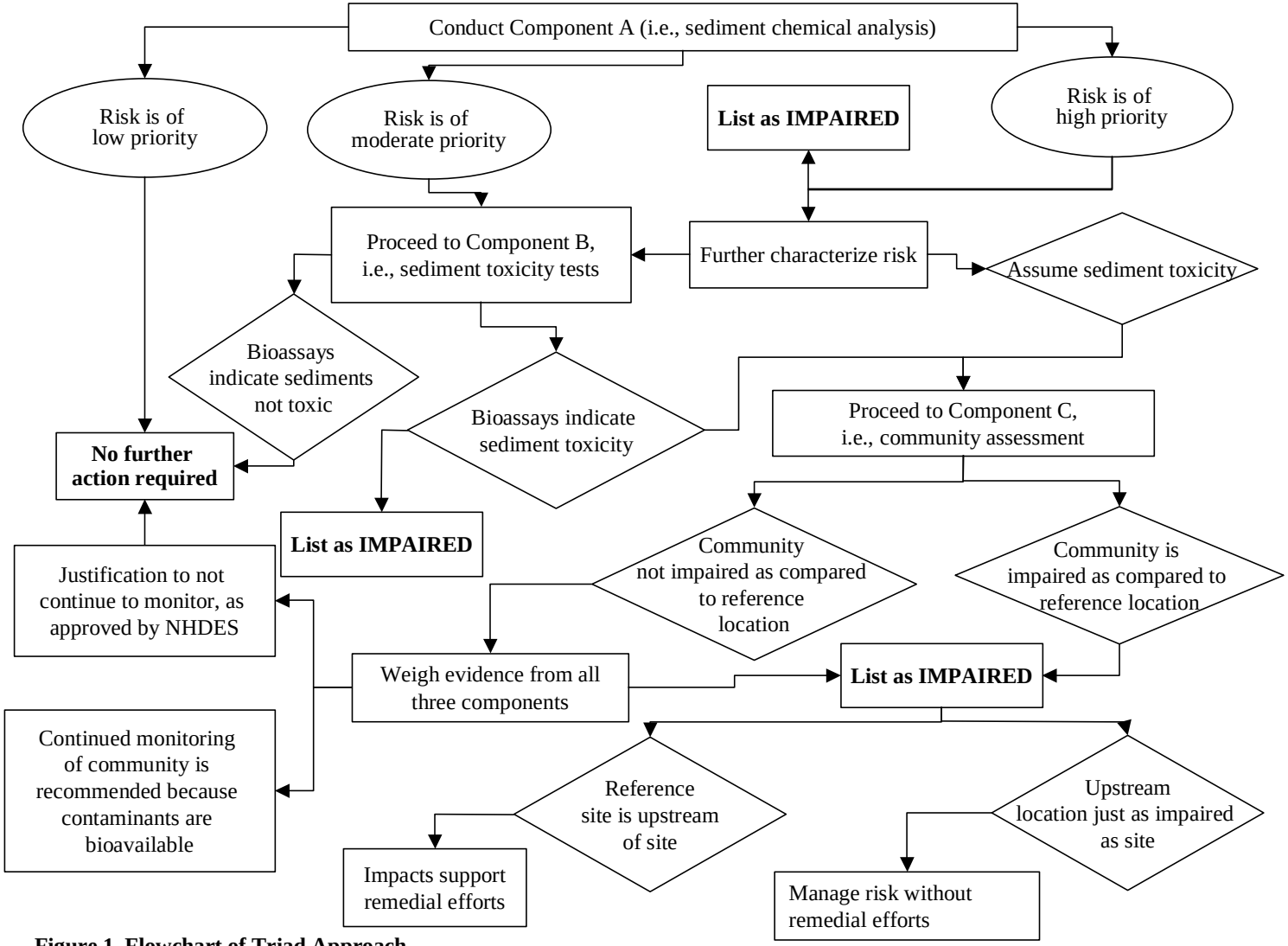


Figure 1 Flowchart of Triad Approach

Triad Components

A. Conduct sediment chemical analyses. Chemical profiles of sediment samples are compared with standard screening level reference values.

Sediment samples shall be collected in accordance with standard protocols (e.g., USEPA EPA-823-B-01-002, 2001; refer to www.epa.gov/waterscience/cs/collection.html for downloading this manual). The two main categories of sampling equipment are coring and grab devices. Data quality objectives and site specifics control the choice of sampling equipment.

Besides chemical concentrations, total organic carbon (TOC) and grain size should be quantified for each sample. The spatial distribution of contaminants at the site should be evaluated and compared to that at a reference near the site yet not impacted by the site, i.e., local conditions. If evidence suggests the concentrations of contamination of potential concern exceed those of local conditions, chemical concentrations of samples will be compared with published, peer-reviewed screening level contaminant lists, which include, but are not limited to:

1) NOAA 1999 – SQuiRT Tables (NOAA Hazmat Report 99-1).
2) Oak Ridge National Laboratory 1997 – Toxicological Benchmarks (ORNL ES/ER/TM-95/R4).
3) US Environmental Protection Agency 1996 – Ecotox Thresholds (USEPA EPA 540/F-95/038).
4) MacDonald *et al.*, 2000 – Arch. Environ. Contam. and Toxicology Vol 39: 20-31.

The following steps, as outlined in the flowchart presented in Figure 2, specify the sequence of events for screening at each sediment sampling location. The number of sample locations increases the statistical significance of the site risk characterization. Contaminants that have the potential to bioaccumulate must be further evaluated according to Section II.

Steps

1. For each contaminant, choose an appropriately conservative **THRESHOLD EFFECT CONCENTRATION (TEC)** and **PROBABLE EFFECT CONCENTRATION (PEC)** from available guidelines for each contaminant of concern. TEC values are screening thresholds **below which adverse effects are unlikely**. Data are typically from studies with sensitive species in laboratory exposures. PEC values are screening thresholds **above which adverse effects are likely.** For freshwater environments, although consensus-based (CB) TEC and PEC values (MacDonald *et al.*, 2000) are not the most conservative, they do have the most statistical justification. Assessors may choose thresholds from other sources provided they are at least as conservative as the CB thresholds. For contaminants with no available threshold, calculate a standard using the contaminant's surface water standard with appropriate partitioning coefficients.

For less sensitive ecosystems, as determined site-specifically and approved by DES in advance, comparisons to the contaminant's PEC alone may suffice.

2. Calculate the hazard quotient (HQ) for each contaminant detected in each sample by dividing the sediment contaminant concentration by the threshold value. An HQ calculated with a TEC (HQ-TEC) of one or greater indicates the possibility that the contaminant may adversely affect sediment organisms. An HQ calculated with a PEC (HQ-PEC) of one or greater indicates the likelihood that the contaminant will adversely affect sediment organisms.

3. According to Section II, contaminants with high bioaccumulative potential that have HQ>1 (HQ calculated with TEC) or for which a TEC is not available, must concurrently assess the risk to higher trophic organisms.

4. Qualify risk from each contaminant according to HQ as low (HQ-TEC<1), moderate (HQ-TEC>1), and high (HQ-PEC>1). Contaminants classified as moderate to high risk are retained as contaminants of concern (COCs).

5. If the sample location has at least one COC, determine its maximum HQ (HQ_{max}) calculated with TEC and PEC (or just with PEC if approved by NH DES) and proceed to Step 6. Otherwise, eliminate that location from concern.

6. Include the location in the priority list for further assessment according to its maximum level of risk. Qualify risk at each location as moderate ($HQ\text{-}TEC_{max}>1$) or high ($HQ\text{-}PEC_{max}>1$). Moderate to high risk may indicate a surface water quality violation.

7. Sample locations with moderate risk priority require additional risk characterization according to Component B of the triad. Sample locations with high-risk priority are assumed to be impaired and will be listed as such unless additional risk characterization according to Components B and/or C suggest otherwise.

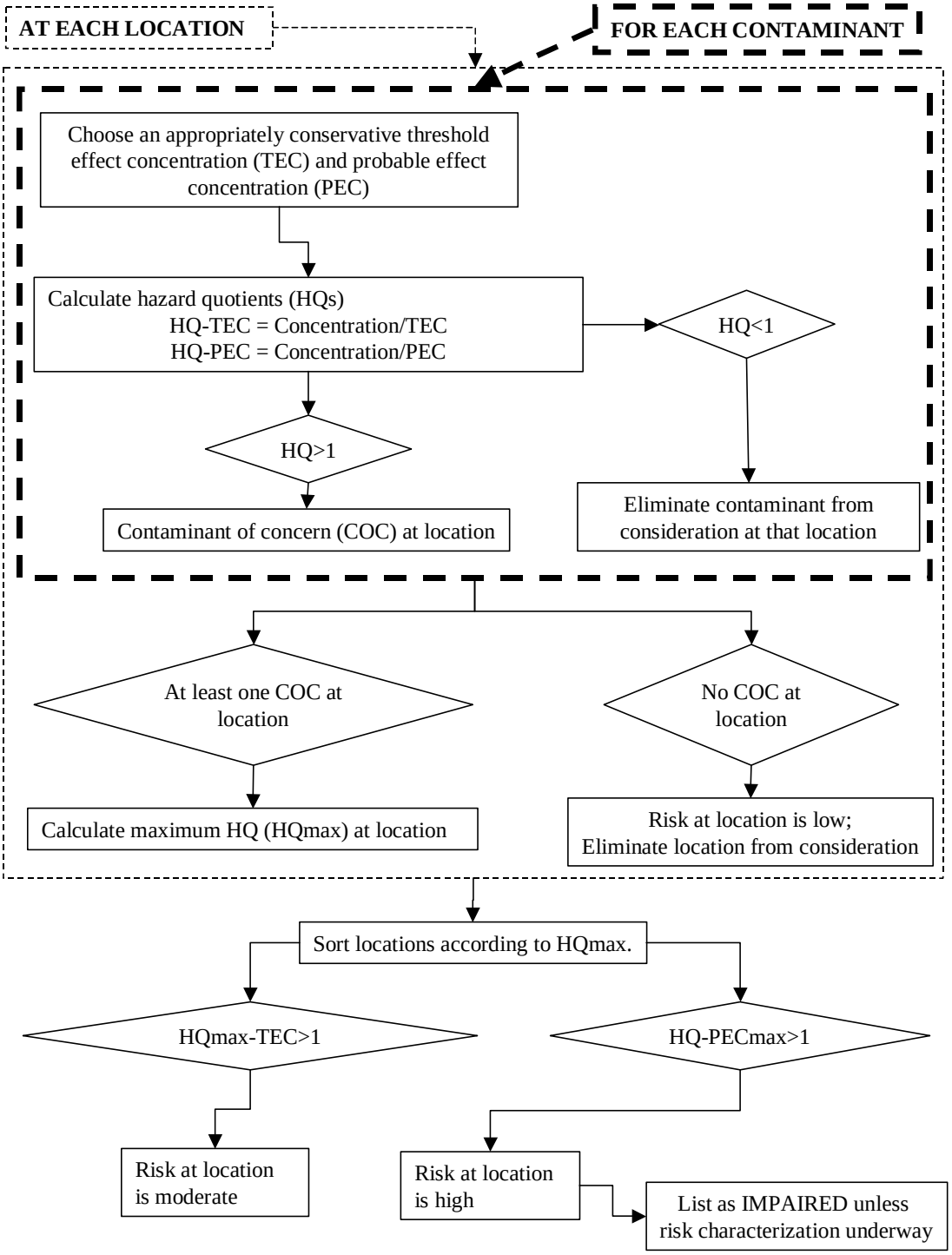


Figure 2 Flowchart of Component A of Triad Approach

B. Conduct sediment toxicity bioassays using sediment samples from potentially impacted sites

Additional sediment samples will be collected by standard protocols (e.g., USEPA EPA – 823-B-01-002, 2001) and used in standard sediment acute and chronic toxicity tests (e.g., EPA 600/R-99/064, 2000, EPA 600/R-01/020, 2001, EPA 600/R-94/025) with test organisms most appropriate for the site. Typical test organisms appropriate for freshwater environments include the amphipod *Hyalella azteca (H. azteca)* and the chironomids *Chironomus dilutis (C. dilutus*) (formerly known as *C. tentans)* and *Chironomous riparius*. Typical test organisms appropriate for marine environments include the amphipods *Rhepoxynius abronius, Eohaustorius estuaries, Ampelisca abdita, and Grandidrerella japonica*. More than one organism should be evaluated for each sample location. Sample methodology, toxicity test, and test organism(s) are subject to review and approval by DES. If sample collection is not feasible due to sediment characteristics, alternative analyses, e.g., pore water analyses/toxicity, may be substituted for sediment toxicity bioassays, but only upon prior approval by DES.

Although assessment endpoints are site-specific, an effect of 20 percent on the endpoint will indicate positive toxicity. In particular, a decrease in survival of more than 20 percent is generally unacceptable (Kuhn *et al.* 2002; Long *et al.*, 2001). However, when growth is the endpoint, literature (e.g., Kubitz *et al.*, 1996) supports a growth inhibition of an organism of 25 percent to be indicative of non-lethal effects.

Potential endpoints are a function of the duration of the bioassay. Tests may be categorized as acute (e.g., 48 to 96 hours), short-term chronic (e.g., 10 days), or long-term chronic (e.g., at least 20 days). The chronic bioassays are critical to evaluate impacts on survival and growth. Cost and time considerations associated with this requirement have typically rendered the 10-day bioassay to be performed. However, toxicity is sometimes observed only after this test would be terminated, as indicated by the long-term chronic test. Research suggests and the NH DES now recommends that, at a minimum, the long-term chronic bioassay be conducted for at least one of the organisms for samples from certain key locations. Survival and growth must be reported at the short-term and long-term marks. If significant toxicity is observed at the short-term mark, the test may be terminated then.

In the event that laboratory testing reveals acute or chronic sediment toxicity, the assessment may progress to Component C, i.e., benthic community assessment, or be deemed to pose risk. The ability and practicality of performing this third component with enough statistical power for relatively small sites, which are more typical than not at the State level, may eliminate its merit. The triad approach for which the evidence is also weighed supports the approach that if the chemistry and bioassays lead to a benthic assessment but that assessment is not rigorous enough, then the site will still be considered impacted. If chemistry indicates moderate risk, i.e., HQ-TEC>1$\geq$HQ-PEC, and bioassays indicate toxicity, then the benthic assessment may be the deciding factor. However, if chemistry indicates high risk, i.e., HQ-PEC>1, and bioassays indicate toxicity, then the benthic assessment is not likely robust enough to outweigh the evidence of risk and may be omitted. Furthermore, sites where the

aquatic chemistry is likely to change dramatically, such as for a dam removal project, may render Component C irrelevant.

On the contrary, negative toxicity for samples with high risk potential according to Component A should be considered cautiously. Prior to accepting the results, the assessor should exclude reasons for false negatives, .e.g., poor choice in test organism.

C. Conduct an assessment of community integrity

A community assessment must involve a field evaluation of the sediment community. Specifically, it is necessary to conduct a sediment biological community survey at the sampling site and compare the results with those from an appropriate, less adversely impacted reference site. The composition and structure of the benthic community will be characterized at the sample location and compared to a survey or surveys at a reference location of similar habitat but subject to less of the chemical contaminants. Standard ecological community metrics will be used to characterize the biota at both locations. The methods for benthic biological survey shall be reviewed and approved by DES in advance.

The reference location is used as a comparison to determine the level of actual risk to the site. The reference is a location that is neither impacted by the site nor by other sources. The comparison of contaminant spatial distributions for Component A may aid in locating the reference. For a river, brook, or stream, it is preferably upstream of the site. If such a location cannot be found near the site, then the reference location should be chosen from a similar watershed and metrics extrapolated to the site. If results of this comparison suggest the site is in fact impaired, a nearby location that is not impacted by the site, despite its impairments from other sources, should also be characterized as a control site so that the risk manager may make an informed decision about the relative increase in risk that is posed by the site. The risk at the site may not warrant remedial actions if nearby locations are just as impaired from other sources. Nevertheless, it is still important to understand the level of risk at hand as determined by comparison to the reference site.

II. Bioaccumulation Risk Potential (addresses Env-Ws 1703.21)

Sediment contamination can have adverse ecological effects on the benthic community and on shellfish, finfish, avian, amphibian, reptile, and/or mammal communities that are linked to benthic communities via the food web structure. Free-swimming organisms may bioconcentrate contaminants directly from the water column. However, they may also bioaccumulate contaminants via direct or indirect sediment exposure or diet.

Through the ecological processes of *bioaccumulation* (organism intake of contaminants via both water column and diet) and *biomagnification* (increased organism body burden of persistent contaminants as we move to higher tropic levels in ecosystems) contaminants in the sediments may be transferred to shellfish, finfish, avian, and terrestrial wildlife communities associated with the contaminated aquatic systems. Predator fish, birds, and other wildlife may become contaminated from being linked to bottom-feeding fish or benthic invertebrates that are laden with sediment associated pollutants via food-web transfer. This transfer can continue to human beings if contaminated fish, birds, or mammals are consumed.

The risk of bioaccumulation from sediments increases if the contaminant has low water solubility and high lipid solubility (Log K_{ow}>4.2). Heavy metals or non-polar organic chemicals, which may bioaccumulate to toxic levels in shellfish, finfish, and birds or render organisms unfit for human consumption, generally will be located in the sediments of aquatic systems. Detailed information on the chemistry and toxicity of many of the most common bioaccumulative contaminants is provided in USEPA EPA-823-R-00-001, 2000c and EPA-823-R-00-002, 2000a.

A sediment contaminant with bioaccumulation potential and, if a TEC is available, HQ-TEC>1 (determined in Component A of the triad) mandates the evaluation of actual or predicted tissue concentrations for assessment of adverse impact on relevant organisms. Relevant organisms include those species that use the contaminated site for resting, feeding, rearing, or reproduction.

A. Determine contaminant tissue concentrations for relevant organisms

Three alternative methods are available to determine contaminant tissue concentrations for relevant organisms of intermediate to higher trophic levels.

1. Use published **Biota-Sediment Accumulation Factors (BSAFs)** to estimate tissue concentrations of contaminants for relevant organisms.

   The National Sediment Quality Survey, 2nd Edition (USEPA EPA-823-R-01-01, 2000c) provides **BSAFs** for fish tissue for numerous heavy metal and non-polar organic contaminants. The Appendix to Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment (USEPA EPA-823-R-00-002, 2000a) contains additional **BSAFs** for finfish, shellfish, birds, invertebrates, plants, and other organisms.

2. Use approved models to predict tissue concentrations for relevant organisms.

   Bioaccumulation of heavy metals or non-polar organic contaminants in fish or other organisms can be predicted from sediment concentrations using equilibrium (e.g. Thomann *et al.*, 1992), fugacity (e.g., Burmaster *et al.*, 1991), or other appropriate models approved by DES.

3. Use direct measurement to determine tissue concentration of contaminants for relevant organisms.

   Direct tissue measurement is the most confident approach to determine bioaccumulation in aquatic organisms or aquatic-dependent wildlife. Direct determination can be conducted using either laboratory-exposed or field-collected organisms. For organic contaminants with a Log K_{ow} >6.5, there is a loss of linear relationship between K_{ow} and bioaccumulation. This results in uncertainty in modeled predictions of biological uptake. For contaminants with K_{ow} >6.5, direct measurement is the preferred method for assessing bioaccumulation.

B. Compare tissue contaminant concentrations with published acute and chronic toxicity values and calculate risk ratios for relevant organisms.

Acute and chronic toxicity values for ecological resources are available in numerous publications and databases. TOXNET (http://www.toxnet.nlm.nih.gov/) is sponsored by the National Library of Medicine and contains a cluster of databases on toxicology, hazardous chemicals, and related topics. The USEPA developed ECOTOX (http://www.epa.gov/med/databases/databases text.html). This database integrates AQUIRE, PHYTOTOX and TERRETOX, which are three databases that contain ecotoxicity information for aquatic life, terrestrial plants, and wildlife, respectively. Sample *et al.* (1996) provides toxicological benchmarks for wildlife. The US Army Corps of Engineers developed the Environmental Residue-Effects Database (ERED) (http://www.wes.army.mil/el/ered/index.html). It is a compilation of data from 736 studies published between 1964 and 2001 on the biological effects of many environmental contaminants found in tissues of organisms in which the effects were observed.

Risk ratios are calculated by dividing organism tissue concentrations by appropriate acute and/or chronic toxicity levels. Risk quotients of one or greater indicate the possibility of adverse effect of the contaminant on the organism. This latter outcome may indicate a Surface Water Quality violation and necessitate further action, which may be remediation, restoration, or monitoring, depending on the specifics of the site.

TABLE 1: MATRIX OF RISK CHARACTERIZATION ACCORDING TO THE SEDIMENT QUALITY TRIAD AND BIOACCUMULATION POTENTIAL				
Triad Components			**Bioaccumulation Potential**	**Outcome**
A. Chemistry	**B. Toxicity**	**C. Benthic Community**		
+	-	Not Assessed	Not Assessed	Sediment contaminants are not adversely impacting the benthic community.
+	+ (or not assessed)	-	Not Assessed	Weigh the evidence to characterize risk. If sufficient weight to Component C, the benthic community may still be at future risk for adverse impact due to sediment chemistry, requiring continued monitoring to evaluate future impacts.[1] Contaminant characteristics do not warrant bioaccumulation assessment.
+	+ (or not assessed)	-	-	Weigh the evidence to characterize risk. If sufficient weight to Component C, the benthic community may still be at future risk for adverse impact due to sediment chemistry, requiring continued monitoring to evaluate future impacts.[1] Contaminant characteristics warrant bioaccumulation assessment but impact to relevant organisms is not expected.
+	+ (or not assessed)	+ (or not assessed)	Not Assessed	Sediment contaminants at the site are adversely impacting the benthic community.[2] Contaminant characteristics do not warrant bioaccumulation assessment.
+	+ (or not assessed)	+ (or not assessed)	-	Sediment contaminants at the site are adversely impacting the benthic community.[2] Contaminant characteristics warrant bioaccumulation assessment but impact to relevant organisms is not expected.
+	+ (or not assessed)	+ (or not assessed)	+	Sediment contaminants at the site are adversely impacting the benthic community and bioaccumulation of sediment-associated contaminants has the potential to adversely impact relevant organisms.[2]
+	-	Not Assessed	+	Sediment contaminants at the site are not adversely impacting the benthic community, but bioaccumulation of sediment-associated contaminants has the potential to adversely impact relevant organisms.[2]

[1] A monitoring plan will be presented to DES for approval.
[2] This outcome indicates a surface water quality violation and necessitates further action, which may be remediation, restoration, or monitoring, depending on the specifics of the site.

GLOSSARY

BCF – Biological concentration factor; ratio of tissue residue to water column concentration at steady state.

BSAF - Biota-sediment accumulation factor; ratio of tissue residue to sediment concentration at steady state normalized to lipid and sediment organic carbon.

Biomagnification - A special case of bioaccumulation where body burdens of contaminants, normalized to an organisms lipid content, increase at successive, higher levels of an ecosystem's food web.

CB – Consensus-based; geometric mean of thresholds from a variety of sources, providing a more statistically based threshold.

COC - Contaminant of concern.

HQ- Hazard quotient; contaminant concentration divided by screening threshold concentration.

PBTs - Persistent, bioaccumulative, and toxic pollutants.

TEC - Threshold effect concentration; screening thresholds below which adverse effects are unlikely.

PEC - Probable effect concentration; screening thresholds above which adverse effects are likely.

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USEPA. 2000c. Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment. Status and Needs. Office of Water, Publica. No. EPA-823-R-00-001, Washington, DC, 111 pp.

USEPA. 2001a. Methods for Assessing the Chronic Toxicity of Marine and Estuarine Sediment-associated Contaminants with Amphipod *Leptocheirus plumulosus.* Publica. No. EPA-600/R-0/020. Washington, DC, 103 pp.

USEPA. 2001b. Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Office of Water. Publica. No. EPA-823-B-01-002. Washington, DC.

USEPA. 2001c. The Incidence and Severity of Sediment Contamination in Surface Waters of the United States. Office of Science and Technology. Publica. No. EPA-823-R-01-01, Washington, DC.

Approved: _____ Date: _____

Harry Stewart, P. E., Director
Water Division
NH Department of Environmental Services

Appendix B
Field Form

Field Notes

Date: **Notes Taken By:**

Place:

Project No.: **Re:**

Field Sampling Data Sheet

General Information:

Date and Time:	VHB Project #:
Location (Town/City):	Project Name:
Field Sampler:	Project Manager:
Photo #(s) and Direction:	

Weather Conditions:

Current Weather and Temperature:
Weather within previous 72 hrs:

Sample Information:

Sample ID #:
Sample Location (GPS Coordinates or field ties):
Water Depth:
Probing Depth:

Field Notes

Sediment Type:
Sediment Description:
Sample Type (composite, grab, etc.):
Approx. Length of Sediment Core:
Depth of penetration of the core into the sediment / amount of sediment recovery:

Additional Comments / Observations:

Appendix C
Screening Level Ecological Reference Values

Screening Quick Reference Tables

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels.
All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

This set of NOAA Screening Quick Reference Tables, or SQuiRTs, presents screening concentrations for inorganic and organic contaminants in various environmental media. Additional reference material, such as guidelines for sample preservation, are also included.

NOAA identifies potential impacts to coastal resources and habitats likely to be affected by hazardous wastes. To screen for substances which may threaten natural resources of concern to NOAA, environmental concentrations are compared to these screening levels. These tables are intended for preliminary screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels. NOAA does not endorse their use for any other purposes. Screening levels are reported with the number of significant figures they were originally reported with.

In this new version, column headings link to OR&R's web site wherebrief descriptions of the benchmark may be found. However, detailed guidance on the recommended application of various screening guidelines is provided in the original sources (listed in each SQuiRT section, with web links for many). Users of the SQuiRT cards are strongly encouraged to review supporting documentation to determine appropriateness for their specific use.

The SQuiRT card set has been re-organized from earlier versions to accommodate expansion. Benchmarks from numerous new sources have been incorporated, and the list of analytes vastly increased. The SQuiRT cards present benchmarks representing different degrees of protectiveness. Multiple benchmarks are also provided in many cases: the user is advised to review the derivation of any particular benchmark before selecting a specific value. Information is still presented in sections, with *new sections* appearing in this expanded version:

- Inorganics in Sediment (freshwater and marine)
- Inorganics in Soil
- Inorganics in Water (groundwater and surface water)
- Organics in Sediment
- Organics in Water and Soil
- *PCB Composition*
- *Toxic Equivalency Factors*
- *Composition by Carbon Range*
- Guidelines for Sample Collection & Storage
- Analytical Methods for Inorganics
- Analytical Methods for Organics

Footnotes within each SQuiRT section which appear at the bottom of the page are only to aid in deciphering the nature of specific entries. Due to space constraints, notations which relate to the source for individual values are explained at the end of the section. Organic chemicals are now listed alphabetically, without categorization. A few synonyms are provided, but CAS numbers are also presented to aid in identifying and finding specific analytes. Except as noted, all concentrations in the SQuiRT cards are in parts per billion.

For surface water samples, because releases from hazardous waste sites are often continuous and long-term, concentrations are most often compared directly with chronic benchmarks, when available. Groundwater concentrations are also screened against chronic benchmarks. However, suitable site-specific dilution factors should be applied to allow for dilution upon migration and discharge of groundwater to surface water. The SQuiRT cards present U.S. Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs), applicable to drinking water sources and secondary MCLs applicable to groundwater, supplemented by values from Canada and the United Nations World Health Organization.

Preference for surface water and groundwater benchmarks is given to U.S. EPA Ambient Water Quality Criteria (AWQC). This is generally followed by Tier II Secondary Acute Values (SAVs) or available standards and guidelines from other regulatory agencies. Tier II SAVs are derived using a similar approach to AWQC, but do not have sufficient supporting data for full criteria calculation. Lowest Observable Effect Levels (LOELs) were originally published by EPA with AWQC. Around 2000, EPA stopped publishing these values, however, LOELs are reproduced here when no other benchmark is available, because in many instances, they formed the basis for state standards.

For many trace elements, AWQC are now expressed in terms of the "dissolved" fraction, which is essentially defined operationally as a filtered fraction. Likewise, the toxicity of many trace elements is related to the water hardness, and the values presented are for a default hardness of 100 mg/L $CaCO_3$. Equations are provided in the SQuiRT cards to calculate the exact criteria for a given hardness, or, to convert from unfiltered, total concentrations to "dissolved" fractions.

Screening Quick Reference Table for Inorganics in Sediment

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels.
All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

Analyte		FRESHWATER SEDIMENT									MARINE SEDIMENT						
All concentrations in parts per billion dry weight unless specified otherwise		"Background" [1]	ARCS *H. azteca* TEL [2]	TEC [3]	TEL [3]	LEL [4]	PEC [3]	PEL [3]	SEL [4]	UET [1]	T_{20} [5]	TEL [6]	ERL [6]	T_{50} [5]	PEL [6]	ERM [6]	AET [7]
Predicted Toxicity Gradient:		> Increasing									> Increasing						
Aluminum (%)	Al	0.26%	2.55%														1.8% N
Antimony	Sb	160								3,000 M	630			2,400			9,300 E
Arsenic	As	1,100	10,798	9,790	5,900	6,000	33,000	17,000	33,000	17,000 I	7,400	7,240	8,200	20,000	41,600	70,000	35,000 B
Barium	Ba	700										130,100#					48,000 A
Cadmium	Cd	100-300	583	990	596	600	4,980	3,530	10,000	3,000 I	380	680	1,200	1,400	4,210	9,600	3,000 N
Chromium	Cr	7,000-13,000	36,286	43,400	37,300	26,000	111,000	90,000	110,000	95,000 H	49,000	52,300	81,000	141,000	160,000	370,000	62,000 N
Cobalt	Co	10,000				50,000+											10,000 N
Copper	Cu	10,000-25,000	28,012	31,600	35,700	16,000	149,000	197,000	110,000	86,000 I	32,000	18,700	34,000	94,000	108,000	270,000	390,000 MO
Iron (%)	Fe	0.99-1.8 %	18.84%			2%			4%	4% I							22% N
Lead	Pb	4,000-17,000	37,000	35,800	35,000	31,000	128,000	91,300	250,000	127,000 H	30,000	30,240	46,700	94,000	112,000	218,000	400,000 B
Manganese	Mn	400,000	630,000			460,000			1,100,000	1,100,000 I							260,000 N
Mercury	Hg	4-51		180	174	200	1,060	486	2,000	560 M	140	130	150	480	700	710	410 M
Nickel	Ni	9,900	19,514	22,700	18,000	16,000	48,600	36,000	75,000	43,000 H	15,000	15,900	20,900	47,000	42,800	51,600	110,000 EL
Selenium	Se	290															1,000 A
Silver	Ag	<500				500 +				4,500 H	230	730	1,000	1,100	1,770	3,700	3,100 B
Strontium	Sr	49,000															
Tin	Sn	5,000										48 *					> 3,400 N
Vanadium	V	50,000															57,000 N
Zinc	Zn	7,000-38,000	98,000	121,000	123,000	120,000	459,000	315,000	820,000	520,000 M	94,000	124,000	150,000	245,000	271,000	410,000	410,000 I
Lead 210 bq/g dw						0.5 ^			< 9.7 ^								
Polonium 210 bq/g dw						0.6 ^			< 8.7 ^								
Radium 226 bq/g dw						0.1 ^			< 13 ^								
Sulfides										130,000 M							4,500 MO

- Based on SLC approach using sensitive species HC5%; ES&T 2005 39(14):5148-5156.
* - Based upon EQp approach using current AWQC CCC
^ - Based on SLC approach to derive LEL and SEL; Env'al Monitor & Ass'ment 2005 110:71-85
+ - Carried over from Open Water disposal Guidelines; treated as if LEL for management decisions.

Bioassay endpoints: M – Microtox; B – Bivalve; E – Echinoderm larvae; O – Oyster larvae; A – Amphipod; N – Neanthes; L –Larval bioassay; plus, I – Infaunal community impacts

Sources

1 – Buchman, M. 1999. NOAA HAZMAT Report 99-1.
2 – EPA 905-R96-008
3 – Arch ET&C 2000, 39(1)20- TEL and PEL are also known as Canadian ISQGs and PELs
4 – Guidelines for the protection and management of aquatic sediment quality in Ontario Aug 1993
5 – ET&C 2002, 21(9)1993-
6 – Ecotox. 1996, 5(4):253-
7 – Chapter 173-204 WAC, 1991/95 as supplemented by WA Dept of Ecology staff with unpublished data.

Screening Quick Reference Table for Inorganics in Soil

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels. All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

ANALYTE		CAS Number	BACKGROUND[1]		DUTCH STANDARDS[2]		Eco-SSL[3]				Microbes[4]
All concentrations in parts per billion dry weight unless specified otherwise			Mean	Range	Target	Intervention	Avian	Inverts	Mammals	Plants	
Aluminum	Al	7429905	4.70%	0.5- >10%						50,000 a	600,000
Antimony	Sb	7440360	480	bd-8,800	3,000	15,000		78,000	142 v	5,000 a	
Arsenic	As	7440382	5,200	bd-97,000	900 L	55,000	43,000	60,000 a	5,700 v	18,000	100,000
Barium	Ba	7440393	440,000	10,000-0.5%	160,000	625,000		330,000	1,040 v	500,000 a	3,000,000
Beryllium	Be	7440417	630	bd-15,000	1,100	30,000 S		40,000	1,060 v	10,000 a	
Boron	B	7440428	26,000	bd-300,000						500 a	20,000
Bromine	Br	7726956	560	bd-11,000	20,000					10,000 a	
Cadmium	Cd	7440439			800	12,000	770	20,000 a	2.22 v	4,000 a	20,000
Chromium III	Cr	7440473	< 37,000	1,000-0.2%	< 380 L	< 220,000 L	26,000	<400 a	34,000	< 1,000 a	< 10,000
Chromium VI	Cr	18540299	< 37,000		< 380 L	< 220,000 L		400 a	81,000	< 1,000 a	< 10,000
Cobalt	Co	7440484	6,700	bd-70,000	2,400 L	180,000 L	120,000		140 v	13,000	1,000,000
Copper	Cu	7440508	17,000	bd-700,000	3,400 L	96,000 L	28,000	50,000 a	5,400 v	70,000	100,000
Cyanide (total complex)	CN	57125			5,000	50,000 (pH>5)			1,330 v		
Cyanide (total free)	CN				1,000	20,000					
Fluorine	F	7782414	210,000	bd-0.37%	500,000					200,000 a	30,000
Iodine	I	7553562	750	bd-9,600						4,000 a	
Iron	Fe	7439896	1.80%	0.01- >10%							200,000
Lanthanum	La	7439910	30,000	bd-200,000							50,000
Lead	Pb	7439921	16,000	bd-700,000	55,000 L	530,000	11,000	500,000 a	53.7 v	50,000 a	900,000
Lithium	Li	7439932	20,000	bd-140,000						2,000 a	10,000
Manganese	Mn	7439965	330,000	bd-0.7%			4,300,000	450,000	4,000,000	220,000	100,000
Mercury	Hg	7439976	58	bd-4,600	300	10,000		100 a v		300 a	30,000
Mercury(methyl)		22967926			37 L	4,000 L		< 100 a v	1.58 v	< 300 a	
Molybdenum	Mo	7439987	590	bd-15,000	3,000	190,000 L				2,000 a	200,000
Nickel	Ni	7440020	13,000	bd-700,000	260 L	100,000 L	210,000	200,000 a	13,600 v	30,000 a	90,000
Selenium	Se	7782492	260	bd-4,300	700 L	100,000 S	1,2000	4,100	630	520	100,000
Silver	Ag	7440224				15,000 S	4,200		4,040 v	2,000 a	50,000
Strontium	Sr	7440246	120,000	bd-0.3%							
Sulfide		18496258							3.58 v		
Sulfur	S	7704349	0.12%	bd-4.8%							
Technetium	Tc	7440268								200 a	

1: bd – below detection
2: S – serious contamination level; L – Environmental Risk Limit

Screening Quick Reference Table for Inorganics in Soil

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels. All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

ANALYTE		CAS Number	BACKGROUND[1]		DUTCH STANDARDS[2]		Eco-SSL[3]				Microbes[4]
All concentrations in parts per billion dry weight unless specified otherwise			Mean	Range	Target	Intervention	Avian	Inverts	Mammals	Plants	
Tellurium	Te	13494809				600,000					
Thallium	Tl	7440280	8,600	2,20-31,000	1,000	15,000 S			56.9 v	1,000 a	
Tin	Sn	7440315	890	bd-10,000	19,000 background	900,000 S			7,620 v	50,000 a	2,000,000
Titanium	Ti	7440326	0.224 %	0.007-2 %							1,000,000
Tin as Triphenyltin		668348				< 2,500					
Tungsten	W	7440337									400,000
Uranium	U	7440611	2,300	290-11,000						5,000 a	
Vanadium	V	7440622	58,000	bd-500,000	42,000	250,000 S	7,800		1,590 v	2,000 a	20,000
Zinc	Zn	7440666	48,000	bd-0.29%	16,000 L	350,000 L	46,000	6,620 v		50,000 a	100,000

Sources

1 – USGS Prof. Paper 1270, 1984. Mean is geometric mean of national data.

2 – Entry is lower of current VROM Environmental Quality standards or the updated RIVM Environmental Risk Limits. Risk limits are typically divided by 100 to derive the Target value; this computation has not been done here.
Dutch Target/Intervention: E.M.J. Verbruggen, R. Posthumus and A.P. van Wezel, 2001. Ecotoxicological Serious Risk Concentrations for soil, sediment, and (ground)water: Updated proposal for first series of compounds. Nat. Inst. Public Health and the Env., and subsequent updates as published elsewhere.
Min. Housing, Spatial Plan. And the Env., 2000. Annexes Circular on target values and intervention values for soil remediations.

3 – Entry is lower of either:
EPA Eco-SSLs, www.epa.gov/ecotox/ecossl/
a – ORNL Screening benchmark for earthworms and soil microorganisms: ORNL 1997a, ES/ER/TM-126/R2
v – EPA R5 Eco Screening levels soil - shrew or vole, www.epa.gov/reg5rcra/ca/

4 - ORNL 1997b, ES/ER/TM-85/R3.

1: bd – below detection
2: S – serious contamination level; L – Environmental Risk Limit

Screening Quick Reference Table for Inorganics in Water

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels. All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

ELEMENT All concentrations in parts per billion unless specified otherwise		GROUND WATER [1]	SURFACE WATERS [2] Freshwater		SURFACE WATERS [2] Marine	
			Acute	Chronic	Acute	Chronic
Aluminum	Al	50-200 *	pH 750	pH 87		
Antimony	Sb	6	88 p	30 p	1,500 p	500 p
Arsenic III	As^{+3}	<10		190 E		2.3 NZ
Arsenic V	As^{+5}	< 10	66 T	3.1 T	2,319 *	
Arsenic, Total	As	10	340	150	69	36
Barium	Ba	2,000	110 T	3.9 E	1,000 BC	200 BC
Beryllium	Be	4	35 T	0.66 T	1,500 BC	100 BC
Boron	B	5,000 C	30 T	1.6 T		1,200
Cadmium	Cd	5	2.0 †	0.25 †	40	8.8
Chromium III	Cr^{+3}	< 100	570 †	74 †	10,300 *	27.4 NZ
Chromium VI	Cr^{+6}	< 100	16	11	1,100	50
Chromium, Total	Cr	100				
Cobalt	Co		1,500 T	3.0 E		1 NZ
Copper	Cu	1,300	13 †	9 †	4.8	3.1
Fluoride	F	4,000	200 BC (hardness < 50)		1,500 BC	
Gallium	Ga			18 NZ		use 18 NZ
Iron	Fe	300 *		1,000	300 BC	50 BC
Lanthium	La			0.04 NZ		
Lead	Pb	15	65 †	2.5 †	210	8.1
Lithium	Li		260 T	14 T		
Manganese	Mn	50 *	2,300 T	80 E		100 BC
Mercury	Hg	2	1.4	0.77	1.8	0.94
Methyl Mercury			0.099 T	0.0028 T		
Molybdenum	Mo	70 W	16,000 T	34 NZ		23 NZ
Nickel	Ni	20 W	470 †	52 †	74	8.2
Phosphorus	P					0.1
Potassium	K		373,000 BC			
Selenium	Se	50	13-186 total	5 total	290	71
Silver	Ag	100 *	1.6 (½) †	0.36 T	0.95 (½)	
Strontium	Sr		15,000 T	1,500 T		
Thallium	Tl	2	110 T	0.03 NZ	2,130 *	17 NZ
Tin as TBT			0.46	0.072	0.42	0.0074

1: * – Secondary standard
2: pH – criteria is pH dependent ; p - proposed; † - hardness dependent; * - EPA LOEL ; (½) - CMC is halved to compare to 1985 Guideline derivation

Screening Quick Reference Table for Inorganics in Water

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ELEMENT All concentrations in parts per billion unless specified otherwise		GROUND WATER [1]	SURFACE WATERS [2] Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic
Tin as Di-N-Butyl			0.08 BC			
Tin as Triethyl			0.4 BC			
Tin as Triphenyl			0.022 BC		34 BC	
Titanium	Ti		2,000 BC			
Uranium	U	30	46 T	0.5 NZ	500 BC	100 BC
Vanadium	V		280 T	19 E		50 BC
Zinc (Zn)	Zn	5,000 *	120 †	120 †	90	81
Zirconium	Zr		310 T	17 T		
Hydrogen Sulfide			2		2	
Cyanide, free	CN	200	22	5.2	1	1

Freshwater criterion for certain elements (†) are expressed as a function of hardness (mg/L) in the water column. The values shown assume 100 mg/L. Values for a different hardness may be calculated using the following equations to arrive at a CMC or CCC for *filtered* samples. Hardness may range up to 400 mg/L as calcium carbonate. For hardness above this range, use 400 mg/L as the maximum value allowed.

For salinity between 1 and 10 ppt, use the more stringent of either fresh or marine values.

Sources

1 – Primary entry is the US EPA MCL value, followed by the WHO drinking water guidelines.
Maximum Contaminant Levels (MCLs): http://www.epa.gov/safewater/index.html
W – World Health Organization's (WHO) Drinking water guidelines: http://www.who.int/water_sanitation_health/dwq/en/
C – Canadian water Quality Guidelines: http://www.ec.gc.ca/CEQG-RCQE/English/Ceqg/Water/default.cfm

2 – Primary entry is the US Ambient Water Quality Criteria, followed by the lowest of Tier II SAVs or available standards and guidelines.
EPA Ambient water Quality Criteria (AWQC): http://www.epa.gov/waterscience/criteria/aqlife.html
T – Tier II Secondary Acute Value: http://www.esd.ornl.gov/programs/ecorisk/tools.html
BC – British Columbia Water Quality Guidelines (either working or recommended): http://www.env.gov.bc.ca/wat/wq/
NZ – Australian & New Zealand ECLs and Trigger values: ANZECC Oct 2000, Volume 1, The Guidelines. www.mfe.govt.nz/publications/
E – EcoUpdate: www.epa.gov/oswer/riskassessment/ecoup/

Lowest Observable Effect Levels (LOELs) previously published by EPA are also included since these essentially were the basis for many state standards.
EPA LOELs: EPA Water quality Criteria Summary, Office of Science & Technology, Health & Ecological Criteria Div., Ecological Risk Assessment Branch, 1991.
Full listings appeared in various Fed. Register notices and in EPA's Quality Criteria for Water, 1992.

1: * – Secondary standard
2: pH – criteria is pH dependent ; p - proposed; † - hardness dependent; * - EPA LOEL ; (½) - CMC is halved to compare to 1985 Guideline derivation

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ELEMENT	HARDNESS CALCULATIONS – UNFILTERED FRESHWATER CRITERIA		UNFILTERED TO FILTERED CALCULATIONS		
	CMC	CCC	Fresh water CMC	Freshwater CCC	Marine CMC / CCC
Arsenic (As)			1	1	1
Cadmium (Cd)	$CMC = e^{1.0166 [\ln(hardness)] - 3.924}$	$CCC = e^{0.7409 [\ln(hardness)] - 4.719}$	CF = 1.136672 - 0.041838 [*ln*(hardness)]	CF = 1.101672 - 0.041838 [*ln*(hardness)]	CF = 0.994
Chromium III (Cr+3)	$CMC = e^{0.819 [\ln(hardness)] + 3.7256}$	$CCC = e^{0.819 [\ln(hardness)] + 0.6848}$	CF = 0.316	CF = 0.860	–
Chromium VI (Cr +6)			CF = 0.982	CF = 0.962	CF = 0.993
Copper (Cu)	$CMC = e^{0.9422 [\ln(hardness)] - 1.7}$	$CCC = e^{0.8545 [\ln(hardness)] - 1.702}$	CF = 0.960	CF = 0.960	CF = 0.83
Lead (Pb)	$CMC = e^{1.273 [\ln(hardness)] - 1.46}$	$CCC = e^{1.273 [\ln(hardness)] - 4.705}$	CF = 1.46203 - 0.145712 [*ln*(hardness)]	SAME AS CMC	CF = 0.951
Mercury (Hg)			CF = 0.85	CF = 0.85	CF = 0.85
Nickel (Ni)	$CMC = e^{0.846 [\ln(hardness)] + 2.255}$	$CCC = e^{0.846 [\ln(hardness)] + 0.0584}$	CF = 0.998	CF = 0.997	CF = 0.990
Selenium (Se)			–	–	CF = 0.998
Silver (Ag)	$CMC = e^{1.72 [\ln(hardness)] - 6.52}$	CCC — No criteria	CF = 0.85	–	CF = 0.85 / –
Zinc (Zn)	$CMC = e^{0.8473 [\ln(hardness)] + 0.884}$	$CCC = e^{0.8473 [\ln(hardness) + 0.884}$	CF = 0.978	CF = 0.986	CF = 0.946

Freshwater criterion for certain elements are expressed as a function of hardness (mg/L) in the water column. The values shown assume 100 mg/L. Values for a different hardness may be calculated using the above equations to arrive at a CMC or CCC for *filtered* samples. Hardness may range up to 400 mg/L as calcium carbonate. For hardness above this range, use 400 mg/L as the maximum value allowed.

Criteria for most metals are expressed as standards for samples filtered through 0.45 m filter (*i.e.*, "dissolved"). To convert unfiltered concentrations to filtered, multiply the unfiltered concentration value by the appropriate Conversion Factor (CF) above. For cadmium and lead, the conversion factor itself is hardness-dependent.

CMC: Criteria Maximum Concentration is the highest level for a 1-hour average exposure not to be exceeded more than once every three years, and is synonymous with "acute."
CCC: for a 4-day average exposure not to be exceeded more than once every three years, and is synonymous with "chronic."

Sources

EPA Ambient water Quality Criteria (AWQC): http://www.epa.gov/waterscience/criteria/aqlife.html

Screening Quick Reference Tables for Organics – Sediment

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All concentrations in parts per billion dry weight unless specified otherwise		ARCS *Hyalella* TEL[1]	TEL[2]	TEC[2]	LEL[3]	PEL[2]	PEC[2]	SEL[3]	UET[4] @1%TOC	Target	Intervention	T_{20}[6]	TEL[7]	ERL[7]	T_{50}[6]	PEL[7]	ERM[7]	AET[8]	
2,3,7,8-TCDD dioxin TEQs	1746016		0.00085 c			0.0215 c			0.0088†H		1 S		0.00085 c			0.0215 c		0.0036 N	
Acenaphthene	83329		6.71 c			88.9 c			290 M			19	6.71	16	116	88.9	500	130 E	
Acenaphthylene	208968		5.87 c			128 c			160 M			14	5.87	44	140	128	640	71 E	
Acrylonitrile	107131									0.07	100 S								
Aldrin	309002				2			80	40 I	0.06	1,700 LB							9.5 AE	
Aldrin + Dieldrin + Endrin	na									5	140 L								
Anthracene	120127	10	46.9 c	57.2	220	245 c	845	3,700	260 M	39 LB	1,600 LB	34	46.9	85.3	290	245	1,100	280 E	
Atrazine	1912249									0.2	710 LB								
BCH compounds (sum)	na									10	6,400 L								
Benz[a]anthracene	56553	15.72	31.7	108	320	385	1,050	14,800	500 I	25 L	2,500 L	61	74.8	261	466	693	1,600	960 E	
Benzene	71432									10	1,000								57
Benzo(ghi)perylene	191242				170			3,200	300 M	570 LB	33,000 LB	67			497			670 M	
Benzo[a]pyrene	50328	32.4	31.9	150	370	782	1,450	14,400	700 I	52 L	7,000 L	69	88.8	430	520	763	1,600	1,100 E	
Benzo[b]fluoranthene	205992											130			1,107			1,800 E I	
Benzo[k]fluoranthene	207089	27.2			240			13,400	13,400B	380 LB	38,000 LB	70			537			1,800 E I	
Benzoic acid	65850																	65 O	
Benzyl alcohol	100516																	52 B	
BHC, alpha (α-HCH)	319846				6			100		3	< 2,000								
BHC, beta (β-HCH)	319857				5			210		9	< 2,000								
BHC, delta (δ-HCH)	319868									< 10	< 2,000								
BHC, gamma- (γ-HCH; Lindane)	58899		0.94	2.37	3	1.38	4.99	10	9 I	0.05	1,200 L		0.32			0.99		> 4.8 N	3.7
Biphenyl	92524											17			73				1,100
Bis(2-ethylhexyl)phthalate (DEHP)	117817								750 †M	< 100	10,000 LB		182			2647		1,300 I	
Bromoform (Tribromomethane)	75252										75,000								650
Butanol	35296721										30,000 S								
Butyl acetate, 1- or 2-	na										200,000 S								
Butyl benzyl phthalate	85687									< 100	48,000 LB							63 M	1,100
Carbaryl	63252									0.03	450 LB								
Carbofuran	1563662									0.02	17 LB								
Carbon tetrachloride (Tetrachloromethane;Tetra)	56235									170 LB	1,000								1,200

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Catechol (o-Dihydroxybenzene)	120809									3.2 LB	2,600 LB								
Chlordane	57749		4.5	3.24	7	8.9	17.6	60	30 I	0.03	4,000		2.26	0.5		4.79	6	2.8 A	
Chlordane (alpha)	5103719									< 0.03	< 4,000								
Chlordane (gamma)	5103742									< 0.03	< 4,000								
Chloro, 4- 2-methyl phenol	1570645										< 15,000 S								
Chloro, 4- 2-methylphenoxy acetic acid (MCPA)	94746									0.05	4,000								
Chloro, 4- 3-methyl phenol	59507										< 15,000 S								
Chloro, 4- methyl phenols	na										15,000 S								
Chloroaniline	27134265									5	50,000								
Chlorobenzenes (sum)	na									30	30,000								820
Chloroform (trichloromethane)	67663									20	10,000								
Chloronaphthalene, 1-	90131									57 LB	< 10,000								
Chloronaphthalene, 2-	91587									250 LB	< 10,000								
Chlorophenol, 2-	95578									55 LB	7,800 LB							0.333	
Chlorophenol, 3-	108430									35 L	14,000 L								
Chlorophenol, 4-	106489									20 LB	1,400 LB								
Chlorophenols (sum)	na									10	10,000								
Chrysene	218019	26.83	57.1	166	340	862	1,290	4,600	800 I	8,100 LB	35,000 LB	82	108	384	650	846	2,800	950 E	
Cresol [m-] (3-Methyl phenol)	108394									1,600 L	16,000 L								
Cresol [o-] (2-Methyl phenol)	95487									500 L	50,000 L							8 B	
Cresol [p-] (4-Methyl phenol)	106445									5.1 LB	2,600 LB							100 B	
Cresols, sum	1319773									50	5,000								
Cyclohexanone	108941									100	45,000								
DDD, 4,4- (p,p-DDD, TDE)	72548		3.54	4.88	8	8.51	28	60	< 60 I	3.9 LB	34,000 LB		1.22	2		7.81	20	< 16 I	
DDE, 4,4- (p,p-DDE)	72559		1.42	3.16	5	6.75	31.3	190	<50 I	5.8 LB	1,300 LB		2.07	2.2		374	27	< 9 I	
DDT, 4,4- (p,p-DDT)	50293		1.19 c	4.16	8	4.77 c	62.9	710	50 I	9.8 LB	1,000 L		1.19	1		4.77	7	< 12 E	
DDT+DDE+DDD (sum)	na		7	5.28	7	4,450	572	120	50 I	10	4,000		3.89	1.58		51.7	46.1	11 B	
Diazinon	333415																		1.9
Dibenz[ah]anthracene	53703	10	6.22 c	33	60	135 c		1,300	100 M			19	6.22	63.4	113	135	260	230 OM	
Dibenzofuran	132649								5,100 H									110 E	2,000

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Dichloroaniline, 2,4-	554007									< 5	< 50,000 S								
Dichloroaniline, 3,4-	95761									< 5	< 50,000 S								
Dichloroaniline, 3,4-	95761									< 5	< 50,000 S								
Dichlorobenzene, 1,2-	95501									< 30	17,000 LB							13 N	340
Dichlorobenzene, 1,3-	541731									< 30	24,000 LB								1700
Dichlorobenzene, 1,4-	106467									< 30	18,000 LB							110 IM	350
Dichlorobenzenes	25321226									< 30	19,000 LB								
Dichloroethane, 1,1-	75343									20	15,000								
Dichloroethane, 1,2-	107062									20	4,000								
Dichloroethene, 1,1- (vinylidene chloride)	75354									100	300								
Dichloroethene, 1,2- (cis or trans)	540590									200	1,000								
Dichlorophenol, 2,4-	120832									< 10	8,400 LB							0.2083	
Dichlorophenol, 2,6-	87650									< 10	57,000 LB								
Dichlorophenol, 3,4-	95772									< 10	57,000 LB								
Dichlorophenol, 3,5-	591355									< 10	5,400 LB								
Dichlorophenols (sum)	na									< 10	22,000 LB								
Dichloropropane, 1,2- (propylene dichloride)	78875									< 2	< 2,000								
Dieldrin ‡	60571		2.85	1.9	2	6.67	61.8	910	300 I	0.5	1,900 LB	0.83	0.72	0.02	2.9	4.3	8	1.9 E	
Diethyl phthalate	84662									530 L	53,000 L							6 BL	630
Diethylene-glycol	111466										270,000 S								
Dihydroxybenzenes, sum	na									62 LB	8,000 LB								
Di-iso-butyl phthalate	84695									92 LB	17,000 LB								
Dimethyl phthalate	131113									1,000 LB	84,000 LB							6 B	
Dimethylnaphthalene, 2,6-	581420											25			133				
Dimethylphenol, 2,4-	105679																	18 N	
Di-n-butyl phthalate	84742								110 H	7,000 LB	36,000 LB							58 BL	11,000
Di-n-octyl phthalate	117840									< 100	< 60,000							61 BL	
Dodecylbenzene	25155300										1,000,000 S								
Endosulfan (a or b)	115297									0.01	4,000								2.9 α 14 β

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Endosulfan II	33213659																		
Endrin	72208		2.67	2.22	3	62.4	207	1,300	500 I	0.04	95 L								
Ethyl acetate	141786										75,000 S								
Ethyl acetate	141786										75,000 S								
Ethyl benzene	100414									30	50,000							4 EL	3,600
Ethylene glycol	107211										100,000 S								
Fluoranthene	206440	31.46	111	423	750	2,355	2,230	10,200	1,500 M	1,000 LB	260,000	119	113	600	1,034	1,494	5,100	1,300 E	
Fluorene	86737	10	21.2 c	77.4	190	144 c	536	1,600	300 M			19	21.2	19	114	144	540	120 E	540
Formaldehyde	50000										100 S								
Guthion (Azinphos-methyl)	865000									0.005	2,000 S								
Heptachlor	76448								10 I	0.7	4,000							0.3 B	
Heptachlorepoxide	1024573		0.6	2.47	5	2.74	16	50	30 I	0.0002	4,000	0.6 c				2.74 c			
Hexachlorobenzene	118741				20			240	100 I	1.4 LB	2,000 LB							6 B	
Hexachlorobutadiene (HCBD)	87683																	1.3 E	
Hexachlorocyclohexane (BHC)	608731				3			120	100 I										
Hexachloroethane	67721																	73 BL	1,000
Hydroquinone (p-dihydroxybenzene)	123319									50	43,000 LB								
Indeno[1,2,3-cd]pyrene	193395	17.32			200			3,200	330 M	31 LB	1,900 LB	68			488			600 M	
Linar alkylbenzene sulfonates (LAS)	na												<12,800 €			>62,000 €			
Malathion	121755																		0.67
Maneb	12427382									2	22,000 L								
Methanol	67561										30,000 S								
Methoxychlor	72435																		19
Methyl ethyl ketone (MEK; 2-Butanone)	78933										35,000 S								
Methyl naphthalene, 2-	91576											21	20.2	70	128	201	670	64 E	
Methylene chloride (Dichloromethane, DCM)	75092									18 LB	3,900 L								
Methylnaphthalene, 1-	90120											21			94				
Methylphenanthrene, 1-	832699											18			112				
Methyl-tert-butyl ether (MTBE)	1634044										100,000 S								
Mirex	2385855				7			1,300	800 I										

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Monochloroaniline (3 isomers)	na									5	50,000								
Monochlorobenzenes	108907									< 30	15,000 LB								820
Monochloronaphthalenes	na									120 LB	10,000								
Monochlorophenols (sum)	na									< 10	5,400 L								
Naphthalene	91203	14.65	34.6 c	176		391 c	561		600 I	120 LB	17,000 LB	30	34.6	160	217	391	2,100	230 E	480
Nitrobenzene	98953																	21 N	
Nitrosodiphenylamine, N-	86306																	28 I	
Nonylphenol	25154523		1,400 c										1,000 c						
PAHs, Low MW	na	76.42							5,300 M	< 1,000	< 40,000		312	552		1,442	3,160	1,200 E	
PAHs, High MW	na	193							6,500 M	< 1,000	< 40,000		655	1,700		6,676	9,600	7,900 E	
PAHs, Total	na	264.1		1,610	4,000		22,800*	100,000*	12,000 M	1,000	40,000		1,684	4,022		16,770	44,792		
PCB 105	32598144									1.5 LB	< 1,000								
PCB 126	57465288									0.0025 LB	920 LB								
PCB 77	32598131									0.42 LB	< 1,00								
PCB-Aroclor 1254	na		60 c		60	340 c		340					63.3 c			709 c			
PCBs (sum)	1336363	31.62	34.1	59.8	70	277	676	5,300	26 M	0.3 LB	1,000	35	21.6	22.7	368	189	180	130 M	
Pentachloroaniline	527208										10,000 S								
Pentachlorobenzene	608935									15 LB	16,000 LB								690
Pentachlorophenol [PCP: at ph 7.8‡]	87865									< 10	8,000 LB							17 B	
Perylene	198550											74			453				
Phenanthrene	85018	18.73	41.9	204	560	515	1,170	9,500	800 I	3,300 LB	31,00 LB	68	86.7	240	455	544	1500	660 E	
Phenol	108952								48 † H	50	14,000 LB							130 E	
Phthalates (sum)	na									100	60,000								
Propanol, 2- (Isopropanol)	67630										220,000 S								
Pyrene	129000	44.27	53	195	490	875	1,520	8,500	1,000 i			125	153	665	932	1,398	2,600	2,400 E	
Pyridine	110861									100	500								
Resorcinol (m-dihydroxybenzene)	108463									34 LB	4,600 LB								
Styrene (Vinyl benzene)	100425									200 LB	86,000 LB								
Tetrachloroaniline, 2,3,5,6-	3481207										< 30,000 S								
Tetrachlorobenzene, 1,2,3,4-	634662									160 L	16,000 L								
Tetrachlorobenzene, 1,2,3,5-	634902									6.5 L	650 L								

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8: Entry is lowest value among AET tests: I - Infaunal community impact ; A - Amphipod ; B - Bivalve ; M- Microtox bioassay ; O - Oyster larvae ; E - Echinoderm larvae ; L - $Larval_{max}$; or ; N - *Neanthes* bioassay.

Screening Quick Reference Tables for Organics – Sediment

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ANALYTE	CAS Number	FRESHWATER SEDIMENT								DUTCH Sediment[5]		MARINE SEDIMENT							Eco Tox EqP[9]
All concentrations in parts per billion dry weight unless specified otherwise		ARCS *Hyalella* TEL[1]	TEL[2]	TEC[2]	LEL[3]	PEL[2]	PEC[2]	SEL[3]	UET[4] @1%TOC	Target	Intervention	T_{20}[6]	TEL[7]	ERL[7]	T_{50}[6]	PEL[7]	ERM[7]	AET[8]	@1%TOC
Tetrachlorobenzene, 1,2,4,5-	95943									10 L	1,000 L								
Tetrachlorobenzenes	na									22 L	2,200 L								
Tetrachloroethylene (Tetrachloroethene; PCE; PER)	127184									2	4,000							57 I	530
Tetrachlorophenol, 2,3,4,5-	4901513									< 10	< 10,000								
Tetrachlorophenol, 2,3,4,6-	58902									< 10	< 10,000								
Tetrachlorophenols (sum)	25167833									< 10	< 10,000								
Tetrahydrofuran	109999									100	2,000								
Tetrahydrothiophene	110010									100	8,800 LB								
Toluene	108883									10	47,000 L								670
Toxaphene	8001352		0.1 c										0.1 c						28
Tributyltinoxide	56359									< 10	< 2,500								
Trichloroaniline (multiple isomers)	na										10,000 S								
Trichloroaniline, 2,4,5-	636306										< 10,000 S								
Trichlorobenzene, 1,2,3-	87616									< 11 L	5,000 L								
Trichlorobenzene, 1,2,4-	120821									11 LB	5,100 LB							> 4.8 E	9,200
Trichlorobenzenes	12002481									38 L	11,000 L								
Trichloroethane, 1,1,1-	71556									70	15,000								170
Trichloroethane, 1,1,2-	79005									400	10,000								
Trichloroethene (TCE)	na									7.8 L	2,500 L							41 N	1,600
Trichlorophenol, 2,3,5-	na									< 10	4,500 L								
Trichlorophenol, 2,4,5-	95954									< 10	22,000 LB							3 I	
Trichlorophenol, 2,4,6-	88062									< 10	110,000 LB							6 I	
Triclorophenols, (sum)	na									< 10	22,000 L								
Vinyl chloride	75014									10	100								
Xylene	1330207									130 LB	17,000 LB							4 BL	
Xylene, m-	108383									110 LB	18,000 LB								25
Xylene, o-	95476									89 LB	9,300LB								

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Sources

1 – Assessment & Remediation of Contaminated Sediments (ARCS) Program, Sept 1996. EPA 905-R96-008.

2 – MacDonald et al, 2000. Arch ET&C 39(1):20-
C – Canadian Sediment Quality Guidelines for the Protection of Aquatic Life, Summary Tables Update 2002, www.ccme.ca/publications/cegg_rcqe.html

3 – Persuad 1993. Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario. Thompson et al., 2005. Enval Monitor & Assessment 110:71-

4 – Buchman 1999. NOAA HAZMAT Report 99-1.

5 – Entry is lower of current VROM Environmental Quality standards or the updated RIVM Environmental Risk Limits. Risk limits are typically divided by 100 to derive the Target value; this computation has not been done here.
Dutch Target/Intervention: E.M.J. Verbruggen, R. Posthumus and A.P. van Wezel, 2001. Ecotoxicological Serious Risk Concentrations for soil, sediment, and (ground)water: updated proposal for first series of compounds. Nat. Inst. Public Health and the Env., and subsequent updates as published elsewhere.
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6 – Field et al., 2002. ET&C 21:1993-

7 – MacDonald et al., 1996. Ecotox. 5(4):253-
C – Canadian Sediment Quality Guidelines for the Protection of Aquatic Life, Summary Tables Update 2002, www.ccme.ca/publications/cegg_rcqe.html
€ - DelValls et al., 1999. Ecotox. & Env Rest 2(1):34-

8 – Wash Dept Ecol Publ 95-308, 1995 and 97-323a, 1997
Gries & Waldrow Puget Sound Dredged Disposal Analysis Rept 1996. http://www.ecy.wa.gov/biblio/wac173204.html
plus unpublished information.

9 – EcoUpdate EcoTox Thresholds, http://www.epa.gov/oswer/riskassessment/

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ANALYTE	CAS Number	GROUND WATER			SURFACE WATERS				SOIL			
All concentrations in parts per billion unless specified otherwise		Dutch [1]		MCL [2]	Fresh		Marine		Invertebrates [4]	Mammals [5]	Plants [6]	Other [7]
		Target	Intervention		Acute [3]	Chronic [3]	Acute [3]	Chronic [3]				
2,3,7,8-TCDD (dioxin TEQs)	1746016		0.001 ng/L S	0.00003	<0.01 *	<0.00001 *				0.000199		
2,4,5-Trichlorphenoxyacetic acid (2,4,5-T)	93765			9 W		36 NZ				596		
2,4-Dichlorophenoxyacetic acid (2,4-D)	94757			70		4.0 CA				27.2		
Acenaphthene	83329				1,700 *	5.8 CA	970 *	40 Eco		682,000	20,000	
Acenaphthylene	208968					4,840 V	300 *C			682,000		
Acetone	67641				28,000 T	1,500 T				2,500		
Acetonitrile	75058					160 NZ				1,370		
Acetophenone	98862									300,000		
Acetylaminofluorene, 2-	53963									596		
Acridine	260946					4.4 CA						
Acrolein	107028				68 *	0.01 NZ	55 *	0.1 NZ		5,270		
Acrylonitrile	107131	0.08	5 S		7,550 *	2,600 *				23.9		1,000,000 M 0.007 D
Alcohol ethoxylated surfactants (AE)	na					140 NZ						
Alcohol ethoxyolated sulfate (AES)	na					650 NZ						
Aldicarb	116063			9 C		1 CA		0.15 CA				
Aldrin	309002	0.009 ng/L	< 0.1		1.5 (½)	0.017 V	0.65 (½)				3.32 V	0.06 D
Aldrin+Dieldrin+Endrin	na		0.1	<0.03 W								5 D
Allyl chloride	107051									13.4		
Aminobiphenyl, 4-	92671									3.05		
Aminomethylphosphonic acid (AMPA)	1066519	0.797 L										
Amitrole	61825					22 NZ						
Aniline	62533					2.2 CA				56.8		
Anthracene	120127	0.0007	5		13 T	0.73 T 0.012 CA	300 *C			1.48E6		
Aramite	140578									16,600		
Atrazine	1912249	29 ng/L	76 L	3		1.8 CA		10 BC				0.2 D
Benz[a]anthracene	56553	0.0001	0.5		0.49 T	0.027 T	300 *C			5,210		
Benzene	71432	0.2	30	5	2,300 T	46 Eco	5,100 *	110 CA		255		10 D
Benzidine	92875				70 T	3.9 T						
Benzo(ghi)perylene	191242	0.0003	0.05			7.64 V	300 *C			119,000		
Benzo[a]pyrene	50328	0.0005	0.05	0.2	0.24 T	0.014 T Eco	300 *C			1,520		

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		Target	Intervention		Acute [3]	Chronic [3]	Acute [3]	Chronic [3]				
Benzo[b]fluoranthene	205992					9.07 V	300 *C			59,800		
Benzo[k]fluoranthene	207089	0.0004	0.05				300 *C			148,000		
Benzoic acid	65850				740 T	42 T						
Benzyl alcohol	100516				150 T	8.6 T				65,800		
BHC, alpha (α-HCH)	319846	33 ng/L	<1		39 T	2.2 T				99.4		3 D
BHC, beta (β-HCH)	319857	8 ng/L	<1		39 T	2.2 T 0.495 V					3.98 V	9 D
BHC, delta δ-HCH)	319868	< 0.05	<1		39 T	2.2 T				9,940		< 10 D
BHC, gamma- (γ-HCH; Lindane)	58899	9 ng/L	<1	0.2	0.95	0.08	0.08 (½)				5 V	0.05 D
BHC (sum)	na	0.05	1		< 0.95	< 0.08	< 0.08					10 D
Biphenyl	92524					14 T Eco					60,000	
Bis(2-chloroethoxy) methane	111911				11,000 *C		12,000 *C	6,400 *C		302		
Bis(2-chloroethyl) ether	111444					1,900 V				23,700		
Bis(2-ethylhexyl)phthalate (DEHP)	117817	1.9 ng/L L	< 5	6	400 p	32 Eco 16 CA 0.3 V	400 p	360 p		925		< 100 D
Bis-2-chloro-1-methylethylether	108601									19,900		
Bromocil	314409					5 CA						
Bromodichloromethane (Dichlorobromomethane)	75274			60 W	11,000 *C		12,000 *C	6,400 *C		540		
Bromoform (Tribromomethane)	75252		630		2,300 T	320 T Eco				15,900		
Bromoxynil	1689845			5 C		5 CA						
Butanol	35296721		5,600 S									
Butyl acetate, 1- or 2-	na		6,300 S									
Butyl benzyl phthalate	85687	2.9 ng/L L	< 5		940 *C	19 T Eco	2,944 *C	3.4 *C		239		< 100 D
Captan	133062					1.3 CA						
Carbaryl	63252	2 ng/L	41 L	90 C		0.2 CA		0.32 CA				
Carbofuran	1563662	9 ng/L	6.5 L	40		1.8 CA		0.06 NZ				
Carbon disulfide	75150				17 T	0.92 T				94.1		
Carbon tetrachloride (Tetrachloromethane;Tetra)	56235	0.01	10	5	180 T	9.8 T	50,000 *	5,000 x 0.1		2,980		1,000,000 M 400 D
Catechol (o-Dihydroxybenzene)	120809	0.2	630 L									50 D

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		Target	Intervention		Acute [3]	Chronic [3]	Acute [3]	Chronic [3]				
Chlordane	57749	0.02 ng/L	0.2	2	1.2 (½)	0.00215 (½)	0.045 (½)	0.002 (½)			224 V	0.03 D
Chlordane (alpha)	5103719	< 0.02 ng/L	< 0.2								< 224 V	< 0.03 D
Chlordane (gamma)	5103742	< 0.02 ng/L	< 0.2								< 224 V	< 0.03 D
Chlorfenvinphos	470906					0.1 EU		0.1 EU				
Chloroacetamide	79072								2,000			5 D
Chloroaniline	27134265		30									< 5 D
Chloroaniline, 3-	108429		< 30						30,000		20,000	< 5 D
Chloroaniline, 4-	106478		< 30		250 *C	50 *C	160 *C	129 *C		1,100		< 30 D
Chlorobenzenes (sum)	na	< 7	< 180	100		130 Eco <47 V			< 40,000	< 13,100		30 D
Chlorobenzilate	510156									5,050		20 D
Chloroform (trichloromethane)	67663	6	400	200 W	490 T	1.8 CA				1,190		
Chloro, 4- 2-methyl phenol	1570645		< 350 S									
Chloro, 4- 3-methyl phenol	59507		< 350 S							7,950		
Chloro, 4- methyl phenols	na		350 S							< 7,950		
Chloro, 4- 2-methylphenoxy acetic acid (MCPA)	94746	0.02	50	2 W		2.6 CA		4.2 CA				0.05 D
Chloronaphthalene, 1-	90131	3.7 ng/L L	< 6									
Chloronaphthalene, 2-	91587	0.016 L	< 6		1,600 * C	0.396 V	7.5 * C			12.2		
Chlorophenol, 2-	95578	< 0.3	< 100		4,380 *	490 NZ 24 V				243		< 10 D
Chlorophenol, 3-	108430	< 0.3	< 100						10,000		7,000	< 10 D
Chlorophenol, 4-	106489	< 0.3	< 100			220 NZ						< 10 D
Chlorophenols (sum)	na	0.3	100			< 24 V			< 10,000	< 243	< 7,000	< 10 D
Chloroprene	126998									2.9		
Chlorothalonil	1897456			200 BC		0.18 CA		0.36 CA				
Chlorpyrifos	2921882			30 W	0.083	0.041	0.011	0.0056				
Chrysene	218019	0.003	0.2				300 *C			4,730		
Cresol [m-] (3-Methyl phenol)	108394	< 0.2	< 200							3,490		< 50 D
Cresol [o-] (2-Methyl phenol)	95487	< 0.2	<200		230 T	13 T				40,400		< 50 D
Cresol [p-] (4-Methyl phenol)	106445	< 0.2	< 200							163,000		< 50 D
Cresols, sum	1319773	0.2	200		< 230 T	< 13 T				< 3,490		50 D
Cyclohexanone	108941	0.5	15,000									100 D

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		Target	Intervention		Acute [3]	Chronic [3]	Acute [3]	Chronic [3]				
DDD, 4,4- (p,p-DDD, TDE)	72548	<0.004 ng/L	< 0.01	< 1 W	0.19 T	0.011 T	3.6 *	0.36 x 0.1		758		< 10 D
DDE, 4,4- (p,p-DDE)	72559	<0.004 ng/L	< 0.01	< 1 W	1,050 *	105 x 0.1	14 *	1.4 x 0.1		596		< 10 D
DDT, 4,4- (p,p-DDT)	50293	<0.004 ng/L	< 0.01	< 1 W	0.55 (½)	0.0005 (½)	0.065 (½)	0.0005 (½)		3.5		< 10 D
DDT+DDE+DDD (sum)	na	0.004 ng/L	0.01	1 W	<0.55 (½)	<0.0005 (½)	<0.065 (½)	<0.0005 (½)		21 EPA		93 A 10 D
Decane	124185				880 T	49 T						
Deltamethrin	52918635					0.0004 CA						
Demeton	8065483					0.1		0.1				
Diallate	2303164									452		
Diazinon	333415			20 C	0.17	0.17	0.82	0.82				
Dibenz[ah]anthracene	53703						300 *C			18,400		
Dibenzofuran	132649				66 T	3.7 T						
Dibromo, 1,2- 3-chloropropane (DBCP)	96128			0.2						35.2		
Dibromochloromethane (Chlorodibromomethane)	124481			100 W	11,000 *C		12,000 *C	6,400 *C		2,050		
Dibromoethane, 1,2-	106934			0.4 W						1,230		
Dicambia	1918009			120 C		10 CA						
Dichloro, 1,4- 2-butene (cis)	1476115											1,000,000 M
Dichloro, 1,4- 2-butene (trans)	110576											1,000,000 M
Dichloroaniline, 2,4-	554007		< 100 S			7 NZ			100,000			< 5 D
Dichloroaniline, 3,4-	95761		< 100 S			3 NZ		150 NZ	20,000			< 5 D
Dichlorobenzene, 1,2-	95501	< 3	< 50	600	260 T	0.7 CA	< 1,970 *S	42 CA		2,960		< 30 D
Dichlorobenzene, 1,3-	541731	< 3	< 50		630 T	71 T Eco 38 V	< 1,970 *S			37,700		< 30 D
Dichlorobenzene, 1,4-	106467	< 3	< 50	75	180 T	15 T Eco 60 NZ 9.4 V	< 1,970 *S	129 *C	20,000	546		< 30 D
Dichlorobenzenes	25321226	3	50	< 75	< 180 T	< 0.7 CA	1,970 *S		< 20,000	< 548		< 30 D
Dichlorobenzidine, 3,3-	91941					4.5 V				646		
Dichlorodifluoromethane	75718									39,500		
Dichloroethane, 1,1-	75343	7	900		830 T	47 T Eco				20,100		20 D
Dichloroethane, 1,2-	107062	7	400	5	8,800 T	100 CA	113,000 *	11,300 x 0.1		21,200		20 D

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		Target	Intervention		Acute [3]	Chronic [3]	Acute [3]	Chronic [3]				
Dichloroethene, 1,1- (vinylidene chloride)	75354	0.01	10	7	450 T	25 T	224,000 *S			8,280		100 D
Dichloroethene, 1,2- (cis or trans)	540590	0.01	20	70 cis	1,100 T	590 T	224,000 *S					200 D
Dichloroethene, 1,2- (trans)	156605			100	11,600 *S	1,160 x 0.1	224,000 *S			784		
Dichlorophenol, 2,4-	120832	< 0.2	< 30	900 C	2,020 *	160 NZ 11 V				87,500		< 10 D
Dichlorophenol, 2,6-	87650	< 0.2	< 30			< 0.2 CA				1,170		< 10 D
Dichlorophenol, 3,4-	95772	< 0.2	< 30			< 0.2 CA			20,000		20,000	< 10 D
Dichlorophenol, 3,5-	591355	< 0.2	< 30			< 0.2 CA						< 10 D
Dichlorophenols (sum)	na	0.2	30	< 900 C	<2,020 *	0.2 CA			< 20,000	< 1,170	< 20,000	< 10 D
Dichloropropane, 1,2- (propylene dichloride)	78875	< 0.08	< 80	5	23,000 *S	5,700 *S	10,300 *S	3,040 *S	700,000	32,700		< 2 D
Dichloropropene, 1,3-	542756			20 W	0.99 T	0.055 T	790 *S					
Dichloropropene, 1,3- (cis)	10061015			< 20 W	< 0.99 T	< 0.055 T				398		
Dichloropropene, 1,3- (trans)	10061026			< 20 W	< 0.99 T	< 0.055 T				398		
Diclofop-methyl	51338273			9 C		6.1 CA						
Dicofol	115322					0.5 NZ		0.1 NZ				
Didecyl dimethyl ammonium chloride (DDAC)	7173515					1.5 CA						
Dieldrin ‡	60571	0.1 ng/L	< 0.1		0.24	0.056	0.355 (½)	0.00095 (½)		2.38		22 A
Diethyl phthalate	84662	< 0.5	< 5		1,800 T	210 T 110 V	2,944 *C	3.4 *C		24,800	100,000	< 100 D
Diethylene-glycol	111466		13,000 S									
Dihydroxybenzenes, sum	na	0.24 L										
Di-iso-butyl phthalate	84695	< 0.5	< 5									< 100 D
Dimethoate	60515			6 W		6.2 CA 0.15 NZ				218		
Dimethyl aminoazobenzene [p-]	60117									40		
Dimethyl benz(a)anthracene, 7,12-	57976									16,300		
Dimethyl benzidine, 3,3-	119937									104		
Dimethyl naphthalene, 2,6-	581420											
Dimethyl phenethylamine [alpha,alpha]	122098									300		
Dimethyl phenol, 2,4-	105679				2,120 *	100 V					10 v	
Dimethyl phthalate	131113	< 0.5	< 5		940 *C	3 *C	2,944 *C	3.4 *C	200,000	734,000		< 100 D

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		Target	Intervention		Acute [3]	Chronic [3]	Acute [3]	Chronic [3]				
Di-n-butyl phthalate	84742	< 0.5	< 5		190 T	19 CA 9.7 V	2,944 *C	3.4 *C		150	200,000	< 100 D
Dinitrobenzene, 1,3-	99650									655		
Dinitrophenol, 2,4-	51285				230 *C	45 NZ 19 V	4,850 *C			60.9		
Dinitrotoluene, 2,4-	121142				330 *	65 NZ 44 V	590 * S	370 *S		1,280		
Dinitrotoluene, 2,6-	606202									32.8		
Di-n-octyl phthalate	117840	< 0.5	< 5		940 *C	3 *C	2,944 *C	3.4 *C		709,000		< 100 D
Dinoseb	88857			7		0.05 CA				21.8		
Dioxane, 1,4-	123911									2,050		
Dioxins (sum of PCDDs)	na		0.001 ng/L S							0.000199		
Diphenlyhydrazine 1,2-	122667				270 *	27 x 0.1						
Diphenylamine	122394									1,010		
Diquat	85007			20		1.4 NZ						
Disulfoton	298044									19.9		
Diuron	330541			150 C		0.1EU		0.1EU				
Dodecylbenzene	25155300		0.02 S									
Endosulfan (α or β: I or II)	115297	0.2 ng/L	5		0.11 (½)	0.028 (½)	0.017 (½)	0.00435 (½)		119		0.01 D
Endosulfan sulfate	1031078					2.22 V				35.8		
Endrin	72208	0.04 ng/L	< 0.1	2	0.086	0.036	0.0185 (½)	0.00115 (½)		10.1		0.04 D
Endrin aldehyde	7421934					0.15 V				10.5		
Esfenvalerate	66230044					0.001 NZ						
Ethanol	64175					1,400 NZ						
Ethyl acetate	141786		15,000 S									
Ethyl benzene	100414	4	150	700	130 T	7.3 T 14 V	430 *	25 CA		5,160		30 D
Ethyl methacrylate	97632									30,000		
Ethylene glycol	107211		5,500 S			192,000 CA						
Famphur	52857									49.7		
Fenitrothion	122145					0.2 NZ						
Fluoranthene	206440	0.003	1		3,980 *	0.04 CA	40 *	11 Eco		122,000		
Fluorene	86737				70 T	3.9 T Eco	300 *C		30,000	122,000		

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Formaldehyde	50000		50 S	900 W								
Furan	110009										600,000	
Glyphosate	1071836			280 C		65 CA						
Guthion (azinphos-methyl)	865000	0.1 ng/L	2 S	20 C		0.01 0.02 NZ		0.01				0.005 D
Heptachlor	76448	0.005 ng/L	0.3	0.4	0.26 (½)	0.0019 (½)	0.0265 (½)	0.0018 (½)		5.98		0.7 D
Heptachlor epoxide	1024573	0.005 ng/L	3	0.2	0.26 (½)	0.0019 (½)	0.0265 (½)	0.0018 (½)		152		0.0002 D
Hexachlorobenzene	118741	2.1E-7 L	0.5	1	6 p	3.68 p 0.0003 V	160 *C	129 *C		199		1,000,000 M
Hexachlorobutadiene (HCBD)	87683			0.6 W	90 *	1.3 CA 0.053 V	32 *	3.2 x 0.1		39.8		
Hexachlorocyclohexane (BHC)	608731				100 *	10 x 0.1	0.34 *	0.034 x 0.1				
Hexachlorocyclopentadiene	77474			50	7 *	5.2 *	7 *	0.7 x 0.1		755	10,000	
Hexachloroethane	67721				210 T	12 T Eco 8 V	940 *	94 x 0.1		596		
Hexachlorophene	70304									199		
Hexane	110543				10 T	0.58 T						
Hexanone, 2- (methyl butyl ketone)	591786				1,800 T	99 T				12,600		
Hydroquinone (p-dihydroxybenzene)	123319	0.2	800									50 D
Indeno[1,2,3-cd]pyrene	193395	0.0004	0.05			4.31 V	300 *C			109,000		
Iodo, 3- 2-propynl butyl carbamate (IPBC)	55406536					1.9 CA						
Isodrin	465736										3.32 V	
Isophorone	78591				117,000 *	1,170 x 0.1 920 V	12,900 *	1,290 x 0.1		139,000		
Isoproturon	34123596			9 W		0.1 EU		0.1 EU				
Isosafrole	120581									9,940		
Kepone	143500									32.7		
Linar alkylbenzene sulfonates (LAS)	na					280 NZ						
Linuron	335502					7.0 CA						
Malathion	121755			190 C		0.1		0.1				
Maneb	12427382	0.05 ng/L	0.1									2 D
Methacrylonitrile	126987									57		
Methanol	67561		24,000 S									

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		Target	Intervention		Acute [3]	Chronic [3]	Acute [3]	Chronic [3]				
Methanol	67561		24,000 S									
Methapyrilene	91805									2,780		
Methomyl	16752775					3.5 NZ						
Methoxychlor	72435			40		0.03		0.03		19.9		
Methyl bromide	74839					16 V				235		
Methyl chloride	74873									10,400		
Methyl cholanthrene, 3-	56495									77.9		
Methyl, 2- 4,6-dinitrophenol	534521									144		
Methyl ethyl ketone (MEK; 2-Butanone)	78933		6,000 S		240,000 T	14,000 T				89,600		
Methyl iodide	74884									1,230		
Methyl methacrylate	80626									984,000		
Methyl methanesulfanate	66273									315		
Methyl naphthalene, 1-	90120				37 T	2.1 T						
Methyl naphthalene, 2-	91576					330 V	300 *C			3,240		
Methyl parathion	298000									0.292		
Methyl, 4- 2-pentanone	108101				2,200 T	170 T				443,000		
Methyl-tert-butyl ether (MTBE)	1634044		9,200 S			10,000 CA		5,000 CA				
Methylene bromide (Dibromomethane)	74953				11,000 *C		12,000 *C	6,400 *C		65,000		
Methylene chloride (Dichloromethane, DCM)	75092	0.01	1,000	5	26,000 T	2,200 T 98.1 CA	12,000 *C	6,400 *C		4,050		400 D
Metolachlor	51218452			10 W		7.8 CA						
Metribuzin	21087649			80 C		1 CA						
Mineral oil (Operationally defined)	8012951	50	600									50,000 D
Mirex	2385855					0.001		0.001				
Molinate	2212671			6 W		3.4 NZ						
Monochloroaniline (3 isomers)	na		30									5 D
Monochlorobenzenes	108907	7	180	100	1,100 T	1.3 CA	160 *C	25 CA	40,000	13,100		< 30 D
Monochloronaphthalenes		7.7 ng/L L	6									120 L
Monochlorophenols (sum)	na	0.3	100			7 CA						< 10 D
Naphthalene	91203	0.01	70		190 T	1.1 CA	2,350 *	1.4 CA		99.4		
Naphthoquinone, 1,4-	130154									1,670		

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Naphthylamine, 1-	134327									9,340		
Naphthylamine, 2-	91598									3,030		
Nitroaniline [m-]	99092									3,160		
Nitroaniline [p-]	100016									21,900		
Nitroaniline, 2-	88744									74,100		
Nitrobenzene	98953				27,000 *	550 NZ 220 V	6,680 *	668 x 0.1	40,000	1,310		1,000,000 M
Nitro-o-toluidine, 5-	99558									8,730		
Nitrophenol, 2-	88755									1,600		
Nitrophenol, 4-	100027				1,200 T	300 T 60 V	4,850 *C		7,000	5,120		
Nitroquinoline, 4- 1-oxide	56575									122		
Nitrosodiethylamine, N-	55185					768 V				69.3		
Nitrosodimethylamine, N-	62759									0.0321		
Nitroso-di-n-butylamine, N-	924163									267		
Nitroso-di-n-propylamine, N-	621647									544		
Nitrosodiphenylamine, N-	86306				3,800 T	210 T	3,300,000*C		20,000	545		
Nitrosomethylethylamine, N-	10595956									1.66		
Nitrosomorpholine, N-	59892									70.6		
Nitrosopiperidine, N-	100754									6.65		
Nitrosopyrrolidine, N-	930552									12.6		
Nonylphenol	25154523				28	6.6	7	1.7				
o,o-diethyl o-2-pyrazinylphosphorothioate	297972									799,000		
Octanone, 2-	111137				150 T	8.3 T						
PAHs, High MW	na						300 *C		29,000 EPA	100,000 EPA		< 1,000 D
PAHs, Low MW	na						300 *C		18,000 EPA	1,100 EPA		< 1,000 D
PAHs, Total	na						300 *C					1,000 D
Paraquat	4685147					0.5 NZ						
Parathion	56382			50 C	0.065	0.013			0.34 V			
PCBs (sum)	1336363	0.01	0.01	0.5	0.6 T 0.03 NZ	0.014	0.033 T	0.03		0.332	40,000	< 20 D
Pentachloroaniline	527208		1 S						100,000			

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Pentachlorobenzene	608935	0.003	1		8.4 T	0.47 T 0.019 V	160 *C	129 *C	20,000	497		< 30 D
Pentachloroethane	76017				7,240 *	1,100 *	390 *	281 *		10,700		
Pentachloronitrobenzene	82688									7,090		
Pentachlorophenol [PCP: at pH 7.8]	87865	0.04	3	1.0	19 ph	15 Ph	13	7.9	6,000	119	3,000	2,100 A
Pentanol, 1-	71410				2,000 T	110 T						
Permethrin	52645531					0.004 CA		0.001 CA				
Phenacetin	62442									11,700		
Phenanthrene	85018	0.003	5		30 p	6.3 p Eco 3.6 V	7.7 p	4.6 p		45,700		
Phenol	108952	0.2	2,000		10,200 *	320 NZ 180 V	5,800 *	400 NZ	30,000	120,000	70,000	1,000,000 M 500 D
Phenylenediamine [p-]	106503									6,160		
Phorate	298022			2 C						0.496		
Phthalates (sum)	na	0.5	5									100 D
Picloram	1918021			500		29 CA						
Picoline, 2-	109068									9,900		
Polychlorinated dibenzofurans	51207319									0.0386		
Pronamide	23950585										13.6 v	
Propanol, 2- (Isopropanol)	67630		31,000 S		130 T	7.5 T						
Propionitrile	107120									49.8		
Propylene glycol	57556					500,000 CA						
Pyrene	129000					0.025 CA	300 *C			78,500		
Pyridine	110861	0.5	30							1,030		100 D
Quinoline	91225					3.4 CA						
Resorcinol (m-dihydroxybenzene)	108463	0.2	600									50 D
Safrole	94597									404		
Silvex (2,4,5-TP)	93721			50							109 v	
Simazine	122349			4		10 CA 3.2 NZ		1 EU				
Styrene (Vinyl benzene)	100425	6	300	100		72 CA 32 V				4,690	300,000	300 D

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Tebuthiuron	34014181			490 BC		1.6 CA 2.2 NZ						
Temephos	3383968					0.05 NZ		0.05 NZ				
Tetrachloroaniline, 2,3,5,6-	3481207		< 10 S						20,000		20,000	
Tetrachlorobenzene, 1,2,3,4-	634662	< 0.01	< 2.5		250 *C	1.8 CA	160 *C	129 *C	10,000			< 30 D
Tetrachlorobenzene, 1,2,3,5-	634902	< 0.01	< 2.5		250 *C		160 *C	129 *C				< 30 D
Tetrachlorobenzene, 1,2,4,5-	95943	< 0.01	< 2.5		250 *C	50 *C 3 V	160 *C	129 *C		2,020		< 30 D
Tetrachlorobenzenes	na	0.01	2.5		250 *C	< 3 V	160 *C	129 *C	< 10,000	< 2,020		< 30 D
Tetrachloroethane, 1,1,1,2-	630206									225,000		
Tetrachloroethane, 1,1,2,2-	79345				2,100 T	111 CA	9,020 *	902 x 0.1		127		
Tetrachloroethylene (Tetrachloroethene; PCE; PER)	127184	0.01	40	5	830 T	98 T 45 V	10,200 *	450 *		9,920		2 D
Tetrachlorophenol, 2,3,4,5-	4901513	< 0.01	< 10			< 1 CA			20,000			< 10 D
Tetrachlorophenol, 2,3,4,6-	58902	< 0.01	< 10	100 C		20 NZ	440 *	44 x 0.1		199		< 10 D
Tetrachlorophenols (sum)	25167833	0.01	10			1 CA			< 20,000	< 199		< 10 D
Tetraethyldithiopyrophosphate	3689245									596		
Tetrahydrofuran	109999	0.5	300									100 D
Tetrahydrothiophene	110010	0.5	5,000									100 D
Thiobencarb	28249776					2.8 NZ						
Thiram	137268					0.2 NZ		0.01 NZ				
Toluene	108883	7	1,000	1,000	120 T	9.8 T 2 CA	6,300 *	215 CA		5,450	200,000	10 D
Toluidine [o-]	95534									2,970		
Toxaphene	8001352			3	0.73	0.0002	0.21	0.0002		119		
Triallate	2303175					0.24 CA						
Tributyltinoxide	56359	<0.05E-16 ng/L	< 0.7		0.46	0.072	0.42	0.0074				< 1 D
Trichloroaniline (multiple isomers)	na		10 S									
Trichloroaniline, 2,4,5-	636306		< 10 S						20,000		20,000	
Trichlorobenzene, 1,2,3-	87616	< 0.10	< 10			8.0 CA			20,000			< 30 D
Trichlorobenzene, 1,2,4-	120821	< 0.10	< 10	70	700 T	24 CA	160 *C	5.4 CA	20,000	11,100		< 30 D
Trichlorobenzenes	12002481	0.01	10	< 70	< 700 T	< 8 CA	160 *C	<5.4 CA	< 20,000	< 11,100		< 30 D

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Trichloroethane, 1,1,1-	71556	0.01	300	200	200 T	11 T	31,200 *	3,120 x 0.1		29,800		70 D
Trichloroethane, 1,1,2-	79005	0.01	130	5	5,200 T	1,200 T 500 V		1,900 NZ		28,600		400 D
Trichloroethene (TCE)		24	500	5		21 CA	2,000 *	200 x 0.1		12,400		100 D
Trichloroethene, 1,1,1-	71556	< 24	< 500	< 5	< 440 T	< 21 CA						< 100 D
Trichloroethene, 1,1,2-	79016	< 24	< 500	< 5	< 440 T	< 21 CA						< 100 D
Trichlorofluoromethane	75694				11,000 *C		12,000 *C	6,400 *C		16,400		
Trichlorophenol, 2,3,5-		< 0.03	< 10			< 18 CA						< 10 D
Trichlorophenol, 2,4,5-	95954	< 0.03	< 10		100 p	63 p	240 p	11 p	9,000	14,100	4,000	< 10 D
Trichlorophenol, 2,4,6-	88062	< 0.03	< 10	5 C		20 NZ 4.9 V			10,000	9,940		< 10 D
Triclorophenols, (sum)	na	0.03	10			18 CA			< 9,000	<9,940	< 4,000	< 10 D
Trichloropropane, 1,2,3-	96184									3,360		
Triethylphosphorothioate [O,O,O-]	126681									818		
Trifluralin	1582098			20 W		0.2 CA		0.1EU				
Trinitrobenzene, 1,3,5-	99354									376		
Trinitrotoluene, 2,4,6-	118967					140 NZ						
Vinyl acetate	108054				280 T	16 T				12,700		
Vinyl chloride	75014	0.01	5	2		930 V				646		10 D
Xylene, m-	108383	< 0.2	< 70		32 T	1.8 T Eco						< 100
Xylene, o-	95476	< 0.2	< 70			350 NZ						< 100
Xylene, p-		< 0.2	< 70									< 100
Xylenes	1330207	0.2	70	10,000	230 T	13 T					10,000 v	100 D

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7: M – microbes; A – avian

Screening Quick Reference Tables for Organic in Water and Soil

These tables were developed for internal use for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels. All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

Sources

1 – Entry is lower of current VROM Environmental Quality standards or the updated RIVM Environmental Risk Limits. Risk limits are typically divided by 100 to derive the Target value; this computation has been done here.
Dutch Target/Intervention: E.M.J. Verbruggen, R. Posthumus and A.P. van Wezel, 2001. Ecotoxicological Serious Risk Concentrations for soil, sediment, and (ground)water: updated proposal for first series of compounds. Nat. Inst. Public Health and the Env., and subsequent updates as published elsewhere.
Min. Housing, Spatial Plan. And the Env., 2000. Annexes Circular on target values and intervention values for soil remediations.

2 – Primary entry is the US EPA MCL value, followed by the lower of appropriate WHO, Canadian, or British Columbia guidelines.
Maximum Contaminant Levels (MCLs): http://www.epa.gov/safewater/index.html
W – World Health Organization's (WHO) Drinking water guidelines: http://www.who.int/water_sanitation_health/dwq/en/
C – Canadian Environmental Quality Guidelines for Community Water, Summary Table Update 2002: http://www.ccme.ca
BC – British Columbia Water Quality Guidelines (either working or recommended): http://www.env.gov.bc.ca/wat/wq/

3 – Primary entry is the US Ambient Water Quality Criteria, followed by the lowest of Tier II SAVs or available standards or guidelines.
Lowest Observable Effect Levels (LOELs) previously published by EPA are also included since these essentially were the basis for many state standards.
EPA Ambient water Quality Criteria (AWQC): http://www.epa.gov/waterscience/criteria/aqlife.html
T – Tier II Secondary Acute Value: http://www.esd.ornl.gov/programs/ecorisk/tools.html
Eco – EPA EcoUpdate, Ecotox Thresholds, EPA 540/F-95/038
CA – Canadian water Quality Guidelines: http://www.ec.gc.ca/CEQG-RCQE/English/Ceqg/Water/default.cfm
BC – British Columbia Water Quality Guidelines (either working or recommended): http://www.env.gov.bc.ca/wat/wq/
EU – European Union (EU) Environmental Quality Standards: COM(2006) 397 and 398 final.
V – US EPA Region V Ecological Screening Levels: http://www.epa.gov/reg5rcra/ca/edql.htm

4 – Toxicological Benchmarks for Effects on Earthworms: http://www.esd.ornl.gov/programs/ecorisk/tools.html
EPA – Eco-SSL for Invertebrates: http://www.epa.gov/ecotox/ecossl/
Region V Ecological Screening Level for Invertebrates: http://www.epa.gov/reg5rcra/ca/

5 – Entry is lower of either:
Region V Ecological Screening Level for shrew or vole: http://www.epa.gov/reg5rcra/ca/
EPA – Eco-SSL for Mammals: http://www.epa.gov/ecotox/ecossl/

6 – Toxicological Benchmarks for Effects on Terrestrial Plants: http://www.esd.ornl.gov/programs/ecorisk/tools.html
V – EPA Region V Ecological Screening Level for Plants: http://www.epa.gov/reg5rcra/ca/

7 – Entry is lower of either:
M – Toxicological Benchmarks for Effects on Microbes: http://www.esd.ornl.gov/programs/ecorisk/tools.html
A – Eco-SSL for Avian Receptors: http://www.epa.gov/ecotox/ecossl/
D – Entry is lower of current VROM Environmental Quality standards or the updated RIVM Environmental Risk Limits. See #1 above for sources.

Screening Quick Reference Table for PCB Composition

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Degree of Chlorination	A1221 Wt %	A1232 Wt %	A1016 Wt %	A1242 Wt %	A1248 Wt %	A1254 Wt %	A1260 Wt %	A1262 Wt %
Biphenyl	11.7 [a]	6.2 [a]						
∑1 Cl	65.5	31.3	Tr (#1, 3)	Tr (#1, 3)				
∑2 Cl	30.0	26.1	15.2	11.5	Tr (#7, 8)			
∑3 Cl	3.5	21.7	58.2	51.0	21.8	2.1		
∑4 Cl	Tr	15.0	26.5	29.0	60.2	14.3	Tr (#52, 70, 74)	Tr (#52, 70, 74)
∑5 Cl	Tr (#95)	5.8	Tr (#91, 95, 102)	8.5	17.1	53.2	8.2	3.5
∑6 Cl				Tr (#136, 138)	0.8	26.6	47.2	31.6
∑7 Cl					Tr	3.8	37.6	45.8
∑8 Cl						Tr (#202)	6.3	17.7
∑9 Cl							0.7	1.3
Total	99.1%	99.94%	99.95%	100%	99.93%	99.95%	100.01%	99.98%
Prominent congeners [b]	1 3 8 4 15 6	1 8 3 4 15 28	18 28 8 31 33 16	18 28 31 8 33 16	66 70 64 28 52 60	118 110 101 95 138 153	180 138 149 187 174 170	180 153187 149 174 203
Unique congener	#11 Tr					#137	#189 Tr	
Peak Range [c]	1-48	1-74	2-50	2-82	8-106	8-107	31.1-117	31.1-117
Ratio #118:203 [d]	Neither	No #203	Neither	No #203	73	370 - 1230	0.3 – 0.5	0.1
Ratio #31:118 [e]	No #118	4.3	No #118	8.5 - 9.2	2.1	0.01 – 0.04	0.1	No #31
Wt % of #153 [f]				0.1 - 0.14	Tr - 0.52	4.7-6.1	11.0 – 12.2	
Additional Information		~ 1:1 mix of 1221-1242	Distillation of 1242					

Notes

Commercial PCBs were manufactured by chlorination of biphenyl to produce complex mixtures (Aroclors in the USA and Great Britain, Clophens in Germany, or Kanechlors in Japan), each containing 60 to 90 different molecular species *(congeners)* and a specified weight percent of chlorine (for example, 54% in Aroclor 1254). There are 209 distinct congener structures possible, of which about 140 to 150 have been detected at significant levels in commercial PCBs.

Congener distributions in environmental samples roughly resemble those of the parent commercial mixtures, but are often modified due to evaporation, water extraction, microbial oxidation or dechlorination, photochemical dechlorination or differential biological uptake and metabolism. Compositional modification from original Aroclor patterns increases in biotic samples with trophic level. Still, it is often useful or necessary to attempt distinguishing the parent mixture released. The following information is presented to provide assistance with initial, preliminary evaluation of Aroclor. *Aroclor assignment should be conducted only by qualified chemists.*

Total PCBs can be characterized by two primary methods – the sum of congeners, or, the sum of estimates of individual Aroclor concentrations. In lower trophic level samples, these two methods provide approximately equal estimates of total PCBs. At higher trophic levels, analyses of samples tend to overestimate total PCBs by as much as 2-fold using the sum of Aroclor method, due to an overestimation of Aroclor 1254.

Tr - Individual congeners are at trace levels - 0.05 to 0.5% each - and are not included in totals.
- Refers to IUPAC congener number. IUPAC #s 107, 108, 109, 199, 200, 201 correspond to BZ#s 108, 109, 107, 201, 199, and 200, respectively.
a – Biphenyl figures are not reflected in congener weight percentages.
b – The six most prominent peaks listed by IUPAC congener number.
c – In the 118 peak numbering system, peak 1 is biphenyl.
d – This ratio is often used as an indicator for Aroclor 1260.
e – This ratio is often used as an indicator for Aroclor 1248.
f – Congener 153 is persistent in biota and abundantly present in higher chlorinated Aroclors and so provides a degree of modification estimate for biotic samples (increasing modification with decreasing PD values):

$$PD_{153} = \left[\frac{\#153_{theory} - \#153_{sample}}{\#153_{sample}}\right] * 100$$

Screening Quick Reference Table for Toxic Equivalency Factors

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Compound	2005 Mammals / human TEF	1998 Fish TEF	1998 Avian TEF
CHLORINATED DIBENZO-P-DIOXINS			
2,3,7,8-TCDD	1	1	1
1,2,3,7,8-PeCDD	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.001	<0.001
OCDD	0.0003	<0.0001	< 0.0001
CHLORINATED DIBENZOFURANS			
2,3,7,8-TCDF	0.1	0.05	1
1,2,3,7,8-PeCDF	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01
OCDF	0.0003	<0.0001	0.0001
NON-ORTHO-SUBSTITUTED PCBS			
3,3#,4,4#-tetraCB (PCB 77)	0.0001	0.0001	0.05
3,4,4#,5-tetraCB (PCB 81)	0.0003	0.0005	0.1
3,3#,4,4#,5-pentaCB (PCB 126)	0.1	0.005	0.1
3,3#,4,4#,5,5#-hexaCB (PCB 169)	0.03	0.00005	0.001
MONO-ORTHO-SUBSTITUTED PCBs			
2,3,3#, 4,4#-pentaCB (PCB 105)	0.00003	<0.000005	0.0001
2,3,4,4#,5-pentaCB (PCB 114)	0.00003	<0.000005	0.0001
2,3#,4,4#,5-pentaCB (PCB 118)	0.00003	<0.000005	0.00001
2# ,3,4,4# ,5-pentaCB (PCB 123)	0.00003	<0.000005	0.00001
2,3,3#, 4,4#,5-hexaCB (PCB 156)	0.00003	<0.000005	0.0001
2,3,3#,4,4#,5#-hexaCB (PCB 157)	0.00003	<0.000005	0.0001
2,3#,4,4#,5,5#-hexaCB (PCB 167)	0.00003	<0.000005	0.00001
2,3,3#, 4,4#, 5,5#-heptaCB (PCB 189)	0.00003	<0.000005	0.00001

It has been well established that 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), and other chlorinated dioxins, furans, and even PCBs with a similar planar chemical structures are capable of inducing similar toxicity, such as carcinogenicity. Since these compounds generally are observed in mixtures, it is desirable to be able to express the cumulative, overall toxicity of the mixture. However, since each of these congeners does not exhibit the same degree, or potency, of toxicity, some manipulations of raw concentrations are required to express total toxicity.

A number of systems have been developed to express the total, overall toxicity from mixtures of these chemicals. Most commonly, the potency of each congener is weighted relative to a standard, generally the most potent congener. For dioxins and furans, 2,3,7,8-TCDD is the common standard which is given a reference value of one. The weighting, or potency factor, is called a Toxic Equivalency Factor (TEF). When cumulative results are reported, the absolute concentration of each congener is multiplied by its corresponding TEF to derive a TCDD-equivalency. These values are then summed together to give a total Toxic Equivalency Quotient, or TEQ.

The TEQ scheme refers ***only*** to adverse effects (e.g., cancer) following interactions with certain cellular enzyme systems (the Ah receptors). Other toxic effects of dioxins and dioxin-like compounds are not quantified by this method. Because they involve potency to specific enzyme systems, TEF values vary for different animal species.

There are two main schemes:

The two most common systems for determining TEQs are:

1) **I-TEF and I-TEQ:** The older International Toxic Equivalent (I-TEQ) scheme by the North Atlantic Treaty Organization (NATO) initially set up in 1989 and later extended and updated.

2) **WHO-TEF and WHO-TEQ** (also referred to as TEF or TEQ): More recently, the World Health Organization (WHO) suggested modified Toxic Equivalency Factor (TEF) values for human risk assessment.

ITEQs are most common in North America, while Asia and Europe tend to use WHO-TEQs. On average, the result of TEQ-calculations is about 10% higher when I-TEFs are used compared to when WHO-TEFs are used.

Potency in fish reflects mainly rainbow trout: potency for birds is mainly derived from chickens.

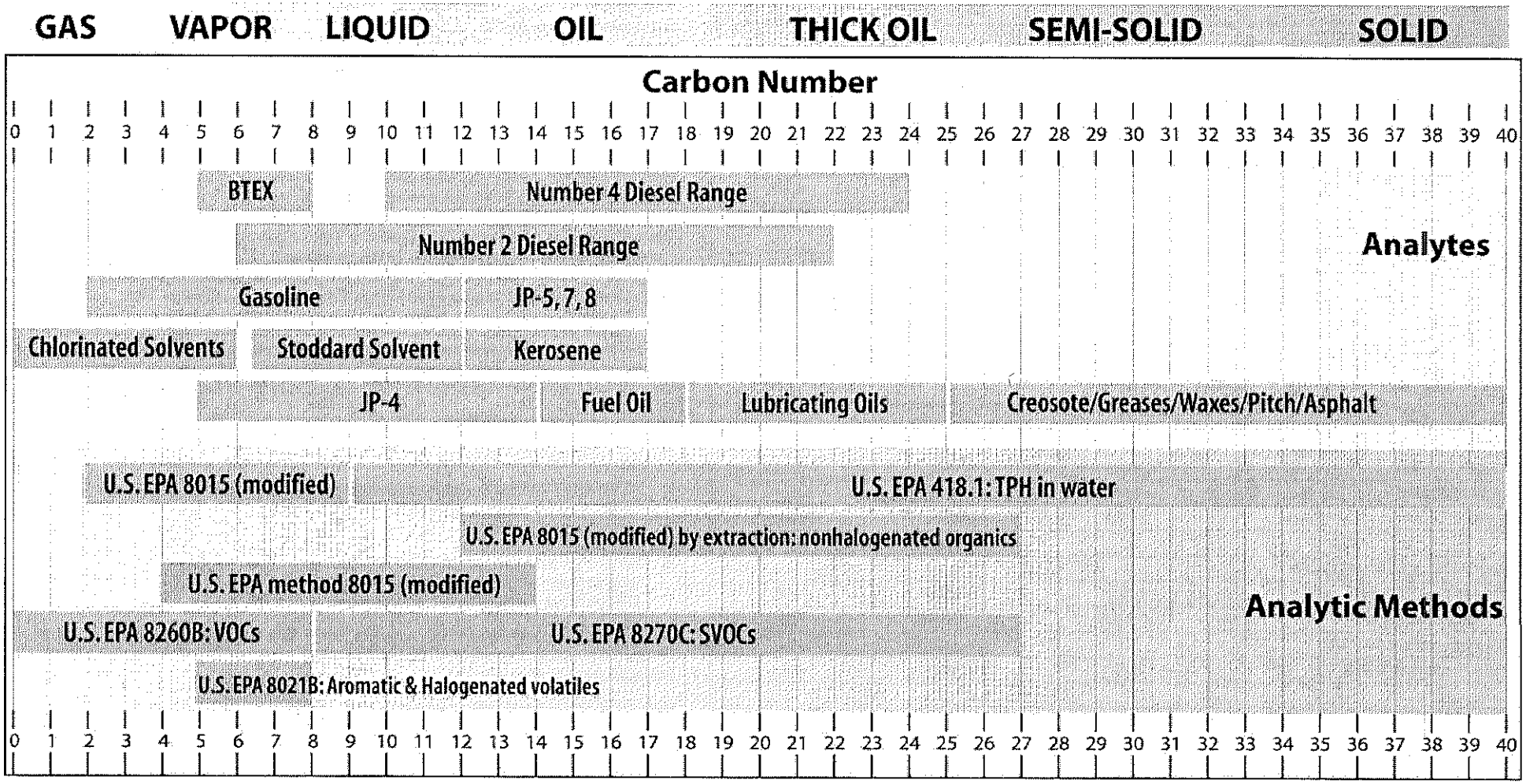
Sources

Van den Berg, M., and others. 1998. "Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, and PCDFs for Humans and Wildlife." *Environmental Health Perspectives.* Volume 106. Pages 775 - 792.

Van den Berg, M., and others. 2006. "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds." *Toxicological Sciences* 93(2):223-241.

Screening Quick Reference Tables for Composition by Carbon Range

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels.
All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.



Carbon ranges are approximate: actual carbon ranges for a specific product are dependent upon the distillation process of the exact source.

Analytic Methods generally refer to EPA SW-846 methods (www.epa.gov/SW-846/index.htm)

Screening Quick Reference Tables for Sample Collection and Storage

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MATERIAL	CONTAINER	PRESERVATION	MAXIMUM HOLDING TIME	SAMPLE SIZE
INORGANICS				
Chromium^{+6} (Cr^{+6})	P,G	Cool, 4°C	24 hours	400 mL/200 g
Mercury (Hg)	P,G	HNO_3, to pH <2	28 days	400 mL/200 g
Metals, except Cr^{+6} and Hg	P,G	HNO_3, to pH <2	6 months	600 mL/200 g
Cyanide by method no. 9010	P,G	Cool 4°C, pH >12 See method 9010	14 days	1,000 mL
Alpha, Beta, and Radium Radiation	P,G	HNO_3 to pH <2	6 months	1,000 mL
ORGANICS				
Benzidines	G, TLC	Cool, 4°C	7 days until extraction, 40 days after extraction	1,000 mL
Chlorinated Hydrocarbons	G, TLC	Cool, 4°C[3]	7 days until extraction, 40 days after extraction	1,000 mL
Dioxins and Furans	G, TLC	Cool, 4°C[3]	30 days until extraction, 45 days after extraction	1,000 mL
Haloethers	G, TLC	Cool, 4°C[3]	7 days until extraction, 40 days after extraction	1,000 mL
Nitrites	G, TLC	Cool, 4°C[3]	14 days	
Nitrosamines	G, TLC	Cool, 4°C[3]	7 days until extraction, 40 days after extraction	1,000 mL
Nitroaromatics and Cyclic Ketones	G, TLC	Cool, 4°C[3]	7 days until extraction, 40 days after extraction	1,000 mL
OIL And GREASE	G	Cool, 4°C[2]	28 days	1,000 mL
TOTAL Organic Carbon, By Method No. 9060	P,G	Cool, 4°C[2] store in the dark	28 days	100 mL
TOTAL Organic Halides By Method No. 9020/9021	G, TLC	Cool, 4°C[2]	28 days	500 mL
PCBs	G, TLC	Cool, 4°C	7 days until extraction, 40 days after extraction	1,000 mL/250 mL
Pesticides	G, TLC	Cool 4°C,	7 days until extraction, 40 days after extraction	1,000 mL/250 mL
Phenols	G, TLC	Cool, 4°C[3]	7 days until extraction, 40 days after extraction	1,000 mL
Phthalate Esters	G, TLC	Cool, 4°C	7 days until extraction, 40 days after extraction	1,000 mL
Polynuclear Aromatic Hydrocarbons	G, TLC	Cool, 4°C[3] store in the dark	7 days until extraction, 40 days after extraction	1,000 mL/250 mL
Purgeable Aromatic Hydrocarbons	VOA	Cool, 4°C[2,3]	14 days	40 mL
Purgeable Halocarbons	VOA	Cool, 4°C[3]	14 days	40 mL

Sources

EPA SW846

1. P - Polyethylene; G - Amber glass containers; TLC - Teflon-lined cap; VOA - Volatile organic analyte vial of amber glass with teflon-lined septum.
2. Adjust to pH <2 with H_2SO_4, HCl, or solid $NaHSO_4$
3. Free chlorine must be removed before addition of HCl by exact addition of $Na_2S_2O_3$

Screening Quick Reference Table
Options for Selection of Analytical Methods: Inorganics

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TRACE ELEMENT	OTHER[1]	FLAME AA	FURNANCE AA	ICP	EXTRACTION METHODS	
					WATER	SOIL/SEDIMENT
Aluminum (Al)	6800	7020		6010B 6020A	3005A 3010A 3015A	3050B 3051A
Antimony (Sb)	6200(55) 6800	7040	7041 7062[3]	6010B 6020A	3005A 3015A	3050B 3051A
Arsenic (As)	6200(60) 7063 7061A[3]		7060 7062[3]	6010B 6020A	3005A 3010A 3015A 7063	3050B 3051A
Barium (Ba)	6200(60) 6800	7080A	7081[3]	6010B 6020A	3005A 3010A 3015A	3050B 3051A
Beryllium (Be)		7090	7091	6010B 6020A	3005A 3010A 3015A 3020A	3050B 3051A
Cadmium (Cd)	6200 6800	7130	7131A	6010B 6020A	3005A 3010A 3015A 3020A	3050B 3051A
Calcium (Ca)	6200 6800	7140		6010B 6020A	3005A 3010A 3015A	3050B 3051A
Chromium (CR), total	6200(200) 6800	7190	7191	6010B 6020A	3005A 3010A 3015A 3020A	3050B 3051A
Chromium+6 (Cr+6)	7195 — 7199[3]				7195 - 7199	3060A
Cobalt (Co)	6200(330)	7200	7201	6010B 6020A	3005A 3010A 3015A 3020A	3050B 3051A
Copper (Cu)	6200(85) 6800	7210	7211[3]	6010B 6020A	3005A 3010A 3015A	3050B 3051A
Iron (Fe)	6200 6 800	7380	7381[3]	6010B 6020A	3005A 3010A 3015A	3050B 3051A
Lead (Pb)	6200(45) 6800	7420	7421	6010B 6020A	3005A 3010A 3015A 3020A	3051A
Magnesium (Mg)	6800	7450		6010B 6020A	3005A 3010A 3015A	3050B 3051A
Manganese (Mn)	6200(240)	7460	7461	6010B 6020A	3005A 3010A 3015A	3050B 3051A
Mercury (Hg)	4500(0.5) 6200 6800 7470A 7471B 7472 7473 7474[3]			6020A	7470A 7472 3015A	3051A 7471B 7473 7474
Molybdenum (Mo)	6200(25) 6800	7480	7481	6010B	3005A 3010A 3015A 3020A	3050B 3051A
Nickel (Ni)	6200(100) 6800	7520	7521	6010B 6020A	3005A 3010A 3015A	3050B 3051A
Potassium (K)	6200 6800	7610		6010B 6020A	3005A 3010A 3015A	3050B 3051A
Selenium (Se)	6200 6800 7741A 7742[3]		7740	6010B 6020A	3005A 3010A 3015A	3050B 3051A
Silver (Ag)	6200 6800	7760A	7761[3]	6010B 6020A	3005A 3015A	3051A 7760 7761
Sodium (Na)		7770		6010B 6020A	3005A 3010A 3015A	3050B 3051A
Strontium (Sr)	6200(30) 6800	7780		6010B	3015A	3050B 3051A
Thallium (Tl)	6200 6800	7840	7841	6010B 6020A	3005A 3010A 3015A 3020A	3050B 3051A
Tin (Sn)	6200(85)	7870				
Vanadium (V)	6200 6800	7910	7911	6010B 6020A	3005A 3010A 3015A 3020A	3050B 3051A
Zinc (Zn)	6200(80) 6800	7950	7951[3]	6010B 6020A	3005A 3010A 3015A	3050B 3051A
Cyanide (HCN)	9010B — 9014[3]					

Sources

All method numbers refer to EPA SW-846, Volume III with changes as proposed for Volume IV.
ICP's advantage is that it allows simultaneous or rapid sequential determination of many elements, but suffers from interferences. AA determinations are normally completed as single element analyses. ICP and Flame AA have comparable detection limits (within a factor of 4), but ICP-MS (6020A) can drastically improve the detection limits (e.g., an order of magnitude lower). Furnace AA generally exhibits lower detection limits than ICP or Flame-AA, and offers more control over unwanted matrix components. X-RAY and immunoassays allow field determinations.

1 Method 6200 is Portable X-Ray; 6800 is Elemental/Isotope Mass Spec.; 4500 is Immunoassay; 7063 is ASV; where available, soil detection limits in ppm are in parentheses.
2 Except as noted, most individual procedures are proposed to be integrated into Method 7000B or 7010.
3 Includes various methods. Follow the extraction procedure detailed in the individual determinative method.

Screening Quick Reference Table
Options for Selection of Analytical Methods: Organics

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels. All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

COMPOUNDS	FIELD METHODS	GC/MS METHOD	SPECIFIC DETECTION METHOD	HPLC METHOD	EXTRACTION METHODS		CLEANUP METHOD
					WATER	SOIL/SEDIMENT	
Aromatic and Halogenated Volatiles		8260B	8021B		5021 5030B 5032	5021 5032 5035	
Carbamates				8318 8321B	8318 8321B	8318 8321B	8318
Chlorinated Dioxins and Furans			8280B 8290A		8280B 8290A	8280B 8290A 3545A	8280B 8290A
Chlorinated Hydrocarbons		8270D	8121		3510C 3520C 3535A	3540C 3550B	3620B 3640A
Chlorinated Phenoxyacids	4015 (0.1 ppm)	8270D 2	8151A	8321B	8151A 8321B 3535A	8321B 8151A 3545A 3580A	8151A 3620B
Haloethers		8270D	8111		3510C 3520C	3540C 3545 3550B	3620B 3640A
Nitriles and Amides		8260B	8031 8032A 8033	8315 8316	5030B — 5032 8031 8032A 8316	5031 5032 5035	8032A
Nitroaromatics and Ketones		8270D	8091	8330A	3510C 3520C 3535A	3540C 3545 3550B	3620B 3640A
Nitroaromatics (Explosives)	4050 (0.5 ppm) 4051 8515 (1 ppm)			8330A - 8332	8330A — 8332	8330A — 8332	8330A — 8332 3620B
Nitrosamines		8270D	8070A		3510C 3520C 8070A	3540C 3545 3550B 8070A	3610B 3620B 3640A 8070A
Non-Halogenated Volatiles		8260B	8015B		5030B — 5032	5021 5031 5032 5035	
Organochlorines	4040 — 4042 (0.2 to 20 ppm)	8270D 2	8081B 8275A		3510C 3520C 3535A	3540C 3545A 3550B 3562	3620B 3630C 3640A 3660
Organophosphates		8270D 2	8141B	8321B	3510C 3520C 3535A	3540C 3545A 3550B	3620B
PAHs	4035 (1 ppm)	8270D	8100 8275A	8310	3510C 3520C	3540C 3545 3550B 3561	3610B 3630 3640A 3650B
PCBs	4020 (5 ppm) 9078 (2 ppm)	8270D 2	8082A 8275A		3510C 3520C 3535A	3540C 3545A 3550B 3665A 3562	3620B 3630C 3640A 3660 3665A
Phenolics	4010A (0.5 ppm)	8270D	8041		3510C 3520C	3540C 3545 3550B	3630 3640A 3650B 8041
Phthalates		8270D	8061A		3510C 3520C 3535A	3540C 3545 3550B	3610B 3620B 3640A
Semi-Volatile Organics		8270D			3510C 3520C 3535A	3540C 3545A 3550B	3640A 3650B 3660
Total Organic Halides (TOX)			9020B 9022		9020B 9022		
Total Petroleum Hydrocarbons	4030 (5 ppm) 9074		8015B				
Volatile Organics		8260B	8015B 8021B		5030B — 5032	5021 5031 5032 5035	

Sources

All method numbers refer to EPA SW-846, Update III, with changes as proposed in Update IV.

Options shown are generally for chemical classes; more detailed information may be available for specific compounds

GC/MS methods allow for scanning a broad range of volatile and semi-volatile compounds, but suffer from interference and higher detection limits.

Specific determination methods and HPLC methods allow for more precise determinations of specific compounds of interest.

1 Series 4000 are immunoassays and are for specific compounds within these classes (i.e., 2,4-D, TNT, RDX, and PCP). Soil detection limits are in parentheses.
2 This is not a method of choice, but rather a confirmatory method.

Screening Quick Reference Tables

These tables were developed for screening purposes only: they do not represent official NOAA policy and do not constitute criteria or clean-up levels. All attempts have been made to ensure accuracy; however, NOAA is not liable for errors. Values are subject to changes as new data become available.

Because trace elements are naturally occurring compounds, concentrations reflective of non-anthropogenically impacted, or "background," are provided in addition to toxicological benchmarks. For screening, trace element levels may be compared to the geometric mean (and range) observed in natural soils in the U.S. Further comparisons to regional values is encouraged.

Promulgated criteria or standards for sediments or soils are generally not available in the U.S. For screening purposes, contaminant levels in solids (sediment or soil) may be compared to benchmarks representative of different characterizations of ecological risk. They should ***not*** be applied without a reasonable understanding of their development, their performance, and their limitations.

The NOAA SQuiRTs include multiple sediment screening values to help portray a spectrum of concentrations which have been associated with various probabilities of adverse biological effects. This spectrum ranges from presumably nearly non-toxic to toxic levels. For instance, if all analytes screen below lower-threshold values (for example, TELs), this suggests, with a high degree of confidence, that a sample with these levels of contaminants has a low probability of being toxic, as tested through standard bioassays. Conversely, exceeding lower thresholds does ***not*** necessarily predict toxicity. Comparison to higher toxicity thresholds (for example, PELs) identifies compounds which are more probably present at elevated, toxic levels.

Sources of benchmarks for sediment were chosen primarily on the basis of representing a fairly unique approach for their derivation. A major exception is the "Consensus TEC/PEC" values: these values are simply averages of other existing benchmarks (mostly those appearing in the SQuiRT cards). The consensus TEC/PECs are provided here merely as a service.

For soil- and sediment-associated contaminants, dry weight concentrations are screened directly against published benchmarks. Some benchmarks are available only on a Total Organic Carbon (TOC) normalized basis, and are footnoted as such. Separate values are provided for either freshwater and estuarine or marine sediments.

For freshwater sediments, the Upper Effects Threshold (UET) was derived by NOAA as the lowest AET from a compilation of endpoint analogous to the marine AET endpoints. The UETs for organic contaminants are generally listed for a sediment containing 1% TOC.

This version of the SQuiRT cards adds a section on the composition of PCBs. A characterization of Aroclors by their degree of chlorination and congener patterns may aid in *preliminary* exploration of source type. Definitive Aroclor assignment should only be conducted by a qualified chemist.

To express cumulative toxicity from mixtures of dioxins and furans, Toxic Equivalency Factors are included in this version of the SQuiRT cards. Absolute concentrations can be multiplied by the TEF potency factors and the products then summed to derive total toxicity.

Every effort has been made to ensure accuracy in these SQuiRT cards. However, NOAA is not liable for errors in original sources or revision of values. These screening values are subject to change as new data become available. The SQuiRT cards may be freely reproduced and distributed, if they are distributed in their entirety, without modification, and properly credited to NOAA.

The SQuiRT cards should be cited as:

"Buchman, M. F., 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle WA, Office of Response and Restoriation Division, National Oceanic and Atmospheric Administration, 34 pages."

Appendix D
Cross Road Landfill – February 2023 Annual Summary Report

DES Waste Management Division
29 Hazen Drive; PO Box 95
Concord, NH 03302-0095

ANNUAL SUMMARY REPORT
CALENDAR YEAR 2022
CROSS ROAD LANDFILL
EXETER, NEW HAMPSHIRE
NHDES SITE # 198401081
GROUNDWATER MANAGEMENT PERMIT #198401081-E-005
PROJECT NO. 978

Prepared For:
Town of Exeter, New Hampshire
10 Front Street
Exeter, New Hampshire 03833
Contact Name: Mr. Paul Vlasich, P.E.
Contact Phone No. (603) 773-6160

Prepared by:
GZA GeoEnvironmental, Inc.
5 Commerce Park North, Suite 201
Bedford, New Hampshire 03110
Phone Number: (603) 232-8724
Contact Name: Mr. Erik Dyrness
Contact Email: erik.dyrness@gza.com
GZA File No.: 04.0021270.34

Jennifer Milbury
Digitally signed by Jennifer Milbury
Date: 2023.02.10 16:33:14 -05'00'

Date of Report: February 10, 2023

Groundwater Monitoring Report Cover Sheet

Site Name: Cross Road Landfill and Stump Dump

Town: Exeter, New Hampshire

Permit #: GWP-198401081-E-005

Type of Submittal (*Check all that apply*)

☒ Periodic Summary Report (*year*): 2022

☐ Data Submittal (*per Condition #7 of Permit*):

Check each box where the answer to any of the following questions is "YES"

Sampling Results

☐ During the most recent monitoring event, were any new compounds detected at any sampling point?
Well/Compound:

☐ Are there any detections of contamination in drinking water that is untreated prior to use?
Well/Compound:
☐ Do compounds detected exceed AGQS?

☐ Was free product detected for the first time in any monitoring point?
☐ Surface Water (*visible sheen*)
☐ Groundwater (*1/8" or greater thickness*)
Location/Thickness:

Contaminant Trends

☐ Do sampling results show an increasing concentration trend in any source area monitoring well?
Well/Compound:

☐ Do sampling results indicate an AGQS violation in any of the GMZ boundary wells?
Well/Compound:

Recommendations

☐ Does the report include any recommendations requiring DES action? (*Do not check this box if the only recommendation is to continue with existing permit conditions.*)

This form is to be completed for groundwater monitoring data submittals and periodic summary reports submitted to the New Hampshire Department of Environmental Services Waste Management Division.

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5 Commerce Park North
Suite 201
Bedford, NH 03110
T: 603.623.3600
F: 603.624.9463
www.gza.com

VIA EMAIL

February 10, 2023
File No. 04.0021270.34

Groundwater Management Permit Coordinator
New Hampshire Department of Environmental Services
Waste Management Division
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

Re: **Annual Summary Report Year 2022**
Cross Road Landfill
Exeter, New Hampshire
Groundwater Management Permit No. GWP-198401081-E-005

Dear Permit Coordinator:

On behalf of the Town of Exeter (Town), GZA GeoEnvironmental, Inc. (GZA) is pleased to provide the New Hampshire Department of Environmental Services (NHDES) this report summarizing water quality monitoring at the Cross Road Landfill (i.e., Landfill, Site) in Exeter, New Hampshire during calendar year 2022. This report has been submitted to fulfill the requirement of an Annual Summary Report (ASR) for the Landfill for calendar year 2022, as required by Condition No. 7 of the Groundwater Management Permit (Permit; GWP-198401081-E-005) issued on February 26, 2019, and revised July 9, 2021.

This report includes GZA's conclusions and recommendations regarding the Landfill water quality monitoring completed in accordance with the Permit and includes the analytical laboratory reports from the November 2022 sampling round. The analytical laboratory reports from the April 2022 sampling were submitted to NHDES in GZA's data transmittal[1] dated May 9, 2022. GZA's work and this report are subject to the attached **Limitations**.

The following are attached:

- **Table 1** – summarizing the results of analytical laboratory analyses[2] and field screening measurements associated with the Landfill from May 1992through November 2022;
- **Table 2** – summarizing recent and historical surface water and groundwater level elevation data;
- **Table 3** – summarizing per- and polyfluoroalkyl substances (PFAS) concentration data associated with groundwater samples collected during April and November 2018, November 2020, and November 2022;

[1] *April 2021 Data Transmittal, Cross Road Landfill, Exeter, New Hampshire,* prepared by GZA dated May 19, 2022.
[2] Excluding polyfluoroalkyl substances data.

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- **Plots 1A through 6C** – illustrating Landfill indicator water quality parameter concentration trends;
- **Figure 1 –** depicting Landfill and vicinity features, including water quality and level monitoring locations;
- **Figure 2 –** summarizing selected recent Landfill water quality data and depicting GZA's estimated groundwater hydraulic head contours and inferred directions of groundwater flow proximate to the Landfill; and
- **Figure 3 – depicting an overburden hydrogeologic cross-section from the Landfill to the Exeter River.**

The following sections summarize recent work performed, results, water quality trends, and GZA's conclusions and recommendations.

WORK PERFORMED

PERMIT-RELATED LANDFILL WATER QUALITY MONITORING

In accordance with Condition No. 7 of the Permit, water quality monitoring during the reporting period included sampling in April and November 2022 at the following sampling locations depicted on **Figure 1**:

- Thirteen groundwater monitoring wells (RFW-2, RFW-3, RFW-4, GMW-11RR, GZ-1L, GZ-2L, GZ-3L, GZ-104, GZ- 105, GZ-106, GZ-107, GZ-201 and GZ-202A);
- Two piezometers (P-2R [a.k.a., SW-P-2, P-2, and south spring], and P-9R [a.k.a., SW-P-9, P-9, and north spring]); and
- Four surface water sampling locations (SW-13, SW-15, SW-16, and SW-17 [groundwater seep located proximate to the Exeter River]).

At various times water quality monitoring has included volatile organic compounds (VOCs), arsenic, barium, cadmium, chloride, chromium, iron, lead, mercury, manganese, nitrate, total kjeldahl nitrogen (TKN), selenium, silver, and thallium. Sampling frequencies for individual water quality parameters and locations have been modified over time based on monitoring results.

As required by the Permit, current water quality monitoring includes sample collection and analyses for specific conductance, pH, chloride, nitrate, TKN, iron, manganese, arsenic, and 1,4-Dioxane biannually during April and November. Per the Permit, VOC and drinking water metals sampling and analysis were also required at certain locations during the 2019 and 2022 rounds, and sampling and analysis for PFAS was required at certain locations during the November 2020 and 2022 sampling rounds.

With the exception of wells GZ-1L, GZ-2L, and GZ-3L, each of the Permit-related Landfill groundwater quality monitoring wells and piezometers are screened within overburden. Consistent with the Permit and standard NHDES requirements, overburden groundwater and groundwater seep samples collected for analytical laboratory analysis of metals concentrations are field-filtered, and the data represent dissolved concentrations. Surface water and bedrock groundwater samples collected for analytical laboratory analysis of metal concentrations are not field-filtered, and the data represent total concentrations for the respective metals.

To further assess the water quality in the vicinity of the Landfill, supplemental samples (*i.e.*, samples not required under the Permit monitoring program) were collected during the November 2022 sampling event from surface water locations SW-10 (representative of water quality in the Exeter River upgradient of the Site), SW-11 (representative of surface water quality in the Exeter River roughly midway along the downgradient GMZ boundary), and SW-14 (representative of the discharge from groundwater springs/seeps to the Exeter River). Samples were also collected from the Exeter River directly upstream of the seep. Field screening of groundwater and surface water samples was also completed for dissolved oxygen (DO) and oxidation-reduction potential (ORP) at each of the locations sampled during November 2022.

Civil & Environmental Consultants, Inc. (CEC) performed the sample collection and field screening on behalf of the Town. Water quality samples were submitted by CEC to Eastern Analytical, Inc. (EAI) of Concord, New Hampshire, for analytical laboratory analyses. GZA provides environmental consulting support to the Town and was provided with copies of CEC's field screening and EAI's laboratory reports for summary and evaluation of the data.

REVISED CONCEPTUAL SITE MODEL

The following describes GZA's Conceptual Site Model (CSM) for the Landfill. The CSM provides a summary of our understanding of Site hydrogeology and contaminant distribution and transport and is described in the following subsections.

The Cross Road Landfill and Stump Dump is comprised of an approximately 10-acre lined municipal Landfill. The facility stopped receiving material and was capped during 1994. Since its closure, water quality and Landfill gas have been monitored under various state permits described herein.

HYDROGEOLOGY

Geology

Based on the results of subsurface explorations at and within the vicinity of the Landfill[3] and published information, the geology beneath the Landfill includes a sequence of glacially derived sediments overlying a fractured metasedimentary bedrock. A hydrostratigraphic cross-section through the Landfill and the area east of the Landfill is depicted on **Figure 3**. Overburden geology includes up to 99 feet (RFW-3) of glacial outwash sand and gravel overlying a thin (about 4 feet thick) discontinuous layer of glacial till. The thickness of the sand and gravel deposit beneath the Landfill area varies, in part, due to historical sand and gravel mining. Up to 11 feet of silt and clay were encountered in certain borings drilled along the western side of the Landfill. The silt and clay unit may be associated with glaciolacustrine deposits identified to the west of the Site underlying the Jones Swamp or may be the result of temporary ice damming on the surface of the glacial outwash sand and gravel during deglaciation.

Overburden borings drilled along the eastern side of the Landfill and further east of the Landfill encountered between 10 feet to 31 feet of primarily fine sand glacial outwash deposits. A fine sand, silt, and clay deposit interbedded with sand and gravel layers were encountered at a depth of 31 feet below ground surface (bgs) within one boring that was drilled to a total depth of 57 feet bgs at a location east of the Landfill (GZ-107). Sand and gravel deposits were also encountered within the generally fine sand outwash deposits encountered to the east of the Landfill.

Bedrock cored beneath the Site includes metasedimentary rock consisting of a generally fresh and slightly fractured fine-grained gray to purple-gray phyllite. Weston described bedrock cores drilled from borings RFW-1 and RFW-4 as gray, fine-grained schist belonging to the Eliot Formation. Based on review of the USGS map titled "Bedrock Geologic Map of New Hampshire," dated 1997, both of the rock types cored beneath the Site are consistent with the description provided for the Eliot Formation. The bedrock surface encountered in the borings generally slopes downward from a high of about elevation 82 feet (GZ-2L) to the north (about elevation 47 feet [RWF-4]) and east (about elevation 35 feet [RFW-1]). South of boring GZ-2L, the bedrock surface slopes downward to the south, as suggested by the elevation of the bedrock surface encountered in boring GZ-3L (about 69 feet). East of RFW-1, the bedrock surface appears to slope upward, as suggested by the elevation of the bedrock surface encountered in boring GZ-1L (about 44 feet) and bedrock outcrops observed in the area of SW-17.

[3] *Supplemental Hydrogeologic Investigation, 2002 Annual Water Quality Monitoring, Cross Road Landfill,* prepare by GZA dated May 2002.

Based on review of the USGS map titled "Lineament Map of Area 1 of the New Hampshire Bedrock Aquifer Assessment, Southeastern New Hampshire," dated 1997, a lineament, identified using 1:250,000-scale side- looking airborne radar imagery, transects the Site as shown on **Figure 1**. If this lineament is indicative of the presence of an interconnected set of fractures in bedrock (i.e., a potential fracture zone) located beneath the Site, it may represent a preferential pathway for groundwater flow. Notwithstanding, the presence of a bedrock fracture zone at this location has not been confirmed, and the shallow bedrock cored within boring GZ-1L was not highly fractured. No other lineaments were identified crossing or adjacent to the Site.

Groundwater Flow

Groundwater within the outwash sands underlying the Site is estimated to flow radially away from the Landfill. The estimated horizontal component of the direction of groundwater flow ranges from north-northeast beneath the central and eastern portions of the Landfill to northwest beneath the northwestern portion of the Landfill near the Jones Swamp. Groundwater surface elevation contours, developed based on water level measurements made during November 2022 by CEC, are summarized on **Figure 2**. Historical depth-to water and water surface elevation data collected by GZA and others are summarized in **Table 2**. Historical water quality data are generally consistent with the estimated radial flow pattern and indicate contaminant transport in overburden toward the north with transport locally northwest and northeast.

Based on the November 2022 data, the calculated estimate of the average horizontal component of the overburden hydraulic gradient beneath the Site is approximately 0.01 and varies from approximately 0.014 (beneath the northeast portion of Site) to 0.005 (beneath the central portion of Site).

As discussed in GZA's May 2002 Supplemental Hydrogeologic Investigation Report, recharge from the sedimentation ponds located along the southern Site boundary may cause a local reversal in the direction of shallow overburden groundwater flow south of the Landfill. The extent of this effect has not been evaluated but would likely have a limited effect on the overall direction of groundwater flow due to the relatively high hydraulic conductivity of the sand and gravel unit underlying the ponds.

Upward vertical components of hydraulic head gradient beneath the Landfill have been historically measured between the bedrock and overburden. This upward vertical gradient suggests groundwater discharge from bedrock to overburden may occur. The measured difference in hydraulic head between overburden and bedrock at the GZ-1 and GZ-3 locations on July 23, 2001, and August 9, 2001, was 2.0 feet (GZ-1) and greater than 4.6 feet and 0.1 feet (GZ-3), respectively.

Historical estimates of hydraulic conductivity for the sand and gravel unit based on slug testing range from 4.7×10^{-3} centimeter per second (cm/sec) to 7.0×10^{-3} cm/sec. Based on an average estimated hydraulic conductivity of 5.5×10^{-3} cm/sec, an average hydraulic gradient of about 0.01, and an assumed effective porosity of 0.30, the estimated average seepage velocity for the sand and gravel unit beneath the Landfill is approximately 0.6 feet per day. Based on an average estimated hydraulic conductivity of 5.5×10^{-3} cm/sec, and average hydraulic gradient from the eastern side of the Landfill to the seep located east of the Landfill of about 0.024, and an assumed effective porosity of 0.30, the estimated average seepage velocity for the sand and gravel unit beneath the Landfill is approximately 1.2 feet per day.

Based on historical constant head pumping tests of bedrock well GZ-3L, an effective hydraulic conductivity of about 2.2×10^{-4} cm/sec is estimated for the upper 20 feet of the bedrock at this location. This value provides a measure of how rapidly groundwater can flow to the well under pumping conditions relative to flow in a porous media. Due to the nature of groundwater flow through fractured rock, this value, which assumes porous media flow, should not be used to calculate estimates of seepage velocities for fractured bedrock.

Based on this understanding of the horizontal and vertical direction of groundwater flow beneath the Site, the areas located to the southwest, south, and southeast of the Landfill that are currently not supplied with municipal water are considered upgradient of the Landfill. The effects of bedrock groundwater extraction could alter the direction of groundwater flow in bedrock beneath the Site. Similarly, the presence of interconnected bedrock fractures or fracture zones may create preferential pathways for groundwater flow and Landfill contaminant transport. As indicated above, the presence of significant zones of interconnected fractures or fracture zones has not been identified beneath the Site.

CONTAMINANT DISTRIBUTION/TRANSPORT

Routine water quality monitoring has been on-going at the Landfill since May 1992, and Landfill post-closure water quality monitoring has been on-going in accordance with a Permit since November 1996. The term contaminant, as used herein, refers to dissolved-phase VOCs, metals, and inorganic parameters with a Landfill source. Contaminant concentration trends are described in the water quality trend evaluation section of this report.

In general, the results of historical and recent Landfill groundwater quality and elevation data indicate contaminants are transported in overburden toward the north with transport locally toward the northwest and northeast, discharging to the Exeter River. Therefore, sampling locations RFW-3, RFW-4, and SW-P-9 are downgradient of the Landfill; RFW- 2 is located hydraulically side gradient of the Landfill, and GZ-3L (bedrock) is assumed to be upgradient of the Landfill. Certain wells installed to the northeast of the Landfill are also estimated to be downgradient of the Landfill (GZ-101, GZ-102, GZ-103, GZ-104, GZ-106, and GZ-201).

Supplemental hydrogeologic investigations to the east of the Landfill and descriptions of the work performed are included in GZA's October 16, 2009, and January 18, 2013 reports.[4] These off-Site investigations focused on evaluating the source of Landfill-related groundwater contaminants discharged through a seep located proximate to the Exeter River and concluded that while other sources may be possible, the most likely source is the Landfill.

The areas located north and east of the Landfill are zoned for residential purposes and are supplied with municipal water. While GZA found evidence of residential bedrock groundwater supply wells within the study area, the residences were reportedly connected to the municipal water supply, and wells were reportedly not used as drinking water sources. Three of these wells were sampled and analyzed for Landfill-related contaminants during 2013; however, the results of the analyses did not indicate that the groundwater intersected by the open borehole portion of the wells had been impacted by the Landfill.

To evaluate off-Site impacts, shallow overburden groundwater monitoring wells GZ-101 through GZ-107 were installed during 2009. Based on the results of the shallow overburden well sampling, potential Landfill-related impacts to overburden groundwater quality were identified in the vicinity of the groundwater seep (GZ-102 and GZ-104). The general direction of groundwater flow and limited surficial geophysical (electrical conductivity methods) evidence suggested a Landfill source. Monitoring wells were subsequently installed along Juniper Ridge Road (GZ-201) and immediately east of the Landfill (GZ-202 and GZ-202A) to further evaluate the source of the Landfill-related contaminants in groundwater in the vicinity of the seep.

To assess potential effects of arsenic, iron, and manganese from groundwater seepage discharging in the area of SW-14, GZA installed a temporary weir on May 25, 2017, in an approximately 2-foot-wide stream channel downgradient of the groundwater seepage in the area of SW-14 (refer to **Figure 1**). Streamflow measurements and water quality samples were collected by GZA personnel on an approximately monthly frequency between

[4] Reports by GZA titled "*Calendar Year 2007/2008 Annual Report, Cross Road Landfill, Exeter, New Hampshire, Groundwater Management Permit No. GWP-198401081-E-003*," and "*Annual Summary Report Calendar Year 2012, Application for Groundwater Management Permit Renewal, Cross Road Landfill, Exeter, New Hampshire, Groundwater Management Permit No. GWP- 198401081- E- 003*," dated October 16, 2009, and January 18, 2013, respectively.

June and December 2017. Dissolved and total iron, arsenic, and manganese were detected above the analytical laboratory reporting limits in the majority of the samples. GZA personnel also gauged and sampled the Exeter River and groundwater seep during the spring and late summer of 2019. Samples collected from upstream and downstream of the seep in the Exeter River exceeded the WQTS for arsenic, iron, and manganese. The results of the sampling and gauging activities during 2019 are included in GZA's 2019 ASR[5] . April and November 2022 total arsenic, iron, and manganese concentration data are summarized on **Figure 2** to illustrate the spatial distribution of these Landfill-related contaminants. The data summarized on **Figure 2** are consistent with a Landfill source migrating north-northeastward toward the seep and suggest a background contribution (evidenced by the presence of manganese and iron at concentrations exceeding the NH Groundwater Standards [NH AQGS] in monitoring well GZ-2L, and iron, manganese, and arsenic at concentrations exceeding at upgradient surface water SW-10). The historical presence of 1,4-Dioxane in monitoring wells (GZ- 104, GZ- 202A, and RFW-4) is consistent with a Landfill source. While background and/or other sources may be present for other Landfill contaminants, including metals, chloride, and nitrate, no potential sources of 1,4-Dioxane, other than the Landfill, have been identified.

GZA anticipates that the presence of the groundwater seep and apparent direction of Landfill-related contaminant transport may be due to variations in hydraulic conductivity within the subsurface between the Landfill and the seep. **Figure 3** illustrates a hydrogeologic cross-section from the Landfill to the seep. The location of the cross- section is illustrated on **Figure 1**.

SUMMARY OF RECENT LANDFILL WATER QUALITY MONITORING RESULTS

Overall calendar year 2022 Permit-related groundwater quality data are consistent with historical Landfill water quality monitoring, indicating that groundwater quality improved or has remained relatively stable following closure of the Landfill during 1994. Recent and historical monitoring indicates limited exceedances of New Hampshire Ambient Groundwater Quality Standard[6] (NH AGQS) and/or Secondary Maximum Concentration Limits (SMCLs),[7] primarily for certain parameters typical of Landfill-related water quality (i.e., arsenic, iron, and manganese). The NH AGQS for Arsenic was revised on July 1, 2021,, to 5 µg/L.

Historical Landfill-related groundwater contaminants routinely detected in groundwater sampled from monitoring locations located downgradient of the Landfill include arsenic, barium, chloride, iron, manganese, 1,4-Dioxane, and PFAS. It is GZA's opinion, based on the date of closure of the Landfill, and distribution and concentrations of 1,4-Dioxane and PFAS, that the presence of these contaminants is the result of the historical disposal of municipal waste and does not indicate a recent release of 1,4-Dioxane at the Landfill.

Certain other metals, inorganic parameters, and VOCs have been intermittently detected in groundwater sampled from monitoring points located downgradient of the Landfill, including cadmium, chromium, lead, mercury, selenium, and silver. Significantly, only arsenic, iron, manganese, and 1,4-Dioxane are routinely detected in Landfill groundwater samples at concentrations exceeding established water quality standards NH AGQS [arsenic, manganese, and 1,4- Dioxane] and SMCLs [iron]). Detected concentrations of the other water quality parameters have infrequently exceeded NH AGQS, SMCLs, or surface water quality criteria. The following table summarizes post-closure (*i.e.*, since September 1994) exceedances of applicable water quality standards for Landfill-related contaminants other than arsenic, manganese, iron, VOCs (including 1,4-Dioxane), and PFAS.

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[5] *Annual Summary Report Calendar Year 2019, Cross Road Landfill, Exeter, New Hampshire,* Prepared by GZA, dated January 31, 2020.

[6] As defined in State of New Hampshire Code of Administrative Rules Env-Or 603.04 (Ambient Groundwater Quality Standards), Table 600-1.

[7] SMCLs are aesthetic-based secondary maximum contaminant-level water quality standards used to regulate public water systems (Env-Dw 706 [Regulated Secondary Maximum Contaminant Levels]).

PARAMETER	LOCATION	CONCENTRATION (mg/L)	SAMPLING DATE	WATER QUALITY STANDARDS (mg/L)
Cadmium	SW-P-2/P-2R	0.007	4/99	NH AGQS – 0.005 WQCTS – 0.00095
		0.0078	4/01	
	SW-1	0.0022	4/01	
		0.005	4/02	
	RFW-2	0.01	4/03	
	SW-13	0.010	11/10	
	GZ-1U	0.006	4/12	
Chromium	SW-1	0.26	4/06	NH AGQS – 0.10 WQCTS – NE
	SW-P-2/P-2R	0.11	11/22	
Lead	SW-P-2/P-2R	0.18	4/97	NH AGQS – 0.015 WQCTS – NE
		0.041	11/15	
		0.028	11/17	
		0.048	11/22	
	RFW-2	0.053	7/96	
	RFW-3	18	4/98	
	SW-1	0.36	4/06	
	SW-13	0.058	11/10	
Barium	SW-1	1.9	11/01	WQCTS – 1
		2.3	4/06	
Chloride	RFW-1	420	7/00	SMCL – 250 NH AGQS – NE
	GZ-6	460	7/01	
Nitrate	RFW-4	19	11/96	AGQS – 10
Selenium	RFW-3	0.06	11/03	NH AGQS – 0.05 WQCTS – 0.170
	GZ-1U	0.0711	8/01	
	GZ-1L	0.082	8/01	
	GZ-2L	0.101	8/01	
	SW-1	0.13	4/06	
Mercury	SW-5	0.0012	7/96	WQCTS – 0.00005

Notes:

1. WQCTS indicates surface water quality criteria, protection of human health, water and fish ingestion standard shown.[8]
2. mg/L indicates milligrams per liter.
3. NE indicates not established.

The results of the year 2022 Permit-related groundwater quality monitoring indicate exceedances of NH AGQS for arsenic (RFW-4, GZ-104, GZ-202A, P-2R, and P-9R) and for manganese (RFW-2, RFW-4, GZ-104, GZ-201, GZ-202A, P-2R, and P-9R) in water quality samples collected during one or more of the sampling rounds. Detected concentrations of iron exceeded the SMCL during one or more of the 2022 sampling events in monitoring wells RFW-3, RFW-4, GZ-3L, GZ- 104, GZ-202A, P-2R, P-9R, SW-13, SW-16, and SW-17.

The results of surface water concentrations indicate exceedances of the WQCTS for Fish and Water Ingestion standard for both arsenic and manganese (SW-10, SW-11, SW-13, SW-14, SW-15, SW-16, and SW-17) in water quality samples collected during one or more of the sampling rounds.

[8] As defined in New Hampshire Code of Administrative Rules Env-Ws 1703.21 (Water Quality Criteria for Toxic Substances, Protection of Human Health). Refer to **Table 1** for further information.

PH FIELD MEASUREMENTS

Field screening measurements of groundwater samples for pH collected from Landfill-related groundwater monitoring wells during 2022 ranged from 4.51 standard units (S.U.) (GMW-11RR; November) to 12.19 S.U. (GZ- 2L; November). However, these two measurements are outside of the range of most of the measurements of pH, which range from approximately 6 S.U. and 7 S.U. Measurements of pH during the subject period from samples collected on-Site are generally consistent with previous measurements from respective locations. No spatial or temporal trends were identified in the pH data. However, the measurement of pH for the samples collected from GMW-11RR during April and November are lower than the previous measurements (6.09 S.U. and 4.51 S.U. [**Table 1**])

Consistent with most measurements made since April 2017, the field measurement of pH for the groundwater sample collected in November 2022 from monitoring well GZ-2L is elevated, compared to the measured range of pH for the location prior to April 2017. The reason for the elevated pH has not been determined.

SPECIFIC CONDUCTANCE FIELD MEASUREMENTS

Field screening measurements of groundwater samples for specific conductance collected from monitoring wells located at the Site range from 194 micro siemens per centimeter (µS/cm) (GZ-11RR; April) to 3,521 µS/cm (GZ-2L; April). The arithmetic average of the measurements of specific conductance measured in samples collected from on-Site groundwater monitoring wells during 2022 is 774 µS/cm. Measurements of specific conductance during the subject period are generally consistent with previous measurements from respective locations. No spatial or temporal trends were identified in the specific conductance data.

ORP FIELD MEASUREMENTS

Field measurements of ORP in samples collected from overburden and bedrock monitoring wells during November 2022 ranged between -135 mV (millivolts) (GZ-2L; November) to +254 mV (GZ-1L; November). The arithmetic average of the ORP measurements of samples from overburden wells made during November is +60 mV. Additional monitoring is needed to characterize and evaluate seasonal variations in ORP and DO. The ORP measurements generally support a Landfill impact (lowering) on ORP, with ORP measurements in downgradient areas with anticipated Landfill impacts such as RFW-2 (+56.9 mV), RFW-4 (-6.9 mV), GZ-104 (+9.4 mV), GZ-202A (-14.0 mV), and groundwater seeps SW-P-2 (-22.8 Mv) and SW-P-9 (-111.7 Mv), lower than upgradient and less impacted downgradient areas.

In general, ORP values of +50 mV and lower are indicative of reducing conditions which could result in the mobilization of certain metals. Arsenic, iron, and manganese are most likely to be mobilized within an ORP range of 0 mV to -150 mV; however, ORP measurements alone cannot predict the mobilization of these metals.

DO FIELD MEASUREMENTS

Field measurements of DO concentration in samples collected from overburden and bedrock monitoring wells during 2022 ranged between 1.93 mg/L (RFW-4; November) to 9.41[9] mg/L (GZ-106; November). Collectively, the field measurements of DO concentration indicate generally aerobic chemically oxidizing groundwater conditions, with no apparent seasonal variation. The DO concentration data also do not appear to be correlated with the distribution of Landfill contaminants.

[9] Measurements of DO concentration at GZ-2L during 2022 were significantly elevated (12.21 [April], and 16.05 [November]) and assumed to be erroneous. They were excluded from data interpretation.

With the limited Landfill impacts on DO concentrations and general lack of consistency in ORP, measurement data suggest the DO measurements may not be representative of groundwater conditions. DO concentrations measured in the field can be unreliable and misrepresent subsurface conditions. The sample collection method may elevate the measured concentration of DO.

DO measurements of surface water range between 3.32 mg/L and 11.11 mg/L.

1,4-DIOXANE

Samples were collected by CEC for laboratory analysis of 1,4-Dioxane from each of the locations included in the April and November 2022 sampling rounds.

1,4-Dioxane has been previously detected in water quality samples collected from monitoring wells and surface water sampling locations, including RFW-2, RFW-3, RFW-4, SW-P2 (P-2R), SW-P-9 (P-9R), GZ-P-5R, GZ-102, GZ- 104, GZ-106, GZ-202A, GZ-1L, SW-14, SW-15, SW-16, and SW-17 at concentrations up to 6 µg/L. 1,4-Dioxane was detected in water quality samples collected during 2022 sampling round from P-2R, P-9R, RFW-3, RFW-4, GZ- 104, GZ-106, GZ-202A, SW-16, and SW-17 at concentrations ranging between 0.33 µg/L (SW-17; November) to 2.6 µg/L (GZ-106; November). Monitoring locations included in the Permit collected during 2022 with detected concentrations of 1,4-Dioxane exceeding the NH AGQS of 0.32 µg/L during one or more sampling round include:

- wells RFW-3, RFW-4, GZ-104, GZ-106, and GZ-202A;
- piezometers P-2R, and P-9R; and
- surface water sampling locations SW-16 and SW-17.

PFAS

Monitoring wells RFW-3, RFW-4, and GZ-202A were sampled and analyzed for the presence of nine PFAS during the November 2022 sampling round. Analysis of groundwater samples for the presence of PFAS was subcontracted by EAI to Vista Analytical Laboratory of El Dorado Hills, California, for PFAS analysis using EPA method 537 with a list of nine PFAS using Isotope Dilution and LC-MS/MS compliant with Table B-15 of DoD QSM 5.3. The laboratory report provided by EAI is included in **Appendix B**.

The results of the laboratory analyses results indicate the presence of eight PFAS at concentrations above the laboratory reporting limit. Perfluorooctane Sulfonate (PFOS) was detected in the sample collected from RFW-3 at a concentration of 59.4 nanograms per liter (ng/L), exceeding its NHDES AGQS of 15 ng/L. This is the first PFAS exceedance on-Site since sampling was initiated in 2018.

Results of laboratory analyses for PFAS are further summarized in **Table 3**.

GROUNDWATER SEEP AND EXETER RIVER SURFACE WATER MONITORING

Based on the results of the metals loading analysis described in GZA's 2021 ASR, GZA recommended continued sampling and analysis for selected metals in surface water within the Exeter River upstream and downstream of the confluence of the flow of surface water from the area of groundwater seeps, as well as from the flow of surface water downstream of the seep areas at the former weir location (SW-14). The purpose of the recommended surface water sampling is to monitor the potential effects of the contribution of Landfill-related metals on water quality within the Exeter River.

The results of the analysis of the samples collected during November 2022 are summarized in the table below, along with the results of the analysis of samples collected during April and November 2020 and November 2021.

Sample Location	Date	Dissolved	Total	Dissolved	Total	Dissolved	Total
		Iron		Manganese		Arsenic	
		(µg/L)		(µg/L)		(µg/L)	
WQTS**		300		50		0.018	
Upstream	4/16/2020	140	270	33	46	<1	<1
	11/5/2020	100	**800**	**76**	**410**	<1	**2.1**
	11/10/2021	<50	**120,000**	**140**	**57,000**	**1.2**	**260**
	11/3/2022	180	260	**160**	**150**	**0.90**	**0.88**
Former Weir (SW-14)	4/16/2020	<50	160	**370**	**1,300**	<1	<1
	11/5/2020	66	120	**1,500**	**1,500**	**1.3**	**1.7**
	11/10/2021	**310**	**770**	**50**	**100**	**1.3**	**1.3**
	11/3/2022	<50	<50	**65**	**84**	**0.54**	**0.50**
Downstream (SW-15)	4/16/2020	**320**	**1,300**	**1,800**	**2,100**	**5.1**	**9.6**
	11/5/2020	75	130	**1,500**	**1,600**	**1.3**	**1.7**
	11/10/2021	**390**	53	**1,800**	**1,800**	**5.4**	**1.7**
	11/3/2022	160	250	**170**	**170**	**0.80**	**0.90**

** Water & fish ingestion criteria for the protection of human health (Env-Ws 1703.21, Table 1703.1).

Detected concentrations of manganese and arsenic exceed their respective WQTS (protection of human health) for the samples collected at each of the three sampling locations for the November 2022 sampling round.

Previously reported mass transport rates from the 2017 investigation[10] associated with the discharge from the area of seeps east of the Landfill to the river and downstream mass transport rates were compared to the 2022 metals concentrations to further evaluate the transport of metals to the river. Stream flow data was obtained from the United States Geological Survey's (USGS) National Water Information System. Data from a nearby station[11] on the Exeter River (located approximately 3 miles upstream) was used as a conservative (i.e., low) indicator of the flow in the Exeter River at the confluence with the flow from the area of seeps east of the Landfill. Average seasonal flow rates for the seep based on the 2017 and 2019 investigations were used along with the November 2022 metals concentration data and recent stream flow data for the Exeter River to estimate the metals loading to the river.

Comparison of the mass transport rates associated with the discharge from the seep to the river and downstream mass transport rates calculated using total metals data indicate that the total iron, arsenic, and manganese discharged at the seep accounts for 0.06 percent (%), 0.4%, and 0.3% of the total mass of iron, manganese, and arsenic transported in the river downstream of the seep, respectively. The flow in the river, when estimated for 2022 was 150 to 200 times the previously estimated flow rate of the groundwater seep at SW-14. Previous results of the flow monitoring are summarized in GZA's 2019 ASR.[12]

[10] Letter Report "Evaluation of Discharge to Exeter River, Cross Road Landfill, Exeter, New Hampshire", Prepared by GZA, dated January 31, 2018

[11] USGS 01073587 EXETER RIVER AT HAIGH ROAD, NEAR BRENTWOOD, NH

[12] *"Annual Summary Report Calendar Year 2019, Cross Road Landfill, Exeter, New Hampshire"*, Prepared by GZA, dated January 31, 2020.

Concentrations of metals collected from SW-14 are lower than the upstream and downstream data for the majority of sampling rounds. Upstream and downstream concentrations are similar, with no measurable increase from the contribution of the area of groundwater seeps. The recent evaluations of the transport of iron, manganese, and arsenic to the river from the area of seeps supports GZA's previous conclusion that the effects of the transport on the concentrations of these metals within the Exeter River is de minimis. Metals concentrations of the seep will continue to be monitored to confirm the current conclusions regarding the effects of the area of seeps on surface water quality within the Exeter River.

During November 2022, additional water quality samples were collected at surface water locations SW-10 and SW-11 to further evaluate the potential effects of the contribution of Landfill-related metals compared to upgradient water quality in the Exeter River. SW-10 is located to the northwest of the Landfill at a point further up the Exeter River outside the anticipated influence of Landfill-related metals loading. SW-11 is located to the north of the Site at the Pickpocket Dam adjacent to Cross Road. Concentrations of total iron, manganese, and arsenic were above their respective WQTCS or SMCL in samples collected at SW-10 and SW-11 during the November 2022 sampling round.

Concentrations of total and dissolved arsenic and manganese detected in the sample collected at surface water SW-10 were lower compared to downstream locations SW-11 and SW-15. However, both total and dissolved iron concentrations at SW-10 were higher or equal to downstream concentrations during the time of sample collection. Total arsenic and manganese concentrations increased 0.240 µg/L and 60 µg/L in the downstream (SW-15) sample, respectively, while the total iron concentration decreased 90 µg/L. Additional monitoring is needed to evaluate the effects of the Landfill on the concentrations of these metals in the Exeter River.

WATER QUALITY TREND EVALUATION

Time series plots of arsenic, iron, manganese, chloride and 1,4-Dioxane concentrations were prepared using data from selected water quality monitoring locations for graphical evaluation. Copies of these plots are attached and generally described below. Where concentrations are reported as less than the laboratory reporting limits (RL), one-half of the RL was used in the plots.

Based on our review of the concentration data plots, the general concentration trends for these Landfill parameters are interpreted by GZA to be stable to decreasing while exhibiting fluctuations in concentration potentially related to seasonal changes in the rate of infiltration. However, the concentration trends for monitoring location SW-17 appear to indicate fluctuating metals concentrations over time, with observed highs during November 2019 and 2021 and a recent decrease during 2022. This surface water/groundwater seep monitoring location is located along the anticipated contaminant transport pathway from the Landfill within the groundwater seep east-northeast of the Landfill.

1,4-Dioxane concentrations within on-Site overburden monitoring wells exhibit a potential increase since 2017, but generally decreasing since 2019. Surface water samples collected appear to fluctuate, potentially related to seasonal variation and flow in the Exeter River.

To better understand trends at the Site Mann Kendall statistical analysis of selected recent Landfill water quality data[13] were completed for the concentration data for certain monitoring locations to identify trends in water quality with a confidence level of 95 percent (**Appendix D**). The results are summarized in the table below.

[13] Based on data from the previous 10 years, or where available.

Contaminant	Arsenic	Iron	Manganese	1,4-Dioxane
Monitoring Location	Trend			
RFW-3	Decreasing	No Trend	Decreasing	No Trend
RFW-4	Decreasing	No Trend	No Trend	Decreasing
GZ-104	No Trend	No Trend	Decreasing	No Trend
GZ-202A	Decreasing	No Trend	No Trend	Decreasing
P-9R	No Trend	No Trend	Increasing	Decreasing
SW-17	No Trend	No Trend	No Trend	Decreasing

Based on the table above, the selected Landfill water quality at monitoring well locations included generally indicate a decreasing trend or no trend. The only increasing trend identified is associated with the manganese concentration data for samples collected from the northern spring P-9R monitoring location. However, the concentration of manganese detected at this location in the sample collected during November 2022 (2.8 mg/L) is within the historical range of manganese concentrations detected in samples from this monitoring location. This location is along one of the suspected preferential preferred pathways away from the Landfill. Variations at locations with no trend identified are interpreted by GZA as consistent with variations due to seasonal variations in local infiltration and groundwater flow/level. The cause of the recent increasing trend in manganese concentrations related to P-9R is not known and will be evaluated as additional data are collected.

CONCLUSIONS/DISCUSSION

The following summarizes our primary conclusions regarding the Permit-related and supplemental Landfill water quality monitoring performed in 2022.

- Data for the current reporting period are generally consistent with the historical concentration ranges and temporal trends for the water quality parameters and locations monitored in accordance with the Permit.
- Consistent with the results of the historical water quality monitoring for the Landfill, water quality data collected during the 2022 monitoring rounds indicate that arsenic, manganese, and 1,4-Dioxane are present in groundwater at certain monitoring locations downgradient of the Landfill at concentrations exceeding their respective NH AGQS. These downgradient locations are within the GMZ established for the Landfill, and the concentrations are consistent with the presence of a municipal solid waste Landfill at the Site. The remainder of the potential Landfill-related contaminants (i.e., chloride, iron, nitrate, TKN, and PFAS) included in the monitoring program were detected in one or more of the water quality samples collected during the reporting period at concentrations below the applicable NH AGQS.

- Results of the November 2022 sampling of surface water for Landfill-related metals (iron, manganese, and arsenic) from the Exeter River and the area of seeps located downgradient of the Landfill are generally consistent with the results of previous sampling. Collectively, the surface water quality data suggest that the Landfill has a limited effect on metals concentrations within the Exeter River, with concentrations of metals in water discharged from the area of groundwater seeps east of the Landfill lower or equal to the concentrations in the River[14]. Additional monitoring is needed to evaluate the effects of the Landfill on the concentrations of these metals in the Exeter River.
- Calculated groundwater elevations for wells sampled during November 2022 are consistent with historical data indicating radial groundwater flow from the Landfill toward the northwest, north, northeast, and east of the Landfill within the shallow overburden outwash deposits underlying the area.
- Based on the results of the graphical and statistical (i.e., Mann Kendall statistic) analysis completed by GZA, Landfill water quality indicator parameters concentration trends are interpreted as stable to decreasing. The only potentially increasing trend identified based on the Mann Kendall statistic is associated with the manganese concentration data for samples collected from the northern spring P-9R monitoring location. However, the concentration of manganese detected at this location in the sample collected during November 2022 (2.8 mg/L) is within the historical range of manganese concentrations detected in samples from this monitoring location. Variations at locations with no trend identified are interpreted by GZA as consistent with variations due to seasonal variations in local infiltration and groundwater flow/level. The cause of the recent potential increasing trend in manganese concentrations related to P-9R is not known and will be evaluated as additional data are collected.

RECOMMENDATIONS

Based on the results of the monitoring performed during 2022 and our understanding of Site/Landfill hydrogeology and contaminant conditions, GZA recommends the following:

- Continued field analysis of groundwater samples collected during the April and November 2022 sampling rounds for DO and ORP to provide data for evaluation of the geochemical conditions beneath the Landfill relative to the increase in the mobilization of metals suggested by fluctuating arsenic, iron, and manganese concentration trends in groundwater observed at RFW-3, GZ-104, and P-9R;
- Continued collection of samples for total and dissolved arsenic, manganese, and iron from SW-14, SW-15, directly upstream of the seep, and dissolved metals from SW-17 to continue to monitor potential effects of the contribution of Landfill-related metals within the discharge from the area of seeps east of the Landfill on water quality within the Exeter River; and
- Continued collection of samples for total and dissolved arsenic, manganese, and iron from Exeter River upstream surface water monitoring location SW-10 to evaluate the overall effect of the Landfill on surface water quality within the Exeter River.

[14] As detected in samples collected upstream and downstream of the discharge from the groundwater seep area and summarized in the table in the "Groundwater Seep and Exeter River Surface Water Monitoring" section of this report.

On behalf of the Town, we greatly appreciate your review of this report and trust the information contained herein and attached meets the needs of the NHDES. Should you have any questions, please contact Mr. Erik Dyrness at (603) 232-8724.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Erik B. Dyrness
Assistant Project Manager

James M. Wieck, P.G.
Consultant/Reviewer

Jeffrey D. Rowell, P.E.
Principal

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Attachments: Limitations
Tables
Figures
Plots
November 2022 Analytical Laboratory Data
CEC Summary Letter Report

cc: Mr. Paul Vlasich, P.E., Town Engineer; Town of Exeter
Ms. Trisha Allen, Public Works Business Manager; Town of Exeter

Limitations

USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.

4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

SUBSURFACE CONDITIONS

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.

6. Water level readings have been made, as described in this Report, in and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.

COMPLIANCE WITH CODES AND REGULATIONS

7. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.

SCREENING AND ANALYTICAL TESTING

8. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.

9. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.

10. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

INTERPRETATION OF DATA

11. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

ADDITIONAL INFORMATION

12. In the event that the Client or others authorized to use this report obtain additional information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

CONCEPTUAL SITE MODEL

14. Our opinions were developed, in part, based upon a comparison of site data to conditions anticipated within our Conceptual Site Model (CSM). The CSM is based on available information, and professional judgment. There are rarely sufficient data to develop a unique CSM. Therefore observations over time, and/or space, may vary from those depicted in the CSM provided in this report. In addition, the CSM should be evaluated and refined (as appropriate) whenever significant new information and/or data is obtained.

Tables

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Arsenic (mg/L)

NH AGQS = 0.005 mg/L
WQCTS (Water and Fish Ingestion) = 0.000018 mg/L

	Sampling Date	Overburden Monitoring Wells																				Bedrock Monitoring and Residential Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations											Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-103	GZ-104	GZ-105	GZ-106	GZ-107	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	0.02	0.04	0.02	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-		-	-	0.04
	11/12/1992	<0.01	<0.01	<0.01	0.0284	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-		-	-	-
	4/6/1993	0.001	0.17	0.025	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-		-	-	0.03
	7/1/1993	0.001	0.001	0.001	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-		-	-	-
	11/5/1993	0.001	0.002	0.002	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.007	-	-	-	-	-	-		-	-	0.048
	4/14/1994	<0.005	0.06	0.058	0.263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.034	-	-	-	-	-	-		-	-	-
	7/15/1994	<0.100	<0.100	<0.100	0.245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.100	-	-	-	-	-	-		-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	0.057
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	0.002
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	0.001
	11/18/1994	0.001	0.059	0.038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.013	-	-	-	-	-	-		-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	0.05
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	0.005
	4/12/1995	<0.005	0.039	0.022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-		-	-	<0.005
	7/28/1995	<0.005	0.021	0.011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-		-	-	0.018
	12/8/1995	<0.01	<0.01	0.042	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.027	-	-	-	-	-	-		-	-	0.099
	4/26/1996	<0.01	<0.01	0.01	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-		-	-	<0.01
	7/25/1996	<0.005	<0.005	<0.005	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	-	-	-	-	-	-		-	-	-
	11/14/1996	-	0.015	0.17	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	0.017	<0.005	-	-	-	-	-	-	-		-	-	-
	4/21/1997	-	<0.005	0.024	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	0.012	0.008	-	-	-	-	-	-	-		-	-	-
POST-CLOSURE	7/22/1997	<0.005	<0.005	0.014	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.005	-	0.006	<0.005	-	-	-	-	-	-	-		-	-	-
	11/11/1997	<0.005	0.011	0.04	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	0.15	0.008	-	-	-	-	-	-	-		-	-	-
	4/15/1998	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	-		<0.005	-	-	-	-	-	-	-		-	-	-
	7/6/1998	-	<0.005	0.021	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	-	4.9	<0.005	-	-	-	-	-	-	-		-	-	-
	11/16/1998	<0.005	0.012	0.001	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	0.58	<0.005	-	-	-	-	-	-	-		-	-	-
	4/19/1999	<0.005	<0.005	0.037	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	0.66	<0.005	-	-	-	-	-	-	-		-	-	-
	7/27/1999	<0.005	<0.005	0.026	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	12	0.009	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	0.01	0.018	0.2	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	-	5.9	1.2	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	<0.005	<0.005	0.054	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-
	7/7/2000	<0.005	0.008	0.46	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.009	-	0.71	0.008	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	<0.01	<0.01	0.13	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.023	-	0.013	0.3	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	<0.01	0.014	0.21	0.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.91	-	0.032	0.047	-	-	-	-	-	-	-	-	-	-	-
	7/25/2001	<0.005	0.009	0.22	0.19	0.0124	-	-	<0.004	0.0102	0.0062	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	-	0.015	-	27	0.03	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.008	0.006	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	<0.01	<0.01	0.09	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.026	-	<0.026	<0.026	<0.026	-	-	-	-	-	-	-
	4/24/2002	<0.02	<0.02	0.22	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	-
	11/20/2002	<0.05	<0.05	0.28	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	4/29/2003	<0.01	<0.01	0.24	0.19	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	11/17/2003	-	0.014	0.22	0.18	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	0.011	<0.005	-	-	-	0.12	<0.005	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-
	4/28/2004	-	0.01	0.20	0.22	<0.005	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	<0.005	0.005	<0.005	<0.005	<0.005	0.005	0.043	<0.005	-	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	0.017	0.076	0.19	<0.005	-	-	-	-	-	0.013	-	-	-	-	-	-	-	-	-	<0.005	0.008	<0.005	-	0.41	<0.005	0.063	<0.005	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.01	0.07	0.2	<0.01	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	0.12	<0.01	0.03	<0.01	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	11/8/2005	-	0.006	0.023	0.156	<0.005	-	-	-	-	-	0.058	-	-	-	-	-	-	-	-	-	<0.005	0.013	<0.005	-	0.149	<0.005	0.017	0.008	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-
	4/17/2006	-	<0.005	0.011	0.16	<0.005	-	-	-	-	-	0.076	-	-	-	-	-	-	-	-	-	<0.005	0.007	<0.005	-	0.034	<0.005	0.023	1.2	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	11/20/2006	-	0.007	0.014	0.14	<0.005	-	-	-	-	-	0.062	-	-	-	-	-	-	-	-	-	<0.005	0.01	<0.005	-	0.026	<0.005	0.042	<0.005	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-
	5/2/2007	-	0.012	0.006	0.13	<0.005	-	-	-	-	-	0.029	-	-	-	-	-	-	-	-	-	-	0.006	-	-	0.011	<0.005	0.011	0.029	-	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-
	11/14/2007	-	<0.005	0.006	0.13	<0.005	-	-	-	-	-	0.032	-	-	0.087	-	-	-	-	-	-	<0.005	<0.005	0.007	-	0.024	0.007	0.036	<0.005	-	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-
	4/25/2008	-	0.007	0.007	0.17	<0.005	-	-	-	-	-	0.040	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	0.016	<0.005	0.024	<0.01	-	-	-	-	<0.01	-	-	-	-	<0.01	-
	11/18/2008	-	0.005	0.009	0.16	0.006	-	-	-	-	-	Dry	-	-	0.008	-	-	-	-	-	-	0.005	<0.005	-	-	Dry	0.008	0.025	<0.005	-	-	-	-	0.010	-	-	-	-	<0.002	-
	4/27/2009	-	0.002	0.004	0.13	0.001	-	-	-	-	-	0.026	-	-	-	-	-	-	-	-	-	-	0.001	-	-	0.024	0.003	0.023	0.009	-	-	-	-	0.002	-	-	-	0.001	<0.001	-
	11/4/2009	-	0.002	0.001	0.13	<0.001	-	-	-	-	-	Dry	-	-	0.009	-	-	-	-	-	-	0.002	0.003	<0.001	-	0.038	0.003	0.024	-	-	-	-	-	0.001	-	-	-	0.056	<0.001	-
	4/20/2010	-	0.004	0.002	0.16	0.001	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	0.017	0.002	0.008	-	-	-	-	-	0.007	-	-	-	0.009	<0.001	-
	11/11/2010	-	0.007	0.002	0.13	0.001	-	-	-	-	-	-	-	-	0.003	-	-	-	-	-	-	0.003	0.001	0.002	-	0.022	0.003	0.042	-	-	-	-	-	0.002	-	-	-	0.007	<0.001	-
	4/22/2011	-	0.005	0.002	0.12	0.001	-	-	-	-	-	-	-	-	0.002	-	-	-	-	-	-	-	<0.001	-	-	0.014	0.002	0.032	-	-	-	-	-	<0.001	-	-	-	0.009	<0.001	-
	11/14/2011	-	0.003	0.003	0.11	0.001	-	-	-	-	-	-	-	-	0.012	-	-	-	-	-	-	0.002	<0.001	0.002	-	0.007	0.001	0.010	-	-	-	-	-	0.002	-	-	-	0.002	<0.001	-
	4/30/2012	-	0.003	0.012	0.13	0.002	-	-	-	-	-	-	-	-	0.075	-	-	-	-	-	-	-	<0.001	-	-	0.030	0.003	0.024	-	-	-	-	-	0.002	-	-	-	0.001	<0.001	-
	11/5/2012	-	<0.001	0.002	0.12	<0.001	-	-	-	-	-	-	-	-	0.020	-	-	-	<0.001	0.41	-	0.003	<0.001	-	-	0.014	0.001	0.12	-	-	-	-	-	0.021	-	-	-	0.018	<0.001	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	0.001	-	0.14	-	-	-	0.001	0.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	0.014	0.013	0.12	0.001	-	-	-	-	-	-	<0.001	-	0.13	-	-	-	0.004	0.28	-	0.003	0.006	0.003	-	0.016	-	0.048	-	-	-	-	-	-	-	-	0.053	0.007	-	-
	4/15/2014	-	0.019	0.010	0.14	<0.001	-	-	-	-	-	-	<0.001	-	0.031	-	<0.001	-	0.002	0.31	-	0.002	0.007	-	-	-	-	0.037	-	-	-	-	-	-	-	-	0.058	0.032	-	-
	11/3/2014	-	0.012	0.005	0.014	-	-	-	-	-	-	-	<0.001	-	0.033	-	<0.001	-	0.003	0.27	-	0.004	0.004	0.004	-	-	-	0.15	-	-	-	-	-	-	-	-	<0.001	0.059	-	-
	4/6/2015	-	0.008	0.009	0.13	-	-	-	-	-	-	-	-	-	0.26	-	-	-	0.008	0.22	-	0.004	0.004	0.007	-	-	-	0.029	-	-	-	-	-	-	-	-	<0.001	0.017	-	-
	11/17/2015	-	0.007	0.280	0.14	-	-	-	-	-	-	-	-	-	0.30	-	-	-	0.001	0.17	-	0.004	0.002	0.003	-	0.073	-	0.092	-	-	-	-	-	<0.001	-	-	-	0.004	-	-
	4/14/2016	-	0.001	0.006	0.20	-	-	-	-	-	-	-	-	-	0.060	-	-	-	0.005	0.17	-	0.004	0.003	0.006	-	-	-	0.026	-	-	-	-	-	-	-	-	-	0.011	-	-
	11/2/2016	-	0.007	0.015	0.09	-	-	-	-	-	-	-	-	-	0.160	-	-	-	<0.001	0.15	-	0.005	0.003	0.006	-	-	-	0.055	-	-	-	-	-	-	-	-	-	0.004	-	-
	4/24/2017	-	0.002	0.024	0.14	-	-	-	-	-	-	-	-	-	0.097	-	-	-	0.19	0.002	-	0.004	0.004	0.006	-	-	-	0.022	-	-	-	-	-	-	-	-	-	0.093	-	-
	11/7/2017	-	<0.001	0.038	0.13	-	-	-	-	-	-	-	-	-	0.160	-	-	-	0.009	0.14	-	0.003	0.004	0.007	-	0.053	-	0.23	-	-	-	-	-	0.027	-	-	-	0.004	-	-
	4/25/2018	-	<0.001	0.017	0.14	-	-	-	-	-	-	-	-	-	0.10	-	-	-	<0.001	0.086	-	0.002	0.005	0.009	-	-	-	0.030	-	-	-	-	-	-	-	-	-	0.016	-	-
	11/12/2018	-	<0.001	0.014	0.14	-	-	-	-	-	-	-	-	-	0.13	-	-	-	0.0017	0.15	-	0.0051	0.0071	0.0062	-	0.0081	-	0.038	-	-	-	-	-	-	-	-	-	0.047	-	-
	4/24/2019	-	0.0017	0.018	0.12	-	-	-	-	-	-	-	-	-	0.014	-	-	-	0.0030	0.19	-	0.0051	0.0014	0.0076	-	-	-	0.065	-	-	-	-	-	-	-	-	-	0.0018	-	-
	11/4/2019	-	<0.001	0.011	0.11	-	-	-	-	-	-	-	<0.001	-	0.075	-	<0.001	-	<0.001	0.059	<0.001	0.0051	0.0025	0.0050	-	0.0056	-	0.014	-	-	-	-	-	0.0084	-	0.0021	0.016	0.32	-	-
	4/16/2020	-	<0.001	0.0042	0.087	-	-	-	-	-	-	-	0.0011	<0.001	0.014	<0.001	<0.001	<0.001	<0.001	0.25	<0.001	0.0029	<0.001	0.0067	-	-	-	0.030	-	-	-	-	-	-	<0.001	0.0096	0.0031	0.045	-	-
	11/5/2020	-	<0.001	0.0085	0.096	-	-	-	-	-	-	-	<0.001	<0.001	0.15	<0.001	<0.001	<0.001	<0.001	0.24	<0.001	0.0041	0.0012	0.0081	-	-	-	0.11	-	-	-	-	-	-	0.0017	0.0017	0.0042	0.017	-	-
	4/8/2021	-	<0.001	0.0046	0.078	-	-	-	-	-	-	-	-	-	0.045	-	-	-	<0.001	0.096	<0.001	0.0043	<0.001	0.0037	-	-	-	0.16	-	-	-	-	-	-	-	-	-	0.0087	-	-
	11/10/2021	-	0.00082	0.0031	0.097	-	-	-	-	-	-	-	-	-	0.11	0.00089	0.0020	0.0013	0.0012	0.032	0.0011	0.0045	0.0013	0.0044	-	-	-	0.14	-	-	-	-	-	-	0.0013	0.0017	-	0.94	-	-
	4/5/2022	-	<0.0005	0.0024	0.10	-	-	-	-	-	-	-	-	-	0.039	-	-	-	0.00092	0.11	<0.0005	0.0049	0.00077	0.0042	-	-	-	0.10	-	-	-	-	-	-	-	-	-	0.0033	-	-
	11/2/2022	-	<0.0005	0.00060	0.093	-	-	-	-	-	-	-	-	-	0.038	0.00050	<0.0005	0.00055	0.0011	0.15	0.00082	0.0047	0.00078	0.0033	-	0.15	-	0.13	-	-	0.00066	0.00093	-	0.0042	0.00050	0.00090	0.0026	0.0018	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Iron (mg/L)

NH AGQS = NE
SMCL = 0.30 mg/L

	Sampling Date	Overburden Monitoring Wells																				Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations										Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-103	GZ-104	GZ-105	GZ-106	GZ-107	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	9.3	42	19	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110
	11/12/1992	0.06	0.35	0.21	2.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24	-	-	-	-	-	-	-	-	-	-
	4/6/1993	0.16	22.8	9.8	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-	174
	7/1/1993	0.93	3.01	25.59	4.59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.07	-	-	-	-	-	-	-	-	-	-
	11/5/1993	0.81	1.6	4.4	15.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.37	-	-	-	-	-	-	-	-	-	49
	4/14/1994	2.55	8.82	3.22	46.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.25	-	-	-	-	-	-	-	-	-	-
	7/15/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	470
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135
	11/18/1994	0.98	1.75	1.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43
	4/12/1995	<0.1	4.1	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	85
	7/28/1995	<0.1	1.32	0.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	11
	12/8/1995	<0.04	0.41	3.7	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.91	-	-	-	-	-	-	-	-	-	66
	4/26/1996	<0.02	0.55	0.55	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	3.5
	7/25/1996	0.015	0.37	0.038	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	-	-	-	-	-	-	-	-	-	-
	11/14/1996	-	0.45	12	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	5.9	3.7	-	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	0.34	1.5	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.18	-	3.3	0.49	-	-	-	-	-	-	-	-	-	-	-
	7/22/1997	3.4	0.66	0.036	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.095	-	0.065	0.67	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	11/11/1997	0.024	0.48	4.8	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.41	-	26	0.4	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	0.012	0.59	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	0.34	-	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	0.24	4.1	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	-	280	1.1	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	0.041	0.51	0.28	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.74	-	63	0.53	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	0.018	0.48	2.96	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.85	-	110	0.64	-	-	-	-	-	-	-	-	-	-	-
	7/27/1999	0.032	0.29	3.8	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.62	-	1500	1.3	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	0.019	0.51	410	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.36	-	1900	420	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	0.071	0.53	12	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	-	-
	7/7/2000	0.028	0.35	62	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-	160	1	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	0.046	0.16	10	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	6.8	122	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	0.2	2.2	16	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	-	10	7.3	-	-	-	-	-	-	-	-	-	-	-
	7/25/2001	<0.03	0.34	22	38	<0.004	-	-	<0.044	<0.044	<0.044	<0.044	-	-	-	-	-	-	-	-	-	0.291	<0.044	<0.044	-	32	-	3,700	21	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	<0.044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.044	0.578	0.054	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	<0.05	0.29	7.4	16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.45	-	-	510	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.03	0.78	15	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.77	-	-	-	-	-	-	-	-	-	-	-
	11/20/2002	<0.05	3.6	58	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.05	2.2	100	38	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	28	<0.05	-	0.78	-	15	0.14	-	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	3.1	38	25	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	26	0.06	-	-	-	7.0	0.18	-	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	1.9	22	37	<0.05	-	-	-	-	-	2.1	-	-	-	-	-	-	-	-	-	<0.05	0.21	<0.05	0.05	0.35	2.4	0.06	0.49	-	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	5.2	8.7	32	<0.05	-	-	-	-	-	5.4	-	-	-	-	-	-	-	-	-	<0.05	2.5	0.09	-	5.0	0.53	7.0	1.8	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	2.0	8.6	26	<0.05	-	-	-	-	-	7.1	-	-	-	-	-	-	-	-	-	<0.05	3.2	<0.05	-	0.72	0.27	2.4	0.59	-	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	3.0	1.8	38	<0.05	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	<0.05	10	<0.05	-	2.3	0.98	6.0	4.0	-	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	0.68	1.6	32	<0.05	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	<0.05	6.8	<0.05	-	0.58	0.57	2.9	380.0	-	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	1.1	2.9	25	<0.05	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	<0.05	0.08	<0.05	-	2.0	0.39	0.45	0.49	-	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	2.4	2.2	25	<0.05	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	2.4	-	-	4.7	0.87	5.30	5.40	-	-	-	-	-	-	-	-	-	0.03	-
	11/14/2007	-	1.4	2.7	37	<0.05	-	-	-	-	-	21	-	-	1.7	-	-	-	-	-	-	0.43	<0.05	0.10	-	0.67	0.23	6.0	0.32	-	-	-	-	-	-	-	-	-	0.29	-
	4/25/2008	-	0.73	3.8	37	<0.05	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	0.32	-	-	5.4	<0.05	4.7	0.31	-	-	-	-	0.64	-	-	-	-	0.38	-
	11/18/2008	-	0.85	0.50	48	<0.05	-	-	-	-	-	Dry	-	-	0.84	-	-	-	-	-	-	<0.05	<0.05	-	-	Dry	2.3	9.3	0.57	-	-	-	-	1.7	-	-	-	-	0.7	-
	4/27/2009	-	0.44	0.07	32	<0.05	-	-	-	-	-	3.2	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	3.4	0.39	4.2	2.7	-	-	-	-	0.31	-	-	-	0.22	0.34	-
	11/4/2009	-	2.0	<0.05	40	<0.05	-	-	-	-	-	-	-	-	0.68	-	-	-	-	-	-	<0.05	0.69	<0.05	-	6.2	0.48	8.2	-	-	-	-	-	0.61	-	-	-	26	0.39	-
	4/20/2010	-	1.0	0.31	36	<0.05	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	<0.05	-	-	3.2	0.16	3	-	-	-	-	-	0.69	-	-	-	4.5	0.20	-
	11/11/2010	-	3.7	0.17	29	<0.05	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	3.4	0.41	11	-	-	-	-	-	0.32	-	-	-	2.8	0.30	-
	4/22/2011	-	0.62	0.27	20	<0.05	-	-	-	-	-	-	-	-	0.07	-	-	-	-	-	-	-	<0.05	-	-	1.9	<0.05	7	-	-	-	-	-	2.6	-	-	-	5.1	0.23	-
	11/14/2011	-	0.43	1.1	26	<0.05	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	0.08	<0.05	3.3	-	-	-	-	0.26	0.12	-	-	-	0.53	0.25	-
	4/30/2012	-	1.8	2.1	37	0.27	-	-	-	-	-	-	-	-	5.9	-	-	-	-	-	-	-	<0.05	-	-	6.5	0.38	15	-	-	-	-	-	0.42	-	-	-	0.37	0.36	-
	11/5/2012	-	0.15	0.90	31	<0.05	-	-	-	-	-	-	-	-	6.3	-	-	-	<0.05	46	-	<0.05	0.09	-	-	4.1	0.12	15	-	-	-	-	-	2.4	-	-	-	8.5	0.35	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	0.55	-	14	-	-	-	0.09	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	2.4	3.1	20	<0.05	-	-	-	-	-	-	3.1	-	16	-	-	-	2.8	38	-	<0.05	1.4	0.46	-	6.6	-	7.8	-	-	-	-	-	-	-	-	6.0	3.5	-	-
	4/15/2014	-	5.3	4.7	24	<0.05	-	-	-	-	-	-	<0.05	-	8.7	-	0.06	-	0.81	66	-	1.1	2.3	-	-	-	-	14	-	-	-	-	-	-	-	-	4.7	24	-	-
	11/3/2014	-	3.0	7.0	20	-	-	-	-	-	-	-	<0.05	-	8.9	-	0.05	-	0.98	48	-	1.7	2.3	4.0	-	-	-	8.3	-	-	-	-	-	-	-	-	<0.05	5.4	-	-
	4/6/2015	-	2.1	10.0	41	-	-	-	-	-	-	-	-	-	18	-	-	-	7.3	43	-	0.96	2.2	8.3	-	-	-	1.6	-	-	-	-	-	-	-	-	0.17	3.4	-	-
	11/17/2015	-	1.6	59.0	19	-	-	-	-	-	-	-	-	-	24	-	-	-	0.2	35	-	0.91	0.81	1.9	-	31	-	6.7	-	-	-	-	-	0.09	-	-	-	0.12	-	-
	4/14/2016	-	0.19	6.0	22	-	-	-	-	-	-	-	-	-	6.1	-	-	-	3.1	21	-	0.27	1.5	6.3	-	-	-	3.0	-	-	-	-	-	-	-	-	-	0.76	-	-
	11/2/2016	-	4.9	16.0	55	-	-	-	-	-	-	-	-	-	20.0	-	-	-	<0.05	30	-	2.2	1.9	9.9	-	-	-	14.0	-	-	-	-	-	-	-	-	-	0.18	-	-
	4/24/2017	-	0.62	21	27	-	-	-	-	-	-	-	-	-	6.9	-	-	-	41	0.58	-	0.50	3.2	12	-	-	-	2.5	-	-	-	-	-	-	-	-	-	28	-	-
	11/7/2017	-	0.10	21	32	-	-	-	-	-	-	-	-	-	16	-	-	-	7.4	51	-	0.95	0.42	9.4	-	42	-	43	-	-	-	-	-	5.6	-	-	-	0.24	-	-
	4/25/2018	-	0.14	16	45	-	-	-	-	-	-	-	-	-	14	-	-	-	0.14	29	-	0.20	1.4	15	-	-	-	9.1	-	-	-	-	-	-	-	-	-	3.7	-	-
	11/12/2018	-	0.063	18	24	-	-	-	-	-	-	-	-	-	17	-	-	-	0.57	38	-	0.52	0.41	5.8	-	2.3	-	7.8	-	-	-	-	-	-	-	-	-	9.8	-	-
	4/24/2019	-	0.16	17	41	-	-	-	-	-	-	-	-	-	1.6	-	-	-	1.3	77	-	0.40	0.13	7.6	-	-	-	32	-	-	-	-	-	-	-	-	-	0.084	-	-
	11/4/2019	-	0.093	3.7	34	-	-	-	-	-	-	-	<0.05	-	8.4	-	<0.05	-	<0.05	48	<0.05	0.41	0.21	8.5	-	<0.05	-	0.29	-	-	-	-	-	2.2	-	0.25	2.8	97	-	-
	4/16/2020	-	<0.05	5.5	22	-	-	-	-	-	-	-	<0.05	<0.05	1.3	0.079	<0.05	<0.05	<0.05	53	<0.05	0.06	<0.05	8.1	-	-	-	8.10	-	-	-	-	-	-	0.16	1.30	0.37	13	-	-
	11/5/2020	-	0.26	8.7	26	-	-	-	-	-	-	-	0.25	0.13	23	0.059	<0.05	<0.05	<0.05	48	<0.05	<0.05	0.18	6.1	-	-	-	28	-	-	-	-	-	-	0.12	0.13	0.59	3.0	-	-
	4/8/2021	-	<0.05	9.3	16	-	-	-	-	-	-	-	-	-	8.2	-	-	-	0.051	34	<0.05	<0.05	0.07	1.9	-	-	-	20	-	-	-	-	-	-	-	-	-	2.5	-	-
	11/10/2021	-	0.12	3.5	16	-	-	-	-	-	-	-	-	-	24	<0.05	1.8	<0.05	<0.05	47	0.062	0.26	0.07	1.2	-	-	-	30	-	-	-	-	-	-	0.77	0.053	-	240	-	-
	4/5/2022	-	<0.05	2.4	13	-	-	-	-	-	-	-	-	-	3.8	-	-	-	<0.05	53	<0.05	0.12	<0.05	1.2	-	-	-	17	-	-	-	-	-	-	-	-	-	2.5	-	-
	11/2/2022	-	<0.05	0.060	37	-	-	-	-	-	-	-	-	-	5.8	<0.05	<0.05	<0.05	<0.05	53	0.22	0.26	0.065	1.2	-	96	-	28	-	-	0.34	0.31	-	1.7	<0.05	0.25	0.52	0.57	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Manganese (mg/L)

NH AGQS = 0.300 mg/L
WQCTS (Water and Fish Ingestion) = 0.05 mg/L

	Sampling Date	Overburden Monitoring Wells																				Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations											Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-103	GZ-104	GZ-105	GZ-106	GZ-107	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	0.14	0.93	4.9	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	6.4
	11/12/1992	0.01	0.01	4.75	0.965	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.53	-	-	-	-	-	-	-	-	-	-
	4/6/1993	<0.01	0.56	6.62	4.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	1.56
	7/1/1993	0.59	0.39	6.24	5.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-
	11/5/1993	0.12	0.34	10.8	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7	-	-	-	-	-	-	-	-	-	0.78
	4/14/1994	1.31	1.07	11.3	4.75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.29	-	-	-	-	-	-	-	-	-	-
	7/15/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1994	0.05	0.19	9.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/12/1995	<0.05	0.68	10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-
	7/28/1995	<0.05	0.26	12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.3	-	-	-	-	-	-	-	-	-	-
	12/8/1995	<0.01	0.56	13	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	-	-	-	-	-	-	-	-	-	-
	4/26/1996	<0.01	0.61	9.2	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-
	7/25/1996	<0.02	0.66	15	5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.4	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	11/14/1996	-	0.77	16	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.37	-	1.8	0.54	-	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	0.4	14	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	1.4	0.11	-	-	-	-	-	-	-	-	-	-	-
	7/22/1997	0.8	0.47	0.36	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.42	-	2.8	0.8	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	<0.005	0.73	19	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.031	-	4.4	0.14	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	<0.005	0.67	14	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	0.055	-	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	0.52	21	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	3.6	0.17	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	<0.005	0.64	3.9	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.028	-	3	0.065	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	<0.005	0.57	6.8	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	3.4	3.8	-	-	-	-	-	-	-	-	-	-	-
	7/27/1999	<0.005	0.51	6.3	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	54	1.8	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	<0.005	0.61	7.8	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.32	-	320	94	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	0.018	0.55	7.8	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.096	-	-	-	-	-	-	-	-	-	-	-
	7/7/2000	0.16	0.56	7	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5	-	50	2.1	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	<0.005	0.51	4.8	4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	-	2.6	51	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	<0.005	0.97	2.9	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-	1.7	1.8	-	-	-	-	-	-	-	-	-	-	-
	7/25/2001	<0.003	0.62	2.5	4.8	1.53	-	-	0.0946	0.893	0.0834	-	-	-	-	-	-	-	-	-	-	0.413	0.404	0.175	-	1.2	-	100	5.7	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	0.902	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.399	1.730	0.195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	<0.03	0.42	1.2	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	-	-	110	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.03	0.81	2.1	6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39	-	-	-	-	-	-	-	-	-	-	-
	11/20/2002	<0.03	1.1	4.8	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.03	0.89	6.8	2.8	0.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.34	9.9	0.11	-	0.52	-	3.5	0.05	-	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	1.1	3.0	3.6	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.45	19	0.16	-	-	-	2.5	0.1	-	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	0.75	1.9	5.5	0.08	-	-	-	-	-	4.9	-	-	-	-	-	-	-	-	-	0.48	5.8	0.12	<0.05	0.84	1.1	0.64	<0.05	-	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	0.81	1.0	5.2	<0.03	-	-	-	-	-	4.6	-	-	-	-	-	-	-	-	-	0.09	14	0.17	-	1.1	0.66	2.0	0.17	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	0.86	0.88	4.7	0.04	-	-	-	-	-	6.8	-	-	-	-	-	-	-	-	-	0.05	18	0.16	-	0.53	0.29	1.1	<0.03	-	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	0.71	0.21	3.8	<0.03	-	-	-	-	-	5.3	-	-	-	-	-	-	-	-	-	<0.03	10	0.10		1.1	0.63	2.5	1.9	-	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	0.72	0.33	3.0	<0.03	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	<0.03	11	0.07	-	0.94	0.68	1.4	260	-	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	0.78	0.36	2.3	1.5	-	-	-	-	-	2.7	-	-	-	-	-	-	-	-	-	0.03	7.5	0.10	-	1.1	0.48	1.5	0.19	-	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	1	4.1	2.5	1.1	-	-	-	-	-	3.2	-	-	-	-	-	-	-	-	-	-	8.5	-	-	1.6	0.74	2.3	2.7	-	-	-	-	-	-	-	-	-	0.05	-
	11/14/2007	-	1	1.9	3.4	0.54	-	-	-	-	-	3.8	-	-	4.0	-	-	-	-	-	-	0.13	4	0.12	-	1.0	0.39	2.8	0.26	-	-	-	-	-	-	-	-	-	0.06	-
	4/25/2008	-	1.1	6.1	3.9	2.9	-	-	-	-	-	4.0	-	-	-	-	-	-	-	-	-	-	6.1	-	-	1.8	0.41	2.4	0.13	-	-	-	-	0.30	-	-	-	-	0.10	-
	11/18/2008	-	1.2	0.75	4.7	4.2	-	-	-	-	-	Dry	-	-	0.27	-	-	-	-	-	-	<0.03	0.70	-	-	Dry	0.63	2.5	0.05	-	-	-	-	3.2	-	-	-	-	0.15	-
	4/27/2009	-	1.2	0.35	3.5	3.7	-	-	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	0.93	-	-	1.2	0.31	1.5	0.77	-	-	-	-	0.11	-	-	-	0.17	0.12	-
	11/4/2009	-	1.2	0.11	4.2	2.2	-	-	-	-	-	-	-	-	0.94	-	-	-	-	-	-	0.038	4.9	0.11	-	1.8	0.48	2.8	-	-	-	-	-	0.29	-	-	-	3.6	0.035	-
	4/20/2010	-	1.0	0.89	3.2	0.24	-	-	-	-	-	-	-	-	0.037	-	-	-	-	-	-	-	0.60	-	-	0.85	0.29	0.92	-	-	-	-	-	0.15	-	-	-	0.69	0.031	-
	11/11/2010	-	0.91	0.27	3.2	4.6	-	-	-	-	-	-	-	-	0.31	-	-	-	-	-	-	0.007	1.7	0.028	-	1.2	0.27	2.6	-	-	-	-	-	0.15	-	-	-	0.14	0.045	-
	4/22/2011	-	0.7	0.42	2.8	3.6	-	-	-	-	-	-	-	-	0.10	-	-	-	-	-	-	-	1.6	-	-	0.64	0.21	1.6	-	-	-	-	-	0.054	-	-	-	0.39	0.042	-
	11/14/2011	-	0.87	1.8	3.1	6.9	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	0.009	3.8	0.009	-	1.5	0.31	2.1	-	-	-	-	0.026	0.061	-	-	-	0.082	0.031	-
	4/30/2012	-	0.92	1.6	4.1	6.2	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	2.2	-	-	1.6	0.33	2.4	-	-	-	-	-	0.13	-	-	-	0.069	0.066	-
	11/5/2012	-	0.98	1.9	3.9	5.5	-	-	-	-	-	-	-	-	3.5	-	-	-	1.2	2.8	-	0.024	2.8	-	-	1.6	0.064	1.9	-	-	-	-	-	1.1	-	-	-	1.1	0.036	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	5.9	-	3.6	-	-	-	0.13	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	0.81	3.1	3.6	6.4	-	-	-	-	-	-	3.8	-	3.4	-	-	-	0.19	3.2	-	<0.005	20	0.056	-	2.0	-	1.4	-	-	-	-	-	-	-	-	1.3	0.25	-	-
	4/15/2014	-	1.1	2.3	6.0	8.3	-	-	-	-	-	-	0.052	-	1.7	-	0.018	-	0.15	5.6	-	0.27	20	-	-	-	-	1.6	-	-	-	-	-	-	-	-	1.6	3.9	-	-
	11/3/2014	-	0.77	2.9	3.8	-	-	-	-	-	-	-	1.6	-	4.1	-	0.15	-	0.21	3.8	-	0.21	25	0.14	-	-	-	1.5	-	-	-	-	-	-	-	-	<0.005	2.2	-	-
	4/6/2015	-	0.70	2.5	5.6	-	-	-	-	-	-	-	-	-	3.9	-	-	-	0.51	3.6	-	0.13	19	0.20	-	-	-	0.37	-	-	-	-	-	-	-	-	0.59	1.4	-	-
	11/17/2015	-	0.83	2	4.1	-	-	-	-	-	-	-	-	-	3.6	-	-	-	0.39	2.8	-	0.23	17	0.13	-	2.8	-	1.6	-	-	-	-	-	0.018	-	-	-	1.7	-	-
	4/14/2016	-	0.64	1.3	3.9	-	-	-	-	-	-	-	-	-	1.6	-	-	-	0.43	2.1	-	0.089	11	0.19	-	-	-	0.68	-	-	-	-	-	-	-	-	-	1.5	-	-
	11/2/2016	-	0.76	2.8	3.9	-	-	-	-	-	-	-	-	-	3.0	-	-	-	0.71	2.2	-	0.16	11	0.26	-	-	-	1.2	-	-	-	-	-	-	-	-	-	2.2	-	-
	4/24/2017	-	0.81	2.3	2.3	-	-	-	-	-	-	-	-	-	1.1	-	-	-	3.1	0.80	-	0.11	3.6	0.24	-	-	-	0.67	-	-	-	-	-	-	-	-	-	390	-	-
	11/7/2017	-	0.72	2.4	5.2	-	-	-	-	-	-	-	-	-	3.7	-	-	-	2.4	4.3	-	0.22	15	0.28	-	4.8	-	4.1	-	-	-	-	-	2.9	-	-	-	2.2	-	-
	4/25/2018	-	0.90	2.0	5.7	-	-	-	-	-	-	-	-	-	1.6	-	-	-	0.52	3.9	-	0.12	2.0	0.37	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.1	-	-
	11/12/2018	-	0.77	1.8	4.8	-	-	-	-	-	-	-	-	-	2.2	-	-	-	1.3	3.8	-	0.080	1.1	0.16	-	1.4	-	1.2	-	-	-	-	-	-	-	-	-	11	-	-
	4/24/2019	-	3.0	2.0	6.0	-	-	-	-	-	-	-	-	-	0.25	-	-	-	2.9	5.5	-	0.089	0.37	0.20	-	-	-	3.1	-	-	-	-	-	-	-	-	-	0.14	-	-
	11/4/2019	-	0.70	0.20	4.0	-	-	-	-	-	-	-	0.11	-	1.5	-	0.58	-	0.53	3.8	0.055	0.065	1.7	0.32	-	2.1	-	2.7	-	-	-	-	-	0.97	-	1.7	3.9	17	-	-
	4/16/2020	-	0.53	0.32	3.4	-	-	-	-	-	-	-	0.0079	0.027	0.19	<0.005	0.20	0.016	0.72	3.5	0.013	0.43	0.027	0.17	-	-	-	1.4	-	-	-	-	-	-	1.3	2.1	3.0	2.9	-	-
	11/5/2020	-	0.40	0.31	3.0	-	-	-	-	-	-	-	0.61	0.024	2.2	<0.005	0.30	<0.005	0.35	3.0	<0.005	0.13	0.50	0.23	-	-	-	2.3	-	-	-	-	-	-	1.5	1.6	3.8	3.6	-	-
	4/8/2021	-	0.35	0.47	3.8	-	-	-	-	-	-	-	-	-	1.1	-	-	-	0.54	3.7	<0.005	0.061	0.38	0.090	-	-	-	2.4	-	-	-	-	-	-	-	-	-	0.73	-	-
	11/10/2021	-	0.53	0.30	4.1	-	-	-	-	-	-	-	-	-	3.3	<0.005	0.60	0.011	0.53	4.8	<0.005	0.029	0.21	0.079	-	-	-	3.6	-	-	-	-	-	-	0.10	1.8	-	110	-	-
	4/5/2022	-	0.76	0.20	3.6	-	-	-	-	-	-	-	-	-	0.39	-	-	-	0.47	3.9	<0.005	0.028	0.039	0.057	-	-	-	2.0	-	-	-	-	-	-	-	-	-	0.75	-	-
	11/2/2022	-	0.24	0.02	5.1	-	-	-	-	-	-	-	-	-	1.0	<0.005	0.15	<0.005	0.55	4.1	0.010	0.045	0.11	0.12	-	4.8	-	2.8	-	-	0.11	0.15	-	1.5	0.065	0.17	5.7	0.32	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Chloride (mg/L)

NH AGQS = NE
SMCL = 250 mg/L
WQTS (Protection of Aquatic Life - Fresh Water Acute) = 230 mg/L

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations									Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	17	56	78	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-	-	-	-	-	900
	11/12/1992	24	70	78	188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	-	-	-	-	-	-	-	-	-
	4/6/1993	32	70	34	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-	1,150
	7/1/1993	900	700	650	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,200	-	-	-	-	-	-	-	-	-
	11/5/1993	18	52	66	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	-	-	-	-	-	-	-	-	700
	4/14/1994	6.6	56	52.6	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-
	7/15/1994	5.24	49.7	46.6	147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.1	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	950
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450
	11/18/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	470
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500
	4/12/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	490
	7/28/1995	10	54	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	-	-	-	-	-	-	-	-	510
	12/8/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,200
	4/26/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550
	7/25/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/1996	-	66	35	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	49	52	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	4/21/1997	-	60	32	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	23	8	-	-	-	-	-	-	-	-	-	-
	7/22/1997	17	37	29	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	-	49	39	-	-	-	-	-	-	-	-	-	-
	11/11/1997	78	103	36	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	80	40	-	-	-	-	-	-	-	-	-	-
	4/15/1998	52	56	22	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	-	25	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	39	31	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	-	90	17	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	28	50	140	7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	-	27	44	-	-	-	-	-	-	-	-	-	-
	7/27/1999	9.9	37	21	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	51	67	-	-	-	-	-	-	-	-	-	-
	11/18/1999	40	47	28	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	47	53	-	-	-	-	-	-	-	-	-	-
	5/5/2000	83	51	8.1	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-
	7/7/2000	420	53	14	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	-	54	43	-	-	-	-	-	-	-	-	-	-
	11/16/2000	120	73	44	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-	62	60	-	-	-	-	-	-	-	-	-	-
	4/25/2001	72	63	34	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	42	39	-	-	-	-	-	-	-	-	-	-
	7/25/2001	42	63	17	100	94	-	-	77	45	460	-	-	-	-	-	-	-	81	<5	26	-	11	-	41	37	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	51	-	-	-	-	-	-	-	-	-	-	-	-	120	13	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	43	74	40	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	96	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	34	68	51	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-	-	-	-	-
	11/20/2002	28	67	24	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	-	-	-	-	-	-	-	-	-	-
	4/29/2003	18	61	6.1	45	48	-	-	-	-	-	-	-	-	-	-	-	-	140	6.8	22	-	17	-	30	14	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	71	33	160	53	-	-	-	-	-	-	-	-	-	-	-	-	140	5.4	27	-	27	-	62	22	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	51	<0.5	94	64	-	-	-	-	-	41	-	-	-	-	-	-	120	5.5	21	6.8	19	22	45	24	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	38	8.8	79	31	-	-	-	-	-	19	-	-	-	-	-	-	67	7.3	20	-	20	4.0	74	57	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	65	24	130	70	-	-	-	-	-	36	-	-	-	-	-	-	130	14	26	-	11	8.3	45	22	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	47	11	120	88	-	-	-	-	-	15	-	-	-	-	-	-	120	12	34	-	16	6.7	62	39	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	51	13	98	51	-	-	-	-	-	35	-	-	-	-	-	-	130	29 M	36	-	23	19	61	69	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	11	5.0	35	63	-	-	-	-	-	4	-	-	-	-	-	-	50	10	7.9	-	5.2	1.8	18	3.4	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	80	56.0	95	68	-	-	-	-	-	32	-	-	-	-	-	-	-	66	-	-	28	17	41	45	-	-	-	-	-	-	-	-	22	-
	11/14/2007	-	63	37	98	38	-	-	-	-	-	35	-	-	-	-	-	-	130	59	14	-	35	13	53 M	55	-	-	-	-	-	-	-	-	30	-
	4/25/2008	-	74	66	110	75	-	-	-	-	-	48	-	-	-	-	-	-	-	59	-	-	45	10	46 M	39	-	-	-	-	33	-	-	-	33	-
	11/18/2008	-	70	45	230	150	-	-	-	-	-	170	-	46	-	-	-	-	160	39	-	-	Dry	6.1	35	28	-	-	-	-	79	-	-	-	-	-
	4/27/2009	-	77	52	130	35	-	-	-	-	-	46	-	-	-	-	-	-	-	33	-	-	25	7	37	29	-	-	-	-	26	-	-	-	27	-
	11/4/2009	-	75	40	180	53	-	-	-	-	-	-	-	41	-	-	-	-	120	44	19	-	30	16	72	-	-	-	-	-	29	-	-	100	30	-
	4/20/2010	-	77	40	140	30	-	-	-	-	-	-	-	6	-	-	-	-	-	43	-	-	35	33	38	-	-	-	-	-	27	-	-	87	25	-
	11/11/2010	-	57	43	140	61	-	-	-	-	-	-	-	43	-	-	-	-	120	52	24	-	35	9	88	-	-	-	-	-	30	-	-	100	29	-
	4/22/2011	-	54	50	130	39	-	-	-	-	-	-	-	19	-	-	-	-	-	50	-	-	35	8	50	-	-	-	-	-	24	-	-	73	28	-
	11/14/2011	-	62	45	160	61	-	-	-	-	-	-	-	42	-	-	-	-	130	48	24	-	26	5	36	-	-	-	-	-	21	-	-	75	24	-
	4/30/2012	-	60	39	210	41	-	-	-	-	-	-	-	33	-	-	-	-	-	32	-	-	27	16	53	-	-	-	-	-	26	-	-	73	28	-
	11/5/2012	-	77	40	210	46	-	-	-	-	-	-	-	53	-	90	48	-	120	27	-	-	32	19	87	-	-	-	-	-	37	-	-	83	30	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	60	46	-	79	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	60	42	170	91	-	-	-	-	-	-	41	42	-	96	44	-	130	15	12	-	28	-	79	-	-	-	-	-	-	-	46	66	-	-
	4/15/2014	-	64	42	97	110	-	-	-	-	-	-	34	37	6	98	40	-	130	12	-	-	-	-	51	-	-	-	-	-	-	-	78	60	-	-
	11/3/2014	-	57	39	170	-	-	-	-	-	-	-	44	47	30	130	40	-	120	10	23	-	-	-	89	-	-	-	-	-	-	-	120	50	-	-
	4/6/2015	-	50	43	78	-	-	-	-	-	-	-	-	52	-	170	42	-	120	10	15	-	-	-	10	-	-	-	-	-	-	-	82	52	-	-
	11/17/2015	-	57	38	170	-	-	-	-	-	-	-	-	41	170	-	40	-	120	8	20	-	20	-	85	-	-	-	-	-	44	-	-	47	-	-
	4/14/2016	-	51	42	86	-	-	-	-	-	-	-	-	57	-	98	44	-	130	8	13	-	-	-	47	-	-	-	-	-	-	-	-	50	-	-
	11/2/2016	-	59	40	71	-	-	-	-	-	-	-	-	54	-	220	38	-	120	9	18	-	-	-	110	-	-	-	-	-	-	-	-	50	-	-
	4/24/2017	-	67	42	53	-	-	-	-	-	-	-	-	49	-	99	45	-	120	10	3	-	-	-	59	-	-	-	-	-	-	-	-	44	-	-
	11/7/2017	-	59	37	170	-	-	-	-	-	-	-	-	45	-	210	43	-	120	6	18	-	39	-	80	-	-	-	-	-	48	-	-	51	-	-
	4/25/2018	-	89	40	85	-	-	-	-	-	-	-	-	50	-	96	45	-	120	8.6	20	-	-	-	56	-	-	-	-	-	-	-	-	55	-	-
	11/12/2018	-	83	46	170	-	-	-	-	-	-	-	-	53	-	160	49	-	110	7.6	21	-	20	-	21	-	-	-	-	-	-	-	-	47	-	-
	4/24/2019	-	200	42	160	-	-	-	-	-	-	-	-	11	-	140	51	-	93	16	28	-	-	-	43	-	-	-	-	-	-	-	-	49	-	-
	11/4/2019	-	69	48	130	-	-	-	-	-	-	-	89	53	83	98	50	120	100	30	42	-	26	-	98	-	-	-	-	-	17	65	69	78	-	-
	4/16/2020	-	81	55	110	-	-	-	-	-	-	-	-	35	-	180	49	77	93	8.2	28	-	-	-	34	-	-	-	-	-	-	-	-	64	-	-
	11/5/2020	-	89	58	95	-	-	-	-	-	-	-	-	48	-	120	56	120	99	15	34	-	-	-	98	-	-	-	-	-	-	-	-	61	-	-
	4/8/2021	-	98	58	97	-	-	-	-	-	-	-	-	60	-	110	61	69	110	6.6	33	-	-	-	77	-	-	-	-	-	-	-	-	73	-	-
	11/10/2021	-	92	65	90	-	-	-	-	-	-	-	-	60	-	170	67	36	130	6	26	-	-	-	74	-	-	-	-	-	-	-	-	58	-	-
	4/5/2022	-	240	75	120	-	-	-	-	-	-	-	-	83	-	140	77	29	140	5.8	20	-	-	-	87	-	-	-	-	-	-	-	-	61	-	-
	11/2/2022	-	94	54	150	-	-	-	-	-	-	-	-	74	-	160	72	91	130	8.7	40	-	42	-	91	-	-	-	-	-	45	59	65	67		

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Nitrate (mg/L)

NH AGQS = 10 mg/L
WQCTS (Water and Fish Ingestion) = 10 mg/L

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations									Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05
	11/12/1992	**1.35**	**0.36**	**2.15**	**0.38**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	**0.34**	-	-	-	-	-	-	-	-	-
	4/6/1993	**0.5**	**0.5**	**0.5**	**0.5**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	**0.5**	-	-	-	-	-	-	-	-	**1.5**
	7/1/1993	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
	11/5/1993	**0.6**	**0.5**	**0.5**	**0.5**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	**0.5**	-	-	-	-	-	-	-	-	**1.5**
	4/14/1994	**0.197**	**0.091**	**0.226**	<0.03	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	-
	7/15/1994	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1994	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/12/1995	**0.52**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
	7/28/1995	**0.7**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
	12/8/1995	**0.17**	<0.05	**0.16**	**0.078**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-
	4/26/1996	**0.1**	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-
	7/25/1996	**0.17**	<0.05	<0.05	**0.07**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-
	11/14/1996	-	**0.6**	**0.47**	**19**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**3.2**	-	**0.74**	**0.49**	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	4/21/1997	-	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**0.34**	-	**2.1**	**1.4**	-	-	-	-	-	-	-	-	-	-
	7/22/1997	**0.35**	<0.05	**0.06**	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/11/1997	**0.89**	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	4/15/1998	**0.46**	<0.05	**0.06**	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.05	-	-	<0.05	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	<0.05	<0.05	**5.6**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**4.1**	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/16/1998	**0.52**	<0.05	**0.31**	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**0.08**	-	<0.05	**0.12**	-	-	-	-	-	-	-	-	-	-
	4/19/1999	**0.39**	<0.05	<0.1	<0.1	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	7/27/1999	**0.096**	<0.05	**0.37**	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.05	-	<0.05	**0.18**	-	-	-	-	-	-	-	-	-	-
	11/18/1999	**0.51**	<0.05	<0.05	<0.3	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**0.09**	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
	5/5/2000	**2.7**	**0.1**	**0.39**	**0.1**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-
	7/7/2000	**7**	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**0.43**	-	<0.05	**0.06**	-	-	-	-	-	-	-	-	-	-
	11/16/2000	**2.1**	**0.051**	**0.55**	<0.1	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.05	-	<0.05	**0.38**	-	-	-	-	-	-	-	-	-	-
	4/25/2001	**0.98**	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.05	-	**0.12**	<0.05	-	-	-	-	-	-	-	-	-	-
	7/25/2001	**1**	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	**1.3**	-	-	-	-	-	-	-	-		-	-	-	<0.100	<0.100	**0.140**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	**1.3**	**0.16**	**0.44**	**3**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**0.26**	-	-	<0.05	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	**1**	**0.2**	**0.3**	**0.2**	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-
	11/20/2002	**0.8**	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-
	4/29/2003	**0.7**	<0.1	**0.2**	<0.1	**1.8**	-	-	-	-	-	-	-	-		-	-	-	<0.1	<0.1	**0.2**	-	<0.1	-	<0.1	**0.3**	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	<0.1	<0.1	<0.1	**3.6**	-	-	-	-	-	-	-	-		-	-	-	**0.1**	<0.1	**0.2**	-	<0.1	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	<0.1	**0.3**	<0.1	**2.6**	-	-	-	-	-	**0.4**	-	-		-	-	-	**0.1**	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	<0.1	**0.9**	<0.1	**0.8**	-	-	-	-	-	**0.2**	-	-		-	-	-	**0.2**	<0.1	**0.2**	-	<0.1	<0.1	<0.1	**2.1**	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.1	**0.1**	<0.1	**2.0**	-	-	-	-	-	**0.2**	-	-		-	-	-	**0.1**	<0.1	**0.1**	-	**0.8**	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	<0.1	**1.2**	<0.1	**1.0**	-	-	-	-	-	<0.1	-	-		-	-	-	**0.3**	<0.1	**0.2**	-	<0.5	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	<0.1	<0.1	<0.1	**0.4**	-	-	-	-	-	<0.1	-	-		-	-	-	**0.2**	<0.1	**0.2**	-	<0.1	<0.1	<0.1	**0.1**	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	<0.1	<0.1	<0.1	**0.2**	-	-	-	-	-	<0.1	-	-		-	-	-	<0.1	<0.1	**0.1**	-	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.1	**0.2**	<0.1	**0.2**	-	-	-	-	-	<0.1	-	-		-	-	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	-
	11/14/2007	-	<0.1	**0.6**	<0.1	<0.1	-	-	-	-	-	<0.1	-	<0.5		-	-	-	**0.4**	**0.2**	**0.1**	-	<0.1	**0.1**	<0.1	<0.1	-	-	-	-	-	-	-	-	**0.2**	-
	4/25/2008	-	<0.1	**0.2**	<0.1	**0.2**	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	-	-	-	-	<0.1	-	-	-	<0.1	-
	11/18/2008	-	<0.1	**1.1**	<0.1	<0.1	-	-	-	-	-	<0.1	-	**0.27**	-	-	-	-	**0.2**	<0.1	-	-	Dry	<0.1	<0.1	<0.1	-	-	-	-	<0.1	-	-	-	-	-
	4/27/2009	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	**0.7**	-	-	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-	-	-	<0.5	-
	11/4/2009	-	<0.5	**0.6**	<0.5	<0.5	-	-	-	-	-	-	-	**0.7**	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	4/20/2010	-	<0.5	**1.3**	<0.5	**1.4**	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	11/11/2010	-	<0.5	**1.0**	<0.5	<0.5	-	-	-	-	-	-	-	**0.7**	-	-	-	-	<0.5	**0.6**	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	4/22/2011	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	**1.0**	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	11/14/2011	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	-	-	-	-	<0.5	**0.8**	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	4/30/2012	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	-	-	-	-		<0.5	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	11/5/2012	-	<0.5	**1.3**	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	-	<0.5	**0.6**	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	<0.5	<0.5	-	**0.6**	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	-	-
	4/15/2014	-	<0.5	**0.8**	<0.5	<0.5	-	-	-	-	-	-	**0.8**	<0.5	<0.5	**0.7**	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	-	-
	11/3/2014	-	<0.5	**3.3**	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	**0.8**	**1.1**	-	<0.5	-	<0.5	-	-	-	-	-	-	-	**1.2**	<0.5	-	-
	4/6/2015	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**0.9**	<0.5	-	<0.5	**0.9**	**0.5**	-	-	-	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	-	-
	11/17/2015	-	<0.5	0.7	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**0.8**	<0.5	-	<0.5	**<0.5**	**0.5**	-	<0.5	-	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	-	-
	4/14/2016	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	11/2/2016	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**2**	<0.5	-	1	1.4	1.1	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	4/24/2017	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**1.0**	<0.5	-	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	11/7/2017	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**1.2**	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	-	-
	4/25/2018	-	<0.5	**0.54**	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**0.61**	<0.5	-	<0.5	<0.5	**1.1**	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	11/12/2018	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**1.5**	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	4/24/2019	-	**0.50**	<0.5	<0.5	-	-	-	-	-	-	-	-	**1.2**	-	**1.3**	<0.5	-	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	11/4/2019	-	**0.79**	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	**1.8**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	-	-
	4/16/2020	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	**0.62**	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	11/5/2020	-	**0.78**	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**1.4**	<0.5	**0.50**	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	4/8/2021	-	**0.73**	**2.6**	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**0.88**	<0.5	**0.66**	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	11/10/2021	-	**0.96**	**2.0**	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**0.93**	<0.5	**1.9**	<0.5	<0.5	**0.87**	-	-	-	<0.5	-	-	-	-	-	-	-	-	**1.1**	-	-
	4/5/2022	-	**0.71**	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	-	**0.99**	<0.5	**1.1**	<0.5	<0.5	**0.58**	-	-	-	<0.5	-	-	-	-	-	-	-	-	**1.3**	-	-
	11/2/2022	-	**0.83**	**1.1**	<0.5	-	-	-	-	-	-	-	-	**0.64**	-	**0.79**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	-	-	-	-	<0.5	<0.5	<0.5	**0.73**	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

TKN (mg/L)

NH AGQS = NE
WQCTS = NE

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations									Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/ South Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	0.5	0.5	1.2	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150
	11/12/1992	0.665	0.904	0.477	7.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.425	-	-	-	-	-	-	-	-	-
	4/6/1993	2.09	1.39	1.39	7.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.39	-	-	-	-	-	-	-	-	207
	7/1/1993	<1.0	<1.0	24	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-	-	-
	11/5/1993	0.164	0.164	0.789	8.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	-	213
	4/14/1994	0.393	0.241	1.24	7.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.685	-	-	-	-	-	-	-	-	-
	7/15/1994	0.317	0.099	0.404	6.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.343	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/12/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7/28/1995	1.64	<1	3.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	-	-
	12/8/1995	0.56	0.31	3.8	7.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.7	-	-	-	-	-	-	-	-	-
	4/26/1996	<1	0.24	2.5	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.28	-	-	-	-	-	-	-	-	-
	7/25/1996	0.05	0.15	2.6	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-
	11/14/1996	-	0.69	11	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	-	0.74	0.52	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	0.61	1.5	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.34	-	2.1	1.4	-	-	-	-	-	-	-	-	-	-
	7/22/1997	0.27	0.61	1.29	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.45	-	3.36	0.44	-	-	-	-	-	-	-	-	-	-
	11/11/1997	0.3	1.9	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	1.5	0.8	-	-	-	-	-	-	-	-	-	-
	4/15/1998	<0.1	0.95	1.5	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.1	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	1.8	1.4	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.2	-	4.3	0.3	-	-	-	-	-	-	-	-	-	-
	11/16/1998	2.2	0.27	1.8	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	-	0.47	3.6	-	-	-	-	-	-	-	-	-	-
	4/19/1999	<0.5	<0.5	1.6	4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-
	7/27/1999	<0.01	<0.01	1.9	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.5	0.8	-	-	-	-	-	-	-	-	-	-
	11/18/1999	<0.5	<0.5	5.3	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	2.4	2	-	-	-	-	-	-	-	-	-	-
	5/5/2000	<0.5	<0.5	2.7	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-
	7/7/2000	<0.5	<0.5	3.5	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	0.5	<0.5	-	-	-	-	-	-	-	-	-	-
	11/16/2000	1.3	0.5	2.5	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4.1	45.2	-	-	-	-	-	-	-	-	-	-
	4/25/2001	0.7	ND	1.8	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	5	2.2	-	-	-	-	-	-	-	-	-	-
	7/25/2001	0.8	<0.3	1.1	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	16	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	0.6	0.3	1.2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-	77	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	0.4	0.2	1.1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-
	11/20/2002	0.4	0.5	1.3	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.3	<0.3	1.2	3.8	0.4	-	-	-	-	-	-	-	-	-	-	-	-	1.1	0.5	<0.3	-	1.3	-	1.1	<0.3	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	0.7	1.2	2.6	1.1	-	-	-	-	-	-	-	-	-	-	-	-	1.1	3.1	<0.3	-	-	-	3.5	0.4	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	5.0	0.8	2.8	1.2	-	-	-	-	-	2.0	-	-	-	-	-	-	0.4	3.0	<0.3	<0.3	5.1	1.2	1.5	0.7	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	0.8	2.2	3.2	0.4	-	-	-	-	-	3.5	-	-	-	-	-	-	<0.3	0.8	<0.3	-	3.9	<1.5	2.5	1.2	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	0.8	0.5	1.9	0.4	-	-	-	-	-	1.5	-	-	-	-	-	-	<0.3	0.4	<0.3	-	4.3	0.4	1.8	0.7	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	0.5	0.5	6.2	0.4	-	-	-	-	-	1.7	-	-	-	-	-	-	<0.3	14.7	0.3	-	5.8	1.2	5.1	1.2	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	0.3	0.6	5.4	0.6	-	-	-	-	-	2.4	-	-	-	-	-	-	0.3	3.5	1.1	-	12.1	2.2	4.9	20.0	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	1.3	1.7	6.2	<1	-	-	-	-	-	2.2	-	-	-	-	-	-	<1	14	1.3	-	77	6.0	110	<1	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.5	0.7	4	<0.5	-	-	-	-	-	3.9	-	-	-	-	-	-	-	1.5	-	-	36	2.1	7	<0.5	-	-	-	-	-	-	-	-	<0.5	-
	11/14/2007	-	<0.5	<0.5	3.9	0.5	-	-	-	-	-	1.3	-	0.6	-	-	-	-	<0.5	<0.5	1.0	-	17	2.1	7.1	1.4	-	-	-	-	-	-	-	-	1.0	-
	4/25/2008	-	<0.5	1.1	3.6	0.6	-	-	-	-	-	1.3	-	-	-	-	-	-	-	<0.5	-	-	1.9	0.9	0.8	<0.5	-	-	-	-	<0.5	-	-	-	<0.5	-
	11/18/2008	-	<0.5	0.6	6.1	<0.5	-	-	-	-	-	2.7	-	0.91	-	-	-	-	<0.5	2.8	-	-	Dry	<0.5	0.8 M	<0.5	-	-	-	-	<0.5	-	-	-	-	-
	4/27/2009	-	<0.5	<0.5	4.3	0.7	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	<0.5	-	-	4.0	<0.5	1.7	0.9	-	-	-	-	<0.5	-	-	-	<0.5	-
	11/4/2009	-	<0.5	<0.5	4.6	<0.5	-	-	-	-	-	-	-	<0.5	-	-	-	-	<0.5	1.3	<0.5	-	2.2	<0.5	1.6	-	-	-	-	-	0.7	-	-	<0.5	<0.5	-
	4/20/2010	-	<0.5	0.7	3.4	0.6	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	0.7	-	-	4.8	<0.5	0.9	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	11/11/2010	-	0.6	<0.5	4.0	<0.5	-	-	-	-	-	-	-	<0.5	-	-	-	-	<0.5	<0.5	<0.5	-	2.8	<0.5	1.9	-	-	-	-	-	<0.5	-	-	<0.5	0.6	-
	4/22/2011	-	<0.5	<0.5	1.8	<0.5	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5	-	-	2.9	<0.5	1.5	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	11/14/2011	-	0.5	0.8	2.9	0.6	-	-	-	-	-	-	-	<0.5	-	-	-	-	<0.5	0.5	<0.5	-	2.9	<0.5	17	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	4/30/2012	-	<0.5	0.6	3.5	<0.5	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5	-	-	3.2	<0.5	2.1	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	-
	11/5/2012	-	<0.5	0.8	3.1	0.6	-	-	-	-	-	-	-	1.2	-	<0.5	3.7	-	<0.5	0.5	-	-	1.8	<0.5	2.2	-	-	-	-	-	0.7	-	-	<0.5	0.6	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	0.8	0.8	-	<0.5	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	5.8	1.1	2.2	1.6	-	-	-	-	-	-	0.5	2.0	-	0.6	1.4	-	0.8	0.7	0.7	-	2.0	-	1.8	-	-	-	-	-	-	-	1.3	<0.5	-	-
	4/15/2014	-	7.3	<0.5	2.1	0.9	-	-	-	-	-	-	<0.5	0.9	<0.5	<0.5	2.0	-	<0.5	0.5	-	-	-	-	2.2	-	-	-	-	-	-	-	<0.5	0.7	-	-
	11/3/2014	-	13	0.5	1.4	-	-	-	-	-	-	-	<0.5	1.3	0.6	<0.5	1.5	-	<0.5	3.9	<0.5	-	-	-	3.0	-	-	-	-	-	-	-	<0.5	0.7	-	-
	4/6/2015	-	8.9	0.5	3.9	-	-	-	-	-	-	-	-	1.2	-	<0.5	2.6	-	<0.5	1.2	<0.5	-	-	-	1.3	-	-	-	-	-	-	-	<0.5	<0.5	-	-
	11/17/2015	-	3.4	1.2	1.4	-	-	-	-	-	-	-	-	1.2	-	<0.5	2.6	-	<0.5	0.5	<0.5	-	2.7	-	1.5	-	-	-	-	-	0.7	-	-	0.5	-	-
	4/14/2016	-	<0.5	<0.5	2.3	-	-	-	-	-	-	-	-	<0.5	-	<0.5	1.8	-	0.6	0.6	<0.5	-	-	-	0.8	-	-	-	-	-	-	-	-	0.5	-	-
	11/2/2016	-	4.2	0.6	5.1	-	-	-	-	-	-	-	-	0.9	-	<0.5	0.9	-	<0.5	3.1	<0.5	-	-	-	2.4	-	-	-	-	-	-	-	-	<0.5	-	-
	4/24/2017	-	<0.5	<0.5	2.8	-	-	-	-	-	-	-	-	<0.5	-	<0.5	1.0	-	<0.5	0.8	<0.5	-	-	-	0.6	-	-	-	-	-	-	-	-	0.6	-	-
	11/7/2017	-	<0.5	<0.5	1.3	-	-	-	-	-	-	-	-	0.7	-	<0.5	0.9	-	<0.5	0.7	<0.5	-	1.3	-	1.3	-	-	-	-	-	1.2	-	-	<0.5	-	-
	4/25/2018	-	<0.5	<0.5	2.3	-	-	-	-	-	-	-	-	<0.5	-	0.54	1.3	-	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-
	11/12/2018	-	<0.5	<0.5	1.1	-	-	-	-	-	-	-	-	<0.5	-	<0.5	1.3	-	<0.5	0.69	<0.5	-	0.65	-	0.52	-	-	-	-	-	-	-	-	<0.5	-	-
	4/24/2019	-	<0.5	<0.5	2.3	-	-	-	-	-	-	-	-	<0.5	-	<0.5	1.3	-	<0.5	0.8	<0.5	-	-	-	2.0	-	-	-	-	-	-	-	-	<0.5	-	-
	11/4/2019	-	<0.5	<0.5	2.6	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	0.7	1.3	<0.5	<0.5	<0.5	<0.5	-	1.4	-	0.9	-	-	-	-	-	1.1	<0.5	<0.5	0.5	-	-
	4/16/2020	-	<0.5	0.6	1.2	-	-	-	-	-	-	-	-	<0.5	-	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	-	-	-	0.88	-	-	-	-	-	-	-	-	<0.5	-	-
	11/5/2020	-	<0.5	<0.5	1.5	-	-	-	-	-	-	-	-	<0.5	-	<0.5	0.83	<0.5	1.1	19	<0.5	-	-	-	0.63	-	-	-	-	-	-	-	-	<0.5	-	-
	4/8/2021	-	1.5	<0.5	1.1	-	-	-	-	-	-	-	-	<0.5	-	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	-	-	-	2.0	-	-	-	-	-	-	-	-	<0.5	-	-
	11/10/2021	-	0.64	<0.5	1.9	-	-	-	-	-	-	-	-	0.87	-	<0.5	0.81	<0.5	<0.5	0.62	<0.5	-	-	-	2.6	-	-	-	-	-	-	-	-	1.7	-	-
	4/5/2022	-	<0.5	0.66	0.99	-	-	-	-	-	-	-	-	0.70	-	1.0	1.5	1.1	0.77	0.86	1.0	-	-	-	0.89	-	-	-	-	-	-	-	-	0.77	-	-
	11/2/2022	-	<0.5	<0.5	2.0	-	-	-	-	-	-	-	-	<0.5	-	<0.5	1.0	<0.5	<0.5	0.98	<0.5	-	1.8	-	1.5	-	-	-	-	-	0.59	0.65	<0.5	<0.5	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

1,4-Dioxane (mg/L)

NH AGQS = 0.32 µg/L
WQCTS (Water and Fish Ingestion) = NE

Sampling Date	Overburden Monitoring Wells																				Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations											Leachate Monitoring Well
	RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-103	GZ-104	GZ-105	GZ-106	GZ-107	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	SW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	Exeter River	MW-6
4/27/2009	-	-	**1**	**6**	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	-	-	-	<1	-	-	**1**	-	**5**	-	-	-	-	-	-	-	-	-	-	-	-
11/4/2009	-	-	**1**	**4**	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1	-	-	**1**	-	**2**	-	-	-	-	-	<1	-	-	-	<1	<1	-
4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/11/2010	-	<1	**2**	**4**	<1	-	-	-	-	-	-	-	-	**1**	-	-	-	-	-	-	<1	<1	<1	-	**1**	<1	**3**	-	-	-	-	-	-	-	-	-	-	-	-
4/22/2011	-	<0.25	**1**	**1**	<0.25	-	-	-	-	-	-	-	-	**0.95**	-	-	-	-	-	-	-	<0.25	-	-	**0.58**	<0.25	**2**	-	-	-	-	-	-	-	-	-	-	-	-
11/4/2011	-	<0.25	**1.3**	**1.4**	<0.25	-	-	-	-	-	-	-	-	**1.6**	-	-	-	-	-	-	<0.25	<0.25	<0.25	-	**0.56**	<0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
4/30/2012	-	**0.55**	**1.6**	**2.8**	<0.25	-	-	-	-	-	-	-	-	**0.83**	-	-	-	-	-	-	-	<0.25	-	-	**1.2**	**0.50**	-	-	-	-	-	-	-	-	-	-	-	-	-
11/5/2012	-	<0.25	**1.5**	**1.3**	<0.25	-	-	-	-	-	-	-	-	**1.7**	-	-	-	<0.25	**2.8**	-	<0.25	<0.25	-	-	**1.4**	**0.55**	**2.1**	-	-	-	-	-	<0.25	-	-	-	<0.25	<0.25	-
5/7/2013	-	-	-	-	-	-	-	-	-	-	-	**0.70**	-	**1.2**	-	-	-	<0.25	**2.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/19/2013	-	<0.25	**0.25**	**1.1**	<0.25	-	-	-	-	-	-	**0.79**	-	**1.2**	-	-	-	<0.25	**2.0**	-	<0.25	<0.25	<0.25	-	-	-	**1.1**	-	-	-	-	-	-	-	-	**1.3**	<0.25	-	-
4/15/2014	-	-	-	-	-	-	-	-	-	-	-	<0.25	-	-	-	<0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	-	-	-
11/3/2014	-	-	-	-	-	-	-	-	-	-	-	**0.33**	-	-	-	**0.92**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	-	-	-
11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1.2**	-	-	-	-	-	-	<0.25	-	-	-	-	-	-
11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/7/2017	-	<0.25	**2.2**	**3.2**	-	-	-	-	-	-	-	-	-	**0.71**	-	-	-	<0.25	**2.0**	-	<0.25	<0.25	<0.25	-	**1.4**	-	**1.4**	-	-	-	-	-	<0.25	-	-	-	**1.3**	-	-
4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.70**	-	-	-	-
4/24/2019	-	<0.2	**2.1**	**4.2**	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	<0.2	**5.3**	-	**0.44**	<0.2	<0.2	-	-	-	**1.8**	-	-	-	-	-	-	-	-	-	**0.73**	-	-
11/4/2019	-	<0.2	**2.0**	**2.9**	-	-	-	-	-	-	-	**0.89**	-	**1.4**	-	**1.2**	-	<0.2	**4.4**	<0.2	<0.2	<0.2	<0.2	-	**0.70**	-	**1.1**	-	-	-	-	-	<0.2	-	**1.0**	**1.3**	**0.81**	-	-
4/16/2020	-	<0.2	**0.9**	**0.81**	-	-	-	-	-	-	-	**0.79**	<0.2	**1.0**	<0.2	**0.9**	<0.2	<0.2	**1.8**	<0.2	<0.2	<0.2	<0.2	-	-	-	**0.53**	-	-	-	-	-	-	**0.81**	**0.78**	**0.52**	**0.42**	-	-
11/5/2020	-	<0.2	**1.5**	**1.5**	-	-	-	-	-	-	-	**1.0**	<0.2	**1.5**	<0.2	**2.0**	<0.2	<0.2	**2.1**	<0.2	<0.2	<0.2	<0.2	-	-	-	**1.1**	-	-	-	-	-	-	**1.2**	**1.6**	**1.6**	**1.9**	-	-
4/8/2021	-	<0.2	**0.78**	**0.68**	-	-	-	-	-	-	-	-	-	**0.98**	-	-	-	<0.2	**1.3**	<0.2	<0.2	<0.2	<0.2	-	-	-	**1.4**	-	-	-	-	-	-	-	-	-	**0.59**	-	-
11/10/2021	-	<0.2	**0.59**	**0.78**	-	-	-	-	-	-	-	-	-	**0.73**	<0.2	**0.20**	<0.2	<0.2	**0.96**	<0.2	<0.2	<0.2	<0.2	-	-	-	**0.83**	-	-	-	-	-	-	<0.2	**0.73**	-	**0.42**	-	-
4/5/2022	-	<0.2	**1.17**	**0.74**	-	-	-	-	-	-	-	-	-	**0.56**	-	-	-	<0.2	**1.43**	<0.2	<0.2	<0.2	<0.2	-	-	-	**1.13**	-	-	-	-	-	-	-	-	-	**0.48**	-	-
11/2/2022	-	<0.2	<0.2	**2.6**	-	-	-	-	-	-	-	-	-	**0.58**	<0.2	**2.6**	<0.2	<0.2	**1.5**	<0.2	<0.2	<0.2	<0.2	-	**0.70**	-	**1.5**	-	-	-	-	-	<0.2	-	<0.2	**0.83**	**0.33**	-	-

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Specific Conductance (mg/L)

NH AGQS = NE
WQCTS (Water and Fish Ingestion) = NE

Sampling Date	Overburden Monitoring Wells																			Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations				Surface Water Monitoring Stations											Leachate Monitoring Well
	RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-103	GZ-104	GZ-105	GZ-106	GZ-107	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/ Southern Spring)	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	Exeter River	MW-6
5/27/1992	150	370	910	1,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	510	-	-	-	-	-	-	-	-	-	-	-	-	-	7,500
11/12/1992	130	347	858	1,270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	630	-	-	-	-	-	-	-	-	-	-
4/6/1993	180	340	699	855	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	148	-	-	-	-	-	-	-	-	-	6,790
7/1/1993	134	368	991	1,350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	721	-	-	-	-	-	-	-	-	-	-
11/5/1993	136	352	943	1,310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	727	-	-	-	-	-	-	-	-	-	5,830
4/14/1994	69	350	710	958	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	280	-	-	-	-	-	-	-	-	-	-
7/15/1994	77	335	740	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	665	-	-	-	-	-	-	-	-	-	-
11/18/1994	140	340	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	800	-	-	-	-	-	-	-	-	-	-
7/22/1997	189	1,024	202	156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,274	1,107	-	166	-	-	-	-	-	-	-	-	-	-	-	-
7/22/1999	117	325	1,076	1,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	615	1,045	-	610	-	-	-	-	-	-	-	-	-	-	-	-
4/25/2001	261	327	887	847	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	314	274	-	371	-	-	-	-	-	-	-	-	-	-	-	-
7/25/2001	229	301	1,390	982	810	-	-	504	296	805	-	-	-	-	-	-	-	-	-	-	530	290	585	-	131	494	-	261	-	-	-	-	-	-	-	-	-	-	-	-
8/9/2001	-	-	-	-	662	-	-	435	225	-	-	-	-	-	-	-	-	-	-	-	603	769	279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/28/2001	590	387	1,610	984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	470	477	-	398	-	-	-	-	-	-	-	-	-	-	-	-
4/24/2002	266	349	912	940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	307	-	-	-	-	-	-	-	-	-	-	-	-
11/20/2002	192	355	822	782	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	291	-	-	-	-	-	-	-	-	-	-	-	-
4/29/2003	535	94	1,003	431	346	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	586	696	224	-	259	573	-	140	-	-	-	-	-	-	-	-	-	-	-	-
11/17/2003	-	117	968	412	362	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	613	712	242	-	230	508	-	103	-	-	-	-	-	-	-	-	-	-	-	-
4/28/2004	-	542	1,017	760	405	-	-	-	-	-	936	-	-	-	-	-	-	-	-	-	596	553	382	342	-	247	270	762	-	-	-	-	-	-	-	-	-	-	-	-
11/15/2004	-	226	1,262	794	251	-	-	-	-	-	580	-	-	-	-	-	-	-	-	-	436	402	204	-	-	199	180	406	-	-	-	-	-	-	-	-	-	-	-	-
4/28/2005	-	558	1,093	717	390	-	-	-	-	-	909	-	-	-	-	-	-	-	-	-	559	561	366	-	-	240	235	723	-	-	-	-	-	-	-	-	-	-	-	-
11/8/2005	-	268	1,330	905	554	-	-	-	-	-	855	-	-	-	-	-	-	-	-	-	623	711	284	-	-	265	397	581	-	-	-	-	-	-	-	-	-	-	-	-
4/17/2006	-	205	1,231	606	301	-	-	-	-	-	548	-	-	-	-	-	-	-	-	-	393	324	218	-	-	170	255	464	320	-	-	-	-	-	-	-	-	-	-	-
11/20/2006	-	274	796	756	1,050	-	-	-	-	-	718	-	-	-	-	-	-	-	-	-	582	308	257	-	-	197	363	442	113	-	-	-	-	-	-	-	-	-	-	-
5/2/2007	-	358	603	707	508	-	-	-	-	-	121	-	-	-	-	-	-	-	-	-	-	627	-	-	-	308	363	517	347	-	-	-	-	-	-	-	-	-	119	-
11/14/2007	-	303	633	715	510	-	-	-	-	-	975	-	-	-	-	-	-	-	-	-	525	605	229	-	-	217	344	485	208	-	-	-	-	-	-	-	-	-	97	-
4/25/2008	-	367	681	856	700	-	-	-	-	-	913	-	-	-	-	-	-	-	-	-	-	668	-	-	-	325	246	517	257	-	-	-	-	165	-	-	-	-	155	-
11/18/2008	-	341	634	871	765	-	-	-	-	-	-	-	-	417	-	-	-	-	-	-	487	677	-	-	-	-	255	492	249	-	-	-	-	137	-	-	-	-	131	-
4/27/2009	-	367	636	835	712	-	-	-	-	-	938	-	-	-	-	-	-	-	-	-	-	625	-	-	-	317	226	502	117	-	-	-	-	131	-	-	-	248	130	-
11/4/2009	-	350	1,062	1,070	338	-	-	-	-	-	-	-	-	607	-	-	-	-	-	-	668	554	217	-	-	330	264	481	-	-	-	-	-	114	-	-	-	262	106	-
4/20/2010	-	347	1,071	1,019	321	-	-	-	-	-	-	-	-	618	-	-	-	-	-	-	-	568	-	-	-	322	249	446	-	-	-	-	-	105	-	-	-	250	93	-
11/11/2010	-	344	1,138	1,048	322	-	-	-	-	-	-	-	-	592	-	-	-	-	-	-	683	561	202	-	-	338	246	456	-	-	-	-	-	119	-	-	-	240	98	-
4/22/2011	-	339	1033	987	337	-	-	-	-	-	-	-	-	641	-	-	-	-	-	-	-	554	-	-	-	308	228	461	-	-	-	-	-	96	-	-	-	227	67	-
11/14/2011	-	267	628	692	416	-	-	-	-	-	-	-	-	568	-	-	-	-	-	-	515	626	214	-	-	304	234	422	-	-	-	-	-	174	-	-	-	212	151	-
4/30/2012	-	290	918	844	301	-	-	-	-	-	-	-	-	509	-	-	-	-	-	-	-	500	-	-	-	288	251	426	-	-	-	-	-	133	-	-	-	71	92	-
11/5/2012	-	248	467	703	286	-	-	-	-	-	-	-	-	546	-	-	-	421	649	-	446	500	228	-	-	231	212	408	-	-	-	-	-	151	-	-	-	88	100	-
5/7/2013	-	-	-	-	-	-	-	-	-	-	-	559	-	579	-	-	-	449	691	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/19/2013	-	346	880	808	595	-	-	-	-	-	-	614	-	588	-	-	-	578	570	-	605	819	221	-	-	339	-	498	-	-	-	-	-	-	-	-	-	496	520	-	-
11/3/2014	-	344	612	786	-	-	-	-	-	-	-	547	-	688	-	329	-	676	610	-	583	839	241	-	-	-	-	577	-	-	-	-	-	-	-	-	-	528	510	-	-
4/6/2015	-	306	482	786	-	-	-	-	-	-	-	-	-	571	-	-	-	828	629	-	571	897	834	-	-	-	-	275	-	-	-	-	-	-	-	-	-	712	478	-	-
11/17/2015	-	235	469	537	-	-	-	-	-	-	-	-	-	495	-	-	-	625	482	-	404	239	155	-	-	239	-	410	-	-	-	-	-	167	-	-	-	345	-	-
4/14/2016	-	211	381	537	-	-	-	-	-	-	-	-	-	543	-	-	-	543	411	-	452	698	195.7	-	-	-	-	292	-	-	-	-	-	-	-	-	-	407	-	-
11/2/2016	-	277	435	632	-	-	-	-	-	-	-	-	-	538	-	-	-	762	383	-	490	518	190	-	-	-	-	518	-	-	-	-	-	-	-	-	-	392	-	-
4/24/2017	-	374	620	623	-	-	-	-	-	-	-	-	-	628	-	-	-	738	546	-	628	4,160	172.7	-	-	-	-	473	-	-	-	-	-	-	-	-	-	529	-	-
11/7/2017	-	288	632	828	-	-	-	-	-	-	-	-	-	600	-	-	-	929	535	-	617	1,058	236	-	-	369	-	636	-	-	-	-	-	374	-	-	-	494	-	-
4/25/2018	-	429	518	836	-	-	-	-	-	-	-	-	-	235	-	-	-	832	601	-	699	4,140	271	-	-	-	-	527	-	-	-	-	-	-	-	570	-	454	-	-
11/12/2018	-	346	412	777	-	-	-	-	-	-	-	-	-	433	-	-	-	782	508	-	524	546	215	-	-	194.1	-	181.2	-	-	-	-	-	-	-	-	-	518	-	-
4/24/2019	-	579	708	919	-	-	-	-	-	-	-	-	-	111	-	-	-	650	667	-	561	1,085	268	-	-	-	-	306	-	-	-	-	-	-	-	-	-	570	-	-
11/4/2019	-	360	575	735	-	-	-	-	-	-	-	619	-	552	-	539	-	599	521	513	541	398	349	-	-	294	-	614	-	-	-	-	-	198	-	536	575	547	-	-
4/16/2020	-	242	278	418	-	-	-	-	-	-	-	428	47	176	286	239	311	492	310	211	375	2,815	145	-	-	-	-	184	-	-	-	-	-	-	229	338	410	345	-	-
11/5/2020	-	393	447	652	-	-	-	-	-	-	-	496	142	679	497	546	450	655	536	443	535	2,134	280	-	-	-	-	548	-	-	-	-	-	-	518	520	583	524	-	-
4/8/2021	-	293	438	463	-	-	-	-	-	-	-	-	-	464	-	-	-	588	335	192	443	2,465	223	-	-	-	-	359	-	-	-	-	-	-	-	-	-	388	-	-
11/10/2021	-	429	558	622	-	-	-	-	-	-	-	-	-	688	514.0	280	519	863	530	222	584	3,557	242	-	-	-	-	572	-	-	-	-	-	-	158	507	-	493	-	-
4/5/2022	-	925	503	640	-	-	-	-	-	-	-	-	-	664	-	-	-	807	609	197	634	3,521	249	-	-	-	-	545	-	-	-	-	-	-	-	-	-	473	-	-
11/2/2022	-	483.8	717	789	-	-	-	-	-	-	-	-	-	790	564.0	575	677	894	567	302	643	2,485	301.6	-	-	293.4	-	761	-	-	290	292.9	-	282.3	375.6	309.7	633	515	-	-

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WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

DO (mg/L)

NH AGQS = NE
WQCTS (Water and Fish Ingestion) = NE

Sampling Date	Overburden Monitoring Wells																				Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations				Surface Water Monitoring Stations										Leachate Monitoring Well
	RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-103	GZ-104	GZ-105	GZ-106	GZ-107	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/ South Spring)	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	Exeter River	MW-6
4/16/2020	-	3.60	2.95	2.71	-	-	-	-	-	-	-	5.6	10.46	6.80	9.35	5.25	8.85	3.88	2.78	7.65	7.25	10.40	4.20	-	-	-	-	5.01	-	-	-	-	-	-	9.94	9.59	9.34	9.22	-	-
11/5/2020	-	2.54	2.72	2.50	-	-	-	-	-	-	-	8.77	10.75	7.15	8.62	7.17	8.22	3.28	2.27	7.14	3.30	5.02	4.46	-	-	-	-	3.64	-	-	-	-	-	-	9.08	8.6	7.23	5.81	-	-
11/10/2021	-	3.77	4.32	1.99	-	-	-	-	-	-	-	-	-	4.16	8.82	9.78	7.6	2.97	7.07	7.49	6.71	9.41	4.40	-	-	-	-	1.48	-	-	-	-	-	-	10.96	9.47	-	7.85	-	-
4/5/2022	-	4.80	4.28	2.93	-	-	-	-	-	-	-	-	-	6.02	-	-	-	5.00	6.75	8.66	5.88	12.21	6.37	-	-	-	-	1.93	-	-	-	-	-	-	-	-	-	11.11	-	-
11/2/2022	-	3.03	5.36	1.93	-	-	-	-	-	-	-	-	-	5.35	8.38	9.41	7.31	5.07	2.92	5.65	4.49	16.05	4.24	-	-	0.38	-	0.30	-	-	4.38	9.98	-	3.32	8.36	10.75	8.93	9.03	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

ORP (mg/L)

NH AGQS = NE
WQCTS (Water and Fish Ingestion) = NE

Sampling Date	Overburden Monitoring Wells																			
	RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-103	GZ-104	GZ-105	GZ-106	GZ-107	GZ-201	GZ-202A	GMW-11RR
4/16/2020	-	67.6	241.6	3.2	-	-	-	-	-	-	-	323.3	339.0	313.3	319.5	337.4	245.1	196.4	196.4	208.0
11/5/2020	-	153.7	68.1	-36.9	-	-	-	-	-	-	-	129.9	135.4	-12.6	161.3	62.3	97.4	144.8	-66.4	188.0
11/10/2021	-	65.4	69.3	-50.1	-	-	-	-	-	-	-	-	-	40.4	83.9	68.3	51.1	69.4	18.7	10.7
4/5/2022	-	70.9	36.4	-44.5	-	-	-	-	-	-	-	-	-	9.4	-	-	-	105.5	-57.2	88.8
11/2/2022	-	56.9	170.0	-6.9	-	-	-	-	-	-	-	-	-	104.5	153.9	166.7	202.9	211.4	-14.0	233.6

Sampling Date	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			
	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/ South Spring)	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)
4/16/2020	68.9	-9.1	82.9	-	-	-	-	-15.2
11/5/2020	-62.8	-174.6	158.1	-	-	-	-	-44.9
11/10/2021	-16.2	-139.7	14.3	-	-	-	-	-35.0
4/5/2022	-63.0	-131.7	-6.8	-	-	-	-	-21.3
11/2/2022	254.4	-134.7	-30.4	-	-	-22.8	-	-111.7

Sampling Date	Surface Water Monitoring Stations											Leachate Monitoring Well
	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	Exeter River	MW-6
4/16/2020	-	-	-	-	-	-	245.1	253.0	318.8	328.6	-	-
11/5/2020	-	-	-	-	-	-	47.2	56.6	60.5	59.7	-	-
11/10/2021	-	-	-	-	-	-	74.6	54.0	-	68.2	-	-
4/5/2022	-	-	-	-	-	-	-	-	-	33.6	-	-
11/2/2022	-	-	72.1	90.3	-	-28.7	93.2	26.2	183.7	136.3	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Barium (mg/L)

NH AGQS= 2 mg/L
WQCTS (Water and Fish Ingestion) = 1.0 mg/L

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations									Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	<0.1	0.2	0.1	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2
	11/12/1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/6/1993	<0.1	1.2	<0.1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	0.7
	7/1/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/14/1994	0.015	0.034	0.105	0.256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.043	-	-	-	-	-	-	-	-	-
	7/15/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.8
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3
	11/18/1994	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2
	4/12/1995	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	0.6
	7/28/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/8/1995	<0.4	<0.4	<0.4	0.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.027	-	-	-	-	-	-	-	-	<0.5
	4/26/1996	<0.4	<0.4	<0.4	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	-	-	-	-	-	-	-	0.7
	7/25/1996	0.025	0.036	0.1	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-
	11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	4/21/1997	-	0.046	0.13	0.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.009	-	0.024	0.008	-	-	-	-	-	-	-	-	-	-
	7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	0.006	0.016	0.094	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.42	-	-	0.01	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	0.007	0.013	0.11	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.011	-	0.064	0.071	-	-	-	-	-	-	-	-	-	-
	7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	0.014	0.013	0.096	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.009	-	-	-	-	-	-	-	-	-	-
	7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	0.01	0.016	0.081	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	-	0.027	0.023	-	-	-	-	-	-	-	-	-	-
	7/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	0.0418	-	-	-	-	-	-	-	-	-	-	-	-	0.061	0.11	0.012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	<0.01	<0.01	0.09	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	1.9	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.03	<0.03	0.12	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	-	-
	11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.005	<0.005	0.12	0.15	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	0.12	<0.05	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	<0.005	0.08	0.12	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	0.1	<0.05	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	<0.05	0.09	0.17	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.05	0.14	0.13	<0.05	-	-	-	-	-	0.06	-	-	-	-	-	-	<0.05	0.1	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	<0.05	0.14	0.17	<0.05	-	-	-	-	-	0.07	-	-	-	-	-	-	<0.05	0.09	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	<0.05	0.10	0.15	<0.05	-	-	-	-	-	0.05	-	-	-	-	-	-	<0.05	0.08	<0.05	-	<0.05	<0.05	<0.05	2.3	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	<0.05	0.09	0.11	0.06	-	-	-	-	-	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.05	0.11	0.11	<0.05	-	-	-	-	-	0.06	-	-	-	-	-	-	-	0.06	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<0.05	-
	11/14/2007	-	<0.05	0.13	0.12	<0.05	-	-	-	-	-	0.06	-	0.052	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<0.05	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	<0.05	0.12	0.17	<0.05	-	-	-	-	-	Dry	-	0.014	-	-	-	-	<0.05	<0.05	-	-	Dry	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	<0.05	-
	11/4/2009	-	0.027	0.11	0.16	0.015	-	-	-	-	-	-	-	0.019	-	-	-	-	0.022	0.038	0.007	-	0.010	0.005	0.017	-	-	-	-	-	0.011	-	-	0.15	0.011	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	0.022	0.077	0.13	0.019	-	-	-	-	-	-	-	0.025	-	-	-	-	0.020	0.027	0.008	-	0.011	0.005	0.028	-	-	-	-	-	0.018	-	-	0.039	0.017	-
	4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2011	-	0.023	0.069	0.11	0.027	-	-	-	-	-	-	-	0.021	-	-	-	-	0.019	0.025	0.006	-	0.020	0.006	0.025	-	-	-	-	-	0.007	-	-	0.031	0.011	-
	4/30/2012	-	0.024	0.068	0.13	0.022	-	-	-	-	-	-	-	0.035	-	-	-	-	-	0.018	-	-	0.009	0.005	0.011	-	-	-	-	-	0.008	-	-	0.032	0.010	-
	11/5/2012	-	0.030	0.062	0.12	0.021	-	-	-	-	-	-	-	0.034	-	0.075	0.080	-	0.020	0.026	-	-	0.013	0.005	0.027	-	-	-	-	-	0.025	-	-	0.075	0.014	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	0.030	0.039	-	0.043	0.093	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	0.018	0.093	0.080	0.026	-	-	-	-	-	-	0.019	0.029	-	0.077	0.065	-	0.019	0.048	0.012	-	0.058	-	0.016	-	-	-	-	-	-	-	0.021	0.035	-	-
	4/15/2014	-	-	-	-	-	-	-	-	-	-	-	0.005	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	-	-	-
	11/3/2014	-	-	-	-	-	-	-	-	-	-	-	0.010	-	0.031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.026	-	-	-
	4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.27	-	-	-	-	-	-	-	0.011	-	-	-	-	-
	4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/7/2017	-	0.024	0.065	0.15	-	-	-	-	-	-	-	-	0.041	-	0.23	0.069	-	0.028	0.064	0.055	-	0.49	-	0.082	-	-	-	-	-	0.033	-	-	0.022	-	-
	4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2019	-	-	-	-	-	-	-	-	-	-	-	0.014	-	0.046	-	-	-	-	-	-	-	0.019	-	-	-	-	-	-	-	0.023	0.018	0.039	-	-	-
	4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Barium (mg/L)

WQCTS (Water and Fish Ingestion) = 1.0 mg/L

Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations										Leachate Monitoring Well
	RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/2/2022	-	**0.033**	**0.074**	**0.11**	-	-	-	-	-	-	-	-	**0.030**	-	**0.077**	**0.060**	**0.030**	**0.014**	**0.061**	**0.021**	-	**0.49**	-	**0.043**	-	-	-	-	-	**0.016**	**0.022**	**0.056**	**0.023**	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Cadmium (mg/L)

NH AGQS = 0.005 mg/L
WQCTS (Protection of Aquatic Life - Fresh Water Acute) = 0.21 ug/L

	Sampling	Overburden Monitoring Wells																	Bedrock				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations										Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	<0.005	**0.007**	<0.005	**0.007**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	<0.005
	11/12/1992	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-
	4/6/1993	**0.01**	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	<0.005
	7/1/1993	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-
	11/5/1993	**0.02**	**0.02**	**0.02**	**0.02**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.01**	-	-	-	-	-	-	-	-	**0.02**
	4/14/1994	**0.015**	<0.01	<0.01	**0.029**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.016**	-	-	-	-	-	-	-	-	-
	7/15/1994	<0.01	<0.01	**0.017**	**0.028**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.014**
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.022**
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.011**
	11/18/1994	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005
	4/12/1995	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	<0.005
	7/28/1995	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	**0.7**
	12/8/1995	<0.004	<0.004	<0.004	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	-	-	-	-	-	-	-	-	<0.004
	4/26/1996	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	<0.005
	7/25/1996	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-
	11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	4/21/1997	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-
	7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	<0.001	<0.001	**0.002**	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.007**	-	**0.012**	<0.001	-	-	-	-	-	-	-	-	-	-
	7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	<0.001	<0.001	**0.002**	**0.001**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-
	7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	<0.001	<0.001	<0.001	**0.0016**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.0078**	-	**0.0042**	**0.0022**	-	-	-	-	-	-	-	-	-	-
	7/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	-	-	-	-		-	-	-	-	-	-	-	-	-	-
	11/28/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.005**	-	-	-	-	-	-	-	-	-	-
	11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.005	**0.01**	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	-	-	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	<0.005	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	<0.005	-
	11/14/2007	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	<0.005	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	Dry	-	<0.005	-	-	-	-	<0.005	<0.005	-	-	Dry	<0.005	<0.005	-	-	-	-	-	<0.005	-	-	-	<0.005	-
	11/4/2009	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	**0.010**	-	-	<0.001	<0.001	-
	4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2011	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/30/2012	-	<0.001	<0.001	<0.001	**0.006**	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	11/5/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-
	4/15/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
	11/3/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
	4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-
	4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/7/2017	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	-	-
	4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2019	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Cadmium (mg/L)

NH AGQS = 0.005 mg/L
WQCTS (Protection of Aquatic Life - Fresh Water Acute) = 0.21 ug/L

Sampling	Overburden Monitoring Wells																	Bedrock				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations										Leachate Monitoring Well
	RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/2/2022	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Chromium (mg/L)

NH AGQS= 0.10 mg/L
WQCTS (Water and Fish Ingestion) = NE

Sampling Date	Overburden	Bedrock Monitoring Wells																				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations										Leachate Monitoring Well
	RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GZ-1L	GMW-11RR	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
5/27/1992	**0.01**	**0.1**	**0.04**	**0.07**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	**0.06**
11/12/1992	**0.1**	<0.01	**0.02**	**0.03**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.01**	-	-	-	-	-	-	-	-	-
4/6/1993	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	**0.08**
7/1/1993	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-
11/5/1993	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	<0.05
4/14/1994	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-
7/15/1994	<0.01	<0.01	**0.016**	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-
8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.08**
9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.16**
10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
11/18/1994	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-
12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01
2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
4/12/1995	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1
7/28/1995	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1
12/8/1995	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	**0.018**
4/26/1996	<0.03	<0.03	<0.03	**0.04**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	<0.03
7/25/1996	<0.004	<0.004	<0.004	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	-	-	-	-	-	-	-	-	-
11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/21/1997	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	-	<0.004	<0.004	-	-	-	-	-	-	-	-	-	-
7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/15/1998	<0.004	<0.004	<0.004	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	-	-	<0.004	-	-	-	-	-	-	-	-	-	-
7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/19/1999	<0.004	<0.004	<0.004	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	-	<0.004	<0.004	-	-	-	-	-	-	-	-	-	-
7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/5/2000	<0.004	<0.004	0.008	0.009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	-	-	-	-	-	-	-	-	-	-
7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/25/2001	<0.004	<0.004	<0.004	**0.006**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.012**	-	**0.0045**	<0.004	-	-	-	-	-	-	-	-	-	-
7/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/9/2001	-	-	-	-	<0.004	-	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004	-		-		-	-	-	-	-	-	-	-	-	-	-
11/28/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/24/2002	<0.01	<0.01	<0.01	**0.01**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-
11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/29/2003	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
11/17/2003	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
4/28/2004	-	<0.05	<0.05	<0.05	<0.05	-	-	-		-	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/28/2005	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
11/8/2005	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
4/17/2006	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	**0.26**	-	-	-	-	-	-	-	-	-	-
11/20/2006	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
5/2/2007	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<0.05	-
11/14/2007	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<0.05	-
4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/18/2008	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	Dry	-	<0.002	-	-	-	<0.05	<0.05	<0.05	-	-	Dry	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	<0.05	-
11/4/2009	-	<0.001	**0.002**	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	**0.007**	<0.001	-
4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/11/2010	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	**0.001**	-	-	<0.001	<0.001	-
4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/14/2011	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
4/30/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	**0.001**	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
11/5/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	**0.002**	<0.001	-
5/7/2013	-	-	-	-	-	-	-	-	-	-	-	**0.008**	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/19/2013	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	**0.011**	<0.001	<0.001	-	<0.001	<0.001	-	**0.002**	-	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-
4/15/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.003**	-	-	-
11/3/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-	-	<0.001	-	-	-	-	-
4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/7/2017	-	<0.001	<0.001	**0.003**	-	-	-	-	-	-	-	-	<0.001	-	**0.017**	<0.001	**0.003**	-	<0.001	**0.017**	-	**0.008**	-	**0.002**	-	-	-	-	-	<0.001	-	-	<0.001	-	-
4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/4/2019	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	**0.0010**	<0.001	<0.001	-	-	-
4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/2/2022	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	<0.001	<0.001	**0.042**	**0.0025**	-	**0.11**	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Lead (mg/L)

NH AGQS = 0.015 mg/L
WQCTS (Water and Fish Ingestion) = NE

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations										Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	**0.006**	**0.031**	**0.011**	**0.025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	**0.03**
	11/12/1992	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-
	4/6/1993	**0.001**	**0.001**	**0.001**	**0.001**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.001**	-	-	-	-	-	-	-	-	**0.018**
	7/1/1993	<0.1	<0.1	**9.06**	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.78**	-	-	-	-	-	-	-	-	-
	11/5/1993	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	<0.01
	4/14/1994	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-
	7/15/1994	<0.05	**0.052**	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1.9**
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.03**
	11/18/1994	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	4/12/1995	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	<0.005
	7/28/1995	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	<0.005
	12/8/1995	<0.002	**0.003**	**0.006**	**0.004**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.003**	-	-	-	-	-	-	-	-	**0.009**
	4/26/1996	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	<0.02
	7/25/1996	<0.005	**0.053**	<0.005	**0.007**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-
	11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	4/21/1997	-	**0.004**	**0.004**	**0.004**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.18**	-	**0.012**	**0.003**	-	-	-	-	-	-	-	-	-	-
	7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	<0.002	<0.002	**18**	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	<0.002	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.002**	-	**0.003**	<0.002	-	-	-	-	-	-	-	-	-	-
	7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-
	7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-
	7/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	<0.016	-	-	-	-	-	-	-	-	-	-	-	-	<0.016	<0.016	<0.016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-
	11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	**0.36**	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	<0.01	-
	11/14/2007	-	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	**0.01**	-	-	-	-	-	-	-	-	<0.01	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	<0.008	<0.008	<0.008	<0.008	-	-	-	-	-	Dry	-	<0.001	-	-	-	-	<0.008	<0.008	-	-	Dry	<0.008	<0.008	-	-	-	-	-	<0.008	-	-	-	<0.008	-
	11/4/2009	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	**0.012**	<0.001	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	**0.058**	-	-	<0.001	<0.001	-
	4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2011	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/30/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	**0.002**	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	11/5/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	**0.001**	-	-	**0.003**	<0.001	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	**0.004**	<0.001	-	<0.001	<0.001	<0.001	-	**0.009**	-	<0.001	-	-	-	-	-	-	-	<0.001	**0.001**	-	-
	4/15/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.003**	-	-	-
	11/3/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
	4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.041**	-	-	-	-	-	-	-	<0.001	-	-	-	-	-
	4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/7/2017	-	<0.001	<0.001	**0.003**	-	-	-	-	-	-	-	-	<0.001	-	**0.010**	<0.001	-	**0.001**	<0.001	**0.006**	-	**0.028**	-	**0.006**	-	-	-	-	-	<0.001	-	-	<0.001	-	-
	4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2019	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	**0.0017**	<0.001	<0.001	-	-	-
	4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2022	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	**0.048**	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Mercury (mg/L)

NH AGQS = 0.002 mg/L
WQCTS (Water and Fish Ingestion) = 0.00005 mg/L

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations									Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	<0.0003	<0.0003	<0.0003	<0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0003	-	-	-	-	-	-	-	-	-	-	<0.0003
	11/12/1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/6/1993	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	-	-	-	<0.0002
	7/1/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/14/1994	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	-	-	-	-
	7/15/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
POST-CLOSURE	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	11/18/1994	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0003
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	4/12/1995	<0.001	<0.001	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	<0.001
	7/28/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	12/8/1995	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	-	-	-	<0.0002
	4/26/1996	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	-	-	-	<0.0002
	7/25/1996	**0.0008**	**0.0007**	**0.0007**	**0.0012**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.0012**	-	-	-	-	-	-	-	-	-
	11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	**0.0003**	<0.0002	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-
	7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	<0.0002	<0.0002	<0.0003	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	<0.0002	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-
	7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	-	-	-	-	-
	7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	<0.00035	<0.00035	<0.00035	<0.00035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00035	-	<0.00035	<0.00035	-	-	-	-	-	-	-	-	-	-
	7/25/2001	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.0004	<0.0004	<0.0004	<0.0004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	-	-	-	-	-	-	-	-	-	-
	11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.0005	<0.0005	<0.0005	<0.0005	**0.0005**	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	<0.0005	<0.0005	<0.0005	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	<0.0009	<0.0009	<0.0009	-	-	-	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	<0.0009	-	-	-	-	-	-	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	**0.0013**	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	<0.0009	-	-	-	-	-	-	<0.0009	<0.0009	<0.0009	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	<0.0009	-	-	-	-	-	-	<0.0009	<0.0009	<0.0009	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	<0.0009	-	-	-	-	-	-	<0.0009	<0.0009	<0.0009	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	<0.0009	-	-	-	-	-	-	<0.0009	<0.0009	<0.0009	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	<0.0009	-	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	<0.0009	-
	11/14/2007	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0009	-	-	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	Dry	-	<0.01	-	-	-	-	<0.0009	<0.0009	-	-	Dry	<0.0009	<0.0009	-	-	-	-	-	<0.0009	-	-	-	<0.0009	-
	11/4/2009	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	**0.0002**	**0.0002**	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	**0.0001**	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001	<0.0001	-
	4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2011	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	<0.0001	-	-	-	-	<0.0001	**0.0002**	**0.0002**	-	<0.0001	-	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001	<0.0001	-
	4/30/2012	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	<0.0001	-	-	-	-	-	**0.0003**	-	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001	<0.0001	-
	11/5/2012	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001	<0.0001	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	**0.0001**	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-	-	-	-	<0.0001	<0.0001	-	-
	4/15/2014	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	-	-
	11/3/2014	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	-	-
	4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	-	-	-	-	-	-	<0.0001	-	-	-	-	-
	4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/7/2017	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	**0.0002**	-	<0.0001	-	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001	-	-
	4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2019	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	-	-	-	-	-	-	<0.0001	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	-
	4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2022	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	**0.0017**	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Selenium (mg/L)

NH AGQS = 0.05 mg/L
WQCTS (Water and Fish Ingestion) = 0.170 mg/L

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations									Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	<0.01
	11/12/1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/6/1993	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	<0.01
	7/1/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/14/1994	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-
	7/15/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
	11/18/1994	<0.002	**0.005**	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
	4/12/1995	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	<0.005
	7/28/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005
	12/8/1995	<0.005	<0.005	**0.01**	**0.009**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.006**	-	-	-	-	-	-	-	-	**0.019**
	4/26/1996	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	<0.01
	7/25/1996	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.007	-	-	-	-	-	-	-	-	-
	11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	4/15/1998	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	**0.006**	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
	7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-
	7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	**0.018**	**0.013**	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	**0.012**	<0.005	-	-	-	-	-	-	-	-	-	-
	7/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	**0.0711**	-	-	-	-	-	-	-	-	-	-	-	-	**0.082**	**0.101**	<0.034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	-	-
	11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	<0.05	**0.06**	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	**0.05**	<0.05	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	**0.13**	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<0.05	-
	11/14/2007	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<0.05	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	Dry	-	<0.002	-	-	-	-	<0.05	<0.05	-	-	Dry	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	<0.05	-
	11/4/2009	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2011	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/30/2012	-	<0.0001	<0.0001	<0.0001	<0.001	-	-	-	-	-	-	-	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001	<0.0001	-
	11/5/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-
	4/15/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
	11/3/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
	4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-
	4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/7/2017	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	**0.002**	<0.001	-	<0.001	<0.001	<0.001	-	**0.003**	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	-	-
	4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2019	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-
	4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2022	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Silver (mg/L)

NH AGQS = 0.10 mg/L
WQCTS (Water and Fish Ingestion) = 0.05 mg/L

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations										Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11RR	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GW-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	<0.02
	11/12/1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/6/1993	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	<0.01
	7/1/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/14/1994	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.007	-	-	-	-	-	-	-	-	-
	7/15/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.02**
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.03**
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.01**
	11/18/1994	**0.06**	**0.03**	**0.04**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.04**	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.01**
	4/12/1995	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	<0.05
	7/28/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
	12/8/1995	<0.008	<0.008	<0.008	<0.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.008	-	-	-	-	-	-	-	-	**0.011**
	4/26/1996	<0.008	<0.008	<0.008	<0.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.008	-	-	-	-	-	-	-	-	<0.008
	7/25/1996	<0.003	<0.003	<0.003	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-
	11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-
	7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	<0.001	**0.019**	<0.001	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	**0.001**	<0.001	-	-	-	-	-	-	-	-	-	-
	7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	**0.005**	**0.002**	**0.005**	**0.005**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.004**	-	-	-	-	-	-	-	-	-	-
	7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-
	7/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	<0.013	-	-	-	-	-	-	-	-	-	-	-	-	<0.013	<0.013	<0.013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-
	11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	<0.007	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-	-	-	<0.007	<0.007	<0.007	-	<0.007	-	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-	-	-	<0.007	<0.007	<0.007	-	-	-	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	-	-	-	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	-	-	-	<0.007	<0.007	<0.007	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	-	-	-	<0.007	<0.007	<0.007	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	-	-	-	<0.007	<0.007	<0.007	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	-	-	-	<0.007	<0.007	<0.007	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	-	-	-	-	<0.007	-	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	<0.007	-
	11/14/2007	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	-	-	-	<0.007	<0.007	<0.007	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	-	-	-	<0.007	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	<0.007	<0.007	<0.007	<0.007	-	-	-	-	-	Dry	-	<0.001	-	-	-	-	<0.007	<0.007	-	-	Dry	<0.007	<0.007	-	-	-	-	-	<0.007	-	-	-	<0.007	-
	11/4/2009	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2011	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	4/30/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	11/5/2012	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-
	4/15/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
	11/3/2014	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-
	4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-
	4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/7/2017	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	-	-
	4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2019	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-
	4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2022	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

VOCs (mg/L)

	Sampling Date	Overburden Monitoring Wells																	Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Stations									Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-102	GZ-104	GZ-106	GZ-201	GZ-202A	GMW-11	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/ South Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	SW-15	SW-16	SW-17	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	BDL	BDL	BDL	**6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**11,122**
	11/12/1992	BDL	BDL	BDL	**3.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-
	4/6/1993	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	**1,338.6**
	7/1/1993	BDL	BDL	**25.17**	**5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-
	11/5/1993	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	**154.6**
	4/14/1994	BDL	BDL	**3.5**	**17**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-
	7/15/1994	BDL	BDL	BDL	**7.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**697.1**
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**801.5**
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**731.5**
	11/18/1994	BDL	BDL	**6.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1,443**
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**283.4**
	4/12/1995	BDL	BDL	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	**235.5**
	7/28/1995	BDL	BDL	DA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DA	-	-	-	-	-	-	-	-	**260.3**
	12/8/1995	BDL	BDL	**4**	**11**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**4**	-	-	-	-	-	-	-	-	**201.5**
	4/26/1996	BDL	BDL	**14.2**	**39.9**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	**2,279.6**
	7/25/1996	BDL	BDL	**4.1**	**49.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-
	11/14/1996	-	BDL	**4.7**	**332.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	BDL	**2.9**	**24.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	7/22/1997	BDL	BDL	**3**	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	11/11/1997	**4.6**	BDL	BDL	**26.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	4/15/1998	BDL	**3**	BDL	**27**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**11**	-	-	BDL	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	**4**	BDL	**93.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**8.2**	-	**2.1**	BDL	-	-	-	-	-	-	-	-	-	-
	11/16/1998	DA	**19.9**	DA	**27.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**6.2**	-	DA		-	-	-	-	-	-	-	-	-	-
	4/19/1999	BDL	BDL	**2.8**	**7.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	**2.4**	BDL	-	-	-	-	-	-	-	-	-	-
	7/27/1999	BDL	BDL	BDL	**4.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	11/18/1999	BDL	BDL	**4.6**	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	**2.1**	BDL	-	-	-	-	-	-	-	-	-	-
	5/5/2000	BDL	BDL	BDL	**10.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-	-
	7/7/2000	BDL	BDL	BDL	**2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	11/16/2000	BDL	BDL	BDL	**3.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	4/25/2001	BDL	BDL	**2.1**	**6.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**76**	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	7/25/2001	BDL	BDL	BDL	**10**	BDL	-	-	BDL	BDL	BDL	-	-	-	-	-	-	-	**17**	BDL	BDL	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	BDL	-	-	BDL	BDL	BDL	-	-	-	-	-	-	-	**3.1**	**2**	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	BDL	BDL	BDL	**6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
	4/24/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/20/2002	BDL	BDL	BDL	**11**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	-	-	-
	4/29/2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	BDL	BDL	**2**	BDL	-	-	-	-	-	-	-	-	-	-	-	-	BDL	**3**	BDL	-	BDL	-	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	BDL	BDL	**5**	BDL	-	-	-	-	-	BDL	-	-	-	-	-	-	BDL	BDL	BDL	-	**10**	BDL	BDL	BDL	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	BDL	BDL	**2.2**	BDL	-	-	-	-	-	BDL	-	-	-	-	-	-	BDL	BDL	BDL	-	**8.7**	BDL	BDL	**14**	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	BDL	**3**	BDL	BDL	-	-	-	-	-	**6**	-	-	-	-	-	-	BDL	**23**	BDL	-	**19**	BDL	**21**	BLD	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2007	-	BDL	BDL	BDL	BDL	-	-	-	-	-	**8**	-	-	-	-	-	-	BDL	BDL	BDL	-	BDL	BDL	**14**	BDL	-	-	-	-	-	-	-	-	BDL	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	BDL	BDL	BDL	BDL	-	-	-	-	-	**13**	-	**2.5**	-	-	-	-	BDL	BDL	-	-	Dry	BDL	**4**	BDL	-	-	-	-	BDL	-	-	-	-	-
	11/4/2009	-	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	BDL	-	-	-	-	BDL	BDL	BDL	-	BDL	BDL	BDL	BDL	-	-	-	-	BDL	-	-	BDL	-	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	BDL	-	-	-	-	BDL	BDL	BDL	-	BDL	BDL	BDL	-	-	-	-	-	BDL	-	-	BDL	BDL	-
	4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2011	-	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	BDL	-	-	-	-	BDL	BDL	BDL	-	BDL	BDL	**21**	-	-	-	-	-	BDL	-	-	BDL	BDL	-
	4/30/2012	-	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	BDL	-	-	-	-	-	BDL	-	-	**1**	BDL	BDL	-	-	-	-	-	BDL	-	-	BDL	BDL	-
	11/5/2012	-	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	BDL	-	BDL	BDL	-	BDL	BDL	-	-	BDL	BDL	**3**	-	-	-	-	-	BDL	-	-	BDL	BDL	-
	5/7/2013	-	-	-	-	-	-	-	-	-	-	-	BDL	BDL	-	BDL	**5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/19/2013	-	BDL	BDL	BDL	BDL	-	-	-	-	-	-	BDL	BDL	-	BDL	**2**	-	BDL	BDL	BDL	-	**8**	-	**11**	-	-	-	-	-	-	-	BDL	BDL	-	-
	4/15/2014	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-
	11/3/2014	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-
	4/6/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	BDL	-	-	-	-	-
	4/14/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	11/7/2017	-	BDL	**1**	BDL	-	-	-	-	-	-	-	-	BDL	-	BDL	**1**	-	BDL	BDL	BDL	-	BDL	-	**66**	-	-	-	-	-	**10**	-	-	BDL	-	-
	4/25/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2019	-	-	-	-	-	-	-	-	-	-	-	BDL	-	BDL	-	-	-	-	-	-	-	BDL	-	-	-	-	-	-	-	BDL	BDL	BDL	-	-	-
	4/16/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/5/2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/2/2022	-	BDL	**10.7**	BDL	-	-	-	-	-	-	-	-	BDL	-	BDL	BDL	BDL	BDL	**25.1**	BDL	-	BDL	-	**41**	-	-	-	-	-	BDL	BDL	BDL	BDL	-	-

See last page for notes.

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Thallium (mg/L)

NH AGQS = 0.002 mg/L
WQCTS (Water and Fish Ingestion) = 0.0017 mg/L

	Sampling Date	Overburden Monitoring Wells												Bedrock Monitoring Wells				Groundwater Seep Monitoring Stations			Surface Water Monitoring Locations							Leachate Monitoring Well
		RFW-1	RFW-2	RFW-3	RFW-4	GZ-1U	GZ-2	GZ-3	GZ-4	GZ-5	GZ-6	GZWP-1	GZ-104	GZ-1L	GZ-2L	GZ-3L	Giancola Residence	SW-P-2 (P-2/1P-2R Southern Spring)	GZ-P-5R	SW-P-9 (P-9/1P-9R Northern Spring)	SW-1	SW-5	SW-10	SW-11	SW-12	SW-13	Exeter River	MW-6
PRE-CLOSURE	5/27/1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/12/1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/6/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7/1/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/5/1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/14/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7/15/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.023**
	9/6/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.001**
	10/11/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	11/18/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/23/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04
	2/2/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	4/12/1995	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	<0.005
	7/28/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005
	12/8/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.24**
	4/26/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.06**
	7/25/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/21/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POST-CLOSURE	7/22/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/15/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7/6/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7/27/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/5/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7/7/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/16/2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8/9/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/28/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1/17/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/24/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/20/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/17/2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/15/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/28/2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/8/2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/17/2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/20/2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/2/2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/14/2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/18/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/27/2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/4/2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/20/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/11/2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 1
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

Thallium (mg/L)

4/22/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/14/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/30/2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/5/2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/7/2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/19/2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/15/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/3/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See last page for notes.

TABLE 1 - Notes
WATER QUALITY DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

NOTES:

1. Concentrations are in milligrams per liter (mg/L) or micrograms per liter (µg/L) as indicated.
2. "-" indicates that measurements were not made/not applicable.
3. "< " indicates the parameter was not detected above the detection limit shown.
4. **Bold** face print indicates detection.
5. "NH AGQS" indicates New Hampshire Ambient Groundwater Quality Standards as defined in the New Hampshire Code of Administrative Rules Env-Or 603.03 revised October 22, 2016.
6. Shading indicates that the measured level exceeds its NH AGQS, Secondary Maximum Contaminant Level (SMCL), or Water Quality Criteria for Toxic Substances (WQCTS) at time of sampling as defined by the New Hampshire Code of Administrative Rules Env-Wq 1703.23, adopted November 17, 2016. For groundwater monitoring locations where NH AGQS are not established for the referenced parameter SMCLs are used to shade data. For surface water monitoring locations where WQCTS are not established for the referenced parameter NH AGQS are used to shade data.
7. "NE" indicates none established.
8. "DA" indicates that the Chain-of-Custody indicates a sample taken and a volatile organic compound (VOC) laboratory report was not available.
9. Water quality data were compiled by GZA GeoEnvironmental, Inc. from analytical laboratory reports provided by the Town of Exeter.
10. "BDL" indicates target VOCs for the method used were below laboratory detection limits.
11. "µS/cm" indicates microseimens per centimeter.
12. "M" indicates that the percent recovery for the matrix was outside of the acceptance criteria. Refer to analytical reports for additional information.
13. The analytical laboratory reports provided by Resource Environmental Group for groundwater monitoring wells RFW-2, RFW-3 and RFW-4 during November 2006 are mislabeled GZ-2, GZ-3 and GZ-4, respectively.
14. The groundwater elevation data provided by Resource Environmental Group for GZ-2U during November 2006 is mislabeled GZ-2M.
15. For 11/14/2007 the percent recovery for sample P-9R for chloride was 85.
16. Please note that based on review of historical chain-of-custody forms, samples for metals analyses collected from groundwater monitoring wells have been field filtered and represent dissolved metals analyses. Samples collected from surface water location SW-1 have not been field filtered and represent total metals analyses. Samples collected at P-2 (southern spring) and P-9 (northern spring) through 2002 were also not field filtered and represent total metals analyses. Samples collected from the replacement well points (P-2R, P-5R, and P-9R) during 2006 were field filtered. For further information regarding historic sampling procedures, please refer to Section 5.2.4 (Review of Historic Total Metals and Dissolved Metals Analyses) of GZA's May 10, 2002 report.
17. Landfill water quality monitoring associated with the samples labeled P-2 and P-9 has been performed by Mr. Tom Walker of REG. Based on conversations with Mr. Walker during a site visit on April 17, 2002, the samples designated P-2 and P-9 on laboratory reports and chain-of-custody forms since November 1996 (the start of routine sampling of P-2 and P-9) were collected from surface water proximate to P-2 and about 300 feet south of P-9 from November 1996 through November 2001. The locations sampled from November 1996 through November 2001 are designated SW-P-2 and SW-P-9 on ***Figure 1***. The data from these locations represent total metals analyses of surface water. Replacement groundwater well points designated P-2R and P-9R have been sampled since November 2001.
18. The NH AGQS for 1,4-dioxane was revised on September 1, 2018 to 0.32 µg/L.
19. The NH AGQS for Manganese was revised on January 1, 2021 to 300 µg/L.

20. The NH AGQS for Arsenic was revised on July 1, 2021 to 5 µg/L.

TABLE 2
REFERENCE/GROUNDWATER ELEVATION DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NH DES No. 198401081

Monitoring Location	Ground Surface Elevation	Bedrock Surface Elevation	Reference Elevation	04/25/01		07/23/01		07/25/01		08/09/01		11/28/01		04/24/02		11/20/02		04/29/03		06/17/03		11/17/03		04/28/04	
				Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation
GZ-1U	97.1	-	99.68	-	-	22.6	77.1	-	-	22.8	76.9	-	-	-	-	-	-	23.5	76.2	23.2	76.5	23.5	76.2	22.6	77.1
GZ-1L	97.1	45.1	99.44	-	-	20.4	79.1	-	-	20.5	78.9	-	-	-	-	-	-	23.2	76.3	20.8	78.6	21.1	78.3	23.2	76.3
GMW-10	114.2	-	-	-	-	Dry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2U	113.8	-	116.29	-	-	Dry	<116.3	-	-	Dry	<116.3	-	-	-	-	-	-	dry	<116.3	dry	<116.3	dry	<116.3	-	-
GZ-2L	114.6	81.6	117.12	-	-	33.9	83.3	-	-	34.2	82.9	-	-	-	-	-	-	33.6	83.5	33.7	83.4	36.6	80.5	32.8	84.3
GMW-11RR	93.8	-	96.32	-	-	Dry	<81.32	-	-	10.9	85.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-3L	94.8	68.8	97.32	-	-	11.5	85.9	-	-	11.8	85.5	-	-	-	-	-	-	13.9	83.4	12.2	85.2	13.0	84.4	10.8	86.5
GZ-4	142.9	<85.9	142.29	-	-	50.1	92.2	-	-	50.3	92.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-5	141.1	<84.1	140.73	-	-	50.8	89.9	-	-	51.1	89.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-6	141.4	<84.4	141.16	-	-	50.0	91.2	-	-	51.2	89.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-101	69.4	-	72.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-102	77.0	-	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-103	78.3	-	81.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-104	72.4	-	75.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-105	65.4	-	67.89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-106	73.5	-	76.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-107	108.7	-	103.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-201	123.3		122.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-202A	121.1		123.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-1	64.5	-	67.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-2 / P-2R	68.3	-	69.18	-	-	-	-	-	-	0.7	68.5	-	-	-	-	-	-	3.2	68.3	-	-	3.7	68.3	3.6	65.6
P-3	67.9	-	68.41	-	-	-	-	-	-	2.0	66.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-4	70.5	-	71.15	-	-	-	-	-	-	2.0	69.2	-	-	-	-	-	-	-	-	1.8	69.4	-	-	-	-
GW-P-5R/P-5	82.3	-	84.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	72.8	-	-	7.8	76.7
P-6	74.8	-	76.01	-	-	-	-	-	-	3.2	72.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-7	-	-	84.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-8	69.7	-	70.25	-	-	-	-	-	-	2.5	67.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-9 / P-9R	68	-	68.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7	68.0	-	-	3.2	68.0	3.0	65.4
RFW-1	85.6	34.6	88.11	3.23	84.88	-	-	4.95	83.16	5.3	82.8	7.5	80.6	7.9	80.2	8.0	80.2	5.7	82.4	5.8	82.3	destroyed	-	-	-
RFW-2	118	-	119.72	41.34	78.38	-	-	43.02	76.7	-	-	44.9	74.8	45.2	74.5	45.7	74.0	43.5	76.2	43.6	76.1	43.8	75.9	42.3	77.4
RFW-3	140.6	-	143.48	72.95	70.53	-	-	72.89	70.59	73.2	70.3	74.9	68.6	75.6	67.9	76.2	67.3	74.3	69.2	-	-	74.6	68.9	73.6	69.9
RFW-4	116.9	46.9	118.71	45	73.71	-	-	45.75	72.96	46.0	72.8	47.5	71.3	47.9	70.8	48.5	70.3	46.4	72.3	-	-	47.0	71.8	45.8	73.0
WS-1	102	-	102.26	-	-	-	-	-	-	12.2	90.0	-	-	-	-	-	-	-	-	12.4	89.8	-	-	-	-
WS-2	93	-	93.57	-	-	-	-	-	-	4.3	89.3	-	-	-	-	-	-	-	-	destroyed	-	-	-	-	-
SW-17/Seep	915.91	-	61.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-14	-	-	40.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bridge	917.07	-	60.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Monitoring Location	11/15/04		04/28/05		11/08/05		04/17/06		11/20/06		05/20/07		11/12/07		04/25/08	
	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation
GZ-1U	22.3	77.4	21.3	78.4	21.9	77.8	21.4	78.3	19.9	79.8	19.7	80.0	22.7	77.0	21.2	78.5
GZ-1L	20.9	78.6	18.5	81.0	18.0	81.4	18.6	80.9	16.8	82.6	16.4	83.0	27.0	72.5	-	-
GMW-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2U	-	-	-	-	-	-	30.9	85.4	28.6	87.7	28.1	88.2	-	-	-	-
GZ-2L	34.7	82.4	32.0	85.1	31.7	85.4	32.5	84.7	31.5	85.6	30.7	86.5	35.2	81.9	32.2	84.9
GMW-11RR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-3L	12.4	84.9	8.8	88.5	8.7	88.6	9.2	88.1	7.5	89.9	7.3	90.1	12.1	85.2	-	-
GZ-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-101	-	-	-	-	-	-	-	-	-	-	-	-	11.0	61.1	-	-
GZ-102	-	-	-	-	-	-	-	-	-	-	-	-	16.5	63.5	-	-
GZ-103	-	-	-	-	-	-	-	-	-	-	-	-	17.8	63.6	-	-
GZ-104	-	-	-	-	-	-	-	-	-	-	-	-	12.7	62.3	-	-
GZ-105	-	-	-	-	-	-	-	-	-	-	-	-	11.1	56.8	-	-
GZ-106	-	-	-	-	-	-	-	-	-	-	-	-	12.3	63.9	-	-
GZ-107	-	-	-	-	-	-	-	-	-	-	-	-	37.1	66.6	-	-
GZ-201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-202A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-2 / P-2R	3.6	65.6	3.4	65.8	3.6	65.6	3.8	65.4	3.5	65.7	3.6	65.5	4.0	65.2	3.5	65.6
P-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW-P-5R/P-5	7.6	76.9	6.7	77.8	5.1	79.4	7.1	77.5	5.3	79.2	5.4	79.2	9.3	75.2	7.0	77.5
P-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-9 / P-9R	3.0	65.3	2.9	65.4	3.2	65.2	3.0	65.3	3.3	65.1	3.3	65.1	3.4	64.9	2.8	65.6
RFW-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RFW-2	43.5	76.2	41.2	78.5	40.2	79.5	41.5	78.2	39.3	80.4	39.4	80.3	43.3	76.4	41.4	78.3
RFW-3	73.9	69.6	72.0	71.5	72.0	71.5	71.6	71.9	70.8	72.7	70.5	73.0	73.9	69.6	71.8	71.7
RFW-4	46.5	72.2	44.5	74.2	44.5	74.2	44.7	74.0	43.9	74.9	43.4	75.3	46.8	71.9	44.5	74.2
WS-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-17/Seep	-	-	-	-	-	-	-	-	-	-	-	-	3.8	57.9	-	-
SW-14	-	-	-	-	-	-	-	-	-	-	-	-	2.9	37.6	-	-
Bridge	-	-	-	-	-	-	-	-	-	-	-	-	13.14	47.4	-	-

Monitoring Location	11/18/08		04/27/09		11/04/09		04/20/10		11/11/10		04/22/11		11/14/11		04/30/12		11/05/12		05/07/13		12/19/2013	
	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation
GZ-1U	21.9	77.8	20.80	78.9	22.15	77.5	17.42	82.3	22.18	77.5	21.97	77.7	22.17	77.5	22.87	76.8	24.20	75.5	-	-	24.66	75.0
GZ-1L	19.3	80.2	-	-	19.55	79.9	-	-	19.78	79.7	-	-	19.63	79.8	-	-	26.40	73.0	-	-	22.44	77.0
GMW-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2L	33.2	83.9	31.76	85.4	33.68	83.4	29.2	87.9	34.31	82.8	32.54	84.6	33.40	83.7	33.92	83.2	36.85	80.3	-	-	37.32	79.8
GMW-11RR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-3L	-	-	-	-	10.71	86.6	-	-	11.2	86.1	-	-	10.72	86.6	-	-	13.96	83.4	-	-	14.74	82.6
GZ-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.50	60.6	-	-
GZ-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.05	63.0	17.85	62.2
GZ-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.20	63.2	-	-
GZ-104	12.3	62.7	-	-	12.40	62.6	8.94	66.1	12.40	62.6	8.94	66.1	12.72	62.3	12.44	62.6	13.77	61.3	13.50	61.5	13.87	61.2
GZ-105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.48	56.4	-	-
GZ-106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.15	62.0	-	-
GZ-107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38.21	65.5	-	-
GZ-201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51.68	71.2	51.12	71.7	51.94	70.9
GZ-202A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52.48	71.5	51.58	72.4	52.38	71.6
P-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-2 / P-2R	3.5	65.7	3.51	65.7	3.46	65.7	3.61	65.6	3.41	65.8	3.55	65.6	3.48	65.7	3.50	65.7	3.47	65.7	-	-	3.55	65.6
P-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW-P-5R/P-5	7.7	76.9	6.47	78.1	7.93	76.6	4.08	80.4	8.22	76.3	7.46	77.1	7.96	76.6	8.68	75.8	9.98	74.5	-	-	-	-
P-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-9 / P-9R	2.9	65.5	2.90	65.5	2.81	65.5	2.76	65.6	2.86	65.5	2.77	65.6	2.74	65.6	2.78	65.6	2.92	65.4	-	-	2.8	65.6
RFW-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RFW-2	41.9	77.8	40.67	79.1	42.16	77.6	37.81	81.9	42.37	77.4	41.82	77.9	42.06	77.7	43.10	76.6	44.48	75.2	-	-	45.11	74.6
RFW-3	71.7	71.8	71.87	71.6	72.75	70.7	71.68	71.8	73.66	69.8	73.09	70.4	73.97	69.5	73.35	70.2	74.9	68.6	-	-	75.90	67.6
RFW-4	45.4	73.3	44.19	74.5	45.68	73.0	42.04	76.7	45.74	73.0	45.35	73.4	45.68	73.0	46.03	72.7	47.4	71.3	-	-	47.71	71.0
WS-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-17/Seep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bridge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Monitoring Location	11/03/14		11/17/15		04/14/16		11/02/16		04/24/17		11/07/17		04/25/18		11/12&13/2018	
	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation
GZ-1U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-1L	22.63	76.8	22.90	76.5	21.94	77.5	23.52	75.9	22.95	76.5	21.39	78.1	20.65	78.8	20.22	79.2
GMW-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2L	35.78	81.3	38.07	79.1	35.28	81.8	38.72	78.4	34.28	82.8	36.17	81.0	32.96	84.2	33.62	83.5
GMW-11RR	-	-	-	-	-	-	-	-	dry	-	dry	-	dry	-	dry	-
GZ-3L	15.87	81.5	15.25	82.1	13.68	83.6	15.79	81.5	11.63	85.7	12.94	84.4	10.43	86.9	11.46	85.9
GZ-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-102	18.18	61.8	18.18	61.8	-	-	-	-	-	-	-	-	-	-	-	-
GZ-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-104	14.22	60.8	14.32	60.7	13.62	61.4	14.60	60.4	13.3	61.7	13.53	61.5	12.95	62.1	12.97	62.1
GZ-105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-106	13.53	62.6	13.53	62.6	-	-	-	-	-	-	-	-	-	-	-	-
GZ-107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-201	52.23	70.6	52.45	70.4	51.95	70.9	53.15	69.7	51.37	71.5	51.27	71.6	50.91	71.9	50.93	71.9
GZ-202A	52.76	71.2	52.95	71.0	52.40	71.6	53.58	70.4	51.83	72.2	51.69	72.3	51.34	72.7	51.28	72.7
P-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-2 / P-2R	-	-	3.7	65.5	-	-	-	-	-	-	3.04	66.14	-	-	3.81	65.4
P-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW-P-5R/P-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-9 / P-9R	3.26	65.1	3.05	65.3	2.73	65.6	3.19	65.2	2.8	65.6	2.54	65.8	2.71	65.6	2.75	65.6
RFW-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RFW-2	44.27	75.5	44.27	75.5	44.35	75.4	45.83	73.9	42.9	76.8	43.82	75.9	42.75	77.0	42.32	77.4
RFW-3	75.48	68.0	75.66	67.8	74.93	68.6	76.32	67.2	74.5	69.0	74.43	69.1	74.13	69.4	74.08	69.4
RFW-4	47.84	70.9	48.08	70.6	47.26	71.5	48.55	70.2	46.39	72.3	38.98	79.7	46.23	72.5	46.34	72.4
WS-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-17/Seep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bridge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Monitoring Location	04/24/19		11/05/19		04/15/20		11/05/20		04/07/21		11/10/21		04/05/22		11/02/22	
	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation	Depth-to-Water	Groundwater Surface Elevation
GZ-1U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-1L	27.70	71.7	26.60	72.8	19.36	80.1	21.87	77.6	21.82	77.6	21.10	78.3	20.06	79.4	21.85	77.6
GMW-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-2L	33.92	83.2	34.74	82.4	31.79	85.3	36.78	80.3	34.22	82.9	34.80	82.3	32.00	85.1	36.41	80.7
GMW-11RR	dry	-	10.82	85.3	8.51	87.6	12.51	83.6	12.22	83.9	11.55	84.6	9.79	86.3	12.89	83.2
GZ-3L	8.91	88.4	13.80	83.5	10.05	87.3	15.27	82.1	14.48	82.8	12.46	84.9	10.76	86.6	13.86	83.5
GZ-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-102	-	-	16.90	63.1	15.79	64.2	17.61	62.4	17.61	62.4	-	-	-	-	-	-
GZ-103	-	-	-	-	20.61	60.8	18.94	62.5	18.94	62.5	-	-	-	-	-	-
GZ-104	11.80	63.2	13.01	62.0	12.12	62.9	13.65	61.4	13.48	61.5	13.51	61.5	12.49	62.5	13.57	61.5
GZ-105	-	-	-	-	10.20	57.7	11.83	56.1	11.83	56.1	16.04	51.9	-	-	11.84	56.1
GZ-106	-	-	12.35	63.8	12.21	63.9	13.00	63.1	13.00	63.1	12.60	63.5	-	-	12.92	63.2
GZ-107	-	-	-	-	36.91	66.8	38.49	65.2	38.49	65.2	38.48	65.2	-	-	38.44	65.2
GZ-201	48.37	74.5	50.51	72.3	49.76	73.1	51.41	71.4	51.58	71.3	51.41	71.4	51.70	71.2	51.30	71.6
GZ-202A	48.76	75.2	50.93	73.1	50.12	73.9	51.78	72.2	51.96	72.0	51.73	72.3	50.56	73.4	51.57	72.4
P-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-2 / P-2R	-	-	4.08	65.1	-	-	-	-	-	-	-	-	-	-	4.14	65.0
P-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW-P-5R/P-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P-9 / P-9R	2.73	65.6	2.73	65.6	2.69	65.7	2.92	65.4	2.75	65.6	2.74	65.6	2.72	65.6	2.88	65.5
RFW-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RFW-2	41.18	78.5	43.11	76.6	41.44	78.3	44.52	75.2	44.24	75.5	43.23	76.5	42.46	77.3	44.18	75.5
RFW-3	71.72	71.8	73.82	69.7	73.03	70.5	74.64	68.8	74.75	68.7	74.56	68.9	73.41	70.1	74.03	69.5
RFW-4	44.59	74.1	46.51	72.2	45.42	73.3	47.24	71.5	47.12	71.6	46.88	71.8	45.77	72.9	46.91	71.8
WS-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-17/Seep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW-14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bridge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See last page for notes.

TABLE 2
REFERENCE/GROUNDWATER ELEVATION DATA SUMMARY
Cross Road Landfill - Exeter, New Hampshire
NH DES No. 198401081

NOTES:

1. Groundwater elevation data were collected by GZA GeoEnvironmental, Inc. (GZA) on 7/23/01 and 8/9/01, and provided by the Town of Exeter for 4/25/01, 7/25/01, and 11/28/01 through the present.
2. Reference elevation is the top of PVC riser or top of well point casing.
3. Elevations are reported in feet above the National Geodetic Vertical Datum of 1929.
4. Reference elevations for wells RFW-1 through RFW-4 and piezometers P-1 through P-9 are based on Table 2 (Water Level Measurements, Exeter Landfill, Exeter, New Hampshire) of Weston's report dated June 1990.
5. Reference elevations for wells GZ-1U through GZ-3L, GZ-101 through GZ-107, and GZ-201 through GZ-202A were established by GZA using optical survey techniques and referenced to a benchmark established by TF Moran approximately 75 feet south of well GZ-2L (GZ-1U through GZ-3L) and top of PVC of selected wells (each of the other monitoring wells referenced in this note).
6. Reference elevations for former water supply wells WS-1 and WS-2 were established by GZA on using optical survey techniques and referenced to the top of PVC (reference elevation) for monitoring well RFW-1 [88.11 feet] as indicated on Table 2 (Water Level Measurements, Exeter Landfill, Exeter, New Hampshire) of Weston's report dated June 1990.
7. Wells GMW-10 and GMW-11 were installed for use as Landfill gas monitoring wells. Groundwater was encountered in GMW-11 during the August 9, 2001 monitoring round.
8. "-" indicates water level measurements were not performed at the location and date specified, or no data/not encountered.
9. Bedrock surface elevations are based on depth to bedrock encountered while drilling borings and as shown on boring logs RFW-1, RFW-2, RFW-3, and RFW-4 in Weston's 1990 report.
10. P-5 was replaced with GZ-P-5R during April 2004.
11. GMW-11RR was replaced on 8/6/19, new PVC reference elevation is 96.32'.

TABLE 3
SUMMARY OF DETECTED COMPOUNDS - PFAS IN GROUNDWATER
Cross Road Landfill - Exeter, New Hampshire
NH DES No. 198401081

Stratigraphic Unit	Monitoring Well ID	Sample Date	Carboxylic Acids[2]						Sulfonates[2]			Calculated Parameters		
			Perfluorobutanoic acid (PFBA) [4]	Perfluoropentanoic Acid (PFPeA) [5]	Perfluorohexanoic Acid (PFHxA) [6]	Perfluoroheptanoic Acid (PFHpA) [7]	Perfluoro-n-Octanoic Acid (PFOA) [8]	Perfluorononanoic Acid (PFNA) [9]	Perfluorobutane Sulfonate (PFBS) [4]	Perfluorohexane Sulfonate (PFHxS) [6]	Perfluorooctane Sulfonate (PFOS) [8]	PFOA and PFOS	Total Measured[1] PFAS	% PFOS+PFOA vs. Total PFAS
		AGQS (ng/L)	na	na	na	na	12	11	na	18	15	na	na	na
		EPA Health Advisory (ng/L)	na	na	na	na	70	na	na	na	70	70	na	na
Overburden	RFW-3	11/12/2018	<4.42	<4.42	**6.62**	<4.42	**4.47**	<4.42	<4.42	<4.42	<4.42	**4.5**	**11.1**	40.3%
		11/5/2020	<4.73	<4.73	**4.80**	<4.73	**6.42**	<4.73	<4.73	<4.73	**6.16**	**12.6**	**17.4**	72.4%
		11/2/2022	**2.15**	**3.65**	**3.34**	**2.74**	**3.96**	<1.90	**2.22**	**2.12**	**59.4**	**63.4**	**79.6**	79.6%
	RFW-4	4/25/2018	<4.11	<4.11	**5.07**	<4.11	**7.53**	<4.11	<4.11	<4.11	**7.04**	**14.6**	**19.6**	74.2%
		11/12/2018	<4.45	<4.45	<4.45	<4.45	<4.45	<4.45	<4.45	<4.45	<4.45	ND	ND	N/A
		11/5/2020	<4.50	<4.50	**4.97**	<4.50	**4.62**	<4.50	<4.50	<4.50	<4.50	4.6	9.6	48.2%
		11/2/2022	**2.74**	**2.4**	**4.03**	<1.97	**3.27**	<1.97	**2.73**	<1.97	<1.97	3.3	15.2	21.6%
	GZ-202A	4/25/2018	<4.10	<4.10	**5.54**	<4.10	<4.10	<4.10	<4.10	<4.10	<4.10	ND	**5.5**	N/A
		11/12/2018	<4.42	<4.42	**5.61**	<4.42	<4.42	<4.42	<4.42	<4.42	<4.42	ND	**5.6**	N/A
		11/5/2020	<4.57	<4.57	**4.95**	<4.57	**5.55**	<4.57	<4.57	<4.57	<4.57	5.6	**10.5**	52.9%
		11/2/2022	**3.44**	**2.75**	**3.87**	**2.61**	**5.69**	<1.97	**2.62**	<1.97	<1.97	5.7	**21.0**	27.1%
Groundwater Seep	P-2R	11/12/2018	<4.33	<4.33	<4.33	<4.33	<4.33	<4.33	<4.33	<4.33	<4.33	ND	ND	N/A

TABLE KEY:
PFAS = per- and polyfluoroalkyl substances
AGQS = Ambient Groundwater Quality Standards included in Env-Or 600 - Contaminated Site Management (Env-Or 603.03)
na = no current standard available
N/A = not applicable
< = analyte not detected above the laboratory reporting limit
ng/L = nanograms per liter

TABLE 3
SUMMARY OF DETECTED COMPOUNDS - PFAS IN GROUNDWATER
Cross Road Landfill - Exeter, New Hampshire
NH DES No. 198401081

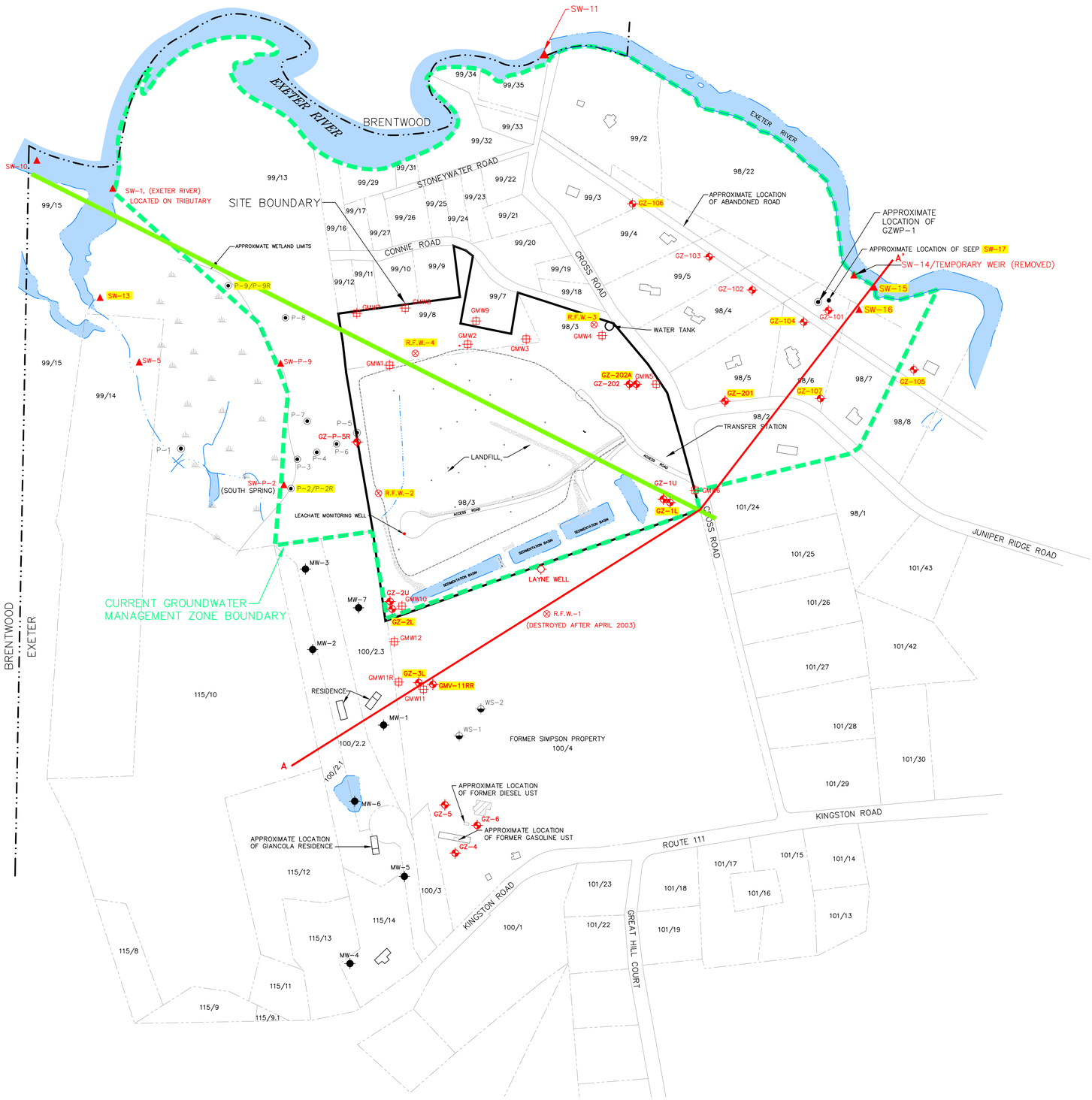
GENERAL NOTES:

* Civil & Environmental Consultants collected the groundwater samples for PFAS analysis and submitted the samples to Eastern Analytical who subcontracted the analysis to Vista Analytical Laboratory of El Dorado Hills, California.
* All concentrations reported in nanograms per liter.
* **Bold** indicates that the concentration was detected above the laboratory reporting detection limit. Shading indicates that concentration exceeds the AGQS.
* The analytical test method for PFAS samples analyzed during 2020 is Modified EPA Method 537.
* During May 2016, EPA issued a Lifetime Drinking Water Health Advisory (EPA Health Advisory) level of 70 ng/L for PFOA, PFOS, and for both PFOA and PFOS combined where these chemicals are present together.
* Effective July 23, 2020, New Hampshire established AGQS for PFOA (12 ng/L), PFOS (15 ng/L), perfluorononanoic acid (PFNA, 11 ng/L), and perfluorohexane sulfonic acid (PFHxS, 18 ng/L).

SPECIFIC NOTES:

1. A total of nine PFAS compounds were measured by the analyses. Other PFAS compounds may or may not be present.
2. The number within the brackets indicates the number of fluorinated carbon chains.

Figures



LOCUS MAP

SCALE: 1" = 2000'±

NOTES:

1. BASE MAP DEVELOPED FROM PROPERTY TAX MAPS PROVIDED BY THE TOWN OF EXETER, NEW HAMPSHIRE INCLUDING TAX MAPS 98, 99, 100 AND 101.
2. LOCUS MAP DEVELOPED FROM UNITED STATES GEOLOGIC SURVEY MAPS, KINGSTON, 1981 PHOTO REVISED 1989 AND EXETER 1985.
3. THE LOCATIONS OF SITE FEATURES INCLUDING WELLS, PIEZOMETERS, AND ROADS ARE BASED ON INFORMATION SHOWN ON PLANS TITLED "TOPOGRAPHIC PLAN OF LAND OF CROSSROAD LANDFILL, PREPARED FOR THE TOWN OF EXETER, NEW HAMPSHIRE," PREPARED BY T.F. MORAN, INC. OF BEDFORD, NEW HAMPSHIRE, DATED JANUARY 24, 1994; "GROUNDWATER ELEVATION CONTOUR MAP–26 APRIL 1990, EXETER LANDFILL, EXETER, NEW HAMPSHIRE," PREPARED BY ROY F. WESTON, INC. (WESTON) OF CONCORD NEW HAMPSHIRE, DATED MAY 1990; "EXPLORATION LOCATION PLAN, EXETER LANDFILL, EXETER, NEW HAMPSHIRE," PREPARED BY GZA GEOENVIRONMENTAL, INC. OF MANCHESTER, NEW HAMPSHIRE, DATED JULY 1997; SITE SKETCH TITLED "PARKER SURVEY" PROVIDED BY THE TOWN OF EXETER, NEW HAMPSHIRE DATED NOVEMBER 1997. THE LOCATIONS OF CERTAIN WELLS, PIEZOMETERS, AND SURFACE WATER SAMPLING LOCATIONS ARE BASED ON TAPED MEASUREMENTS FROM SITE FEATURES BY GZA AND ARE APPROXIMATE.
4. WETLAND LIMITS AND LOCATIONS OF SW–1, NORTH SPRING, SOUTH SPRING, AND P–6 WERE OBTAINED FROM FIGURE 4 OF A REPORT TITLED "REPORT OF HYDROGEOLOGIC INVESTIGATION, EXETER LANDFILL, EXETER, NEW HAMPSHIRE," PREPARED BY ROY F. WESTON, INC. OF CONCORD, NEW HAMPSHIRE, DATED JUNE 1990. THE LOCATIONS ARE APPROXIMATE.
5. THE MONITORING WELL DESIGNATED "LAYNE WELL" WAS INSTALLED BY LAYNE NEW ENGLAND AS DIRECTED BY GIDLEY LABORATORIES, INC. (GIDLAB) OF FAIRHAVEN, MASSACHUSETTS DURING OR BEFORE 1979. PIEZOMETERS P–1 THROUGH P–9 WERE INSTALLED BY GIDLAB DURING OR BEFORE 1979. MONITORING WELLS RFW–1 THROUGH RFW–4 WERE INSTALLED BY WESTON DURING MARCH 27 THROUGH APRIL 4, 1990. MONITORING WELLS MW–1 THROUGH MW–3 LOCATED ON THE BRADSHER PROPERTY WERE INSTALLED BY EXETER ENVIRONMENTAL ASSOCIATES, (EEA) ON DECEMBER 22, 2000. MONITORING WELLS MW–4 THROUGH MW–7, ALSO LOCATED ON THE BRADSHER PROPERTY WERE INSTALLED BY EEA ON MAY 15, 2001. MONITORING WELLS GZ–1U, GZ–1L, GZ–2U, GZ–2L, GZ– 3L, GZ–4, GZ–5 AND GZ–6 AND SOIL GAS MONITORING WELLS GMW10 AND GMW11 WERE INSTALLED BY CAPITAL ENVIRONMENTAL DRILLING SERVICE OF DUNBARTON, NEW HAMPSHIRE DURING JUNE 28 THROUGH JULY 6 2001. WELL POINTS P–2R AND P–9R WERE INSTALLED BY GZA DURING APRIL 2003. GZ–P–5R WAS INSTALLED BY NEW HAMPSHIRE BORING OF LONDONDERRY, NH ON APRIL 20, 2004. MONITORING WELLS GZ–201, GZ–202, AND GZ–202A WERE INSTALLED BY NEW HAMPSHIRE BORING DURING SEPTEMBER AND NOVEMBER 2012. MONITORING WELL GMW–11RR WAS INSTALLED BY NEW ENGLAND BORING DURING AUGUST 2019.
6. LOCATION OF PHOTO LINEAMENT SHOWN BASED ON THE UNITED STATES GEOLOGIC SURVEY MAP TITLED "LINEAMENT MAP OF AREA 1 OF THE NEW HAMPSHIRE BEDROCK AQUIFER ASSESSMENT, SOUTH EASTERN NEW HAMPSHIRE," DATED 1997.
7. LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.

LEGEND:

GZ–1L	GROUNDWATER MONITORING WELL BY GZA
R.F.W.–4	GROUNDWATER MONITORING WELL
LAYNE WELL	LAYNE WELL FORMER MONITORING WELL BY OTHERS
	MW–1 – OFFSITE OVERBURDEN MONITORING WELL BY OTHERS
WS–1	ABANDONED OVERBURDEN WATER SUPPLY WELL
SW–5	SURFACE WATER SAMPLING LOCATION
GMW4	SOIL GAS MONITORING WELL LOCATION
P–5	PIEZOMETER LOCATION
	STREAM
	OPEN SURFACE WATER
100/4	TOWN OF EXETER, NEW HAMPSHIRE PROPERTY TAX MAP NO./LOT NO.
	TOWN OF EXETER, NEW HAMPSHIRE PROPERTY LOT BOUNDARY
	APPROXIMATE LOCATION OF STRUCTURE
	APPROXIMATE LOCATION OF FORMER STRUCTURE
	CURRENT GROUNDWATER MANAGEMENT PERMIT REQUIRED SAMPLING LOCATION
	APPROXIMATE LOCATION OF PHOTO LINEAMENT IDENTIFIED BY THE UNITED STATES GEOLOGICAL SURVEY
A — A'	LOCATION OF CROSS SECTION LINE

N

0 100' 200' 400' 600'

SCALE IN FEET

2022 ANNUALSUMMARY REPORT
CROSS ROAD LANDFILL
GWP-198401081-E-005
EXETER, NEW HAMPSHIRE

SITE/SITE VICINTY PLAN

PREPARED BY:

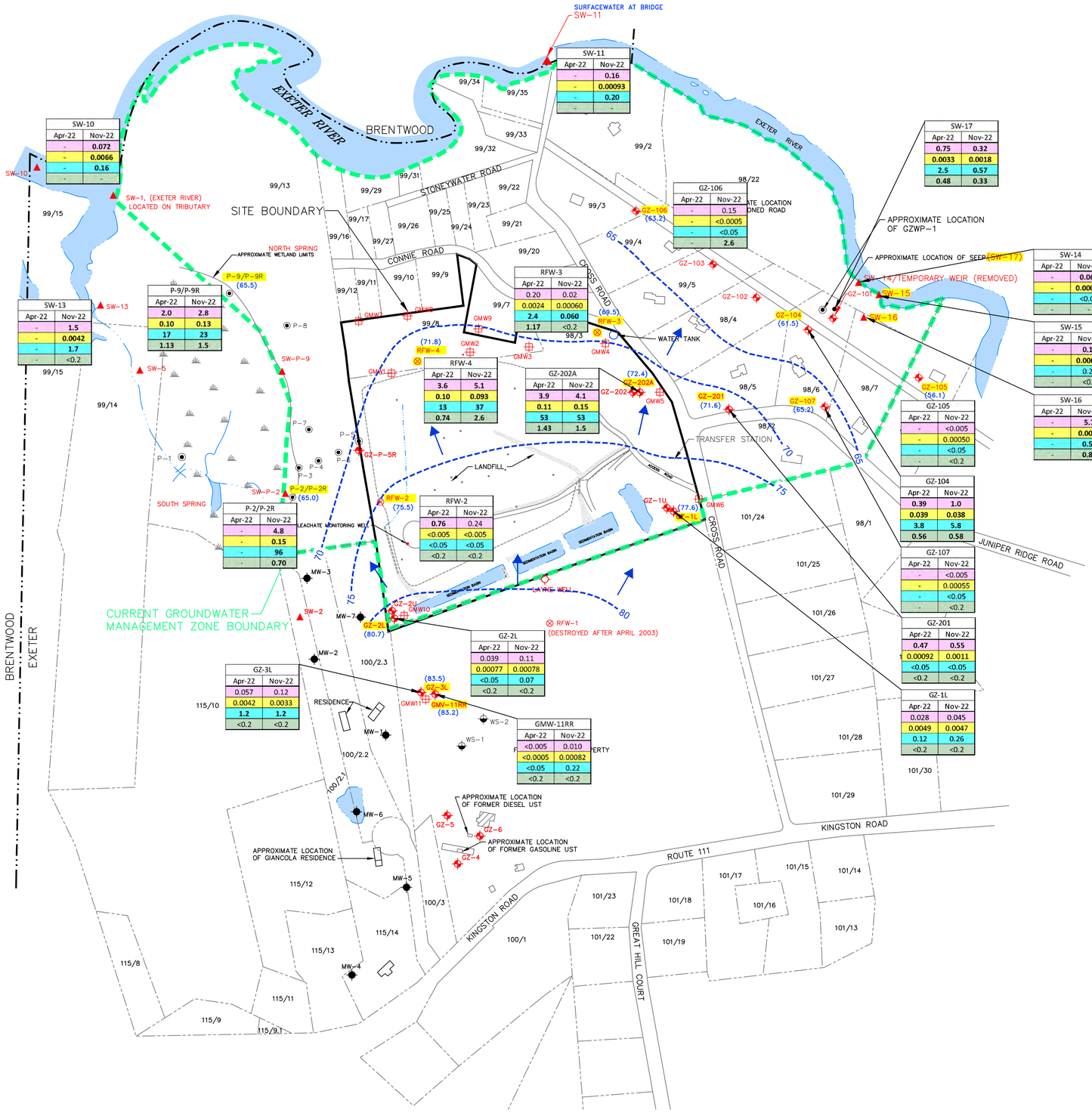
GZA GeoEnvironmental, Inc.
Engineers and Scientists
5 COMMERCE PARK NORTH, SUITE 201
BEDFORD, NEW HAMPSHIRE 03110
(603) 623-3600

PREPARED FOR: TOWN OF EXETER

PROJ MGR: EBD	REVIEWED BY: JDR	CHECKED BY: JMW	FIGURE 1
DESIGNED BY: EBD	DRAWN BY: HLP	SCALE: 1" = 200'	
DATE: JANUARY 2023	PROJECT NO. 04.0021270.34	REVISION NO.	SHEET NO. 1 OF 3

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

©2023– GZA GeoEnvironmental, Inc. GZA–P:\21000s\21270\04.0021270.34\Figures\DWGs\04.0021270.34_Figure 1 – Site Vicinity Plan.dwg [Figure 1] January 09, 2023 – 10:33am Haley.Puntin



SW-10	
Apr-22	Nov-22
-	0.072
-	0.0066
-	0.16
-	-

SW-11	
Apr-22	Nov-22
-	0.16
-	0.00093
-	0.20
-	-

SW-13	
Apr-22	Nov-22
-	1.5
-	0.0042
-	1.7
-	<0.2

P-9/P-9R	
Apr-22	Nov-22
2.0	2.8
0.10	0.13
17	23
1.13	1.5

P-2/P-2R	
Apr-22	Nov-22
-	4.8
-	0.15
-	96
-	0.70

RFW-2	
Apr-22	Nov-22
0.76	0.24
<0.005	<0.005
<0.05	<0.05
<0.2	<0.2

RFW-3	
Apr-22	Nov-22
0.20	0.02
0.0024	0.00060
2.4	0.060
1.17	<0.2

RFW-4	
Apr-22	Nov-22
3.6	5.1
0.10	0.093
13	37
0.74	2.6

GZ-202A	
Apr-22	Nov-22
3.9	4.1
0.11	0.15
53	53
1.43	1.5

GZ-106	
Apr-22	Nov-22
-	0.15
-	<0.0005
-	<0.05
-	2.6

SW-17	
Apr-22	Nov-22
0.75	0.32
0.0033	0.0018
2.5	0.57
0.48	0.33

SW-14	
Apr-22	Nov-22
-	0.065
-	0.00050
-	<0.05
-	-

SW-15	
Apr-22	Nov-22
-	0.17
-	0.00090
-	0.25
-	<0.2

SW-16	
Apr-22	Nov-22
-	5.7
-	0.0026
-	0.52
-	0.83

GZ-105	
Apr-22	Nov-22
-	<0.005
-	0.00050
-	<0.05
-	<0.2

GZ-104	
Apr-22	Nov-22
0.39	1.0
0.039	0.038
3.8	5.8
0.56	0.58

GZ-107	
Apr-22	Nov-22
-	<0.005
-	0.00055
-	<0.05
-	<0.2

GZ-201	
Apr-22	Nov-22
0.47	0.55
0.00092	0.0011
<0.05	<0.05
<0.2	<0.2

GZ-1L	
Apr-22	Nov-22
0.028	0.045
0.0049	0.0047
0.12	0.26
<0.2	<0.2

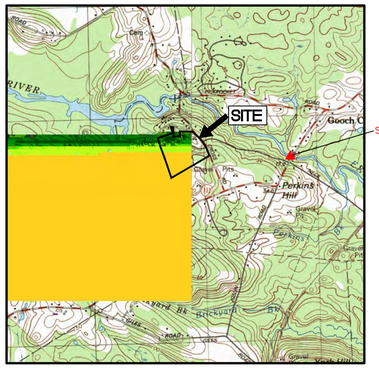
GZ-2L	
Apr-22	Nov-22
0.039	0.11
0.00077	0.00078
<0.05	0.07
<0.2	<0.2

GZ-3L	
Apr-22	Nov-22
0.057	0.12
0.0042	0.0033
1.2	1.2
<0.2	<0.2

GMW-11RR	
Apr-22	Nov-22
<0.005	0.010
<0.0005	0.00082
<0.05	0.22
<0.2	<0.2

NOTES:

1. BASE MAP DEVELOPED FROM PROPERTY TAX MAPS PROVIDED BY THE TOWN OF EXETER, NEW HAMPSHIRE INCLUDING TAX MAPS 98, 99, 100 AND 101.
2. LOCUS MAP DEVELOPED FROM UNITED STATES GEOLOGIC SURVEY MAPS, KINGSTON, 1981 PHOTO REVISED 1989 AND EXETER 1985.
3. THE LOCATIONS OF SITE FEATURES INCLUDING WELLS, PIEZOMETERS, AND ROADS ARE BASED ON INFORMATION SHOWN ON PLANS TITLED "TOPOGRAPHIC PLAN OF LAND OF CROSSROAD LANDFILL, PREPARED FOR THE TOWN OF EXETER, NEW HAMPSHIRE," PREPARED BY T.F. MORAN, INC. OF BEDFORD, NEW HAMPSHIRE, DATED JANUARY 24, 1994; "GROUNDWATER ELEVATION CONTOUR MAP–26 APRIL 1990, EXETER LANDFILL, EXETER, NEW HAMPSHIRE," PREPARED BY ROY F. WESTON, INC. (WESTON) OF CONCORD NEW HAMPSHIRE, DATED MAY 1990; "EXPLORATION LOCATION PLAN, EXETER LANDFILL, EXETER, NEW HAMPSHIRE," PREPARED BY GZA GEOENVIRONMENTAL, INC. OF MANCHESTER, NEW HAMPSHIRE, DATED JULY 1997; AND SITE SKETCH TITLED "PARKER SURVEY" PROVIDED BY THE TOWN OF EXETER, NEW HAMPSHIRE DATED NOVEMBER 1997.
4. ESTIMATED GROUNDWATER SURFACE ELEVATION CONTOURS AND INFERRED DIRECTION OF GROUNDWATER FLOW ARE BASED ON DEPTH–TO–WATER MEASUREMENTS MADE ON NOVEMBER 4, 2019 BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC), REFERENCE POINT ELEVATION DATA SHOWN IN TABLE 1 AND TABLE 2 OF ROY F. WESTON, INC.'S REPORT TITLED "REPORT OF HYDROGEOLOGIC INVESTIGATION, EXETER LANDFILL, EXETER, NEW HAMPSHIRE," DATED JUNE 1990, AND LEVEL ELEVATION SURVEYS BY GZA ON JUNE 22, 2001, JULY 24, 2001, AND NOVEMBER 12, 2007. GROUNDWATER ELEVATION DATA ALSO CONSIDER DEPTH–TO–GROUNDWATER MEASUREMENTS, MADE BY CEC ON MARCH 7, 2013.
5. WETLAND LIMITS AND LOCATIONS OF SW–1, NORTH SPRING, SOUTH SPRING, AND P–6 WERE OBTAINED FROM FIGURE 4 OF A REPORT TITLED "REPORT OF HYDROGEOLOGIC INVESTIGATION, EXETER LANDFILL, EXETER, NEW HAMPSHIRE," PREPARED BY ROY F. WESTON, INC. OF CONCORD, NEW HAMPSHIRE, DATED JUNE 1990. THE LOCATIONS ARE APPROXIMATE.
6. GROUNDWATER SURFACE AND GROUND SURFACE ELEVATIONS REFERENCED TO THE NATIONAL GEODETIC SURVEY DATUM OF 1929 (NGVD).
7. THE MONITORING WELL DESIGNATED "LAYNE WELL" WAS INSTALLED BY LAYNE NEW ENGLAND AS DIRECTED BY GIDLEY LABORATORIES, INC. (GIDLAB) OF FAIRHAVEN, MASSACHUSETTS DURING OR BEFORE 1979. PIEZOMETERS P–1 THROUGH P–9 WERE INSTALLED BY GIDLAB DURING OR BEFORE 1979. MONITORING WELLS RFW–1 THROUGH RFW–4 WERE INSTALLED BY WESTON DURING MARCH 27 THROUGH APRIL 4, 1990. MONITORING WELLS MW–1 THROUGH MW–3 LOCATED ON THE BRADSHER PROPERTY WERE INSTALLED BY EXETER ENVIRONMENTAL ASSOCIATES, (EEA) ON DECEMBER 22, 2000. MONITORING WELLS MW–4 THROUGH MW–7, ALSO LOCATED ON THE BRADSHER PROPERTY WERE INSTALLED BY EEA ON MAY 15, 2001. MONITORING WELLS GZ–1U, GZ–1L, GZ–2U, GZ–2L, GZ– 3L, GZ–4, GZ–5 AND GZ–6 AND SOIL GAS MONITORING WELLS GMW10 AND GMW11 WERE INSTALLED BY CAPITAL ENVIRONMENTAL DRILLING SERVICE OF DUNBARTON, NEW HAMPSHIRE DURING JUNE 28 THROUGH JULY 6 2001. WELL POINTS P–2R AND P–9R WERE INSTALLED BY GZA DURING APRIL 2003. GZ–P–5R WAS INSTALLED BY NEW HAMPSHIRE BORING OF LONDONDERRY, NH ON APRIL 20, 2004. MONITORING WELL GMW–11RR WAS INSTALLED BY NEW ENGLAND BORING DURING AUGUST 2019.
8. WATER QUALITY DATA SHOWN HEREON SUMMARIZE THE RESULTS OF WATER QUALITY MONITORING FOR ARSENIC, IRON, AND MANGANESE FROM SAMPLES COLLECTED BY BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. DURING APRIL AND NOVEMBER 2022.
9. LOCATIONS SHOULD BE CONSIDERED APPROXIMATE. REFER TO PREVIOUS FIGURE FOR ADDITIONAL NOTES AND LEGEND.



LOCUS MAP
SCALE: 1" = 2000'±

LEGEND:

GZ-1L	GROUNDWATER MONITORING WELL BY GZA
R.F.W.-4	GROUNDWATER MONITORING WELL
LAYNE WELL	LAYNE WELL FORMER MONITORING WELL BY OTHERS
WS-1	ABANDONED OVERBURDEN WATER SUPPLY WELL
SW-5	SURFACE WATER SAMPLING LOCATION
GMW4	SOIL GAS MONITORING WELL LOCATION
P-6	PIEZOMETER LOCATION
	STREAM
	OPEN SURFACE WATER (POND/POND)
100/4	TOWN OF EXETER, NEW HAMPSHIRE PROPERTY TAX MAP NO./LOT NO.
	TOWN OF EXETER, NEW HAMPSHIRE PROPERTY LOT BOUNDARY
	APPROXIMATE LOCATION OF STRUCTURE
	APPROXIMATE LOCATION OF FORMER STRUCTURE
0.11	INDICATES MANGANESE CONCENTRATION IN MILLIGRAMS PER LITER (mg/L)
<0.01	INDICATES ARSENIC CONCENTRATION IN MILLIGRAMS PER LITER (mg/L)
<0.05	INDICATES IRON CONCENTRATION IN MILLIGRAMS PER LITER (mg/L)
<0.02	INDICATES 1,4–DIOXONE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
(65.0)	INDICATES ESTIMATED OVERBURDEN GROUNDWATER SURFACE ELEVATION IN FEET BASED ON DEPTH TO GROUNDWATER MEASUREMENTS DURING NOVEMBER 2022 (SEE NOTE 4).
75	ESTIMATED OVERBURDEN GROUNDWATER SURFACE ELEVATION CONTOUR IN FEET BASED ON DEPTH TO GROUNDWATER MEASUREMENTS DURING NOVEMBER 2022 (SEE NOTE 4).
	INFERRED DIRECTION OF OVERBURDEN GROUNDWATER FLOW
	CURRENT GROUNDWATER MANAGEMENT PERMIT REQUIRED SAMPLING LOCATION

BOLD PRINT INDICATES EXCEEDANCE OF NH AQGS OR SMCL

N

0 100' 200' 400' 600'
SCALE IN FEET

2022 ANNUAL SUMMARY REPORT
CROSS ROAD LANDFILL
GWP-198401081-E-005
EXETER, NEW HAMPSHIRE

WATER QUALITY AND ELEVATION DATA SUMMARY

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
5 COMMERCE PARK NORTH, SUITE 201
BEDFORD, NEW HAMPSHIRE 03110
(603) 623-3600

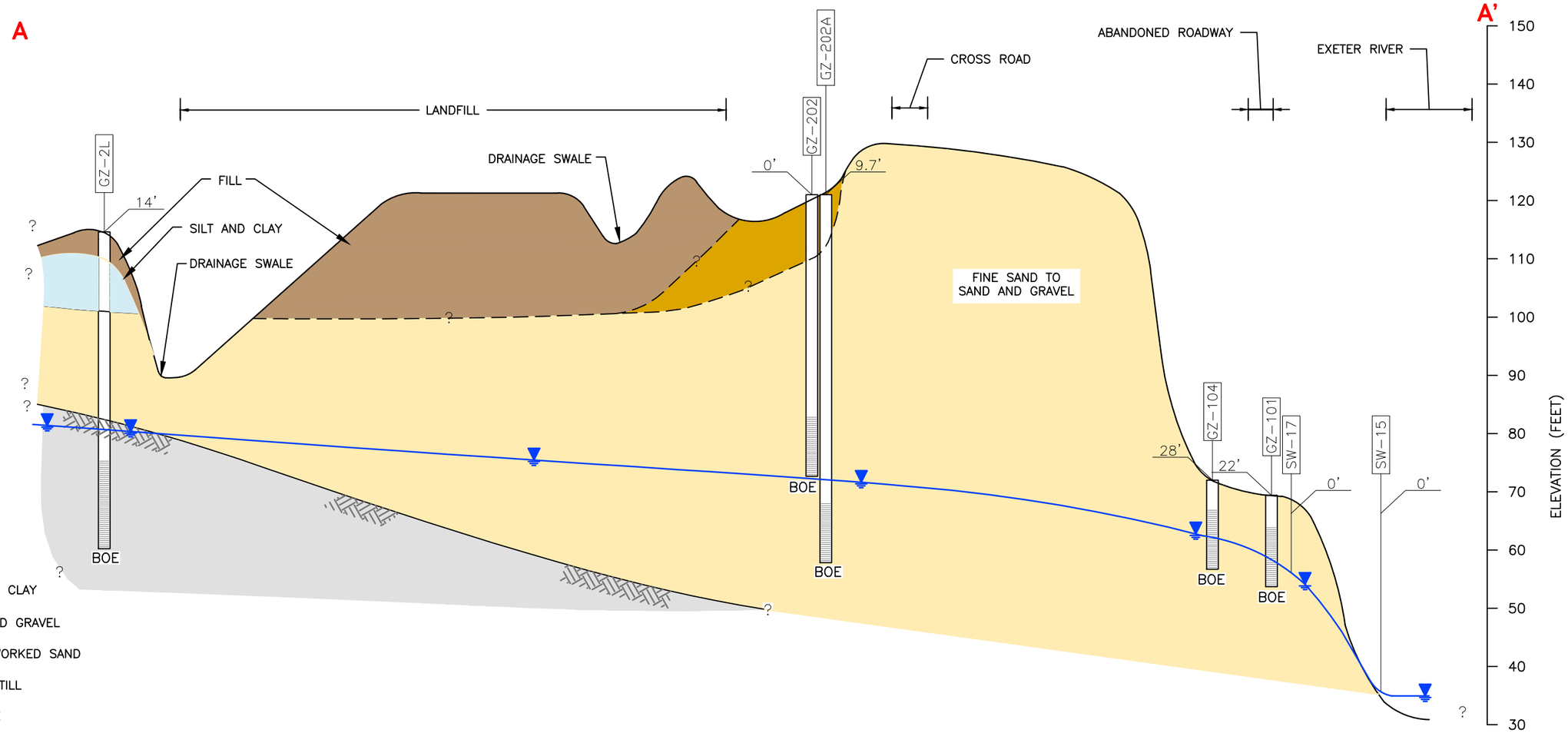
PREPARED FOR: TOWN OF EXETER

PROJ MGR: EBD	REVIEWED BY: JDR	CHECKED BY: JMW	FIGURE 2
DESIGNED BY: EBD	DRAWN BY: HLP	SCALE: AS NOTED	
DATE: JANUARY 2022	PROJECT NO. 04.0021270.34	REVISION NO.	SHEET NO. 2 OF 3

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

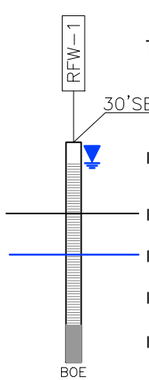
©2023– GZA GeoEnvironmental, Inc. GZA–P:\21000s\21270\04.0021270.34\Figures\DWGs\04.0021270.34_Figure 2 – Water Quality and Elevation Data Summary.dwg [Figure 2] January 09, 2023 – 12:11pm Haley.Puntin

CROSS-SECTION A-A'



LEGEND:

- SILT AND CLAY
- SAND AND GRAVEL
- FILL/REWORKED SAND
- GLACIAL TILL
- BEDROCK
- STRATIFIED FINE SAND, SILT, AND CLAY WITH OCCASIONAL GRAVEL
- APPROXIMATE LOCATION OF LANDFILL MATERIALS



- TEST BORING/MONITORING WELL AND NUMBER
- 30'SE OFFSET FROM CROSS SECTION LINE
- INDICATES APPROXIMATE GROUNDWATER ELEVATION
- INDICATES APPROXIMATE STRATUM CHANGE
- INDICATES ESTIMATED GROUNDWATER SURFACE
- INDICATES INSTALLED WELL SCREEN
- INDICATES BENTONITE

NOTES:

1) GEOLOGIC UNITS ARE GENERALIZED IN ORDER TO DEMONSTRATE MAJOR STRATIGRAPHIC RELATIONSHIPS. REFER TO BORING LOGS FOR DETAILED SOIL DESCRIPTIONS FOR INDIVIDUAL SUBSURFACE EXPLORATIONS.

2) STRATIFICATION LINES ARE APPROXIMATE AND ARE BASED ON DATA COLLECTED FROM WIDELY SPACED EXPLORATIONS AND REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. ACTUAL TRANSITIONS MAY VARY FROM THOSE SHOWN.

3) THE ESTIMATED GROUNDWATER ELEVATION IS BASED ON WATER LEVEL MEASUREMENTS MADE AT VARIOUS TIMES AND IS PROVIDED TO SHOW THE GENERAL LOCATION OF THE SATURATED ZONE.

4) THE GENERALIZED HYDROSTRATIGRAPHIC CROSS-SECTIONS SHOWN ARE BASED ON THE RESULTS OF THE EXPLORATIONS SHOWN ON THE CROSS-SECTIONS.

5) 'R' INDICATES REFUSAL.

6) 'BOE' INDICATES BOTTOM OF EXPLORATION.

7) GROUNDWATER SURFACE AND GROUND SURFACE ELEVATIONS REFERENCED TO THE NATIONAL GEODETIC SURVEY DATUM OF 1929 (NGVD).

8) PLEASE REFER TO FIGURE 1 FOR ADDITIONAL NOTES.

VERTICAL SCALE: 1" = 20'

0 10' 20' 40'

0 100' 200' 400'

HORIZONTAL SCALE: 1" = 200'

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2022 ANNUAL SUMMARY REPORT
CROSS ROAD LANDFILL
GWP-198401081-E-005
EXETER, NEW HAMPSHIRE

HYDROGEOLOGIC CROSS SECTION

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
5 COMMERCE PARK NORTH, SUITE 201
BEDFORD, NEW HAMPSHIRE 03110
(603) 623-3600

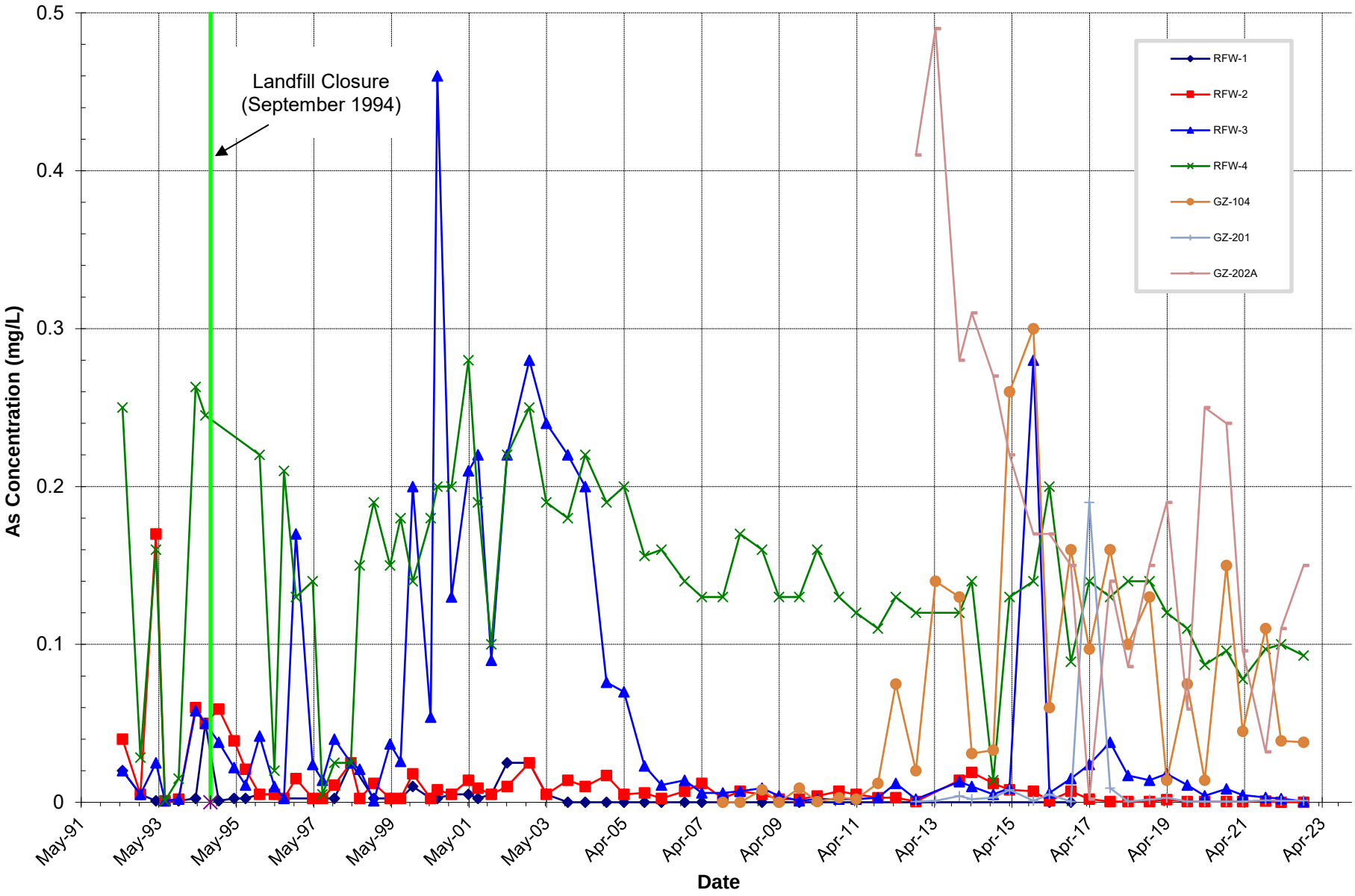
PREPARED FOR: TOWN OF EXETER

PROJ MGR: EBD	REVIEWED BY: JDR	CHECKED BY: JMW	FIGURE 3
DESIGNED BY: EBD	DRAWN BY: HLP	SCALE: AS SHOWN	
DATE JANUARY 2023	PROJECT NO. 04.0021270.34	REVISION NO.	SHEET NO. 3 OF 3

© 2023 – GZA GeoEnvironmental, Inc. GZA-P:\21000s\21270\04.0021270.34\Figures\DWGs\04.0021270.34_Figure 3 – Hydrogeologic Cross-Section.dwg [Figure 3] January 09, 2023 – 12:10pm Haley,Purtin

Plots

PLOT 1A
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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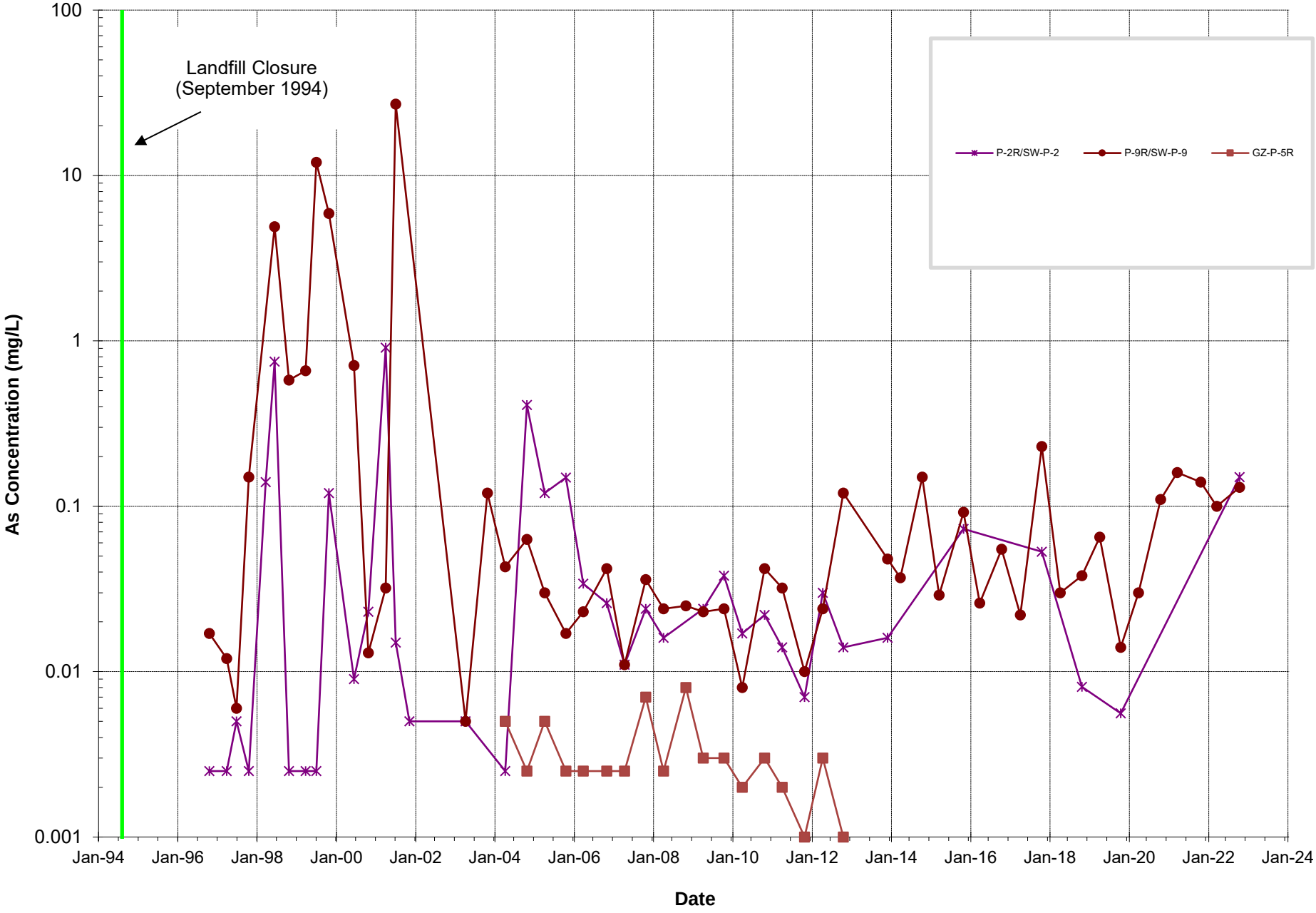
GZA GeoEnvironmental, Inc.

PLOT 1B
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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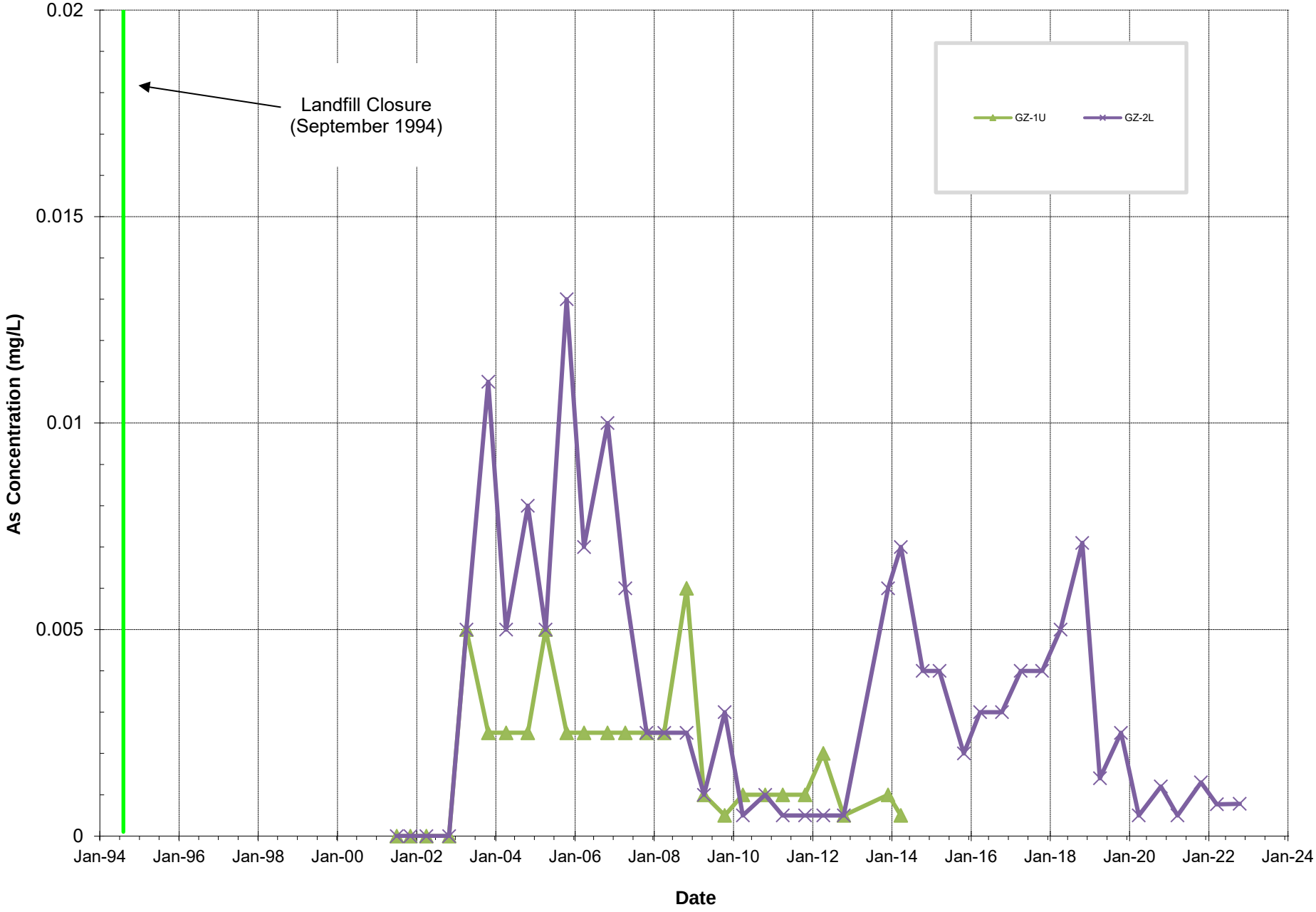
GZA GeoEnvironmental, Inc.

PLOT 1C
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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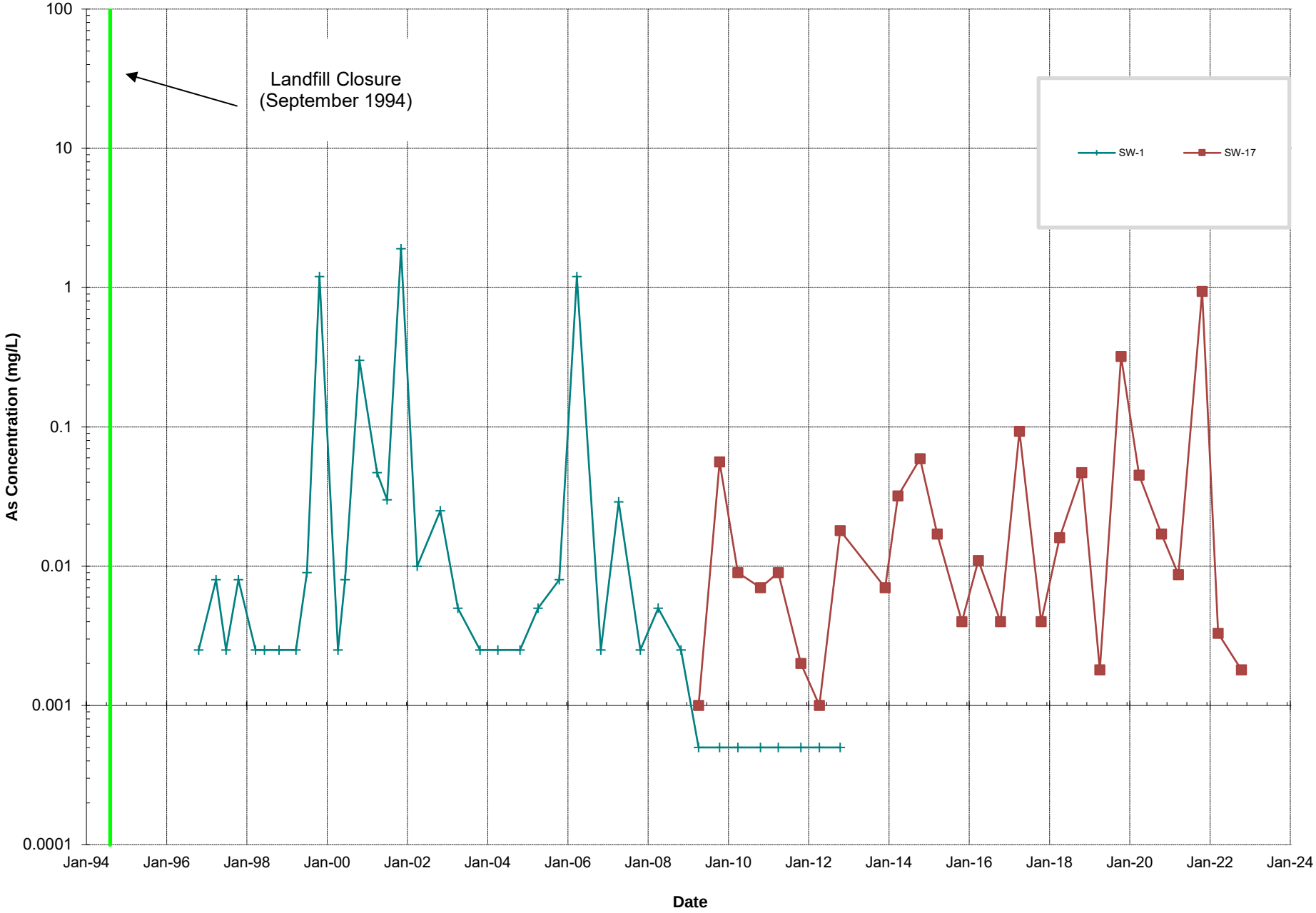
GZA GeoEnvironmental, Inc.

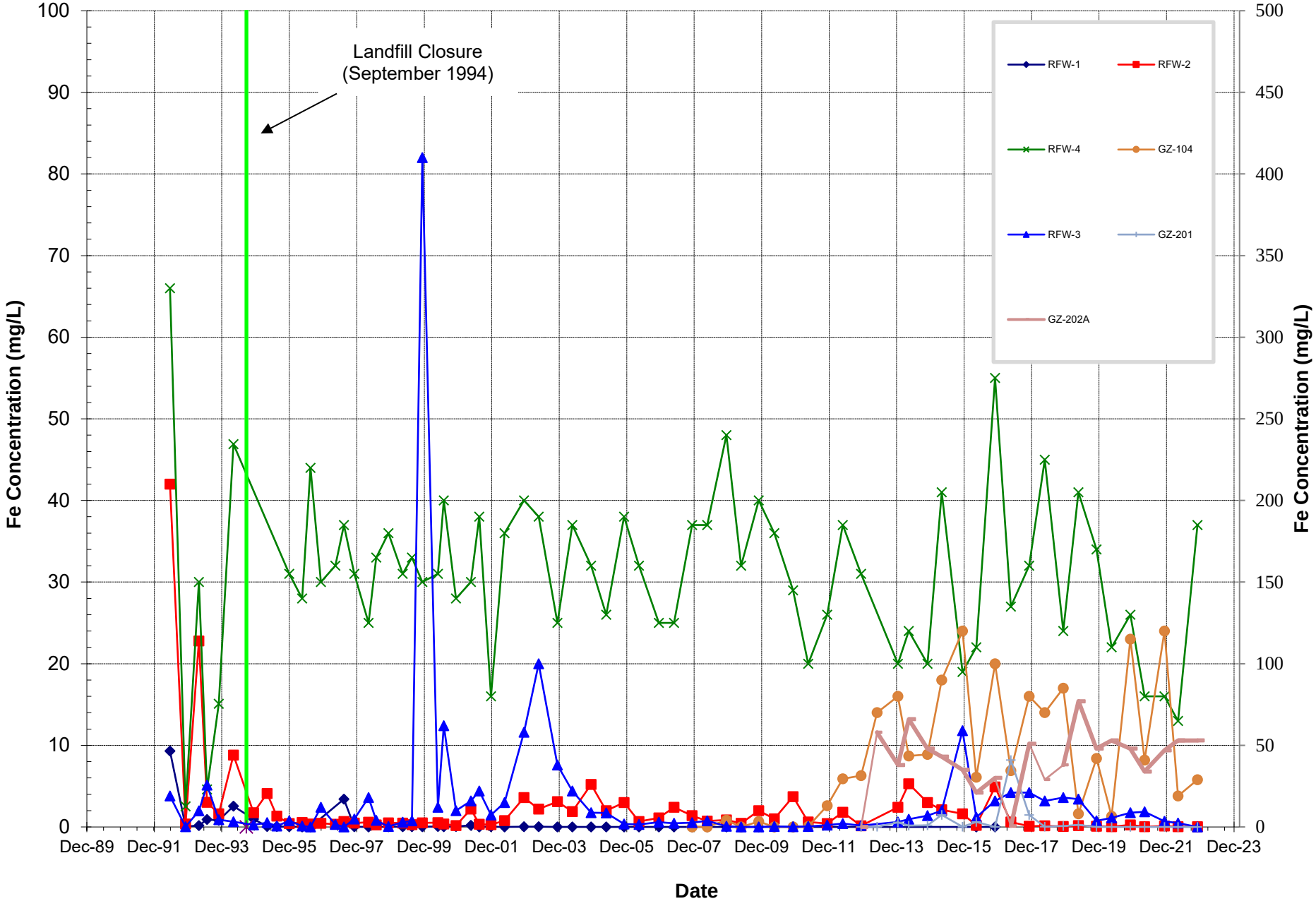
PLOT 1D
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



C:\Users\patricia.antezana\Desktop\04.0021270.34_Plots 2022_010423.xls

GZA GeoEnvironmental, Inc.

PLOT 2A
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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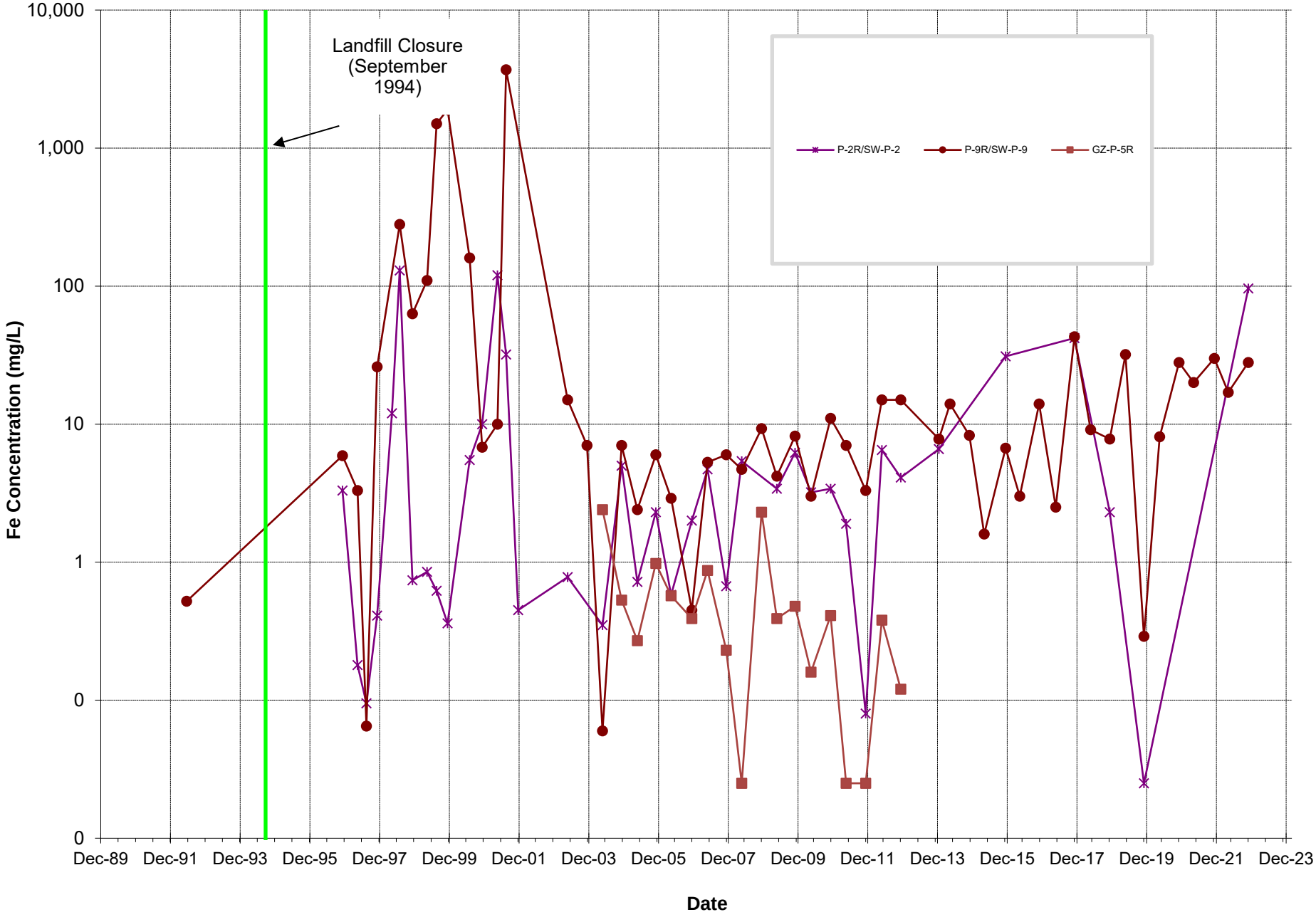
GZA GeoEnvironmental, Inc.

PLOT 2B
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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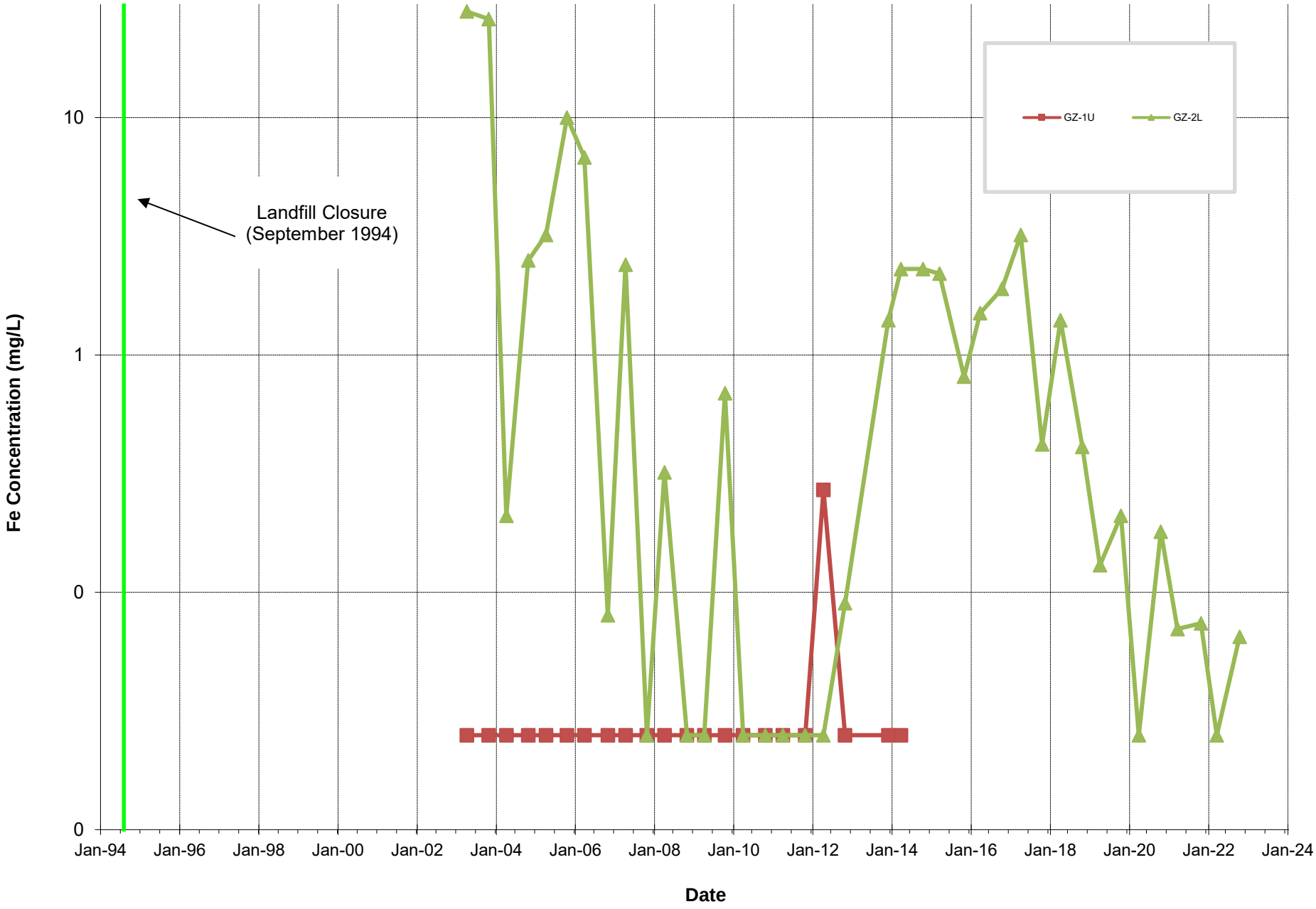
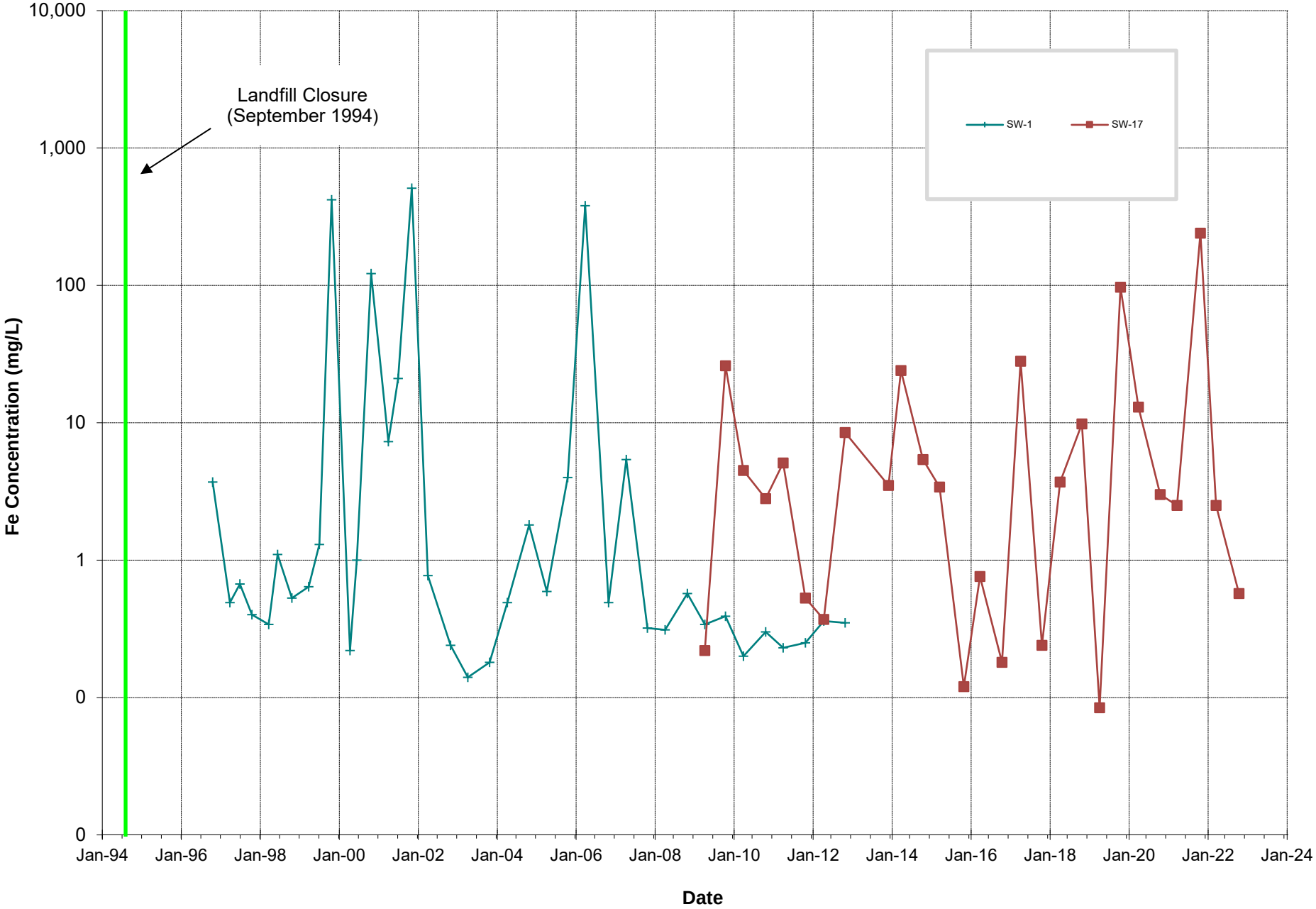
GZA GeoEnvironmental, Inc.

PLOT 2C
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



PLOT 2D
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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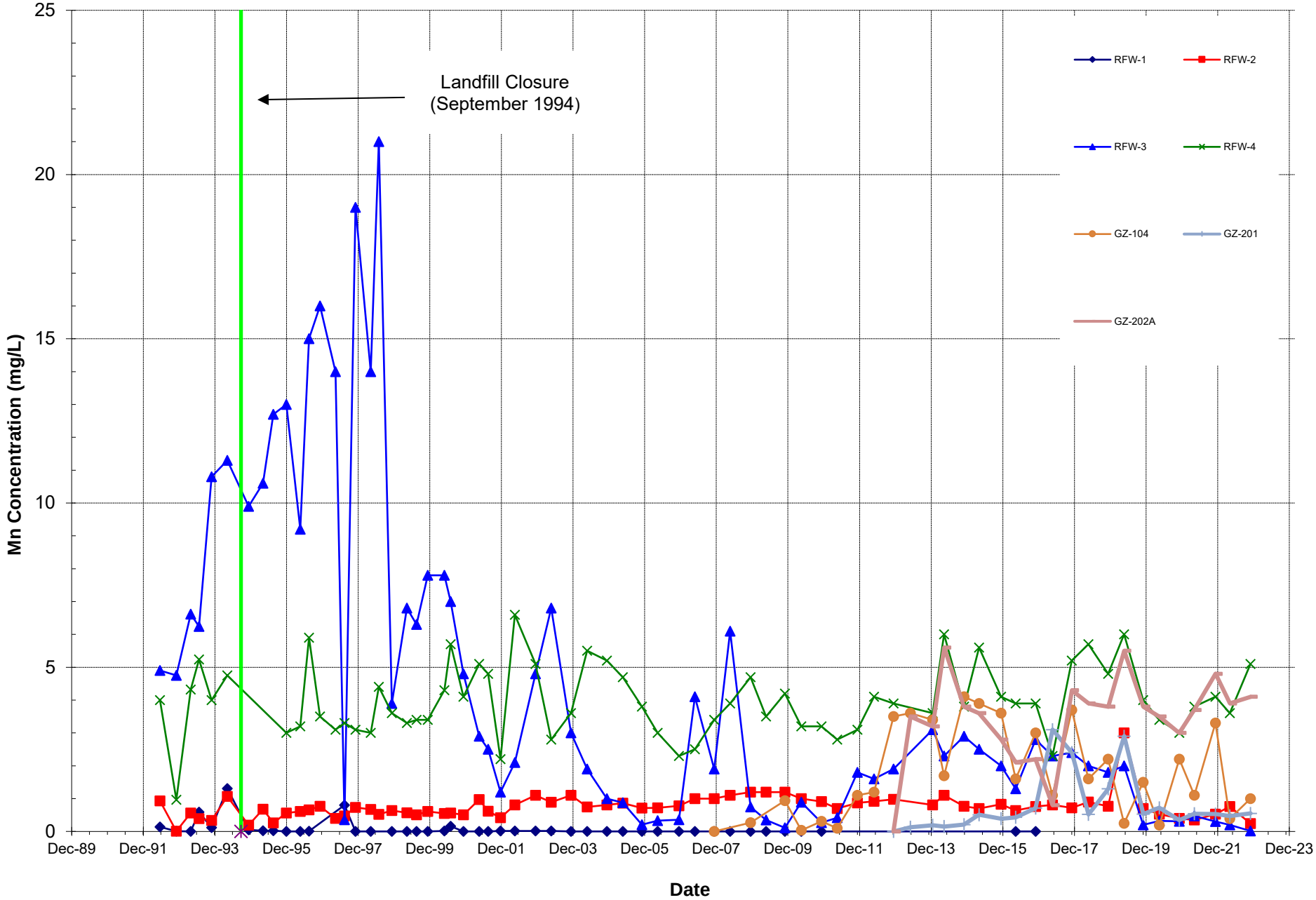
GZA GeoEnvironmental, Inc.

PLOT 3A
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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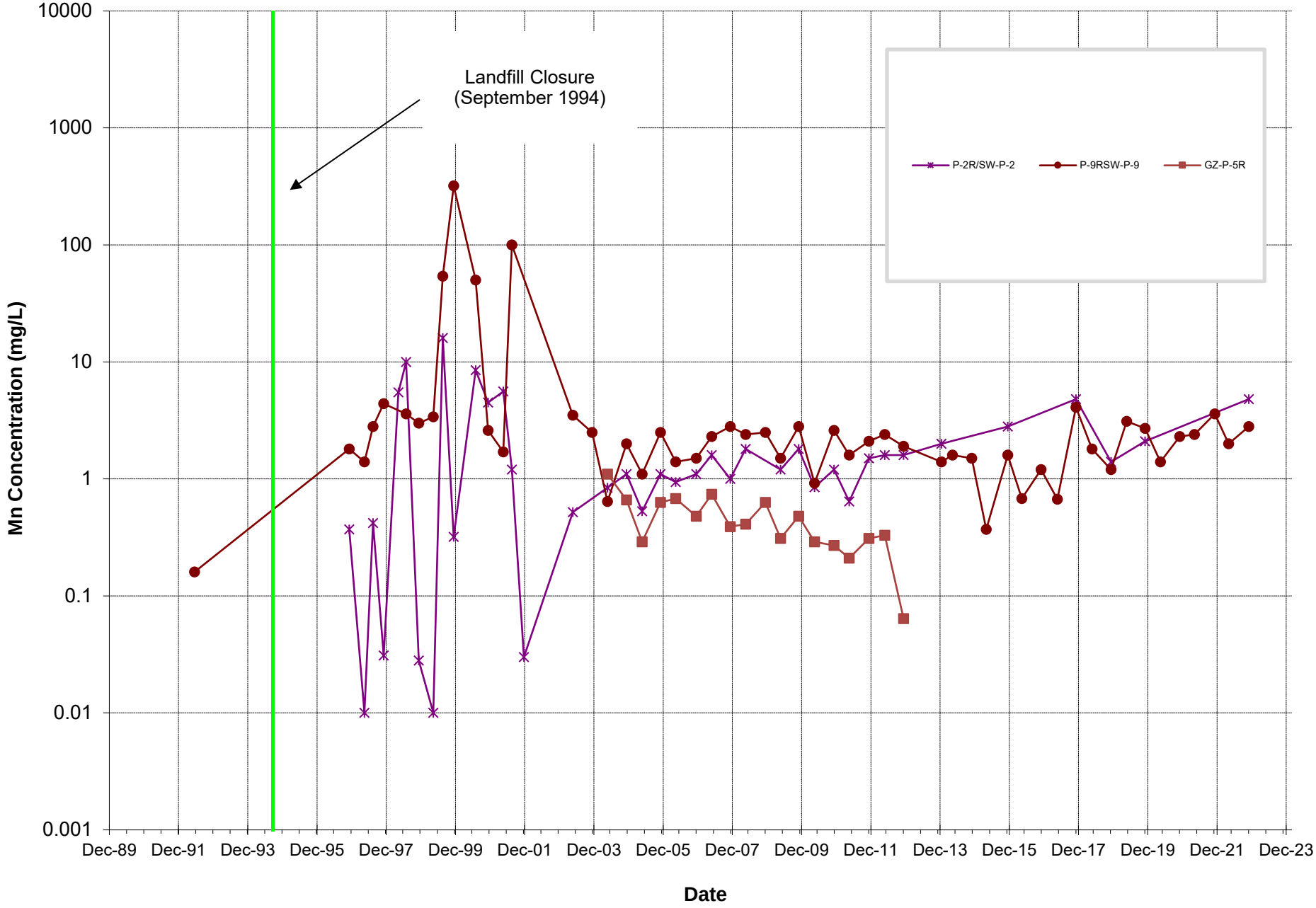
GZA GeoEnvironmental, Inc.

PLOT 3B
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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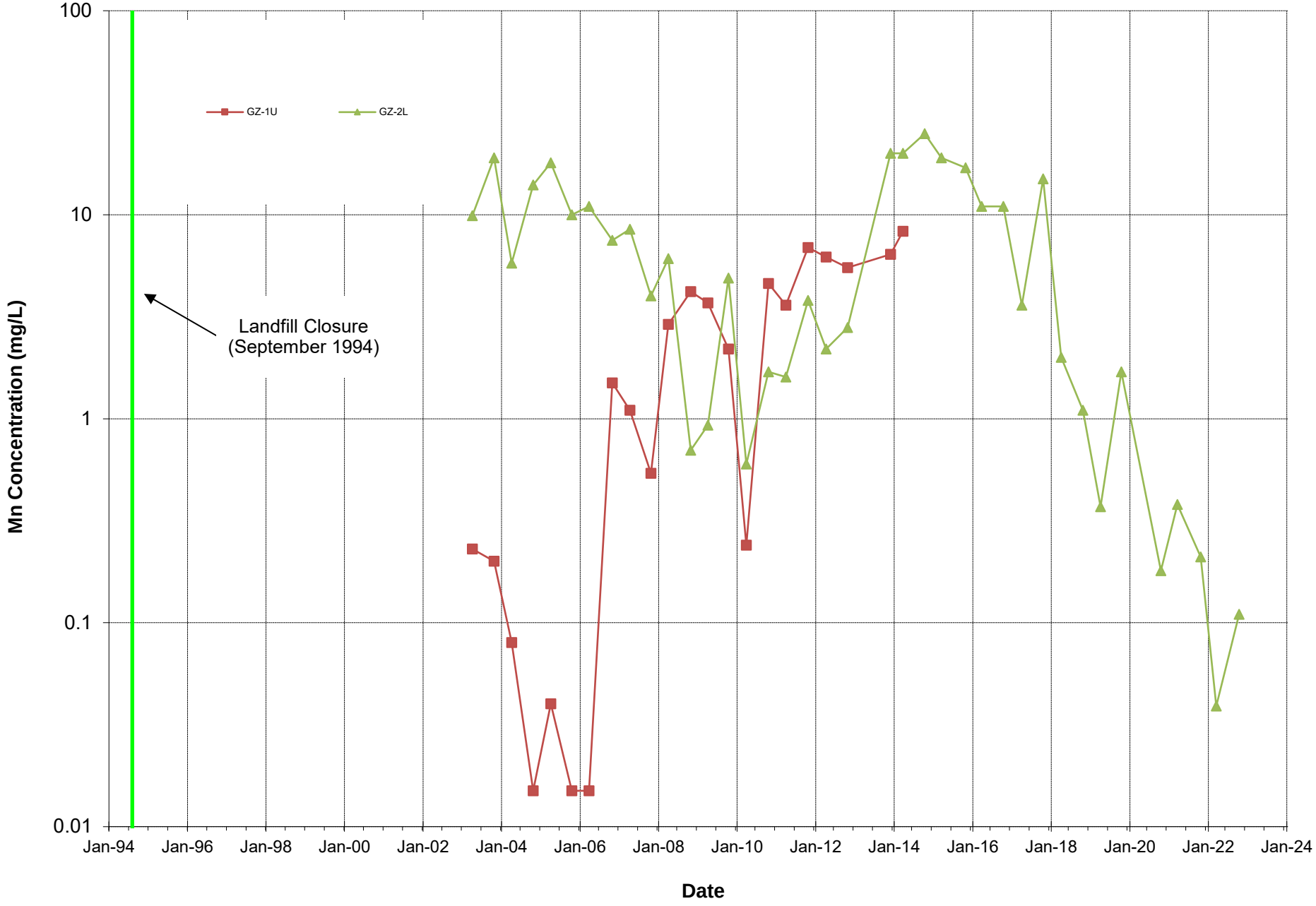
GZA GeoEnvironmental, Inc.

PLOT 3C
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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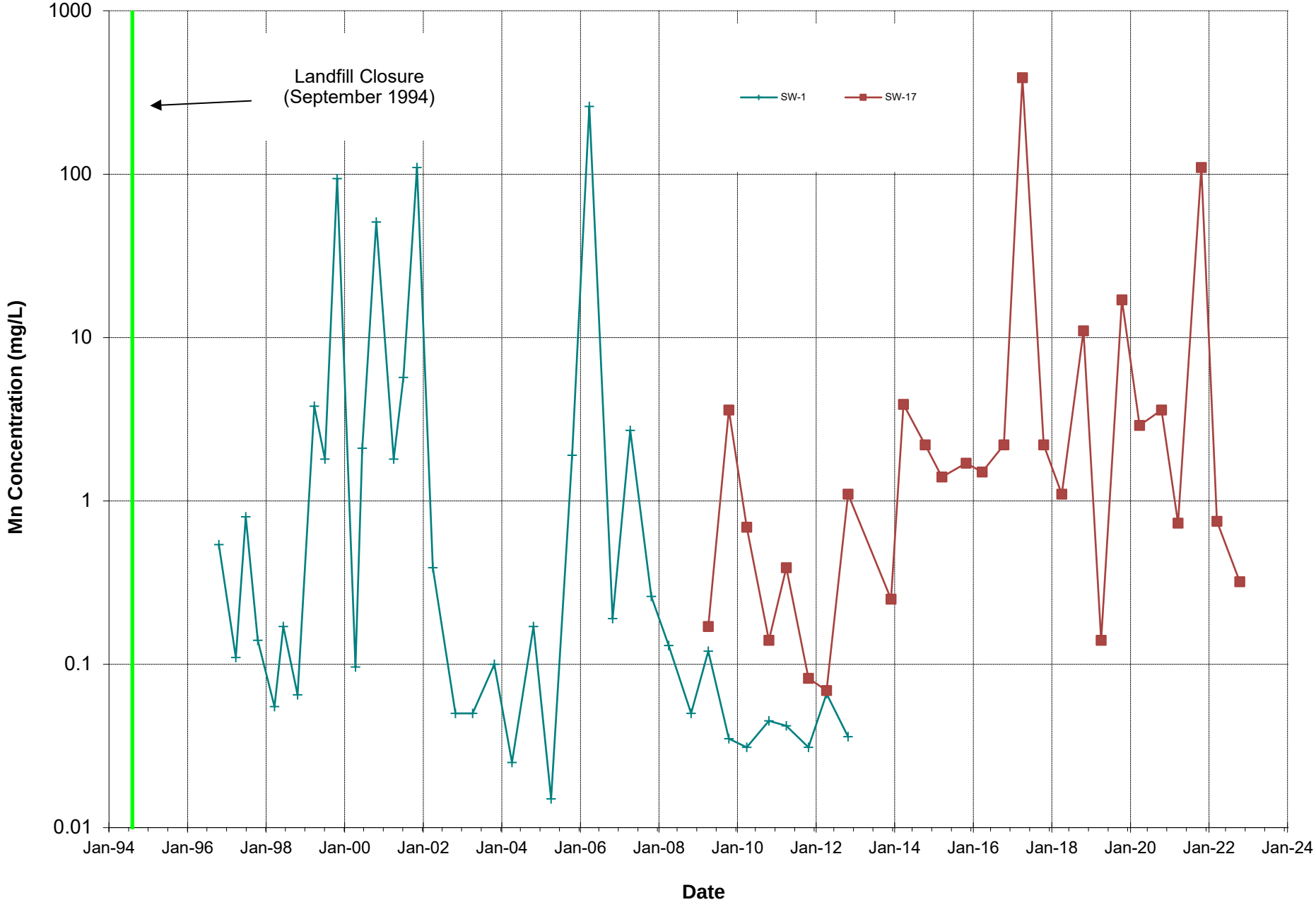
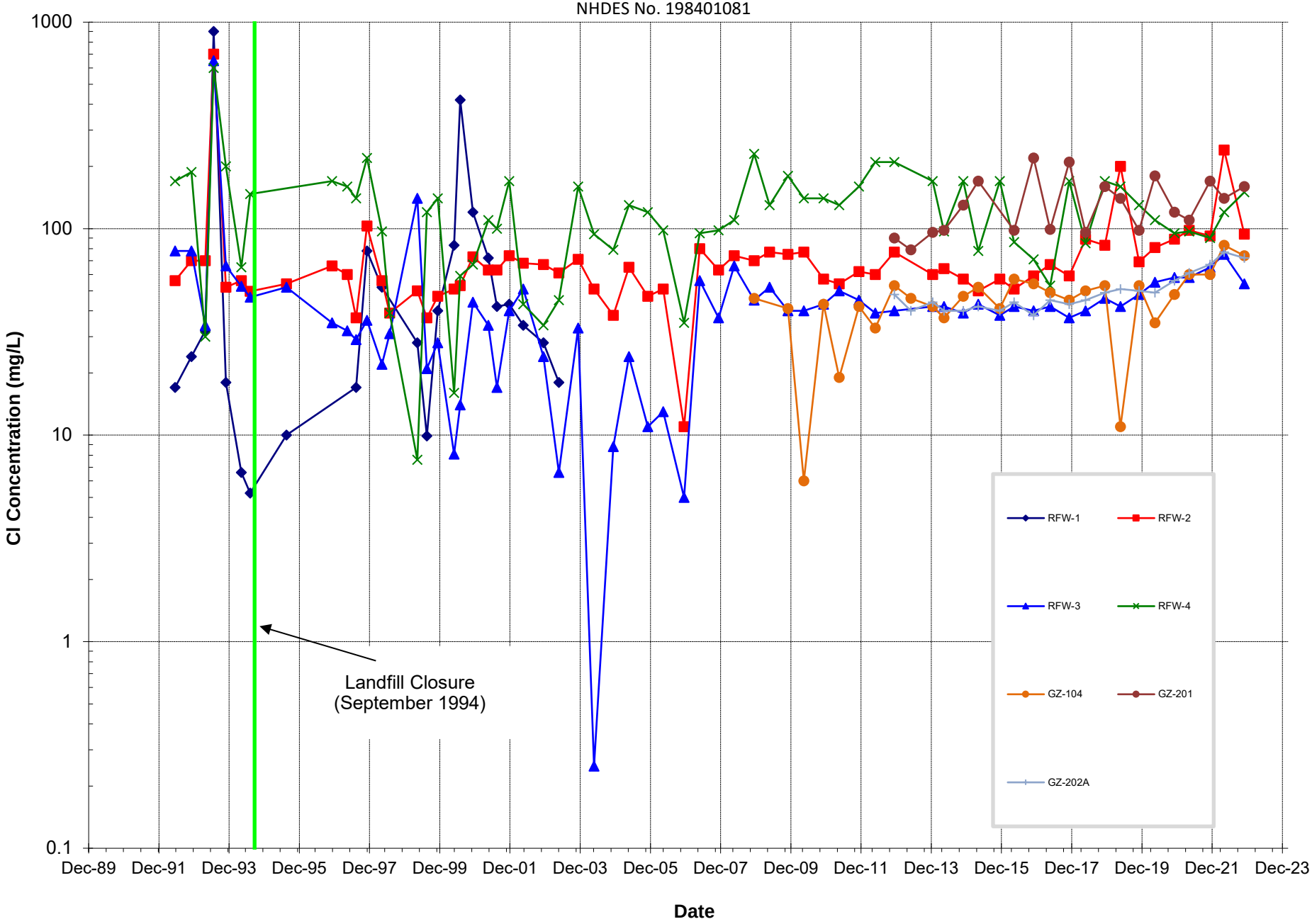
GZA GeoEnvironmental, Inc.

PLOT 3D
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



PLOT 4A
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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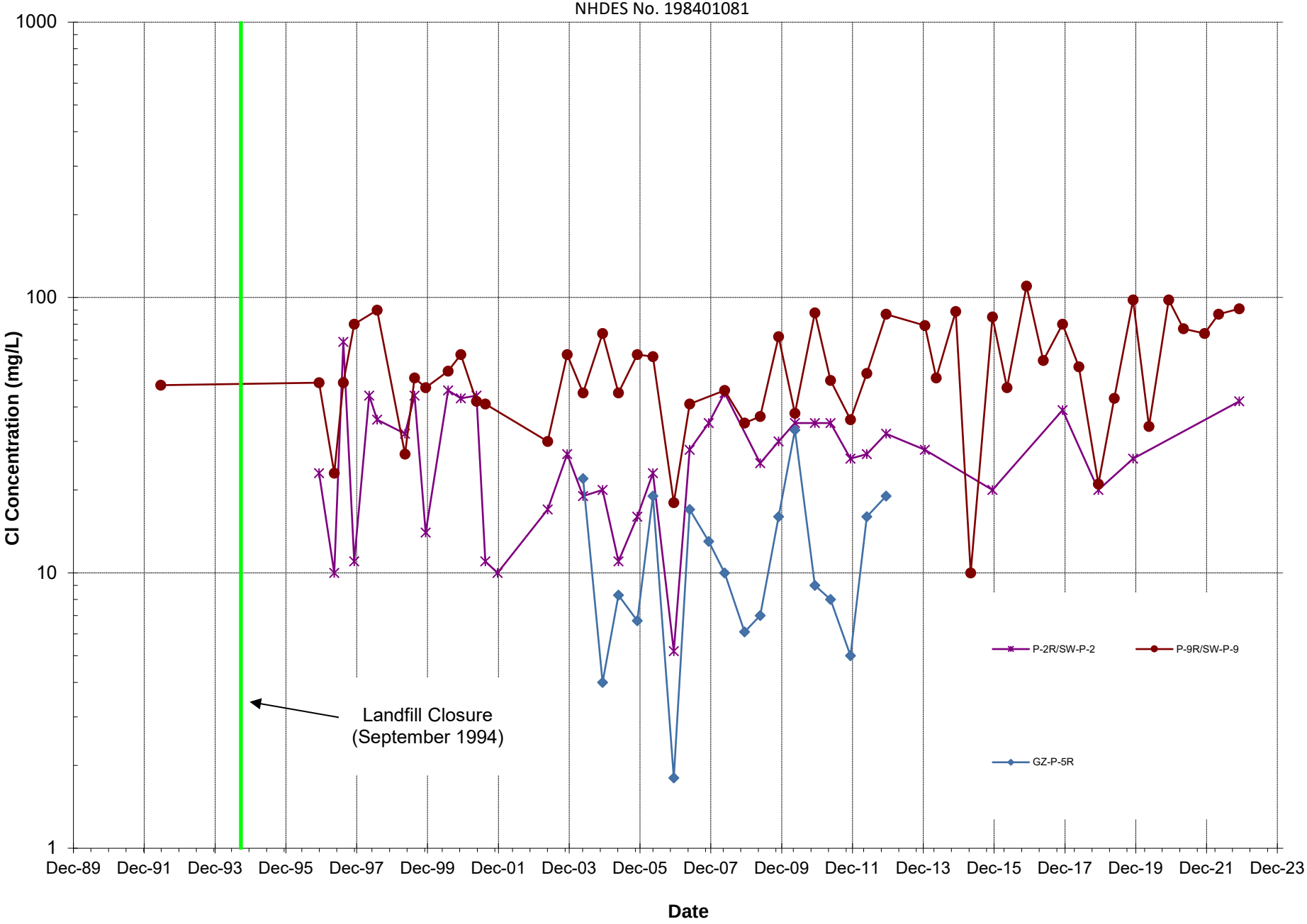
GZA GeoEnvironmental, Inc.

PLOT 4B
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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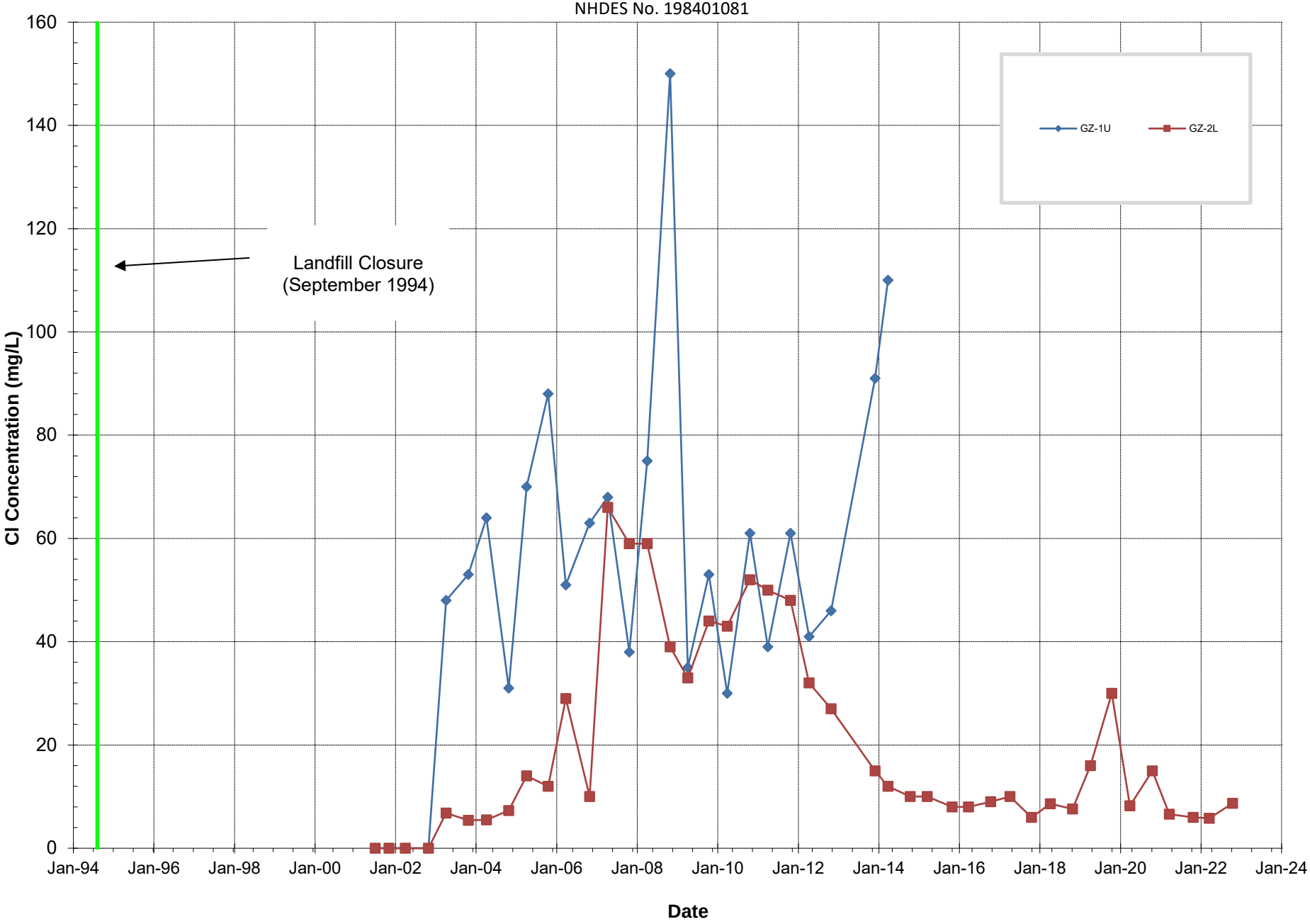
GZA GeoEnvironmental, Inc.

PLOT 4C
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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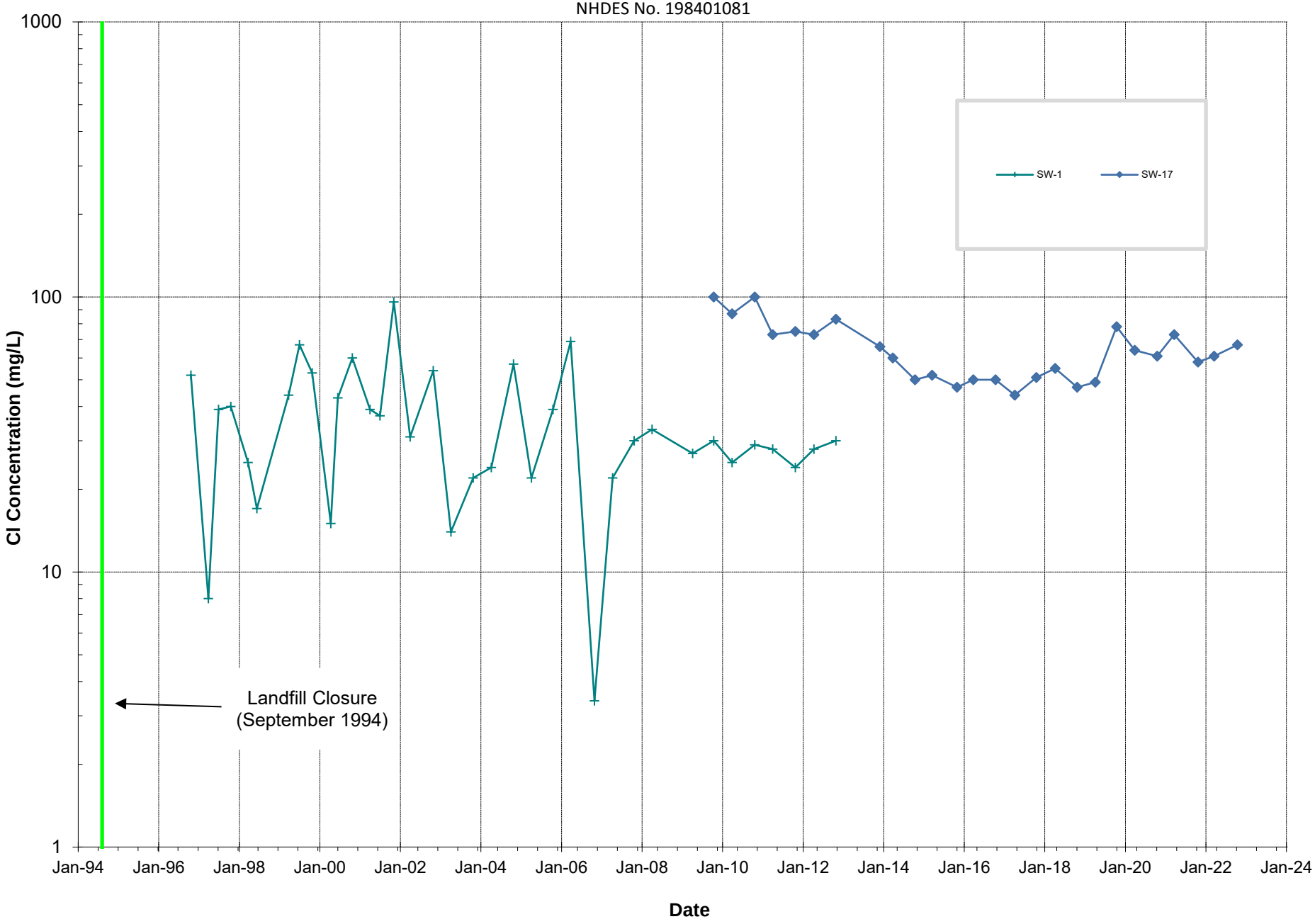
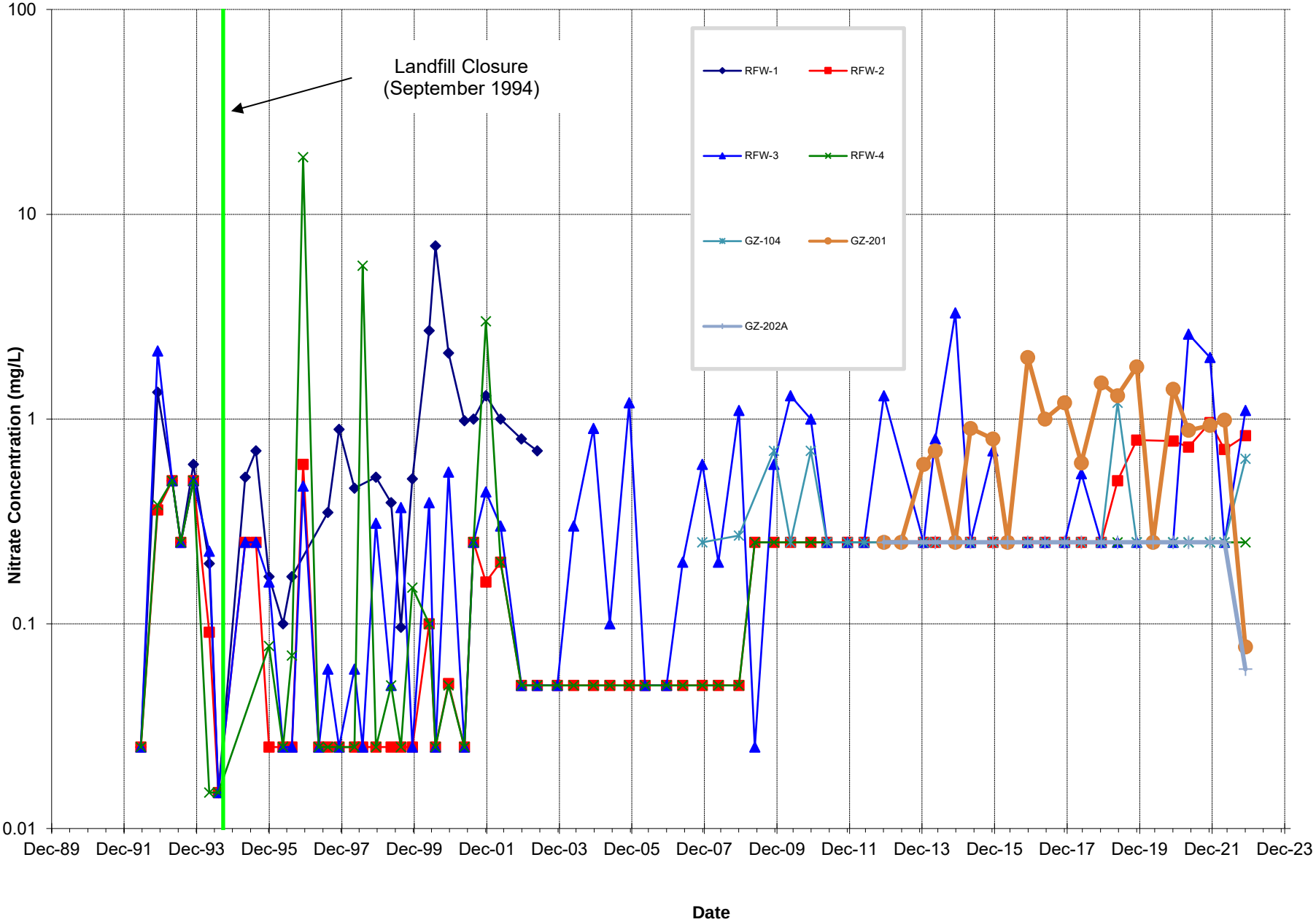
GZA GeoEnvironmental, Inc.

PLOT 4D
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



PLOT 5A
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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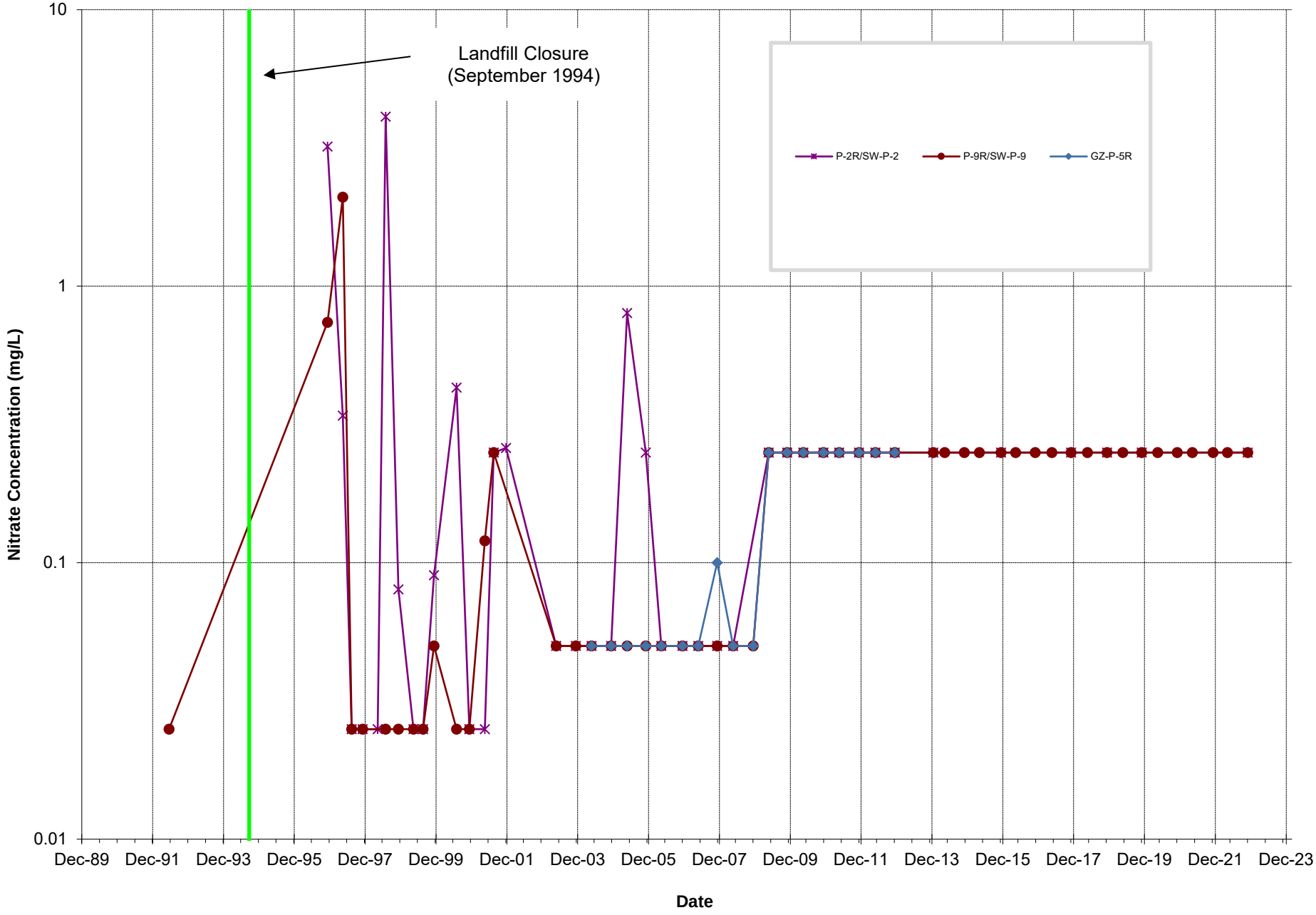
GZA GeoEnvironmental, Inc.

PLOT 5B
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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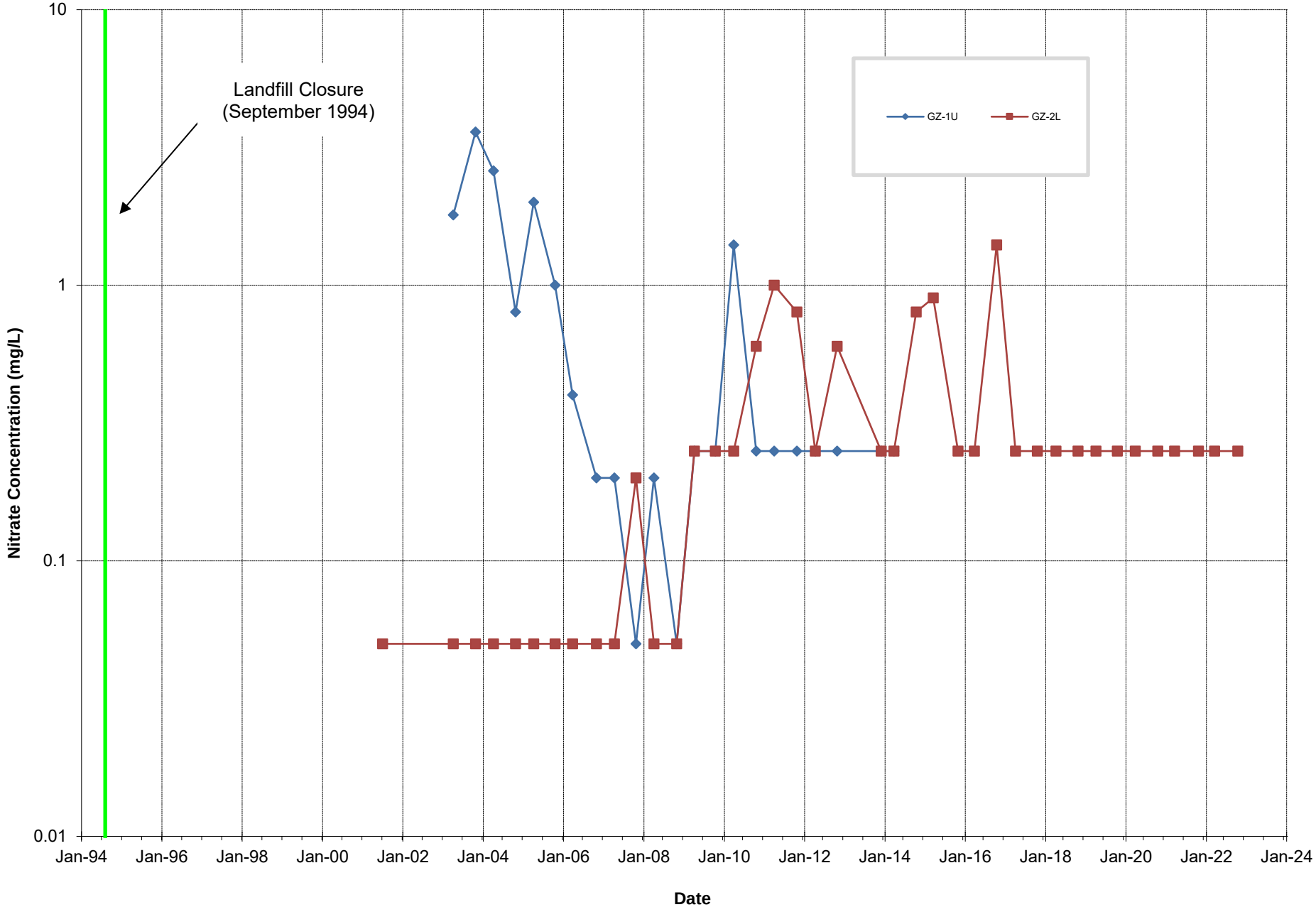
GZA GeoEnvironmental, Inc.

PLOT 5C
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



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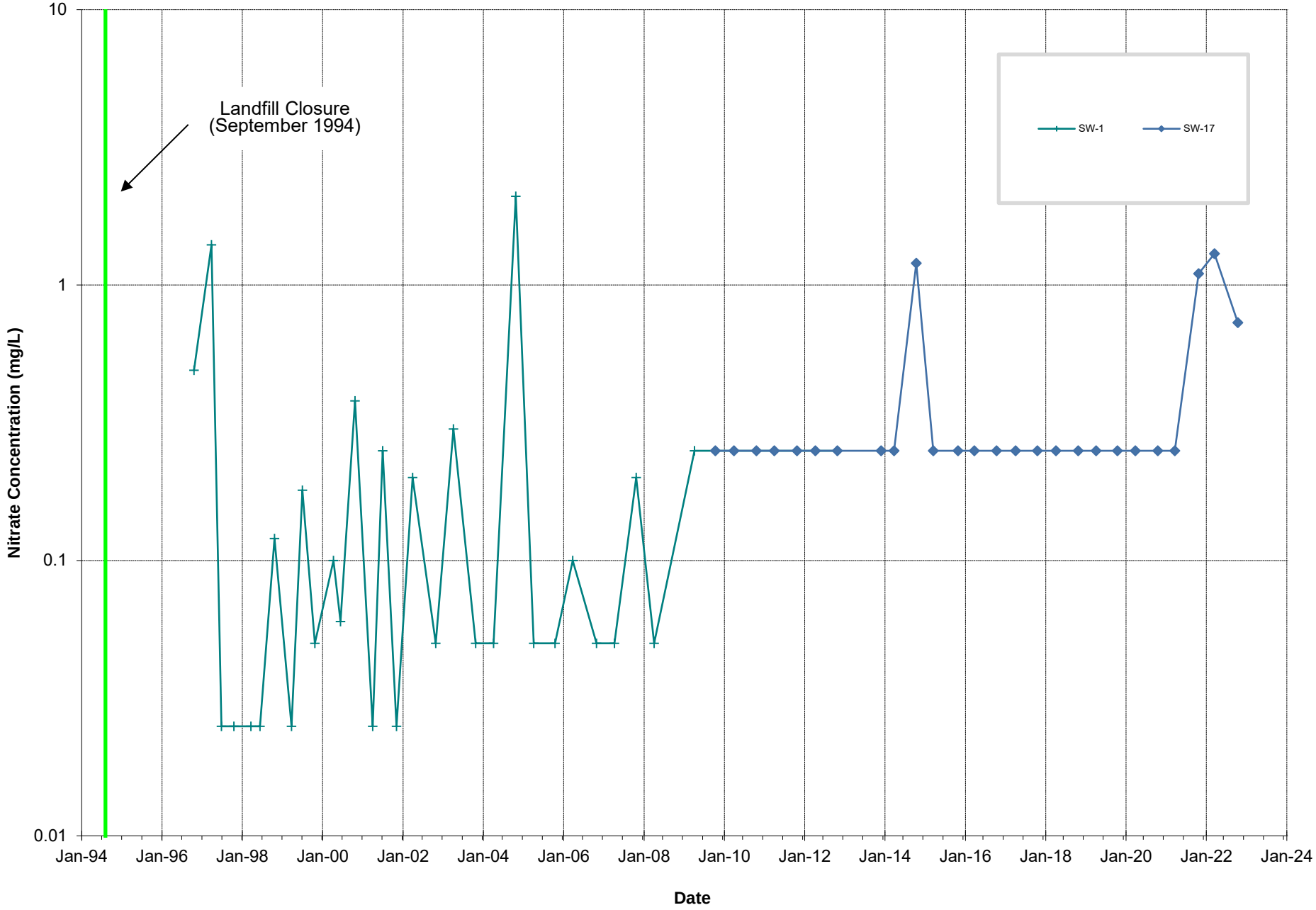
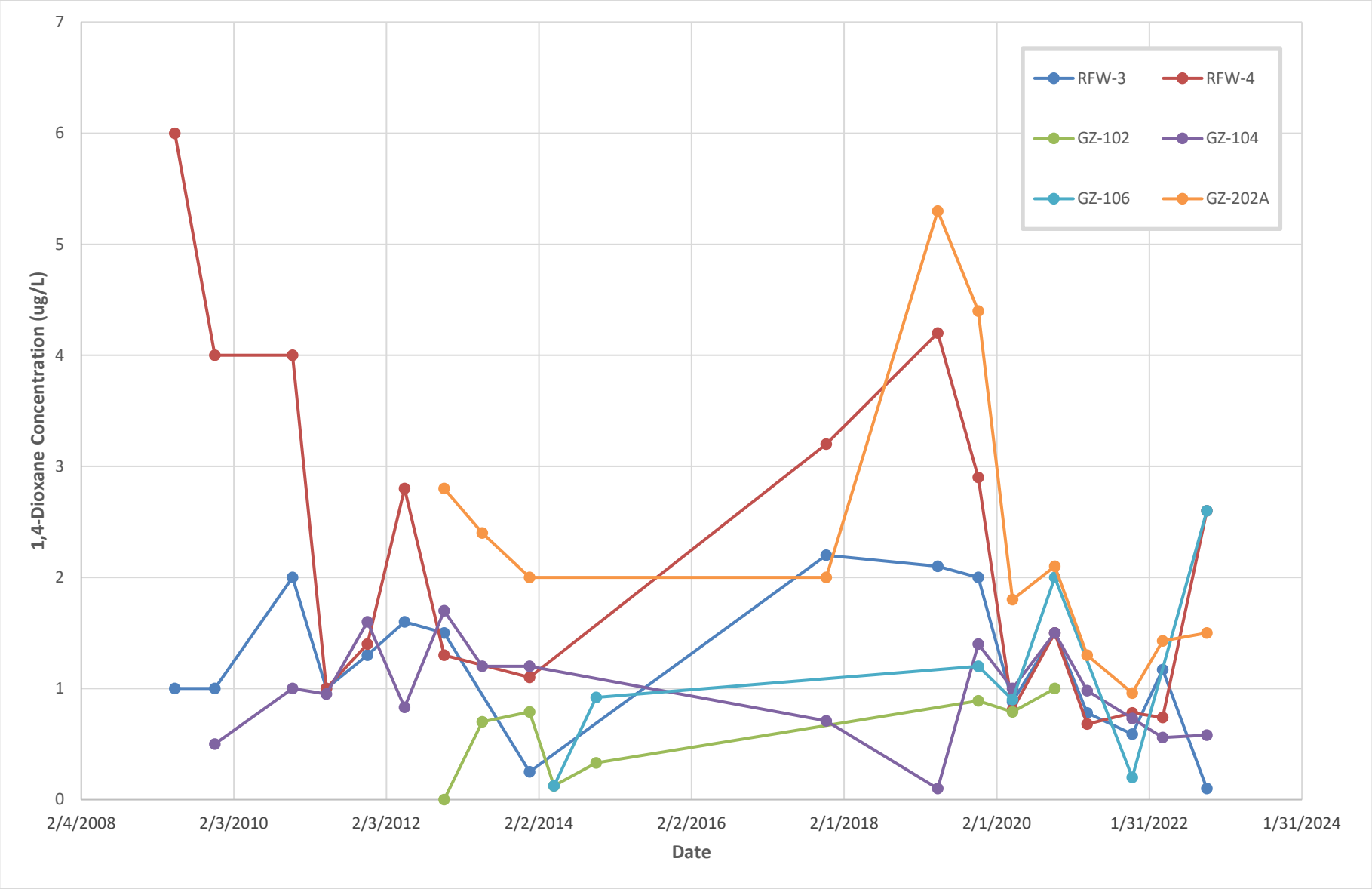
GZA GeoEnvironmental, Inc.

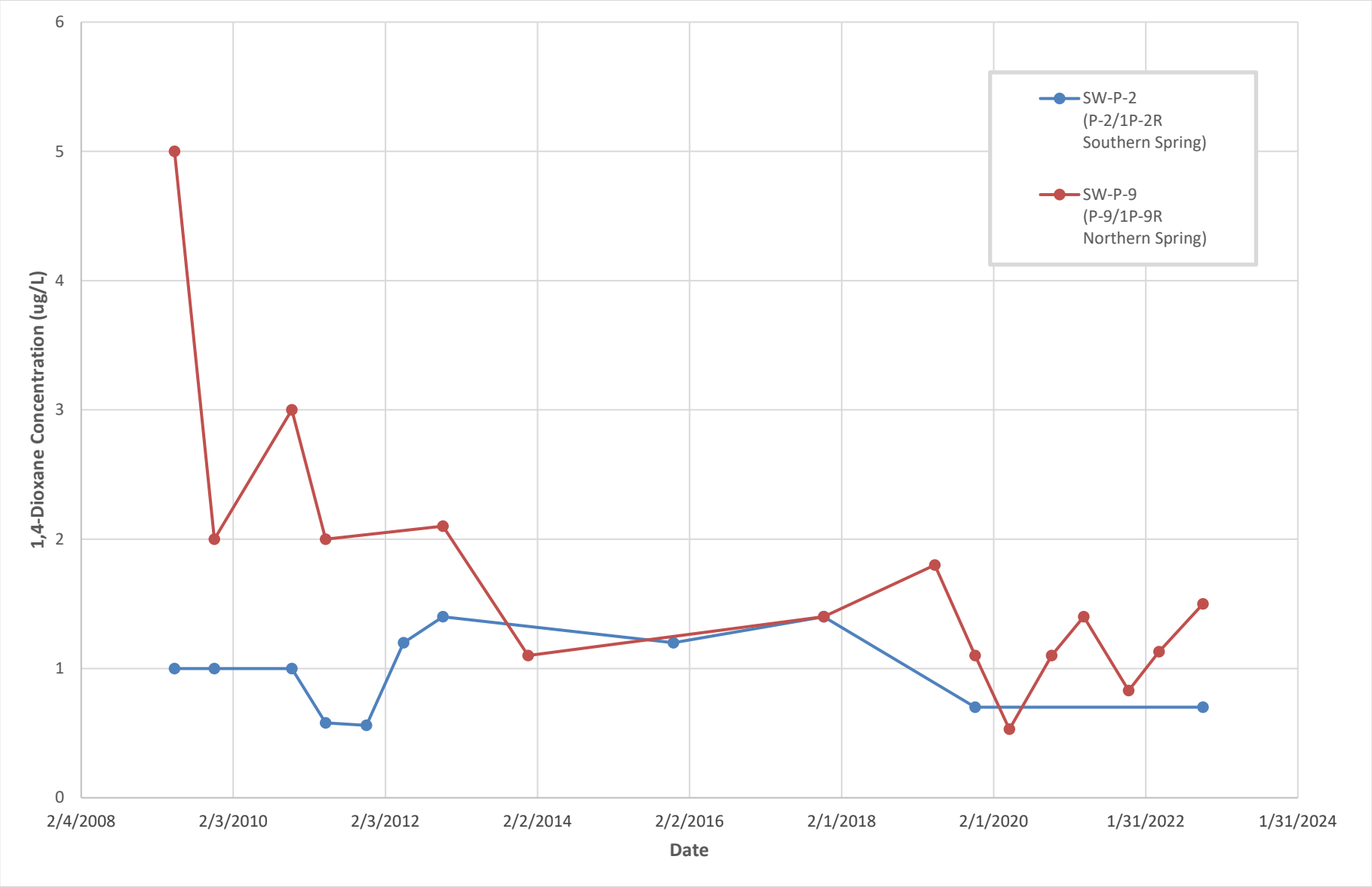
PLOT 5D
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



PLOT 6A
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



PLOT 6B
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081



PLOT 6C
SUMMARY OF CONCENTRATION DATA
Groundwater Sampling Locations
Cross Road Landfill - Exeter, New Hampshire
NHDES No. 198401081

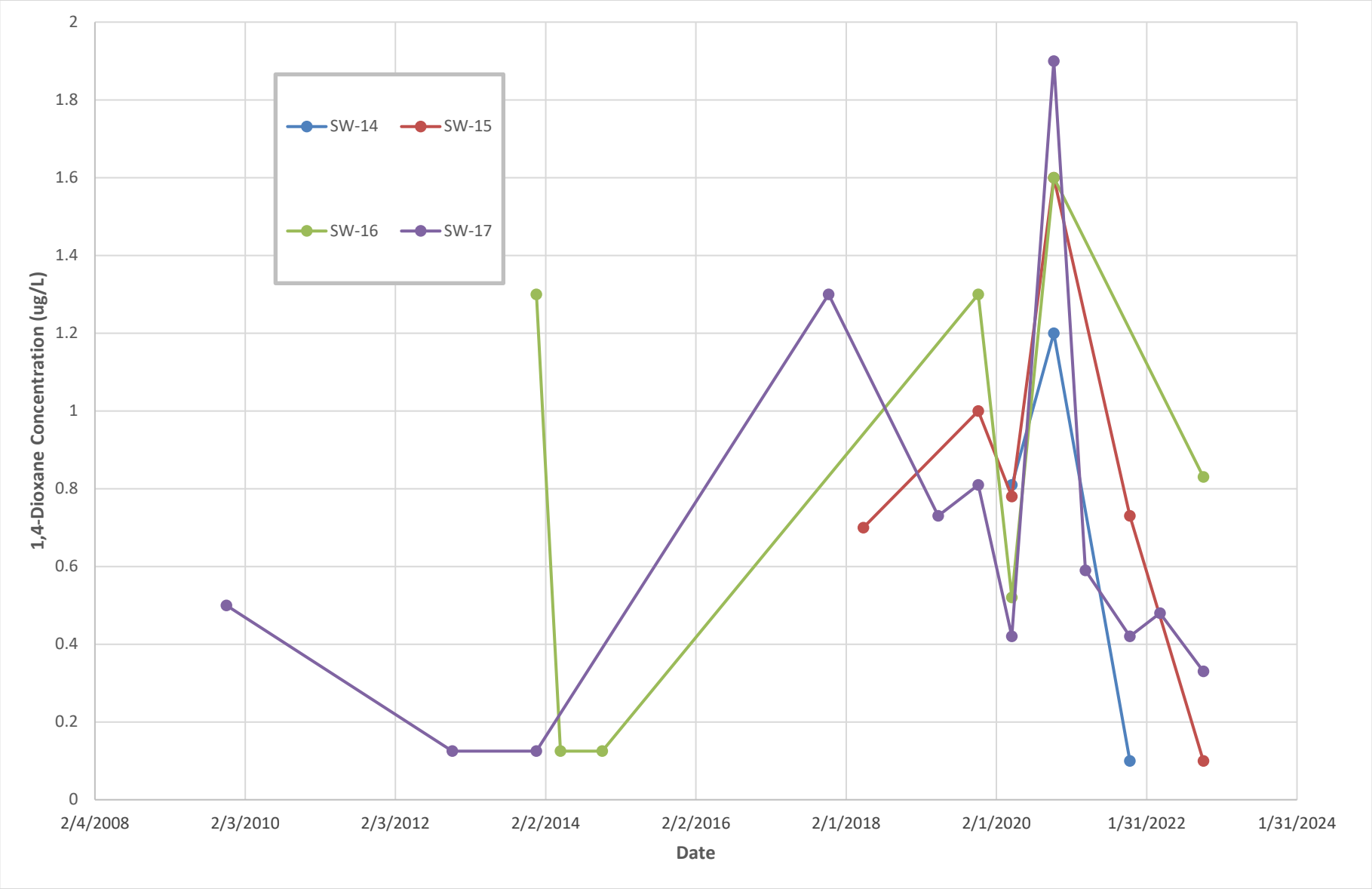


TABLE 1
WATER QUALITY SUMMARY TABLE
Cross Road Landfill
Exeter, New Hampshire

Notes
1. Concentrations are in milligrams per liter (mg/l) which are roughly equivalent to parts per million (ppm).
2. "-" indicates that no measurement made/not applicable.
3. < 1.6 indicates the parameter was not detected above the detection limit shown.
4. Bold-face print indicates detection.
5. NH AGQS indicates New Hampshire Ambient Groundwater Quality Standards as defined in the State of New Hampshire Code of Administrative Rules Env-Wm 1403.05.
6. Shading indicates that the measured level exceeds its Secondary Maximum Contaminant Level (SMCL) or Water Quality Criteria for Toxic Substances (WQCTS) as defined by State of New
Hampshire Code of Administrative Rules Env-Wm 1703.21.
7. NE indicates none established.
8. "DA" indicates Chain of Custody indicates sample taken and volatile organic compound (VOC) laboratory report not available.

November 2022 Analytical Laboratory Data

Eastern Analytical, Inc.

professional laboratory and drilling services

Jennifer Perry
Exeter, Town of
Town Office, 13 Newfields Road
Exeter , NH 03833-2792

Laboratory Report for:

Eastern Analytical, Inc. ID: 251840
Client Identification: Cross Road Landfill | Nov 2022
Date Received: 11/4/2022

Enclosed are the analytical results per the Chain of Custody for sample(s) in the referenced project. All analyses were performed in accordance with our QA/QC Program, NELAP and other applicable state requirements. All quality control criteria was within acceptance criteria unless noted on the report pages. Results are for the exclusive use of the client named on this report and will not be released to a third party without consent.

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.

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

< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Certifications:
Eastern Analytical, Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012), New York (12072), West Virginia (9910C) and Alabama (41620). Please refer to our website at www.easternanalytical.com for a copy of our certificates and accredited parameters.

References:

- EPA 600/4-79-020, 1983
- Standard Methods for Examination of Water and Wastewater, 20th, 21st, 22nd & 23rd edition or noted revision year.
- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992
- ASTM International

If you have any questions regarding the results contained within, please feel free to contact customer service. Unless otherwise requested, we will dispose of the sample(s) 6 weeks 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

12·2·22
Date

SAMPLE CONDITIONS PAGE

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Temperature upon receipt (°C): 1.5

Acceptable temperature range (°C): 0-6

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

Lab ID	Sample ID	Date Received	Date/Time Sampled		Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
251840.01	GZ-104	11/4/22	11/3/22	13:40	aqueous		Adheres to Sample Acceptance Policy
251840.02	GZ-201	11/4/22	11/3/22	16:40	aqueous		Adheres to Sample Acceptance Policy
251840.03	GZ-202A	11/4/22	11/3/22	08:40	aqueous		Adheres to Sample Acceptance Policy
251840.04	P-9R	11/4/22	11/3/22	10:35	aqueous		Adheres to Sample Acceptance Policy
251840.05	RFW-2	11/4/22	11/3/22	09:20	aqueous		Adheres to Sample Acceptance Policy
251840.06	RFW-3	11/4/22	11/2/22	17:30	aqueous		Adheres to Sample Acceptance Policy
251840.07	RFW-4	11/4/22	11/3/22	11:20	aqueous		Adheres to Sample Acceptance Policy
251840.08	GZ-1L	11/4/22	11/3/22	08:15	aqueous		Adheres to Sample Acceptance Policy
251840.09	GZ-2L	11/4/22	11/3/22	09:05	aqueous		Adheres to Sample Acceptance Policy
251840.1	GZ-3L	11/4/22	11/3/22	11:50	aqueous		Adheres to Sample Acceptance Policy
251840.11	SW-17	11/4/22	11/3/22	14:55	aqueous		Adheres to Sample Acceptance Policy
251840.12	Upstream of Seep	11/4/22	11/3/22	14:35	aqueous		Adheres to Sample Acceptance Policy
251840.13	SW-14	11/4/22	11/3/22	14:25	aqueous		Adheres to Sample Acceptance Policy
251840.14	SW-15	11/4/22	11/3/22	14:05	aqueous		Adheres to Sample Acceptance Policy
251840.15	SW-11	11/4/22	11/3/22	12:45	aqueous		Adheres to Sample Acceptance Policy
251840.16	SW-10	11/4/22	11/3/22	12:20	aqueous		Adheres to Sample Acceptance Policy
251840.17	GZ-105	11/4/22	11/3/22	13:20	aqueous		Adheres to Sample Acceptance Policy
251840.18	GZ-106	11/4/22	11/3/22	15:35	aqueous		Adheres to Sample Acceptance Policy
251840.19	GZ-107	11/4/22	11/3/22	16:30	aqueous		Adheres to Sample Acceptance Policy
251840.2	P-2R	11/4/22	11/3/22	10:10	aqueous		Adheres to Sample Acceptance Policy
251840.21	SW-13	11/4/22	11/3/22	10:55	aqueous		Adheres to Sample Acceptance Policy
251840.22	SW-16	11/4/22	11/3/22	15:55	aqueous		Adheres to Sample Acceptance Policy

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

Unless otherwise noted:

- *Hold times, preservation, container types, and sample conditions adhered to EPA Protocol.*
- *Solid samples are reported on a dry weight basis, unless otherwise noted. pH/Corrosivity, Flashpoint, Ignitability, Paint Filter, Conductivity and Specific Gravity are always reported on an "as received" basis.*
- *Analysis of pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite were performed at the laboratory outside of the recommended 15 minute hold time.*
- *Samples collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures.*

SAMPLE CONDITIONS PAGE

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Temperature upon receipt (°C): 1.5

Acceptable temperature range (°C): 0-6

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

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
251840.23	Trip Blank	11/4/22	10/21/22 07:30	aqueous		Adheres to Sample Acceptance Policy

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

Unless otherwise noted:

- *Hold times, preservation, container types, and sample conditions adhered to EPA Protocol.*
- *Solid samples are reported on a dry weight basis, unless otherwise noted. pH/Corrosivity, Flashpoint, Ignitability, Paint Filter, Conductivity and Specific Gravity are always reported on an "as received" basis.*
- *Analysis of pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite were performed at the laboratory outside of the recommended 15 minute hold time.*
- *Samples collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures.*

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-104	GZ-201	GZ-202A	P-9R
Lab Sample ID:	251840.01	251840.02	251840.03	251840.04
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Dichlorodifluoromethane	< 2	< 2	< 2	< 2
Chloromethane	< 2	< 2	< 2	< 2
Vinyl chloride	< 1	< 1	< 1	< 1
Bromomethane	< 2	< 2	< 2	< 2
Chloroethane	< 2	< 2	< 2	< 2
Trichlorofluoromethane	< 2	< 2	< 2	< 2
Diethyl Ether	< 2	< 2	< 2	< 2
Acetone	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 0.5	< 0.5	< 0.5	< 0.5
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30
Methylene chloride	< 1	< 1	< 1	< 1
Carbon disulfide	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 2	< 2	< 2	< 2
Isopropyl ether(DIPE)	< 2	< 2	< 2	< 2
tert-amyl methyl ether(TAME)	< 2	< 2	< 2	< 2
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-104	GZ-201	GZ-202A	P-9R
Lab Sample ID:	251840.01	251840.02	251840.03	251840.04
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Ethylbenzene	< 1	< 1	< 1	< 1
mp-Xylene	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	**41**
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 2	< 2	< 2	< 2
1,2,3-Trichlorobenzene	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr)	**88 %R**	**87 %R**	**87 %R**	**88 %R**
1,2-Dichlorobenzene-d4 (surr)	**104 %R**	**106 %R**	**106 %R**	**100 %R**
Toluene-d8 (surr)	**96 %R**	**96 %R**	**96 %R**	**95 %R**
1,2-Dichloroethane-d4 (surr)	**112 %R**	**112 %R**	**114 %R**	**115 %R**

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	RFW-2	RFW-3	RFW-4	GZ-1L
Lab Sample ID:	251840.05	251840.06	251840.07	251840.08
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/2/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Dichlorodifluoromethane	< 2	< 2	< 2	< 2
Chloromethane	< 2	< 2	< 2	< 2
Vinyl chloride	< 1	< 1	< 1	< 1
Bromomethane	< 2	< 2	< 2	< 2
Chloroethane	< 2	< 2	< 2	< 2
Trichlorofluoromethane	< 2	< 2	< 2	< 2
Diethyl Ether	< 2	< 2	< 2	< 2
Acetone	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 0.5	< 0.5	< 0.5	< 0.5
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30
Methylene chloride	< 1	< 1	< 1	< 1
Carbon disulfide	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 2	< 2	< 2	< 2
Isopropyl ether(DIPE)	< 2	< 2	< 2	< 2
tert-amyl methyl ether(TAME)	< 2	< 2	< 2	< 2
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10
Chloroform	< 1	**8.3**	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	**2.4**	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	RFW-2	RFW-3	RFW-4	GZ-1L
Lab Sample ID:	251840.05	251840.06	251840.07	251840.08
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/2/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Ethylbenzene	< 1	< 1	< 1	< 1
mp-Xylene	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 2	< 2	< 2	< 2
1,2,3-Trichlorobenzene	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr)	**87 %R**	**86 %R**	**86 %R**	**85 %R**
1,2-Dichlorobenzene-d4 (surr)	**106 %R**	**106 %R**	**107 %R**	**107 %R**
Toluene-d8 (surr)	**96 %R**	**96 %R**	**96 %R**	**95 %R**
1,2-Dichloroethane-d4 (surr)	**115 %R**	**115 %R**	**115 %R**	**116 %R**

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-2L	GZ-3L	SW-17	SW-15
Lab Sample ID:	251840.09	251840.1	251840.11	251840.14
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Dichlorodifluoromethane	< 2	< 2	< 2	< 2
Chloromethane	< 2	< 2	< 2	< 2
Vinyl chloride	< 1	< 1	< 1	< 1
Bromomethane	< 2	< 2	< 2	< 2
Chloroethane	< 2	< 2	< 2	< 2
Trichlorofluoromethane	< 2	< 2	< 2	< 2
Diethyl Ether	< 2	< 2	< 2	< 2
Acetone	**24**	< 10	< 10	< 10
1,1-Dichloroethene	< 0.5	< 0.5	< 0.5	< 0.5
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30
Methylene chloride	< 1	< 1	< 1	< 1
Carbon disulfide	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 2	< 2	< 2	< 2
Isopropyl ether(DIPE)	< 2	< 2	< 2	< 2
tert-amyl methyl ether(TAME)	< 2	< 2	< 2	< 2
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-2L	GZ-3L	SW-17	SW-15
Lab Sample ID:	251840.09	251840.1	251840.11	251840.14
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Ethylbenzene	< 1	< 1	< 1	< 1
mp-Xylene	**1.1**	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 2	< 2	< 2	< 2
1,2,3-Trichlorobenzene	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr)	**87 %R**	**85 %R**	**85 %R**	**85 %R**
1,2-Dichlorobenzene-d4 (surr)	**101 %R**	**106 %R**	**107 %R**	**107 %R**
Toluene-d8 (surr)	**105 %R**	**95 %R**	**95 %R**	**95 %R**
1,2-Dichloroethane-d4 (surr)	**116 %R**	**116 %R**	**118 %R**	**118 %R**

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	P-2R	SW-13	SW-16	Trip Blank
Lab Sample ID:	251840.2	251840.21	251840.22	251840.23
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	10/21/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Dichlorodifluoromethane	< 2	< 2	< 2	< 2
Chloromethane	< 2	< 2	< 2	< 2
Vinyl chloride	< 1	< 1	< 1	< 1
Bromomethane	< 2	< 2	< 2	< 2
Chloroethane	< 2	< 2	< 2	< 2
Trichlorofluoromethane	< 2	< 2	< 2	< 2
Diethyl Ether	< 2	< 2	< 2	< 2
Acetone	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 0.5	< 0.5	< 0.5	< 0.5
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30
Methylene chloride	< 1	< 1	< 1	< 1
Carbon disulfide	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 2	< 2	< 2	< 2
Isopropyl ether(DIPE)	< 2	< 2	< 2	< 2
tert-amyl methyl ether(TAME)	< 2	< 2	< 2	< 2
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	P-2R	SW-13	SW-16	Trip Blank
Lab Sample ID:	251840.2	251840.21	251840.22	251840.23
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	10/21/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/8/22	11/8/22	11/8/22	11/8/22
Analyst:	DGM	DGM	DGM	DGM
Method:	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1
Ethylbenzene	< 1	< 1	< 1	< 1
mp-Xylene	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 2	< 2	< 2	< 2
1,2,3-Trichlorobenzene	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr)	**85 %R**	**85 %R**	**85 %R**	**87 %R**
1,2-Dichlorobenzene-d4 (surr)	**108 %R**	**107 %R**	**106 %R**	**104 %R**
Toluene-d8 (surr)	**94 %R**	**94 %R**	**94 %R**	**97 %R**
1,2-Dichloroethane-d4 (surr)	**118 %R**	**118 %R**	**118 %R**	**110 %R**

QC REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Batch ID: 63803514966

Client Designation: **Cross Road Landfill | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Dichlorodifluoromethane	< 2	19 (97 %R)	18 (92 %R) (5 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
Chloromethane	< 2	21 (106 %R)	20 (100 %R) (6 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
Vinyl chloride	< 1	23 (114 %R)	22 (109 %R) (5 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Bromomethane	< 2	19 (97 %R)	19 (94 %R) (3 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
Chloroethane	< 2	21 (107 %R)	20 (101 %R) (5 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Trichlorofluoromethane	< 2	20 (99 %R)	19 (95 %R) (4 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Diethyl Ether	< 2	17 (84 %R)	17 (84 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Acetone	< 10	19 (94 %R)	19 (94 %R) (0 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
1,1-Dichloroethene	< 0.5	21 (104 %R)	20 (101 %R) (4 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
tert-Butyl Alcohol (TBA)	< 30	93 (93 %R)	91 (91 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Methylene chloride	< 1	21 (106 %R)	21 (103 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Carbon disulfide	< 2	18 (88 %R)	17 (86 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Methyl-t-butyl ether(MTBE)	< 1	20 (98 %R)	19 (97 %R) (0 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Ethyl-t-butyl ether(ETBE)	< 2	17 (84 %R)	17 (83 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Isopropyl ether(DIPE)	< 2	18 (92 %R)	20 (98 %R) (7 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
tert-amyl methyl ether(TAME)	< 2	16 (78 %R)	15 (77 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
trans-1,2-Dichloroethene	< 1	21 (107 %R)	21 (104 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,1-Dichloroethane	< 1	22 (109 %R)	21 (105 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
2,2-Dichloropropane	< 1	16 (80 %R)	15 (75 %R) (6 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
cis-1,2-Dichloroethene	< 1	20 (102 %R)	20 (100 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
2-Butanone(MEK)	< 10	16 (80 %R)	16 (80 %R) (0 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
Bromochloromethane	< 1	21 (106 %R)	21 (103 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Tetrahydrofuran(THF)	< 10	14 (71 %R)	14 (71 %R) (0 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Chloroform	< 1	22 (108 %R)	21 (105 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,1,1-Trichloroethane	< 1	21 (103 %R)	20 (99 %R) (4 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Carbon tetrachloride	< 1	21 (103 %R)	20 (99 %R) (4 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,1-Dichloropropene	< 1	19 (97 %R)	19 (94 %R) (4 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Benzene	< 1	21 (107 %R)	21 (103 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2-Dichloroethane	< 1	21 (106 %R)	21 (104 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Trichloroethene	< 1	21 (103 %R)	20 (100 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2-Dichloropropane	< 1	21 (105 %R)	21 (103 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Dibromomethane	< 1	21 (105 %R)	21 (104 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Bromodichloromethane	< 0.5	20 (101 %R)	20 (99 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,4-Dioxane	< 50	< 50 (68 %R)	< 50 (67 %R) (2 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
4-Methyl-2-pentanone(MIBK)	< 10	14 (71 %R)	14 (72 %R) (1 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
cis-1,3-Dichloropropene	< 0.5	18 (91 %R)	18 (90 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Toluene	< 1	21 (105 %R)	20 (102 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
trans-1,3-Dichloropropene	< 0.5	19 (93 %R)	20 (101 %R) (8 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,1,2-Trichloroethane	< 1	22 (111 %R)	22 (110 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
2-Hexanone	< 10	14 (71 %R)	14 (71 %R) (0 RPD)	11/7/2022	ug/L	40 - 160	20	8260C
Tetrachloroethene	< 1	21 (106 %R)	21 (103 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,3-Dichloropropane	< 1	21 (106 %R)	21 (105 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Dibromochloromethane	< 1	20 (98 %R)	19 (97 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2-Dibromoethane(EDB)	< 0.5	21 (106 %R)	21 (105 %R) (0 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Chlorobenzene	< 1	21 (105 %R)	21 (103 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,1,1,2-Tetrachloroethane	< 1	21 (105 %R)	21 (103 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C

QC REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Batch ID: 63803514966

Client Designation: **Cross Road Landfill | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Ethylbenzene	< 1	21 (104 %R)	20 (101 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
mp-Xylene	< 1	43 (108 %R)	42 (104 %R) (4 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
o-Xylene	< 1	21 (104 %R)	20 (101 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Styrene	< 1	21 (104 %R)	20 (102 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Bromoform	< 2	20 (101 %R)	20 (100 %R) (0 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
IsoPropylbenzene	< 1	20 (102 %R)	20 (99 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Bromobenzene	< 1	20 (98 %R)	19 (96 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,1,2,2-Tetrachloroethane	< 1	20 (102 %R)	20 (102 %R) (0 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2,3-Trichloropropane	< 0.5	20 (99 %R)	20 (100 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
n-Propylbenzene	< 1	20 (101 %R)	20 (98 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
2-Chlorotoluene	< 1	21 (103 %R)	20 (99 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
4-Chlorotoluene	< 1	20 (99 %R)	19 (97 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,3,5-Trimethylbenzene	< 1	19 (95 %R)	19 (93 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
tert-Butylbenzene	< 1	19 (96 %R)	19 (93 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2,4-Trimethylbenzene	< 1	20 (102 %R)	20 (99 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
sec-Butylbenzene	< 1	21 (103 %R)	20 (99 %R) (4 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,3-Dichlorobenzene	< 1	20 (98 %R)	19 (97 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
p-Isopropyltoluene	< 1	19 (97 %R)	19 (94 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,4-Dichlorobenzene	< 1	20 (98 %R)	19 (97 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2-Dichlorobenzene	< 1	20 (102 %R)	20 (101 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
n-Butylbenzene	< 1	20 (100 %R)	19 (97 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2-Dibromo-3-chloropropane	< 2	18 (91 %R)	18 (91 %R) (0 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,3,5-Trichlorobenzene	< 1	20 (101 %R)	20 (99 %R) (2 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2,4-Trichlorobenzene	< 1	16 (82 %R)	16 (81 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Hexachlorobutadiene	< 0.5	20 (99 %R)	19 (96 %R) (3 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
Naphthalene	< 2	18 (92 %R)	18 (91 %R) (0 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
1,2,3-Trichlorobenzene	< 0.5	21 (106 %R)	21 (105 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260C
4-Bromofluorobenzene (surr)	89 %R	99 %R	98 %R	11/7/2022	% Rec	70 - 130	20	8260C
1,2-Dichlorobenzene-d4 (surr)	104 %R	98 %R	98 %R	11/7/2022	% Rec	70 - 130	20	8260C
Toluene-d8 (surr)	97 %R	100 %R	100 %R	11/7/2022	% Rec	70 - 130	20	8260C
1,2-Dichloroethane-d4 (surr)	110 %R	104 %R	104 %R	11/7/2022	% Rec	70 - 130	20	8260C

*/! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-104	GZ-201	GZ-202A	P-9R
Lab Sample ID:	251840.01	251840.02	251840.03	251840.04
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/4/22	11/4/22	11/4/22	11/4/22
Analyst:	MLW	MLW	MLW	MLW
Method:	8260B SIM	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1	1
1,4-Dioxane	**0.58**	< 0.2	**1.5**	**1.5**
4-Bromofluorobenzene (surr)	**102 %R**	**101 %R**	**101 %R**	**104 %R**
Toluene-d8 (surr)	**99 %R**	**99 %R**	**99 %R**	**99 %R**

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	RFW-2	RFW-3	RFW-4	GZ-1L
Lab Sample ID:	251840.05	251840.06	251840.07	251840.08
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/2/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/4/22	11/4/22	11/5/22	11/5/22
Analyst:	MLW	MLW	MLW	MLW
Method:	8260B SIM	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1	1
1,4-Dioxane	< 0.2	< 0.2	**2.6**	< 0.2
4-Bromofluorobenzene (surr)	**103 %R**	**101 %R**	**102 %R**	**100 %R**
Toluene-d8 (surr)	**99 %R**	**99 %R**	**99 %R**	**99 %R**

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-2L	GZ-3L	SW-17	SW-15
Lab Sample ID:	251840.09	251840.1	251840.11	251840.14
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/7/22	11/5/22	11/5/22	11/5/22
Analyst:	MLW	MLW	MLW	MLW
Method:	8260B SIM	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1	1
1,4-Dioxane	< 0.2	< 0.2	**0.33**	< 0.2
4-Bromofluorobenzene (surr)	**124 %R**	**100 %R**	**100 %R**	**100 %R**
Toluene-d8 (surr)	**143 %R**	**98 %R**	**98 %R**	**99 %R**

GZ-2L: Non target interference in the samples resulted in recovery outside of the acceptance control limits of 70-130%R for the surrogate Touluene-d8 (surr).

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-105	GZ-106	GZ-107	P-2R
Lab Sample ID:	251840.17	251840.18	251840.19	251840.2
Matrix:	aqueous	aqueous	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22
Units:	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	11/5/22	11/5/22	11/5/22	11/6/22
Analyst:	MLW	MLW	MLW	MLW
Method:	8260B SIM	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1	1
1,4-Dioxane	< 0.2	**2.6**	< 0.2	**0.70**
4-Bromofluorobenzene (surr)	**100 %R**	**100 %R**	**99 %R**	**99 %R**
Toluene-d8 (surr)	**98 %R**	**99 %R**	**97 %R**	**96 %R**

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	SW-13	SW-16
Lab Sample ID:	251840.21	251840.22
Matrix:	aqueous	aqueous
Date Sampled:	11/3/22	11/3/22
Date Received:	11/4/22	11/4/22
Units:	ug/L	ug/L
Date of Analysis:	11/6/22	11/6/22
Analyst:	MLW	MLW
Method:	8260B SIM	8260B SIM
Dilution Factor:	1	1
1,4-Dioxane	< 0.2	**0.83**
4-Bromofluorobenzene (surr)	**100 %R**	**100 %R**
Toluene-d8 (surr)	**98 %R**	**98 %R**

QC REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Batch ID: 638031-61591/A110422DIOX1

Client Designation: **Cross Road Landfill | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.8 (96 %R)	4.7 (95 %R) (2 RPD)	11/4/2022	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	102 %R	103 %R	11/4/2022	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	102 %R	102 %R	11/4/2022	% Rec	70 - 130	50	8260B

*/! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.

QC REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Batch ID: 638034-15432/A110522DIOX1

Client Designation: **Cross Road Landfill | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.8 (97 %R)	5.1 (102 %R) (5 RPD)	11/5/2022	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	101 %R	101 %R	101 %R	11/5/2022	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	100 %R	100 %R	11/5/2022	% Rec	70 - 130	50	8260B

*/! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.

QC REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Batch ID: 638035-95437/A110722DIOX1

Client Designation: **Cross Road Landfill | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.0 (99 %R)	5.0 (101 %R) (1 RPD)	11/7/2022	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	102 %R	104 %R	104 %R	11/7/2022	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	103 %R	102 %R	11/7/2022	% Rec	70 - 130	50	8260B

*/! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-104	GZ-201	GZ-202A	P-9R					
Lab Sample ID:	251840.01	251840.02	251840.03	251840.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22		**Analysis**			
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22	**Units**	**Date**	**Time**	**Method**	**Analyst**
Chloride	**74**	**160**	**72**	**91**	mg/L	11/04/22	14:15	4500CIE-11	ALM
Nitrate-N	**0.64**	**0.79**	< 0.5	< 0.5	mg/L	11/04/22	14:15	353.2	ALM
TKN	< 0.5	< 0.5	**1.0**	**1.5**	mg/L	11/09/22	15:07	$4500N_{org}C/NH3D$	GRS

Sample ID:	RFW-2	RFW-3	RFW-4	GZ-1L					
Lab Sample ID:	251840.05	251840.06	251840.07	251840.08					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/2/22	11/3/22	11/3/22		**Analysis**			
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22	**Units**	**Date**	**Time**	**Method**	**Analyst**
Chloride	**94**	**54**	**150**	**130**	mg/L	11/04/22	14:33	4500CIE-11	ALM
Nitrate-N	**0.83**	**1.1**	< 0.5	< 0.5	mg/L	11/04/22	14:33	353.2	ALM
TKN	< 0.5	< 0.5	**2.0**	< 0.5	mg/L	11/09/22	15:18	$4500N_{org}C/NH3D$	GRS

GZ-202A: The matrix spike for Nitrate-N associated with this sample exhibited recovery outside the acceptance criteria. The matrix spike duplicate and other batch QC were in control

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-2L	GZ-3L	SW-17	SW-15					
Lab Sample ID:	251840.09	251840.1	251840.11	251840.14					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22		**Analysis**			
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22	**Units**	**Date**	**Time**	**Method**	**Analyst**
Chloride	**8.7**	**40**	**67**	**59**	mg/L	11/04/22	14:39	4500CIE-11	ALM
Nitrate-N	< 0.5	< 0.5	**0.73**	< 0.5	mg/L	11/04/22	14:39	353.2	ALM
TKN	**0.98**	< 0.5	< 0.5	**0.65**	mg/L	11/09/22	15:43	$4500N_{org}C/NH3D$	GRS

Sample ID:	P-2R	SW-13	SW-16					
Lab Sample ID:	251840.2	251840.21	251840.22					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22		**Analysis**			
Date Received:	11/4/22	11/4/22	11/4/22	**Units**	**Date**	**Time**	**Method**	**Analyst**
Chloride	**42**	**45**	**65**	mg/L	11/04/22	14:58	4500CIE-11	ALM
Nitrate-N	< 0.5	< 0.5	< 0.5	mg/L	11/04/22	14:58	353.2	ALM
TKN	**1.8**	**0.59**	< 0.5	mg/L	11/09/22	15:53	$4500N_{org}C/NH3D$	GRS

QC REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Chloride	< 1	26 (105 %R)	26 (103 %R) (2 RPD)	mg/L	11/4/22	90 - 110	20	4500CIE-11
Nitrate-N	< 0.5	5.1 (102 %R)	5.1 (102 %R) (0 RPD)	mg/L	11/4/22	90 - 110	20	353.2
TKN	< 0.5	10 (102 %R)	9.4 (94 %R) (7 RPD)	mg/L	11/9/22	90 - 111	20	4500N_{org}C/NH3D-11

*/! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-104	GZ-201	GZ-202A	P-9R					
Lab Sample ID:	251840.01	251840.02	251840.03	251840.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22					
Arsenic	**0.038**	**0.0011**	**0.15**	**0.13**	AqDis	mg/L	11/5/22	200.8	DS
Barium	**0.030**	**0.077**	**0.060**	**0.043**	AqDis	mg/L	11/5/22	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Iron	**5.8**	< 0.05	**53**	**28**	AqDis	mg/L	11/5/22	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Manganese	**1.0**	**0.55**	**4.1**	**2.8**	AqDis	mg/L	11/5/22	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	AqDis	mg/L	11/5/22	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS

Sample ID:	RFW-2	RFW-3	RFW-4					
Lab Sample ID:	251840.05	251840.06	251840.07					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/2/22	11/3/22	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/4/22	11/4/22	11/4/22					
Arsenic	< 0.0005	**0.00060**	**0.093**	AqDis	mg/L	11/5/22	200.8	DS
Barium	**0.033**	**0.074**	**0.11**	AqDis	mg/L	11/5/22	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Iron	< 0.05	**0.060**	**37**	AqDis	mg/L	11/5/22	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Manganese	**0.24**	**0.017**	**5.1**	AqDis	mg/L	11/5/22	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	AqDis	mg/L	11/5/22	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	AqDis	mg/L	11/5/22	200.8	DS

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	GZ-1L	GZ-2L	GZ-3L	SW-17					
Lab Sample ID:	251840.08	251840.09	251840.1	251840.11					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22					
Arsenic	**0.0047**	**0.00078**	**0.0033**	**0.0018**	AqTot	mg/L	11/8/22	200.8	DS
Barium	**0.014**	**0.061**	**0.021**	**0.023**	AqTot	mg/L	11/8/22	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Chromium	< 0.001	**0.042**	**0.0025**	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Iron	**0.26**	**0.065**	**1.2**	**0.57**	AqTot	mg/L	11/8/22	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Manganese	**0.045**	**0.11**	**0.12**	**0.32**	AqTot	mg/L	11/8/22	200.8	DS
Mercury	< 0.0001	**0.0017**	< 0.0001	< 0.0001	AqTot	mg/L	11/8/22	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS

Sample ID:	P-2R	SW-13	SW-16					
Lab Sample ID:	251840.2	251840.21	251840.22					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/4/22	11/4/22	11/4/22					
Arsenic	**0.15**	**0.0042**	**0.0026**	AqTot	mg/L	11/8/22	200.8	DS
Barium	**0.49**	**0.016**	**0.056**	AqTot	mg/L	11/8/22	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Chromium	**0.11**	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Iron	**96**	**1.7**	**0.52**	AqTot	mg/L	11/8/22	200.8	DS
Lead	**0.048**	< 0.001	< 0.001	AqTot	mg/L	11/9/22	200.8	DS
Manganese	**4.8**	**1.5**	**5.7**	AqTot	mg/L	11/8/22	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	AqTot	mg/L	11/8/22	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/8/22	200.8	DS

SW-13 and SW-16 Lead analyzed 11/8/2022

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID:	Upstream of Seep	SW-14	SW-11	SW-10					
Lab Sample ID:	251840.12	251840.13	251840.15	251840.16					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22	11/3/22	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/4/22	11/4/22	11/4/22	11/4/22					
Arsenic	**0.00088**	**0.00050**	**0.00093**	**0.00066**	AqTot	mg/L	11/8/22	200.8	DS
Iron	**0.26**	< 0.05	**0.31**	**0.34**	AqTot	mg/L	11/8/22	200.8	DS
Manganese	**0.15**	**0.084**	**0.15**	**0.11**	AqTot	mg/L	11/8/22	200.8	DS
Arsenic	**0.00090**	**0.00054**	**0.00073**	**0.00052**	AqDis	mg/L	11/5/22	200.8	DS
Iron	**0.18**	< 0.05	**0.20**	**0.16**	AqDis	mg/L	11/5/22	200.8	DS
Manganese	**0.16**	**0.065**	**0.16**	**0.072**	AqDis	mg/L	11/5/22	200.8	DS

Sample ID:	GZ-105	GZ-106	GZ-107					
Lab Sample ID:	251840.17	251840.18	251840.19					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	11/3/22	11/3/22	11/3/22	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/4/22	11/4/22	11/4/22					
Arsenic	**0.00050**	< 0.0005	**0.00055**	AqDis	mg/L	11/5/22	200.8	DS
Iron	< 0.05	< 0.05	< 0.05	AqDis	mg/L	11/5/22	200.8	DS
Manganese	< 0.005	**0.15**	< 0.005	AqDis	mg/L	11/5/22	200.8	DS

LABORATORY REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Sample ID: SW-15

Lab Sample ID: 251840.14
Matrix: aqueous
Date Sampled: 11/3/22
Date Received: 11/4/22

		Analytical Matrix	Units	Date of Analysis	Method	Analyst
Arsenic	**0.00090**	AqTot	mg/L	11/8/22	200.8	DS
Barium	**0.022**	AqTot	mg/L	11/8/22	200.8	DS
Cadmium	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Chromium	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Iron	**0.25**	AqTot	mg/L	11/8/22	200.8	DS
Lead	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Manganese	**0.17**	AqTot	mg/L	11/8/22	200.8	DS
Mercury	< 0.0001	AqTot	mg/L	11/8/22	200.8	DS
Selenium	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Silver	< 0.001	AqTot	mg/L	11/8/22	200.8	DS
Arsenic	**0.00080**	AqDis	mg/L	11/5/22	200.8	DS
Barium	**0.025**	AqDis	mg/L	11/5/22	200.8	DS
Cadmium	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Chromium	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Iron	**0.16**	AqDis	mg/L	11/5/22	200.8	DS
Lead	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Manganese	**0.17**	AqDis	mg/L	11/5/22	200.8	DS
Mercury	< 0.0001	AqDis	mg/L	11/5/22	200.8	DS
Selenium	< 0.001	AqDis	mg/L	11/5/22	200.8	DS
Silver	< 0.001	AqDis	mg/L	11/5/22	200.8	DS

QC REPORT

EAI ID#: **251840**

Client: **Exeter, Town of**

Client Designation: **Cross Road Landfill | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Arsenic (Aqdis)	< 0.0005	0.20 (102 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Arsenic (Aqtot)	< 0.0005	0.40 (101 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Barium (Aqdis)	< 0.001	0.21 (103 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Barium (Aqtot)	< 0.001	0.43 (107 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Cadmium (Aqdis)	< 0.001	0.20 (101 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Cadmium (Aqtot)	< 0.001	0.45 (111 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Chromium (Aqdis)	< 0.001	0.20 (98 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Chromium (Aqtot)	< 0.001	0.40 (100 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Iron (Aqdis)	< 0.05	9.8 (98 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Iron (Aqtot)	< 0.05	9.7 (97 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Lead (Aqdis)	< 0.001	0.20 (99 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Lead (Aqtot)	< 0.001	0.43 (107 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Manganese (Aqdis)	< 0.005	0.20 (98 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Manganese (Aqtot)	< 0.005	0.38 (96 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Mercury (Aqdis)	< 0.0001	0.0010 (104 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Mercury (Aqtot)	< 0.0001	0.0010 (103 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Selenium (Aqdis)	< 0.001	0.21 (107 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Selenium (Aqtot)	< 0.001	0.39 (97 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8
Silver (Aqdis)	< 0.001	0.010 (103 %R)	NA	mg/L	11/5/22	85 - 115	20	200.8
Silver (Aqtot)	< 0.001	0.022 (110 %R)	NA	mg/L	11/8/22	85 - 115	20	200.8

*/! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.

Vista
an Enthalpy Analytical Laboratory

November 29, 2022

Vista Work Order No. 2211076

Ms. Jennifer Laramie
Eastern Analytical, Inc.
51 Antrim Avenue
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on November 09, 2022 under your Project Name '251840 NH 31'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at frschwebel@enthalpy.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Frieda Schwebel
Project Manager

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2211076
Case Narrative

Sample Condition on Receipt:

Three aqueous samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the recommended temperature requirements.

Analytical Notes:

PFAS Isotope Dilution/LC-MSMS Method Compliant with Table B-15 of DoD QSM 5.3 (Aqueous)

Samples "GZ-202A" and "RFW-4" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using Isotope Dilution and LC-MS/MS compliant with Table B-15 of DoD QSM 5.3. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limits (RL). The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

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Sample Inventory Report

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Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2211076-01	GZ-202A	03-Nov-22 08:40	09-Nov-22 11:05	Polypropylene, 250mL
				Polypropylene, 250mL
2211076-02	RFW-3	02-Nov-22 17:30	09-Nov-22 11:05	Polypropylene, 250mL
				Polypropylene, 250mL
2211076-03	RFW-4	03-Nov-22 11:20	09-Nov-22 11:05	Polypropylene, 250mL
				Polypropylene, 250mL

ANALYTICAL RESULTS

Vista
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Sample ID: Method Blank — **PFAS Isotope Dilution Table B-15**

Client Data
Name: Eastern Analytical, Inc. Matrix: Aqueous
Project: 251840 NH 31

Laboratory Data
Lab Sample: B22K114-BLK1 Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFPeA	2706-90-3	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFBS	375-73-5	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFHxA	307-24-4	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFHpA	375-85-9	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFHxS	355-46-4	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFOA	335-67-1	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFNA	375-95-1	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
PFOS	1763-23-1	ND	2.00		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	70.0	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C3-PFPeA	IS	88.8	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C3-PFBS	IS	79.2	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C2-PFHxA	IS	82.6	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C4-PFHpA	IS	76.8	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C3-PFHxS	IS	68.7	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C2-PFOA	IS	75.0	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C5-PFNA	IS	88.0	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1
13C8-PFOS	IS	77.7	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:13	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

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Sample ID: OPR **PFAS Isotope Dilution Table B-15**

Client Data

Name: Eastern Analytical, Inc.
Project: 251840 NH 31
Matrix: Aqueous

Laboratory Data

Lab Sample: B22K114-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	35.4	40.0	88.6	73 - 129		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFPeA	2706-90-3	39.1	40.0	97.8	72 - 129		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFBS	375-73-5	39.9	40.4	98.8	72 - 130		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFHxA	307-24-4	37.3	40.0	93.3	72 - 129		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFHpA	375-85-9	37.3	40.0	93.4	72 - 130		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFHxS	355-46-4	31.1	40.0	77.7	68 - 131		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFOA	335-67-1	37.1	40.0	92.8	71 - 133		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFNA	375-95-1	39.4	40.0	98.6	69 - 130		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
PFOS	1763-23-1	45.9	40.0	115	65 - 140		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	73.9	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C3-PFPeA	IS	88.6	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C3-PFBS	IS	80.1	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C2-PFHxA	IS	79.8	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C4-PFHpA	IS	78.4	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C3-PFHxS	IS	78.3	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C2-PFOA	IS	75.4	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C5-PFNA	IS	88.7	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1
13C8-PFOS	IS	77.4	50 - 150		B22K114	17-Nov-22	0.250 L	20-Nov-22 01:23	1

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Sample ID: GZ-202A **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	2211076-01	Column:	BEH C18
Project:	251840 NH 31	Date Collected:	03-Nov-22 08:40	Date Received:	09-Nov-22 11:05		
Location:	251840						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.44	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFPeA	2706-90-3	2.75	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFBS	375-73-5	2.62	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFHxA	307-24-4	3.87	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFHpA	375-85-9	2.61	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFHxS	355-46-4	ND	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFOA	335-67-1	5.69	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFNA	375-95-1	ND	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
PFOS	1763-23-1	ND	1.97		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	78.5	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C3-PFPeA	IS	78.0	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C3-PFBS	IS	69.8	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C2-PFHxA	IS	72.1	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C4-PFHpA	IS	74.7	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C3-PFHxS	IS	74.2	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C2-PFOA	IS	72.4	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C5-PFNA	IS	79.1	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1
13C8-PFOS	IS	75.6	50 - 150		B22K114	17-Nov-22	0.253 L	22-Nov-22 20:15	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Vista
an Enthalpy Analytical Laboratory

Sample ID: RFW-3 **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	2211076-02	Column:	BEH C18
Project:	251840 NH 31	Date Collected:	02-Nov-22 17:30	Date Received:	09-Nov-22 11:05		
Location:	251840						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.15	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFPeA	2706-90-3	3.65	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFBS	375-73-5	2.22	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFHxA	307-24-4	3.34	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFHpA	375-85-9	2.74	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFHxS	355-46-4	2.12	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFOA	335-67-1	3.96	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFNA	375-95-1	ND	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
PFOS	1763-23-1	59.4	1.90		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.3	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C3-PFPeA	IS	83.0	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C3-PFBS	IS	81.7	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C2-PFHxA	IS	79.7	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C4-PFHpA	IS	80.7	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C3-PFHxS	IS	79.5	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C2-PFOA	IS	84.1	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C5-PFNA	IS	87.8	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1
13C8-PFOS	IS	78.4	50 - 150		B22K114	17-Nov-22	0.263 L	22-Nov-22 20:25	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Vista
an Enthalpy Analytical Laboratory

Sample ID: RFW-4 **PFAS Isotope Dilution Table B-15**

Client Data

Name: Eastern Analytical, Inc.
Project: 251840 NH 31
Location: 251840
Matrix: Aqueous
Date Collected: 03-Nov-22 11:20

Laboratory Data

Lab Sample: 2211076-03
Date Received: 09-Nov-22 11:05
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.74	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFPeA	2706-90-3	2.40	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFBS	375-73-5	2.73	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFHxA	307-24-4	4.03	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFHpA	375-85-9	ND	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFHxS	355-46-4	ND	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFOA	335-67-1	3.27	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFNA	375-95-1	ND	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
PFOS	1763-23-1	ND	1.97		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.6	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C3-PFPeA	IS	87.0	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C3-PFBS	IS	76.9	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C2-PFHxA	IS	79.8	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C4-PFHpA	IS	80.8	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C3-PFHxS	IS	76.7	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C2-PFOA	IS	86.2	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C5-PFNA	IS	86.0	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1
13C8-PFOS	IS	79.3	50 - 150		B22K114	17-Nov-22	0.254 L	22-Nov-22 20:36	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Pennsylvania Department of Environmental Protection	018
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

CHAIN-OF-CUSTODY RECORD

2211076 0.0°C

Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# **251840** Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
GZ-202A	11/3/2022 08:40	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 modified	
RFW-3	11/~~8~~ 2/2022 17:30	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 modified	
RFW-4	11/3/2022 11:20	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 modified	

EAI ID# **251840** Project State: NH

Project ID: 31

Company Vista Analytical Laboratory

Address 1104 Windfield Way

Address El Dorado Hills, CA 95762

Account #

Phone # (916) 673-1520

Results Needed: Preferred Date: Standard

RUSH Due Date: _____

QC Deliverables

☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

Notes about project:

Email login confirmation, pdf of results and invoice to customerservice@easternanalytical.com.

NHDES 9 Compound List

PO #:58608 EAI ID# **251840**

Data Deliverable (circle)

Excel NH EMD EQuIS ME EGAD

Call prior to analyzing, if RUSH charges will be applied.

Samples Collected by: _____

Relinquished by	Date/Time	Received by
[signature]	11/8/22	1600 UPS
UPS	11/09/22 11:05	[signature]

Relinquished by Date/Time Received by

Eastern Analytical, Inc. 51 Antrim Ave Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 customerservice@easternanalytical.com

As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for injury or damages arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of you as a subcontract lab, your officers, agents or employees

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 2211076 TAT 14 days

Samples Arrival:	Date/Time 11/09/22 11:05		Initials: KS		Location: WR-2 Shelf/Rack: NM		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 0.1 (uncorrected)			Probe used: Y / N		Thermometer ID: IR-3		
Temp °C: 0.0 (corrected)							

					YES	NO	NA
Shipping Container(s) Intact?					✓		
Shipping Custody Seals Intact?							✓
Airbill D	Trk # 1Z X46 599 01 9377 4575				✓		
Shipping Documentation Present?					✓		
Shipping Container	Vista	Client	Retain	Return		Dispose	
Chain of Custody / Sample Documentation Present?					✓		
Chain of Custody / Sample Documentation Complete?					✓		
Holding Time Acceptable?					✓		

Logged In:	Date/Time 11/09/22 1425	Initials: WWS	Location: R-13, WR-2 Shelf/Rack: 8-3, 8-3, E-6

COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

CoC/Label Reconciliation Report WO# 2211076

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2211076-01	A GZ-202A	☑ (A) (B)	251840	03-Nov-22 08:40	☑	Polypropylene, 250mL	Aqueous	
2211076-01	B GZ-202A	☑	251840	03-Nov-22 08:40	☐ (C)	Polypropylene, 250mL	Aqueous	
2211076-02	A RFW-3	☑	251840	02-Nov-22 17:30	☑	Polypropylene, 250mL	Aqueous	
2211076-02	B RFW-3	☑	251840	02-Nov-22 17:30	☑	Polypropylene, 250mL	Aqueous	
2211076-03	A RFW-4	☑ (B)	251840	03-Nov-22 11:20	☑	Polypropylene, 250mL	Aqueous	
2211076-03	B RFW-4	☑	251840	03-Nov-22 11:20	☑	Polypropylene, 250mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?		✓	✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments:
(B) Light Rusty Color
(C) Sample label time = 8:10

Preservation Documented: Na2S2O3 (Trizma T6) NH4CH3CO2 None Other

Verifed by/Date: BAC 11/10/22 (A)

CHAIN-OF-CUSTODY RECORD

251840
EXENH

Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
~~GMW-11~~		~~aqueous Grab or Comp~~	~~AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg~~ CDI 11/3/22	
☐ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☐
GZ-104	11/3/22 13:40	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-201	11/3/22 16:40	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-202A	08:40 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/PFCsSubVAL AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	CI 9
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE Trizma TC	Dissolved Sample Field Filtered ☑

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
State NH
Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
Phone 778-0591 Fax 772-4709
Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

Attn sampler: Auto chain of custody provided for your convenience, please review for accuracy and write in any needed changes

QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

ReportingOptions
☐ HC
☒ EDD PDF
☒ EDD email
☒ PDF prelim, NO FAX
☐ e-mail Login Confirmation
☐ NO FAX
☐ Partial FAX
☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5°C
Ice Y☒ N☐

Samples Collected by: Cameron Indeck, Vito Nunes

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	Foyer
Foyer	11/4/22 0800	[signature]

2 of 6

CHAIN-OF-CUSTODY RECORD

251840
EXENH

Sample IDs	Date/Time (Composites need start and stop dates/times)	Matrix	Parameters and Sample Notes	# of containers
P-9R	10:35 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
RFW-2	09:20 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
RFW-3	17:30 11/2/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/PFCsSubVAL AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	9
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE Trizma T6	Dissolved Sample Field Filtered ☑
RFW-4	11:20 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/PFCsSubVAL AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	9
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
State NH
Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
Phone 778-0591 **Fax** 772-4709
Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

Attn sampler: Auto chain of custody provided for your convenience, please review for accuracy and write in any needed changes

QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

ReportingOptions
☐ HC
☒ EDD PDF
☒ EDD email
☒ PDF prelim, NO FAX
☐ e-mail Login Confirmation
☐ NO FAX
☐ Partial FAX
☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5°C
Ice Y ☒ N ☐

Samples Collected by: Cameron Indeck, Vito Nunes

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	[signature]
[signature]	11/4/22 0800	[signature]

3 of 6

CHAIN-OF-CUSTODY RECORD

251840
EXENH

Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
GZ-1L	08:15 11/3/22	aqueous (Grab) or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* (HCL) (HNO$_3$) (H$_2$SO$_4$) NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☐
GZ-2L	09:05 11/3/22	aqueous (Grab) or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* (HCL) (HNO$_3$) (H$_2$SO$_4$) NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☐
GZ-3L	11:50 11/3/22	aqueous (Grab) or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* (HCL) (HNO$_3$) (H$_2$SO$_4$) NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☐
SW-17	11/3/22 14:55	aqueous (Grab) or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☐ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* (HCL) (HNO$_3$) (H$_2$SO$_4$) NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☐

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
State NH
Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
Phone 778-0591 **Fax** 772-4709
Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

Attn sampler: Auto chain of custody provided for your convenience, please review for accuracy and write in any needed changes

QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

ReportingOptions
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☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5°C
Ice Y ☒ N ☐

Samples Collected by: VN + CI

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	Sayer
Sayer	11/4/22 0800	[signature]

4 of 6

CHAIN-OF-CUSTODY RECORD

251840

EXENH

Sample IDs	Date/Time (Composites need start and stop dates/times)	Matrix	Parameters and Sample Notes	# of containers
Upstream of Seep	11/3/22 14:35	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
SW-14	11/3/22 14:25	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
SW-15	11/3/22 14:05	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As AqDis/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	8
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
SW-11	11/3/22 12:45	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
State NH
Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
Phone 778-0591 Fax 772-4709
Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

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☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5 °C
Ice Y ☑ N ☐

Samples Collected by: CJ+VN

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	[signature]
[signature]	11/4/22 0800	[signature]

CHAIN-OF-CUSTODY RECORD

251 840

EXENH

Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
SW-10	11/3/22 12:40	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-105	11/3/22 13:20	aqueous Grab or Comp	AqTot/DIOX AqDis/ICPMets.As.Fe.Mn	3
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-106	11/3/22 15:35	aqueous Grab or Comp	AqTot/DIOX AqDis/ICPMets.As.Fe.Mn	3
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-107	11/3/22 16:30	aqueous Grab or Comp	AqTot/DIOX AqDis/ICPMets.As.Fe.Mn	3
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑

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EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
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Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
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Results Needed by: Preferred date _____
Notes:

Attn sampler: Auto chain of custody provided for your convenience, please review for accuracy and write in any needed changes

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PO# 4335-309
Quote#: 1016750
Temp 1.5 °C
Ice Y ☒ N ☐

Samples Collected by: CJ+VN

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	[signature]
[signature]	11/4/22 0800	[signature]

CHAIN-OF-CUSTODY RECORD

251840

EXENH

Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
P-2R	~~11/3~~ 10:10 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	7
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐
SW-13	11/3/22 10:55	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	7
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐
SW-16	15:55 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	7
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐
Trip Blank	10/21/22 07:30	aqueous Grab or Comp	AqTot/V8260/DIOX (>>) unavailable (>>)	2
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐

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EAI Project ID 31

Project Name Cross Road Landfill | Nov 2022

State NH

Client (Pro Mgr) Jennifer Perry

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Address Town Office, 13 Newfields Road

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PO# 4335-309

Quote#: 1016750

Temp 1.5°C

Ice Y ☒ N ☐

Samples Collected by: Cameron Indeck, Vito Nunes

Relinquished by	Date/Time	Received by
	11/3/22 18:45	
	11/3/22 19:30	
	11/4/22 0800	

Eastern Analytical, Inc.

professional laboratory and drilling services

Jennifer Perry
Exeter, Town of
Town Office, 13 Newfields Road
Exeter , NH 03833-2792

Laboratory Report for:

Eastern Analytical, Inc. ID: 252406
Client Identification: Exeter Cross Road LF | Nov 2022
Date Received: 11/15/2022

Enclosed are the analytical results per the Chain of Custody for sample(s) in the referenced project. All analyses were performed in accordance with our QA/QC Program, NELAP and other applicable state requirements. All quality control criteria was within acceptance criteria unless noted on the report pages. Results are for the exclusive use of the client named on this report and will not be released to a third party without consent.

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.

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

< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Certifications:
Eastern Analytical, Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012), New York (12072), West Virginia (9910C) and Alabama (41620). Please refer to our website at www.easternanalytical.com for a copy of our certificates and accredited parameters.

References:

- EPA 600/4-79-020, 1983
- Standard Methods for Examination of Water and Wastewater, 20th, 21st, 22nd & 23rd edition or noted revision year.
- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992
- ASTM International

If you have any questions regarding the results contained within, please feel free to contact customer service. Unless otherwise requested, we will dispose of the sample(s) 6 weeks 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

12.1.22
Date

SAMPLE CONDITIONS PAGE

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Temperature upon receipt (°C): 14.1

Acceptable temperature range (°C): 0-6

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

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
252406.01	GMW-11RR	11/15/22	11/15/22 13:15	aqueous		Adheres to Sample Acceptance Policy

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

Unless otherwise noted:

- *Hold times, preservation, container types, and sample conditions adhered to EPA Protocol.*
- *Solid samples are reported on a dry weight basis, unless otherwise noted. pH/Corrosivity, Flashpoint, Ignitability, Paint Filter, Conductivity and Specific Gravity are always reported on an "as received" basis.*
- *Analysis of pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite were performed at the laboratory outside of the recommended 15 minute hold time.*
- *Samples collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures.*

LABORATORY REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Sample ID:	GMW-11RR
Lab Sample ID:	252406.01
Matrix:	aqueous
Date Sampled:	11/15/22
Date Received:	11/15/22
Units:	ug/L
Date of Analysis:	11/21/22
Analyst:	JAK
Method:	8260C
Dilution Factor:	1

Dichlorodifluoromethane	< 2
Chloromethane	< 2
Vinyl chloride	< 1
Bromomethane	< 2
Chloroethane	< 2
Trichlorofluoromethane	< 2
Diethyl Ether	< 2
Acetone	< 10
1,1-Dichloroethene	< 0.5
tert-Butyl Alcohol (TBA)	< 30
Methylene chloride	< 1
Carbon disulfide	< 2
Methyl-t-butyl ether(MTBE)	< 1
Ethyl-t-butyl ether(ETBE)	< 2
Isopropyl ether(DIPE)	< 2
tert-amyl methyl ether(TAME)	< 2
trans-1,2-Dichloroethene	< 1
1,1-Dichloroethane	< 1
2,2-Dichloropropane	< 1
cis-1,2-Dichloroethene	< 1
2-Butanone(MEK)	< 10
Bromochloromethane	< 1
Tetrahydrofuran(THF)	< 10
Chloroform	< 1
1,1,1-Trichloroethane	< 1
Carbon tetrachloride	< 1
1,1-Dichloropropene	< 1
Benzene	< 1
1,2-Dichloroethane	< 1
Trichloroethene	< 1
1,2-Dichloropropane	< 1
Dibromomethane	< 1
Bromodichloromethane	< 0.5
1,4-Dioxane	< 50
4-Methyl-2-pentanone(MIBK)	< 10
cis-1,3-Dichloropropene	< 0.5
Toluene	< 1
trans-1,3-Dichloropropene	< 0.5
1,1,2-Trichloroethane	< 1
2-Hexanone	< 10
Tetrachloroethene	< 1
1,3-Dichloropropane	< 1
Dibromochloromethane	< 1
1,2-Dibromoethane(EDB)	< 0.5
Chlorobenzene	< 1
1,1,1,2-Tetrachloroethane	< 1

LABORATORY REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Sample ID:	GMW-11RR
Lab Sample ID:	252406.01
Matrix:	aqueous
Date Sampled:	11/15/22
Date Received:	11/15/22
Units:	ug/L
Date of Analysis:	11/21/22
Analyst:	JAK
Method:	8260C
Dilution Factor:	1
Ethylbenzene	< 1
mp-Xylene	< 1
o-Xylene	< 1
Styrene	< 1
Bromoform	< 2
IsoPropylbenzene	< 1
Bromobenzene	< 1
1,1,2,2-Tetrachloroethane	< 1
1,2,3-Trichloropropane	< 0.5
n-Propylbenzene	< 1
2-Chlorotoluene	< 1
4-Chlorotoluene	< 1
1,3,5-Trimethylbenzene	< 1
tert-Butylbenzene	< 1
1,2,4-Trimethylbenzene	< 1
sec-Butylbenzene	< 1
1,3-Dichlorobenzene	< 1
p-Isopropyltoluene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
n-Butylbenzene	< 1
1,2-Dibromo-3-chloropropane	< 2
1,3,5-Trichlorobenzene	< 1
1,2,4-Trichlorobenzene	< 1
Hexachlorobutadiene	< 0.5
Naphthalene	< 2
1,2,3-Trichlorobenzene	< 0.5
4-Bromofluorobenzene (surr)	**85 %R**
1,2-Dichlorobenzene-d4 (surr)	**109 %R**
Toluene-d8 (surr)	**98 %R**
1,2-Dichloroethane-d4 (surr)	**105 %R**

Dichlorodifluoromethane exhibited recovery above acceptance limits in the Quality Control sample(s).

QC REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Batch ID: 638046-35643/A112122V82603

Client Designation: **Exeter Cross Road LF | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Dichlorodifluoromethane	< 2	28 (142 %R)	26 (132 %R) (7 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
Chloromethane	< 2	21 (107 %R)	20 (99 %R) (8 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
Vinyl chloride	< 1	23 (113 %R)	20 (102 %R) (10 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Bromomethane	< 2	22 (111 %R)	20 (99 %R) (12 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
Chloroethane	< 2	19 (97 %R)	18 (89 %R) (9 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Trichlorofluoromethane	< 2	23 (113 %R)	20 (100 %R) (12 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Diethyl Ether	< 2	18 (91 %R)	18 (88 %R) (4 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Acetone	< 10	20 (99 %R)	19 (97 %R) (2 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
1,1-Dichloroethene	< 0.5	24 (119 %R)	22 (110 %R) (8 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
tert-Butyl Alcohol (TBA)	< 30	120 (115 %R)	120 (116 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Methylene chloride	< 1	19 (94 %R)	18 (90 %R) (5 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Carbon disulfide	< 2	21 (105 %R)	20 (98 %R) (6 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Methyl-t-butyl ether(MTBE)	< 1	20 (102 %R)	20 (98 %R) (4 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Ethyl-t-butyl ether(ETBE)	< 2	21 (106 %R)	22 (110 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Isopropyl ether(DIPE)	< 2	20 (102 %R)	22 (108 %R) (6 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
tert-amyl methyl ether(TAME)	< 2	23 (114 %R)	23 (115 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
trans-1,2-Dichloroethene	< 1	20 (98 %R)	19 (97 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,1-Dichloroethane	< 1	21 (106 %R)	22 (109 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
2,2-Dichloropropane	< 1	25 (123 %R)	24 (118 %R) (4 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
cis-1,2-Dichloroethene	< 1	21 (104 %R)	21 (105 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
2-Butanone(MEK)	< 10	18 (91 %R)	20 (99 %R) (9 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
Bromochloromethane	< 1	22 (109 %R)	21 (107 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Tetrahydrofuran(THF)	< 10	18 (91 %R)	20 (101 %R) (10 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Chloroform	< 1	21 (106 %R)	21 (105 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,1,1-Trichloroethane	< 1	23 (113 %R)	22 (109 %R) (4 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Carbon tetrachloride	< 1	23 (117 %R)	22 (110 %R) (6 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,1-Dichloropropene	< 1	23 (115 %R)	23 (114 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Benzene	< 1	22 (109 %R)	22 (108 %R) (0 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2-Dichloroethane	< 1	21 (107 %R)	21 (105 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Trichloroethene	< 1	23 (114 %R)	21 (104 %R) (9 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2-Dichloropropane	< 1	23 (116 %R)	22 (108 %R) (7 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Dibromomethane	< 1	23 (113 %R)	21 (107 %R) (5 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Bromodichloromethane	< 0.5	23 (115 %R)	21 (107 %R) (8 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,4-Dioxane	< 50	< 50 (115 %R)	< 50 (112 %R) (3 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
4-Methyl-2-pentanone(MIBK)	< 10	23 (116 %R)	22 (110 %R) (6 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
cis-1,3-Dichloropropene	< 0.5	* 27 (133 %R)	23 (116 %R) (13 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Toluene	< 1	21 (106 %R)	21 (103 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
trans-1,3-Dichloropropene	< 0.5	23 (116 %R)	23 (114 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,1,2-Trichloroethane	< 1	21 (103 %R)	20 (101 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
2-Hexanone	< 10	20 (102 %R)	20 (102 %R) (1 RPD)	11/21/2022	ug/L	40 - 160	20	8260C
Tetrachloroethene	< 1	21 (105 %R)	20 (101 %R) (4 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,3-Dichloropropane	< 1	20 (101 %R)	20 (100 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Dibromochloromethane	< 1	21 (103 %R)	20 (101 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2-Dibromoethane(EDB)	< 0.5	22 (110 %R)	22 (109 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Chlorobenzene	< 1	22 (109 %R)	21 (106 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,1,1,2-Tetrachloroethane	< 1	21 (105 %R)	20 (102 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C

QC REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Batch ID: 638046-35643/A112122V82603

Client Designation: **Exeter Cross Road LF | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Ethylbenzene	< 1	23 (116 %R)	22 (112 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
mp-Xylene	< 1	48 (121 %R)	47 (116 %R) (4 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
o-Xylene	< 1	24 (121 %R)	24 (118 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Styrene	< 1	24 (119 %R)	23 (115 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Bromoform	< 2	23 (117 %R)	23 (116 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
IsoPropylbenzene	< 1	23 (117 %R)	22 (112 %R) (4 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Bromobenzene	< 1	20 (100 %R)	20 (99 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,1,2,2-Tetrachloroethane	< 1	20 (102 %R)	21 (103 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2,3-Trichloropropane	< 0.5	20 (98 %R)	20 (99 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
n-Propylbenzene	< 1	23 (113 %R)	22 (110 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
2-Chlorotoluene	< 1	22 (109 %R)	22 (110 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
4-Chlorotoluene	< 1	23 (113 %R)	22 (108 %R) (5 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,3,5-Trimethylbenzene	< 1	22 (112 %R)	22 (109 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
tert-Butylbenzene	< 1	23 (115 %R)	22 (112 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2,4-Trimethylbenzene	< 1	23 (115 %R)	22 (112 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
sec-Butylbenzene	< 1	24 (120 %R)	23 (116 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,3-Dichlorobenzene	< 1	21 (103 %R)	20 (102 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
p-Isopropyltoluene	< 1	23 (114 %R)	22 (111 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,4-Dichlorobenzene	< 1	19 (97 %R)	19 (95 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2-Dichlorobenzene	< 1	19 (97 %R)	19 (96 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
n-Butylbenzene	< 1	22 (112 %R)	22 (109 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2-Dibromo-3-chloropropane	< 2	20 (101 %R)	20 (102 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,3,5-Trichlorobenzene	< 1	19 (95 %R)	19 (95 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2,4-Trichlorobenzene	< 1	19 (96 %R)	19 (97 %R) (0 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Hexachlorobutadiene	< 0.5	19 (94 %R)	18 (92 %R) (2 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
Naphthalene	< 2	21 (104 %R)	21 (107 %R) (3 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
1,2,3-Trichlorobenzene	< 0.5	20 (100 %R)	20 (101 %R) (1 RPD)	11/21/2022	ug/L	70 - 130	20	8260C
4-Bromofluorobenzene (surr)	85 %R	105 %R	104 %R	11/21/2022	% Rec	70 - 130	20	8260C
1,2-Dichlorobenzene-d4 (surr)	109 %R	96 %R	95 %R	11/21/2022	% Rec	70 - 130	20	8260C
Toluene-d8 (surr)	98 %R	97 %R	97 %R	11/21/2022	% Rec	70 - 130	20	8260C
1,2-Dichloroethane-d4 (surr)	104 %R	96 %R	97 %R	11/21/2022	% Rec	70 - 130	20	8260C

*/! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.

LABORATORY REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Sample ID: GMW-11RR

Lab Sample ID:	252406.01
Matrix:	aqueous
Date Sampled:	11/15/22
Date Received:	11/15/22
Units:	ug/L
Date of Analysis:	11/16/22
Analyst:	MLW
Method:	8260B SIM
Dilution Factor:	1
1,4-Dioxane	< 0.2
4-Bromofluorobenzene (surr)	**106 %R**
Toluene-d8 (surr)	**103 %R**

QC REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Batch ID: 638041-84289/A111622DIOX1

Client Designation: **Exeter Cross Road LF | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.3 (106 %R)	5.3 (106 %R) (0 RPD)	11/16/2022	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	104 %R	103 %R	105 %R	11/16/2022	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	102 %R	102 %R	104 %R	11/16/2022	% Rec	70 - 130	50	8260B

*/! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.

LABORATORY REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Sample ID: GMW-11RR

Lab Sample ID: 252406.01

Matrix: aqueous

Date Sampled: 11/15/22

Date Received: 11/15/22

		Analysis				
		Units	**Date**	**Time**	**Method**	**Analyst**
Chloride	**91**	mg/L	11/16/22	9:37	4500ClE-11	ALM
Nitrate-N	< 0.5	mg/L	11/16/22	9:37	353.2	ALM
TKN	< 0.5	mg/L	11/29/22	16:51	$4500N_{org}C/NH3D$	GRS

QC REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Chloride	< 1	26 (105 %R)	26 (105 %R) (0 RPD)	mg/L	11/16/22	90 - 110	20	4500CIE-11
Nitrate-N	< 0.05	4.9 (98 %R)	4.9 (98 %R) (0 RPD)	mg/L	11/16/22	90 - 110	20	353.2
TKN	< 0.5	9.9 (99 %R)	10 (103 %R) (3 RPD)	mg/L	11/29/22	90 - 111	20	4500N_{org}C/NH3D-11

*/! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.

LABORATORY REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Sample ID: GMW-11RR

Lab Sample ID: 252406.01
Matrix: aqueous
Date Sampled: 11/15/22
Date Received: 11/15/22

		Analytical Matrix	Units	Date of Analysis	Method	Analyst
Arsenic	**0.00082**	AqDis	mg/L	11/17/22	200.8	DS
Barium	**0.030**	AqDis	mg/L	11/17/22	200.8	DS
Cadmium	< 0.001	AqDis	mg/L	11/17/22	200.8	DS
Chromium	< 0.001	AqDis	mg/L	11/17/22	200.8	DS
Iron	**0.22**	AqDis	mg/L	11/17/22	200.8	DS
Lead	< 0.001	AqDis	mg/L	11/17/22	200.8	DS
Manganese	**0.010**	AqDis	mg/L	11/17/22	200.8	DS
Mercury	< 0.0001	AqDis	mg/L	11/17/22	200.8	DS
Selenium	< 0.001	AqDis	mg/L	11/17/22	200.8	DS
Silver	< 0.001	AqDis	mg/L	11/17/22	200.8	DS

QC REPORT

EAI ID#: **252406**

Client: **Exeter, Town of**

Client Designation: **Exeter Cross Road LF | Nov 2022**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Arsenic	< 0.0005	0.20 (102 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Barium	< 0.001	0.21 (107 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Cadmium	< 0.001	0.19 (97 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Chromium	< 0.001	0.20 (102 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Iron	< 0.05	10 (103 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Lead	< 0.001	0.19 (95 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Manganese	< 0.005	0.20 (101 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Mercury	< 0.0001	0.00097 (97 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Selenium	< 0.001	0.20 (101 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8
Silver	< 0.001	0.011 (106 %R)	NA	mg/L	11/17/22	85 - 115	20	200.8

*/! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.

Eastern Analytical, Inc. CHAIN-OF-CUSTODY RECORD

252406

EXENH

Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
GMW-11 RR	11-15-2022 13:15	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7

☒ **Sampler confirms ID and parameters are accurate** *Circle preservative/s:* HCL HNO3 H2SO4 NaOH MEOH $Na_2S_2O_3$ ICE Dissolved Sample Field Filtered ☒

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
State NH
Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
Phone 778-0591 **Fax** 772-4709
Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

Attn sampler: Auto chain of custody provided for your convenience, please review for accuracy and write in any needed changes

QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

ReportingOptions
☐ HC
☒ EDD PDF
☒ EDD email
☒ PDF prelim, NO FAX
☐ e-mail Login Confirmation
☐ NO FAX
☐ Partial FAX
☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 4.1 °C
Ice Y ☐ N ☒

Samples Collected by: Uto Nunes

Relinquished by	Date/Time	Received by
	11-15-22 / 16:30	

Relinquished by	Date/Time	Received by

CEC Summary Letter Report

November 22, 2022

Ms. Jennifer Perry, P.E.
Public Works Director
Town of Exeter DPW
13 Newfields Road
Exeter, NH 03833

Subject: November 2022 Semi Annual Groundwater Monitoring
Cross Road Landfill – Exeter, NH
NHDES GWP-198401081-E-005
CEC Project Number 194-400

Dear Ms. Perry,

The following is a summary of field sampling procedures and chain of custody documents for the above referenced groundwater monitoring project that occurred on November 2 – 3 and 15, 2022.

Civil & Environmental Consultants, Inc. (CEC) was contracted to collect samples from thirteen groundwater monitoring wells identified as RFW-2, RFW-3, RFW-4, GZ-1L, GZ-2L, GZ-3L, GZ-104, GZ-105, GZ-106, GZ-107, GZ-201, GZ-202A, GMW-11 RR, two piezometers identified as P-2R and P-9R, and eight surface water monitoring points identified as SW-10, SW-11, SW-13, SW-14, SW-15, SW-16, SW-17, and Upstream of Seep. GMW-11RR is a replacement well for GMW-11 in the permit.

FIELD SAMPLING ACTIVITY SUMMARY

The foot-valves at GZ-105 and RFW-4 were replaced. Dedicated waterra tubing and a foot-valve was installed in P-2R. The existing condition of the monitoring points identified as GZ-105, GZ-202A, P-2R, GMW-11, and GMW-11RR are noted in an attachment to this summary. Monitoring point RFW-3 was sampled on November 2. The remaining monitoring locations were sampled on November 3 except for GMW-11RR which was sampled on November 15. All wells that could be covered were covered and those that had locks were secured prior to leaving the site, except for RFW-4 which could not be locked.

Three monitoring wells, GZ-1L, GZ-2L, and GZ-106 were purged to dryness. The water levels were allowed to recharge overnight, reaching an acceptable recovery prior to sample collection for field parameters and off-site lab analysis. The samples for off-site analysis were collected into bottles (pre-preserved if required) provided by the contract laboratory, Eastern Analytical Inc. (EAI) of Concord, NH, then logged on to the chain of custody and placed on ice for delivery.

A YSI Pro DSS was calibrated by US Environmental Rental Corporation and functioning properly during all field parameter analysis. There were no onsite conditions (weather, construction, etc.) that would have an adverse impact on the sample data quality or integrity.

Groundwater monitoring location GZ-2L continued to have field results for pH consistent with historical trends of recent sampling events, with a value of 12.19 s.u. at the time of sampling. It should also be noted that groundwater monitoring location GMW-11RR had a field reading of 4.51 s.u., which was lower than historical trends. CEC undertook steps to confirm the results and took multiple field readings both before and after purging.

Groundwater samples noted as 'dissolved metals' were field filtered using a 0.45-micron filter apparatus prior to preservation. Field filter QA/QC data is provided as an attachment to this summary.

The laboratory data report will be sent directly to you from EAI within 10 - 14 business days.

The next required round of permit monitoring is scheduled to take place in April 2023.

Thank you for your continued utilization of our groundwater permit management services. Please do not hesitate to contact either of us with any questions or comments regarding the work performed.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Vito Nunes
Staff Scientist

Thomas E. Walker
Senior Project Manager

Attachments: November 2022 Field Summary Table
Well Condition Letter with photos
Eastern Analytical Chain of Custody Documents
Waterra 0.45-micron field filter QA/QC data
US Environmental Rental YSI Pro DSS Calibration Reports

cc: Jeffrey Rowell – GZA
Erik Dyrness – GZA

November 2022 Groundwater Monitoring Well Conditions

The following is a summary of monitoring well conditions observed during the groundwater monitoring project that occurred on November 2, 3 and 15, 2022.

During the November 2022 groundwater monitoring event, Civil & Environmental Consultants, Inc. (CEC) noted three groundwater monitoring wells, one piezometer, and one soil gas monitoring well that were damaged or may potentially become damaged. At monitoring well GZ-202A the two-inch PVC pipe extends beyond the well casing, preventing the cover to the well from being secured. P-2R was observed to be in good condition, however, a tree has fallen directly over the piezometer and is currently being supported by neighboring trees. If the fallen tree were to reach the ground, the piezometer may be damaged or destroyed. GMW-11 was observed to be at an angle with the concrete base uplifted, potentially having been hit and damaged in the past.

The groundwater monitoring well identified as GZ-105 had a significant amount of sand/sediment during purging. Before purging the waterra tubing was flush to the top of the PVC pipe. However, after purging the tubing would not go back into the well, leaving about a foot of tubing above the well. This excess tubing was removed to properly lock the well casing, but measures were taken to make sure the tubing was still accessible in the event it lowered over time. The sand/sediment would not clear up during purging and it appeared that more had entered the well during the purging process. This sand/sediment was also noticeably dense at the bottom of the purge water bucket. It is possible that the screen on the PVC pipe has been damaged and allowing the sand/sediment to pass through.

The groundwater monitoring well identified as GMW-11RR also had a significant amount of sand/sediment during purging. Before purging the waterra tubing was flush to the top of the PVC pipe. The tubing was able to be pushed back down to properly secure the well at the end of sampling. However, the water level indicator was not able to push through the sand/sediment at the bottom of the well, resulting in a false measurement for the depth to bottom. The waterra tubing was completely pulled out and measured to give an approximate depth to bottom of 18 feet, compared to the 13.64 feet the water level indicator recorded. The 18 feet for the depth to bottom has also been noted in previous field notes and was therefore used to calculate the amount of water to be purged during this sampling event. Roots were also seen in the purge water. It is possible that the screen on the PVC pipe has been damaged and allowing the sand/sediment and roots to pass through.

The condition of these monitoring points can be referenced on the attached Photo Log Sheet. The groundwater well conditions mentioned on the previous summary report from November 19, 2021, remain the same as well.

The following groundwater monitoring wells were missing a PVC plug or cap: GZ-2L, GZ-202A, RFW-2, RFW-3, RFW-4, and P-2R. CEC installed PVC plugs/caps to these monitoring wells when they returned on site on November 15, 2022. No lock was present on P-2R, P-9R, and GMW-11RR. The lock on RFW-4 would also not relock. All other wells in the network appeared to be in good condition.

It should be noted that the well keys CEC has at the moment are severely damaged and should not be used for the next sampling period. It is recommended that the locks are either replaced during the next sampling period or a new set of keys are provided.

Please do not hesitate to contact either of us with any questions or comments regarding the work performed.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Vito Nunes
Staff Scientist

Thomas E. Walker
Senior Project Manager

Table 1
Cross Road Landfill
Exeter, NH
Summary of Groundwater and Surface Water

Well ID	Depth To Water	Depth To Bottom	Purge Volume	pH	Specific Conductivity	Oxidation Reduction Potential	Dissolved Oxygen	Temperature
	ft	*ft*	*gal*	*s.u.*	*µS/cm*	*mV*	*mg/L*	*°C*
RFW-2	44.18	71.97	14	6.22	483.8	56.9	3.03	10.6
RFW-3	74.03	97.90	12	6.38	717	170.0	5.36	14.0
RFW-4	46.91	65.37	9.25	6.42	789	-6.9	1.93	12.4
GMW-11	DRY	11.00	--	--	--	--	--	--
GMW-11RR	12.89	~18	2.75	4.51	302	233.6	5.65	11.0
GZ-1L	21.85	76.88	**TD (5.5)**	7.81	643	254.4	4.49	9.9
GZ-2L	36.41	56.75	**TD (2)**	12.19	2485	-134.7	16.05	8.0
GZ-3L	13.86	38.98	12.75	7.00	301.6	-30.4	4.24	13.3
GZ-104	13.57	16.87	1.75	6.46	790	104.5	5.35	12.3
GZ-105	11.84	24.69	6.50	6.08	564	153.9	8.38	12.6
GZ-106	12.92	16.12	**TD (0.5)**	6.56	575	166.7	9.41	12.9
GZ-107	38.44	46.89	4.25	6.19	677	202.9	7.31	12.0
GZ-201	51.30	57.59	3.25	6.20	894	211.4	5.07	15.1
GZ-202A	51.57	66.50	7.50	6.58	567	-14.0	2.92	14.1
P-2R	4.14	7.74	0.50	6.72	293.4	-22.8	0.38	10.3
P-9R	2.88	7.50	0.55	7.22	761	-111.7	0.30	11.5
SW-10	--	--	--	6.45	290	72.1	4.38	14.6
SW-11	--	--	--	6.86	292.9	90.3	9.98	10.5
SW-13	--	--	--	6.48	282.3	-28.7	3.32	8.0
SW-14	--	--	--	7.10	375.6	93.2	8.36	11.3
SW-15	--	--	--	7.17	309.7	26.2	10.75	10.9
SW-16	--	--	--	6.87	633	183.7	8.93	12.9
SW-17	--	--	--	6.97	515	136.3	9.03	12.3
Upstream of Seep	--	--	--	7.03	294.1	109.3	10.63	10.7

Table 1
Cross Road Landfill
Exeter, NH
Summary of Groundwater and Surface Water

Field Personnel: Vito Nunes & Cam Indeck
Date: 11/02/22 - 11/03/22 and 11/15/22
Weather: 51º to 67º F and 42º F on 11/15/22

NOTES:
•**TD** = Well purged until dry
•Dissolved metals samples were field filtered using 0.45 micron filter prior to preservation with HNO_3.
•Samples were stored and transported on ice after collection
•Field measurements for static elevation taken using a Solinst Tape, readings for pH, Specific Conductivity, ORP, DO, and Temperature taken using a YSI Pro DSS.
•Field data sheets available upon request.

Photo 1: GZ-202A – Taken on: November 2, 2022

Photo 2: GMW-11– Taken on: November 2, 2022

Photo 3: P-2R– Taken on: November 2, 2022

Photo 4: P-2R Capped – Taken on: November 15, 2022

Civil & Environmental Consultants, Inc.
Raynham, MA
Phone: 774-501-2176 Toll Free: 866-312-2024

Cross Road Landfill
9 Cross Road, Exeter, NH 03833
CEC Project: 194-400

Photographs Taken On: November 2 and 15, 2022

Photo 5: GMW-11RR Visual Sample – Taken on: November 15, 2022

Photo 6: GMW-11RR Visual Sample After Settling – Taken on: November 15, 2022

Photo 7: GZ-105 Visual Sample – Taken on: November 15, 2022

Photo 8: GZ-105 Visual Sample After Settling – Taken on: November 15, 2022

Photo 9: GZ-105 Visual Sample After Pouring Out – Taken on: November 15, 2022

CHAIN-OF-CUSTODY RECORD

1 of 6

251840

EXENH

Sample IDs	Date/Time *Composites need start and stop dates/times*	Matrix	Parameters and Sample Notes	# of containers
~~GMW-11~~		~~aqueous~~ ~~Grab or Comp~~	~~AqTot/Cl/NO3/TKN/DIOX/V8260~~ ~~AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg~~ CDI 11/3/22	
☐ **Sampler confirms ID and parameters are accurate**			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☐
GZ-104	11/3/22 13:40	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ **Sampler confirms ID and parameters are accurate**			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-201	11/3/22 16:40	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ **Sampler confirms ID and parameters are accurate**			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-202A	08:40 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/PFCsSubVAL AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	CI 9
☑ **Sampler confirms ID and parameters are accurate**			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE Trizma 76	Dissolved Sample Field Filtered ☑

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
State NH
Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
Phone 778-0591 **Fax** 772-4709
Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

Attn sampler: Auto chain of custody provided for your convenience, please review for accuracy and write in any needed changes

QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

ReportingOptions
☐ HC
☒ EDD PDF
☒ EDD email
☒ PDF prelim, NO FAX
☐ e-mail Login Confirmation
☐ NO FAX
☐ Partial FAX
☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5°C
Ice Y☒ N☐

Samples Collected by: Cameron Indelicato, Vito Nunes

Relinquished by	Date/Time	Received by
Vito Nunes	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	Foyer
Foyer	11/4/22 0800	[signature]

2 of 6

CHAIN-OF-CUSTODY RECORD

251840
EXENH

Sample IDs	Date/Time (Composites need start and stop dates/times)	Matrix	Parameters and Sample Notes	# of containers
P-9R	10:35 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
RFW-2	09:20 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑
RFW-3	17:30 11/2/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/PFCsSubVAL AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	9
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE Trizma T6	Dissolved Sample Field Filtered ☑
RFW-4	11:20 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/PFCsSubVAL AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	9
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☑

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State NH
Client (Pro Mgr) Jennifer Perry
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Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
Phone 778-0591 **Fax** 772-4709
Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

Attn sampler: Auto chain of custody provided for your convenience, please review for accuracy and write in any needed changes

QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

ReportingOptions
☐ HC
☒ EDD PDF
☒ EDD email
☒ PDF prelim, NO FAX
☐ e-mail Login Confirmation
☐ NO FAX
☐ Partial FAX
☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5 °C
Ice Y ☒ N ☐

Samples Collected by: Cameron Indelicato, Vito Nunes

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	[signature]
[signature]	11/4/22 0800	[signature]

3 of 6

CHAIN-OF-CUSTODY RECORD

251840
EXENH

Sample IDs	Date/Time (Composites need start and stop dates/times)	Matrix	Parameters and Sample Notes	# of containers
GZ-1L	08:15 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☐
GZ-2L	09:05 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☐
GZ-3L	11:50 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☐
SW-17	11/3/22 14:55	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7
☐ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE	Dissolved Sample Field Filtered ☐

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Client (Pro Mgr) Jennifer Perry
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Results Needed by: Preferred date _____
Notes:

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QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

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☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5 °C
Ice Y ☒ N ☐

Samples Collected by: VN + CI

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	Sayer
Sayer	11/4/22 0800	[signature]

4 of 6

CHAIN-OF-CUSTODY RECORD

251840

EXENH

Sample IDs	Date/Time (Composites need start and stop dates/times)	Matrix	Parameters and Sample Notes	# of containers
Upstream of Seep	11/3/22 14:35	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL (HNO$_3$) H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☑
SW-14	11/3/22 14:25	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL (HNO$_3$) H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☑
SW-15	11/3/22 14:05	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As AqDis/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	8
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* (HCL) (HNO$_3$) (H$_2$SO$_4$) NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☑
SW-11	11/3/22 12:45	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL (HNO$_3$) H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ (ICE)	Dissolved Sample Field Filtered ☑

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

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State NH
Client (Pro Mgr) Jennifer Perry
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Address Town Office, 13 Newfields Road
City Exeter NH 03833-2792
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Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

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QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

ReportingOptions
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☐ NO FAX
☐ Partial FAX
☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5 °C
Ice Y ☒ N ☐

Samples Collected by: CJ+VN

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	[signature]
[signature]	11/4/22 0800	[signature]

5 of 6

CHAIN-OF-CUSTODY RECORD

251 840

EXENH

Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
SW-10	11/3/22 12:20	aqueous Grab or Comp	AqTot/ICPMets.As.Fe.Mn AqDis/ICPMets.As.Fe.Mn	2
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-105	11/3/22 13:20	aqueous Grab or Comp	AqTot/DIOX AqDis/ICPMets.As.Fe.Mn	3
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-106	11/3/22 15:35	aqueous Grab or Comp	AqTot/DIOX AqDis/ICPMets.As.Fe.Mn	3
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑
GZ-107	11/3/22 16:30	aqueous Grab or Comp	AqTot/DIOX AqDis/ICPMets.As.Fe.Mn	3
☑ Sampler confirms ID and parameters are accurate			*Circle preservative/s:* HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE	Dissolved Sample Field Filtered ☑

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Results Needed by: Preferred date _____
Notes:

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QC deliverables
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☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5 °C
Ice Y ☒ N ☐

Samples Collected by: CJ+VN

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	[signature]
[signature]	11/4/22 0800	[signature]

6 of 6

CHAIN-OF-CUSTODY RECORD

251840

EXENH

Sample IDs	Date/Time (Composites need start and stop dates/times)	Matrix	Parameters and Sample Notes	# of containers
P-2R	~~11/13~~ VN 10:10 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	7
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐
SW-13	11/3/22 10:55	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	7
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐
SW-16	15:55 11/3/22	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/V8260/DIOX/ICPMets.As.Ba.Cd.Cr.Pb.Se.Ag.Hg.Fe.Mn.As	7
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐
Trip Blank	10/21/22 07:30	aqueous Grab or Comp	AqTot/V8260/DIOX	2
☑ Sampler confirms ID and parameters are accurate			Circle preservative/s: HCL HNO3 H2SO4 NaOH MEOH Na2S2O3 ICE	Dissolved Sample Field Filtered ☐

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EAI Project ID 31
Project Name Cross Road Landfill | Nov 2022
State NH
Client (Pro Mgr) Jennifer Perry
Customer Exeter, Town of
Address Town Office, 13 Newfields Road
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Email: jperry@exeternh.gov
Direct 773-6157

Results Needed by: Preferred date _____
Notes:

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QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

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☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 1.5 °C
Ice Y ☒ N ☐

Samples Collected by: Cameron Indeck, Vito Nunes

Relinquished by	Date/Time	Received by
[signature]	11/3/22 18:45	[signature]
[signature]	11/3/22 19:30	[signature]
[signature]	11/4/22 0800	[signature]

Eastern Analytical, Inc. CHAIN-OF-CUSTODY RECORD

252406

EXENH

Sample IDs	Date/Time Composites need start and stop dates/times	Matrix	Parameters and Sample Notes	# of containers
GMW-11 RR	11-15-2022 13:15	aqueous Grab or Comp	AqTot/Cl/NO3/TKN/DIOX/V8260 AqDis/ICPMets.As.Fe.Mn.Ba.Cd.Cr.Pb.Se.Ag.Hg	7

☒ **Sampler confirms ID and parameters are accurate** *Circle preservative/s:* HCL HNO_3 H_2SO_4 NaOH MEOH $Na_2S_2O_3$ ICE Dissolved Sample Field Filtered ☒

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Client (Pro Mgr) Jennifer Perry
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Results Needed by: Preferred date _____
Notes:

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QC deliverables
☐ A ☐ A+ ☒ B ☐ B+ ☐ C ☐ MA MCP

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☐ Partial FAX
☒ PDF Invoice
☐ EQUIS

PO# 4335-309
Quote#: 1016750
Temp 14.1 °C
Ice Y ☐ N ☒

Samples Collected by: Uto Nunes

Relinquished by	Date/Time	Received by
	11-15-22 / 16:30	

Relinquished by	Date/Time	Received by

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

PARAMETER	RDL
Aluminum (Al)	5.00 ug/L
Antimony (Sb)	0.50 ug/L
Arsenic (As)	0.10 ug/L
Barium (Ba)	0.50 ug/L
Beryllium (Be)	0.05 ug/L
Bismuth (Bi)	0.05 ug/L
Boron (B)	5.00 ug/L
Cadmium (Cd)	0.01 ug/L
Calcium (Ca)	50.00 ug/L
Chromium (Cr)	0.50 ug/L
Cobalt (Co)	0.05 ug/L
Copper (Cu)	0.50 ug/L
Iron (Fe)	10.00 ug/L
Lead (Pb)	0.05 ug/L
Magnesium (Mg)	50.00 ug/L
Manganese (Mn)	1.00 ug/L
Mercury (Hg)	0.05 ug/L
Molybdenum (Mo)	0.10 ug/L
Nickel (Ni)	0.50 ug/L
Phosphorus (P)	50.00 ug/L
Potassium (K)	50.00 ug/L
Selenium (Se)	0.50 ug/L
Silver (Ag)	0.02 ug/L
Sodium (Na)	50.00 ug/L
Strontium (Sr)	0.10 ug/L
Thallium (Tl)	0.02 ug/L
Tin (Sn)	0.05 ug/L
Titanium (Ti)	1.00 ug/L
Tungsten (W)	0.10 ug/L
Uranium (U)	0.01 ug/L
Vanadium (V)	0.50 ug/L
Zinc (Zn)	2.00 ug/L
Zirconium (Zr)	0.50 ug/L

All elements are non-detected within the listed reportable detection limits (RDL).

US Environmental Rental Corporation

(888) 550-8100 www.usenvironmental.com

166 Riverview Ave, Waltham, MA 02453 (781) 899-1560
91 Prestige Park Circle, Suite 5, East Hartford, CT 06108 (860) 289-8700
5C South Gold Dr, Hamilton, NJ 08691 (609) 570-8555
1202 Tech Blvd., Suite 108, Tampa, FL 33619 (813) 628-4200
781 Industrial Dr, Elmhurst, IL 60126 (630) 501-1847

Order No.: 0
Date: 10/26/2022
Technician: MA

YSI

Company: 0
Contact: 0
Phone #: #N/A

Packing List

Item	Serial Number	Tech	QC
0	3520-1176	✓	
Handheld Display	3530-1452	✓	

Item	Tech	QC	Item	Tech	QC
Cable 12 '			*AC Adaptor*		
Flow Cell			*Stand*		
Barb Kit			*D.O Kit*		
Storage / Cal Cup			*Calibration Kit*		
Sensor Guard					
Manual					
Sonde Cap					
Software					
Extra Batteries					
Display Comm. Cable					
Sonde Comm. Cable					

Calibration Report

0			3520-1176	
Parameter	***Accuracy***	***Before***	***After***	***Lot #***
Conductivy 1000 µs/cm	*(+/-.5%)*	1001	1000	2GD075
pH 7 Buffer	*(+/- .2)*	7.27	7.02	1GH743
pH mV for 7 Buffer	*(0 +/- 50)*		**-15.9**	
pH 4 Buffer	*(+/- .2)*	4.36	4.00	1GH1124
pH mV for 4 Buffer	*(180 +/- 50)*		**153.2**	
pH 10 Buffer	*(+/- .2)*	10.23	10.06	2GD857
pH mV for 10 Buffer	*(-180 +/- 50)*		**-187.8**	
ORP mV, 237.5	*(+/- 20 mV)*	218.0	238.00	9GC160
DO 100% Sat	*(+/- 2%)*	101.0%	98.7%	
0% DO Check	*(+/- 2%)*		2.00	
Turbidity 0 NTU	*(+/- 5%)*	0.6	0.0	
Turbidity 126 NTU	*(+/- 5%)*	114.0	124.0	

This document certifies that US Environmental Rental Corporation has provided this rental equipment and all accessories in good working order. It is the renter's responsibility to: a) review all included items upon receipt, b) verify that all items are in acceptable condition and function properly, and c) contact a US Environmental associate immediately if any item is missing, damaged, and/or not functioning properly. Any delay in notifying US Environmental will be considered as the Renter taking responsibility for such missing, damaged, and/or malfunctioning item.

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1202 Tech Blvd., Suite 108, Tampa, FL 33619 (813) 628-4200
781 Industrial Dr, Elmhurst, IL 60126 (630) 501-1847

Order No.: 0
Date: 11/14/2022
Technician: MA

YSI

Company: 0
Contact: 0
Phone #: #N/A

Packing List

Item	Serial Number	Tech	QC
556	0	✓	
Handheld Display	3510-1059	✓	

Item	Tech	QC	Item	Tech	QC
Cable 12 '	✓		AC Adaptor		
Flow Cell	✓		Stand		
Barb Kit	✓		D.O Kit	✓	
Storage / Cal Cup	✓		Calibration Kit	✓	
Sensor Guard	✓				
Manual					
Sonde Cap					
Software					
Extra Batteries	✓				
Display Comm. Cable					
Sonde Comm. Cable					

Calibration Report

556			0	
Parameter	***Accuracy***	***Before***	***After***	***Lot #***
Conductivy 1000 µs/cm	*(+/-.5%)*	998	1000	2GD075
pH 7 Buffer	*(+/- .2)*	6.78	7.00	1GH743
pH mV for 7 Buffer	*(0 +/- 50)*		**12.5**	
pH 4 Buffer	*(+/- .2)*	4.19	4.00	1GH1124
pH mV for 4 Buffer	*(180 +/- 50)*		**174.9**	
pH 10 Buffer	*(+/- .2)*	10.04	10.01	2GD857
pH mV for 10 Buffer	*(-180 +/- 50)*		**152.2**	
ORP mV, 237.5	*(+/- 20 mV)*	228.6	249.00	9GC160
DO 100% Sat	*(+/- 2%)*	114.2%	100.7%	
0% DO Check	*(+/- 2%)*		2.00	
Turbidity 0 NTU	*(+/- 5%)*			
Turbidity 126 NTU	*(+/- 5%)*			

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Appendix C: Sediment Analysis

Memorandum

To: NHDES

Date: June 7, 2023
Project #: 52151.06

From: Paige Cochrane, VHB
Katherine Kudzma, VHB

Re: Summary of Sediment Sampling and Analysis
Pickpocket Dam
Exeter, New Hampshire

VHB has prepared this memorandum to summarize the results of the sediment sampling conducted on behalf of the town of Exeter, New Hampshire (the Client) as part of a Feasibility Study (the Study) to evaluate existing sediment conditions within Pickpocket Dam, also identified as New Hampshire Department of Environmental Services (NHDES) Dam 029.7, located off Cross Road in Brentwood and Exeter, New Hampshire and hereinafter referred to as the "Site" as depicted in **Figure 1**. The sediment sampling outlined in this memorandum was conducted in accordance with the Sediment Sampling Analysis Plan (SAP) prepared for Pickpocket Dam by VHB in March 2023.

Summary of Sediment Sampling Activities

On April 18, 2023, Paige Cochrane and Eric Sirkovich of VHB mobilized to the Site to collect sediment samples upstream and downstream of Pickpocket Dam. Three discrete grab samples were collected upstream and two composite sediment samples were collected downstream. All sediment samples were collected manually with hand tools such as a hand auger.

The three discrete sediment samples identified as SED-1, SED-2 and SED-5 were collected upstream from a small, motorized boat. The hand auger was manually advanced through the soft sediments until refusal was encountered and the sample was then retrieved from the auger. The two downstream samples identified as SED-3 and SED-4 were composited from five sediment cores (identified as A through E) collected across the river from the top one-foot interval of sediment. Once collected, the core sample(s) were visually observed for sediment texture, color, and debris content. All core samples for a given location were transferred to a clean, stainless-steel bowl and mixed either to homogenize the discrete sediment sample location (i.e., SED-1, SED-2 and SED-5), or to composite discrete sample locations (i.e., SED-3 and SED-4). The homogenized sediment material was then immediately transferred into clean, unused, laboratory-supplied sample containers. The containers were packed in coolers with bagged ice and delivered directly to the analytical laboratory under standard chain-of-custody protocols. All equipment that came into direct contact with the sediment was properly decontaminated between sample locations using Alconox® and water. The field sampling activities were documented using field data sheets provided as **Attachment A**. The sediment sample locations are depicted in **Figure 2**.

The five sediment samples as well as one field duplicate collected at SED-2 were submitted to Phoenix Environmental Laboratories, Inc. of Manchester, Connecticut (Phoenix) for laboratory analysis of priority pollutant 13 (PP-13) metals as well as manganese and iron, pesticides, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (sVOCs) and grain size via ASTM D422 and D7928. Additionally, based on the findings of the due diligence review documented in the March 2023 Sediment SAP, SED-1 was submitted for laboratory analysis of volatile organic compounds (VOCs) due to the proximity to the groundwater management zone (GMZ) associated with the Cross Road Landfill (NHDES Site #198401081). A summary of the sediment analytical results is provided in **Table 1**. The laboratory analytical report is provided as **Attachment B**.

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Sediment Analytical Results

Ecological Screening Assessment

The sediment analytical results were compered to the NHDES recommended threshold effect concentrations (TECs) and probable effect concentrations (PECs) to evaluate whether the sediment quality may pose a risk to aquatic and benthic organisms. As noted in the NHDES guidance:

- TECs represent the estimated chemical concentration threshold below which adverse effects on ecological receptors are unlikely; and
- PECs represent the estimated chemical concentration threshold above which adverse effects on ecological receptors is likely.

TEC and PEC thresholds for freshwater sediments were considered in this analysis. The NHDES recommended screening thresholds were obtained from NHDES (2016).[1]

Following NHDES guidance, hazard quotients (HQs) were calculated for all detected constituents in each sample by dividing the constituent concentration by the screening threshold value (i.e., either the TEC or PEC). A HQ calculated with a TEC (HQ-TEC) of 1 or greater indicates the possibility that exposure to the sediment may adversely affect ecological receptors. An HQ calculated with a PEC (HQ-PEC) of 1 or greater indicates the likelihood that exposure to the sediment will adversely affect ecological receptors. Based on the calculated HQs, each constituent was assigned a risk classification as follows:

- HQ-TEC<1 was qualified as low risk;
- HQ-TEC>1 was qualified as moderate risk; and
- HQ-PEC>1 was qualified as high risk.

The calculated HQs, assigned risk classifications for fresh water screening thresholds, and the ecological screening results are provided in **Table 2**. The ecological risk was determined to be low for all detected concentrations of metals and PAHs in the sediment samples with the exception of arsenic in SED-2 FD, SED-4, and SED-5 as well as five PAHs in SED-3 and SED-4. No concentrations of VOCs, PCBs, or pesticides were detected in sediment samples in excess of the laboratory detection limit.

These screening results suggest that sediments downstream are impacted with concentrations of five PAHs identified as benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene that have a moderate potential to adversely effect ecological receptors. Sediments both upstream and downstream are impacted with concentrations of

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[1] NHDES Memorandum from Matt Wood to Gregg Comstock, PE entitled *"Updated TEC and PEC sediment thresholds"* dated January 8, 2016.

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arsenic that have a moderate to low potential to impact ecological receptors. PAHs and metals are commonly found in urban environments and may be the result of anthropogenic or naturally occurring non-point sources.

Human Health Screening Assessment

If sediments are removed as part of a restorative alternative, sediments would become classified as soils and are the subject to review in accordance with NHDES Contaminated Sites Risk Characterization and Management Policy (RCMP). The RCMP provides a process to determine if detected contaminant concentrations constitute a direct contact risk to humans or a potential risk to groundwater quality. Therefore, to preliminarily assess the sediment quality conditions at Pickpocket Dam relative to these risks, the sediment analytical results were compared to the current RCMP Method 1 Soil Category S-1 Direct Contact Risk-based Concentrations or Soil Remediation Standards (SRS).[2] The results of this comparison are detailed in **Table 3**.

No concentrations of contaminants in sediment were detected in excess of the SRS with the exception of arsenic, which was detected in SED-2 FD and SED-5 at 12.4 milligrams per kilogram (mg/kg) and 19.9 mg/kg, respectively. The SRS for arsenic (i.e., 11 mg/kg) is based on typical background concentrations found in soils in the State of New Hampshire (SHA, 1998). However, it is not uncommon to identify naturally-occurring arsenic greater than the arsenic SRS, particularly in southeastern New Hampshire.

Findings

A summary of the findings of the sediment sampling activities and sediment analytical results completed in accordance with the March 2023 Sediment SAP is provided below:

- On April 18, 2023, VHB completed the sediment sampling at Pickpocket Dam in accordance with the procedures outlined in the March 2023 Sediment SAP.
- Five (5) sediment samples were collected during the sediment sampling event, including three discrete upstream samples identified as SED-1, SED-2, and SED-5 as well as two composite downstream samples identified as SED-3 and SED-4. Additionally, one field duplicate sample was submitted for SED-2 (i.e., SED-2 FD) for quality control purposes.
- The five sediment samples and one field duplicate sediment sample were submitted for laboratory analysis of PP-13 metals, manganese, iron, pesticides, PCBs, and sVOCs. Additionally, SED-1 was also submitted for laboratory analysis of VOCs due to the proximity of the GMZ associated with the Cross Road Landfill.
- Based on the sediment analytical results, only metals and PAHs were detected in sediment samples both upstream and downstream of Pickpocket Dam. Based on the risk classification resulting from the NHDES TECs

[2] The NHDES S-1 standards are based upon sensitive uses of property and accessible soils, either currently or in the reasonably foreseeable future, and are equivalent to the Soil Remediation Standards (SRSs) established in the New Hampshire Code of Administrative Rules Chapter Env-Or 600, Contaminated Site Management.

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and PECs HQ calculation, the concentrations of PAHs detected in sediment samples downstream have a moderate potential to adversely impact ecological receptors; however, concentrations of PAHs upstream have a low potential to impact ecological receptors. Concentrations of arsenic both upstream and downstream have a moderate potential to impact ecological receptors; however, based on the distribution and concentrations of arsenic detected in the sediment samples, the concentrations of arsenic identified are likely naturally-occurring. The levels of PAHs detected are typical of urban/suburban areas.

- No concentrations of contaminants were detected in excess of the SRS within the sediment samples with the exception of arsenic detected in SED-2 FD (12.4 mg/kg) and SED-5 (13.9 mg/kg), which were both collected upstream of Pickpocket Dam. Concentrations of arsenic for all sediment samples ranged between 4.69 to 13.9 mg/kg with the mean concentrations of arsenic calculated at 9.88 mg/kg. Based on the narrow range of arsenic concentrations reported just above and below the SRS, the detections appear to be indicative of a naturally occurring background conditions. Nevertheless, the concentrations of arsenic exceeding the SRS generally suggest additional assessment and/or risk mitigation may be warranted should excavation/dredging of sediment be proposed as a selected alternative.
- Overall, the ecological screening and human health screening results indicate that low levels of PAHs and arsenic are present in sediments both downstream and upstream of Pickpocket Dam.

Attachments:

Table 1 – Summary of Sediment Analytical Results

Table 2 – Sediment Risk Assessment Summary Table

Table 3 – Sediment Human Health Assessment Table

Figure 1 – Site Location and Local Area Map

Figure 2 - Sediment Sample Plan

Attachment A – Sediment Sampling Data Sheets

Attachment B – Laboratory Analytical Report

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Table 1
Summary of Sediment Analytical Results
Pickpocket Dam
Exeter, New Hampshire

LABORATORY IDENTIFICATION	Units	CN87690		CN87691		CN87692		CN87693		CN87694		CN87695	
COLLECTION DATE		04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023	
CLIENT ID		SED-1		SED-2		SED-2 FD		SED-3		SED-4		SED-5	
		Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Miscellaneous/Inorganics													
Chloride	mg/kg	< 147	147	< 156	156	< 152	152	< 57	57	< 61	61	< 139	139
Nitrogen Tot Kjeldahl	mg/Kg	**2880**	413	**3470**	438	**3370**	425	**401**	163	**447**	197	**2110**	441
Percent Solid	%	**34**		**32**		**33**		**88**		**82**		**36**	
Metals Total													
Antimony	mg/Kg	< 3.3	3.3	< 3.6	3.6	< 3.1	3.1	< 1.2	1.2	< 1.1	1.1	< 3.3	3.3
Arsenic	mg/Kg	**9.64**	0.67	**7.92**	0.73	**12.4**	0.62	**4.69**	0.24	**10.7**	0.22	**13.9**	0.65
Beryllium	mg/Kg	**0.6**	0.27	**0.56**	0.29	**0.59**	0.25	**0.18**	0.1	**0.31**	0.09	**0.7**	0.26
Cadmium	mg/Kg	**0.49**	0.33	**0.44**	0.36	**0.6**	0.31	**0.16**	0.12	**0.28**	0.11	**0.47**	0.33
Chromium	mg/Kg	**23.8**	0.33	**23.3**	0.36	**23.1**	0.31	**21.6**	0.12	**35.5**	0.11	**24.1**	0.33
Copper	mg/kg	**8.5**	0.7	**8.7**	0.7	**9.2**	0.6	**5.3**	0.2	**6.9**	0.2	**8.9**	0.7
Iron	mg/Kg	**15000**	50	**11700**	55	**12500**	46	**10700**	18	**20300**	17	**13600**	49
Lead	mg/Kg	**29**	0.33	**32.2**	0.36	**33.3**	0.31	**10.9**	0.12	**9.41**	0.11	**31.3**	0.33
Manganese	mg/Kg	**496**	3.3	**341**	3.6	**396**	3.1	**577**	12	**713**	11	**379**	3.3
Mercury	mg/Kg	< 0.07	0.07	< 0.08	0.08	< 0.07	0.07	< 0.03	0.03	< 0.03	0.03	< 0.06	0.06
Nickel	mg/Kg	**14.9**	0.33	**13.6**	0.36	**14.3**	0.31	**12.3**	0.12	**13.3**	0.11	**14.7**	0.33
Selenium	mg/Kg	< 1.3	1.3	< 1.5	1.5	< 1.2	1.2	< 0.5	0.5	< 0.4	0.4	< 1.3	1.3
Silver	mg/Kg	< 0.33	0.33	< 0.36	0.36	< 0.31	0.31	< 0.12	0.12	< 0.11	0.11	< 0.33	0.33
Thallium	mg/Kg	< 3.0	3	< 3.3	3.3	< 2.8	2.8	< 1.1	1.1	< 1.0	1	< 2.9	2.9
Zinc	mg/Kg	**70**	0.7	**62**	0.7	**72.4**	0.6	**28.4**	0.2	**43.9**	0.2	**61.1**	0.7
Oxygenates & Dioxane - SW8260C (OXY)													
1,4-Dioxane	mg/kg	< 0.29	0.29	-	-	-	-	-	-	-	-	-	-
Di-isopropyl ether	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Diethyl ether	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
Ethyl tert-butyl ether	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
tert-amyl methyl ether	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Pesticides - SW8081B													
4,4' -DDD	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
4,4' -DDE	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
4,4' -DDT	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
a-BHC	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Alachlor	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Aldrin	mg/kg	< 0.014	0.014	< 0.01	0.01	< 0.015	0.015	< 0.0037	0.0037	< 0.0039	0.0039	< 0.014	0.014
b-BHC	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Chlordane	mg/kg	< 0.14	0.14	< 0.1	0.1	< 0.15	0.15	< 0.037	0.037	< 0.039	0.039	< 0.14	0.14
d-BHC	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Dieldrin	mg/kg	< 0.014	0.014	< 0.01	0.01	< 0.015	0.015	< 0.0037	0.0037	< 0.0039	0.0039	< 0.014	0.014
Endosulfan I	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endosulfan II	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endosulfan sulfate	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endrin	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endrin aldehyde	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endrin ketone	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
g-BHC	mg/kg	< 0.0057	0.0057	< 0.0041	0.0041	< 0.0061	0.0061	< 0.0015	0.0015	< 0.0016	0.0016	< 0.0055	0.0055
Heptachlor	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Heptachlor epoxide	mg/kg	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Hexachlorobenzene	mg/kg	< 0.014	0.014	< 0.01	0.01	< 0.015	0.015	< 0.0037	0.0037	< 0.0039	0.0039	< 0.014	0.014
Methoxychlor	mg/kg	< 0.14	0.14	< 0.1	0.1	< 0.15	0.15	< 0.037	0.037	< 0.039	0.039	< 0.14	0.14
Toxaphene	mg/kg	< 0.57	0.57	< 0.41	0.41	< 0.61	0.61	< 0.15	0.15	< 0.16	0.16	< 0.55	0.55
Polychlorinated Biphenyls - SW8082A													
PCB-1016	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1221	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1232	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1242	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1248	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1254	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1260	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1262	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1268	mg/kg	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
Semivolatiles - SW8270D													
1,1-Biphenyl	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
1,2,4,5-Tetrachlorobenzene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
1,2,4-Trichlorobenzene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
1,2-Dichlorobenzene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
1,2-Diphenylhydrazine	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
1,3-Dichlorobenzene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
1,4-Dichlorobenzene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,2'-Oxybis(1-Chloropropane)	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4,5-Trichlorophenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4,6-Trichlorophenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4-Dichlorophenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4-Dimethylphenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4-Dinitrophenol	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
2,4-Dinitrotoluene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,6-Dinitrotoluene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Chloronaphthalene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Chlorophenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Methylnaphthalene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Methylphenol (o-cresol)	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Nitroaniline	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
2-Nitrophenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
3&4-Methylphenol (m&p-cresol)	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
3,3'-Dichlorobenzidine	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
3-Nitroaniline	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
4,6-Dinitro-2-methylphenol	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
4-Bromophenyl phenyl ether	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
4-Chloro-3-methylphenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
4-Chloroaniline	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
4-Chlorophenyl phenyl ether	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
4-Nitroaniline	mg/kg	< 2.7	2.7	< 3.3	3.3	< 3.4	3.4	< 0.6	0.6	< 0.63	0.63	< 3	3
4-Nitrophenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Acenaphthene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Acenaphthylene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Acetophenone	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Aniline	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Anthracene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benz(a)anthracene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benzidine	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benzo(a)pyrene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	**0.27**	0.26	< 0.28	0.28	< 1.3	1.3
Benzo(b)fluoranthene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	**0.29**	0.26	**0.3**	0.28	< 1.3	1.3
Benzo(ghi)perylene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benzo(k)fluoranthene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3

Table 1
Summary of Sediment Analytical Results
Pickpocket Dam
Exeter, New Hampshire

LABORATORY IDENTIFICATION	Units	CN87690		CN87691		CN87692		CN87693		CN87694		CN87695	
COLLECTION DATE		04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023	
CLIENT ID		SED-1		SED-2		SED-2 FD		SED-3		SED-4		SED-5	
		Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Benzoic acid	mg/kg	< 3.4	3.4	**5.3**	4.2	< 4.3	4.3	< 0.75	0.75	< 0.79	0.79	< 3.7	3.7
Benzyl butyl phthalate	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Bis(2-chloroethoxy)methane	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Bis(2-chloroethyl)ether	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Bis(2-ethylhexyl)phthalate	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Carbazole	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Chrysene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Di-n-butylphthalate	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Di-n-octylphthalate	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Dibenz(a,h)anthracene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Dibenzofuran	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Diethyl phthalate	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Dimethylphthalate	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Fluoranthene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	**0.44**	0.26	**0.35**	0.28	< 1.3	1.3
Fluorene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Hexachlorobenzene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Hexachlorobutadiene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Hexachlorocyclopentadiene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Hexachloroethane	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Isophorone	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
N-Nitrosodi-n-propylamine	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
N-Nitrosodimethylamine	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
N-Nitrosodiphenylamine	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Naphthalene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Nitrobenzene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Pentachloronitrobenzene	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Pentachlorophenol	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Phenanthrene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	**0.32**	0.26	< 0.28	0.28	< 1.3	1.3
Phenol	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Pyrene	mg/kg	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	**0.34**	0.26	**0.36**	0.28	< 1.3	1.3
Pyridine	mg/kg	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Volatiles - SW8260C													
1,1,1,2-Tetrachloroethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	< 0.073	0.073	-	-	-	-	-	-	-	-	-	-
2-Isopropyltoluene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	mg/kg	< 0.073	0.073	-	-	-	-	-	-	-	-	-	-
Acetone	mg/kg	< 0.29	0.29	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromomethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chloromethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Dibromomethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
m&p-Xylene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone	mg/kg	< 0.073	0.073	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	mg/kg	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
n-Butylbenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
n-Propylbenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
p-Isopropyltoluene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
tert-Butylbenzene	mg/kg	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Tetrahydrofuran (THF)	mg/kg	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Total Xylenes	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
trans-1,4-dichloro-2-butene	mg/kg	< 1.8	1.8	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Trichlorotrifluoroethane	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-

Notes:
mg/kg = milligram per kilogram
< = below laboratory reporting limit depicted to the right
Bolded values are detections above the laboratory reporting limit.

Table 2
Sediment Risk Assessment Summary Table
Pickpocket Dam
Exeter, New Hampshire

Client Id	Units	NHDES - FRESHWATER		SED-1			SED-2					SED-2 FD					SED-3					SED-4					SED-5				
Lab Sample Id				CN87690			CN87691					CN87692					CN87693					CN87694					CN87695				
Collection Date				04/18/2023			04/18/2023					04/18/2023					04/18/2023					04/18/2023					04/18/2023				
SCREENING CRTIERIA		TEC	PEC	RISK-FRESH	RESULTS		HQ-TEC	HQ-PEC	RISK-FRESH	RESULTS		HQ-TEC	HQ-PEC	RISK-FRESH	RESULTS		HQ-TEC	HQ-PEC	RISK-FRESH	RESULTS		HQ-TEC	HQ-PEC	RISK-FRESH	RESULTS		HQ-TEC	HQ-PEC	RISK-FRESH	RESULTS	
					RESULT	DL				RESULT	DL				RESULT	DL				RESULT	DL				RESULT	DL				RESULT	DL
Metals Total																															
Arsenic	mg/Kg	9.79	33	Low	9.64	0.67	0.809	0.240	Low	7.92	0.73	1.267	0.376	Mod	12.4	0.62	0.479	0.142	Low	4.69	0.24	1.093	0.324	Mod	10.7	0.22	1.420	0.421	Mod	13.9	0.65
Cadmium	mg/Kg	0.99	4.98	Low	0.49	0.33	0.444	0.088	Low	0.44	0.36	0.606	0.120	Low	0.6	0.31	0.162	0.032	Low	0.16	0.12	0.283	0.056	Low	0.28	0.11	0.475	0.094	Low	0.47	0.33
Chromium	mg/Kg	43.4	111	Low	23.8	0.33	0.537	0.210	Low	23.3	0.36	0.532	0.208	Low	23.1	0.31	0.498	0.195	Low	21.6	0.12	0.818	0.320	Low	35.5	0.11	0.555	0.217	Low	24.1	0.33
Copper	mg/kg	31.6	149	Low	8.5	0.7	0.275	0.058	Low	8.7	0.7	0.291	0.062	Low	9.2	0.6	0.168	0.036	Low	5.3	0.2	0.218	0.046	Low	6.9	0.2	0.282	0.060	Low	8.9	0.7
Lead	mg/Kg	35.8	128	Low	29	0.33	0.899	0.252	Low	32.2	0.36	0.930	0.260	Low	33.3	0.31	0.304	0.085	Low	10.9	0.12	0.263	0.074	Low	9.41	0.11	0.874	0.245	Low	31.3	0.33
Nickel	mg/Kg	22.7	48.6	Low	14.9	0.33	0.599	0.280	Low	13.6	0.36	0.630	0.294	Low	14.3	0.31	0.542	0.253	Low	12.3	0.12	0.586	0.274	Low	13.3	0.11	0.648	0.302	Low	14.7	0.33
Zinc	mg/Kg	121	459	Low	70	0.7	0.512	0.135	Low	62	0.7	0.598	0.158	Low	72.4	0.6	0.235	0.062	Low	28.4	0.2	0.363	0.096	Low	43.9	0.2	0.505	0.133	Low	61.1	0.7
Semivolatiles - SW8270D																															
Benzo(a)pyrene	mg/kg	0.15	1.45	-	< 1.2	1.2	-	-	-	< 1.5	1.5	-	-	-	< 1.5	1.5	1.800	0.186	Mod	0.27	0.26				< 0.28	0.28	-	-		< 1.3	1.3
Benzo(b)fluoranthene	mg/kg	0.0272	13.4	-	< 1.2	1.2	-	-	-	< 1.5	1.5	-	-	-	< 1.5	1.5	10.662	0.022	Mod	0.29	0.26	11.029	0.022	Mod	0.3	0.28	-	-		< 1.3	1.3
Fluoranthene	mg/kg	0.423	2.23	-	< 1.2	1.2	-	-	-	< 1.5	1.5	-	-	-	< 1.5	1.5	1.040	0.197	Mod	0.44	0.26	0.827	0.157	Low	0.35	0.28	-	-		< 1.3	1.3
Phenanthrene	mg/kg	0.204	1.17	-	< 1.2	1.2	-	-	-	< 1.5	1.5	-	-	-	< 1.5	1.5	1.569	0.274	Mod	0.32	0.26				< 0.28	0.28	-	-		< 1.3	1.3
Pyrene	mg/kg	0.195	1.52	-	< 1.2	1.2	-	-	-	< 1.5	1.5	-	-	-	< 1.5	1.5	1.744	0.224	Mod	0.34	0.26	1.846	0.237	Mod	0.36	0.28	-	-		< 1.3	1.3

Table Notes:

1.) All concentrations are expressed in micrograms per kilogram (mg/kg); only analytes detected in at least one sample are shown in the table.

2.) "<" indicates target analyte not detected at a concentration greater than the detection limit (DL) shown to the right of the sample

3.) "J" indicates an estimated concentration.

4.) New Hampshire Department of Environmental Services (NHDES) freshwater and marine screening thresholds were obtain from from a Draft NHDES Memorandum dated January 8, 2016.
"TEC" indicates threshold effect concentration; and
"PEC" indicates probable effect concentration.

Table 3
Sediment Human Health Assessment Table
Pickpocket Dam
Exeter, New Hampshire

LABORATORY IDENTIFICATION	Units	NHDES SRS	CN87690		CN87691		CN87692		CN87693		CN87694		CN87695	
COLLECTION DATE			04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023	
CLIENT ID			SED-1		SED-2		SED-2 FD		SED-3		SED-4		SED-5	
			Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Miscellaneous/Inorganics														
Chloride	mg/kg	NE	< 147	147	< 156	156	< 152	152	< 57	57	< 61	61	< 139	139
Nitrogen Tot Kjeldahl	mg/Kg	NE	2880	413	3470	438	3370	425	401	163	447	197	2110	441
Percent Solid	%	NS	34		32		33		88		82		36	
Metals Total														
Antimony	mg/Kg	9	< 3.3	3.3	< 3.6	3.6	< 3.1	3.1	< 1.2	1.2	< 1.1	1.1	< 3.3	3.3
Arsenic	mg/Kg	11	9.64	0.67	7.92	0.73	**12.4**	0.62	4.69	0.24	10.7	0.22	**13.9**	0.65
Beryllium	mg/Kg	12	0.6	0.27	0.56	0.29	0.59	0.25	0.18	0.1	0.31	0.09	0.7	0.26
Cadmium	mg/Kg	33	0.49	0.33	0.44	0.36	0.6	0.31	0.16	0.12	0.28	0.11	0.47	0.33
Chromium	mg/Kg	NE	23.8	0.33	23.3	0.36	23.1	0.31	21.6	0.12	35.5	0.11	24.1	0.33
Copper	mg/Kg	NE	8.5	0.7	8.7	0.7	9.2	0.6	5.3	0.2	6.9	0.2	8.9	0.7
Iron	mg/Kg	NE	15000	50	11700	55	12500	46	10700	18	20300	17	13600	49
Lead	mg/Kg	400	29	0.33	32.2	0.36	33.3	0.31	10.9	0.12	9.41	0.11	31.3	0.33
Manganese	mg/Kg	1,000	496	3.3	341	3.6	396	3.1	577	12	713	11	379	3.3
Mercury	mg/Kg	7	< 0.07	0.07	< 0.08	0.08	< 0.07	0.07	< 0.03	0.03	< 0.03	0.03	< 0.06	0.06
Nickel	mg/Kg	400	14.9	0.33	13.6	0.36	14.3	0.31	12.3	0.12	13.3	0.11	14.7	0.33
Selenium	mg/Kg	180	< 1.3	1.3	< 1.5	1.5	< 1.2	1.2	< 0.5	0.5	< 0.4	0.4	< 1.3	1.3
Silver	mg/Kg	89	< 0.33	0.33	< 0.36	0.36	< 0.31	0.31	< 0.12	0.12	< 0.11	0.11	< 0.33	0.33
Thallium	mg/Kg	10	< 3.0	3	< 3.3	3.3	< 2.8	2.8	< 1.1	1.1	< 1.0	1	< 2.9	2.9
Zinc	mg/Kg	1,000	70	0.7	62	0.7	72.4	0.6	28.4	0.2	43.9	0.2	61.1	0.7
Oxygenates & Dioxane - SW8260C (OXY)														
1,4-Dioxane	mg/kg	5	< 0.29	0.29	-	-	-	-	-	-	-	-	-	-
Di-isopropyl ether	mg/kg	10	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Diethyl ether	mg/kg	3,900	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
Ethyl tert-butyl ether	mg/kg	0.7	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
tert-amyl methyl ether	mg/kg	3	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Pesticides - SW8081B														
4,4' -DDD	mg/kg	6,000	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
4,4' -DDE	mg/kg	4,000	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
4,4' -DDT	mg/kg	4,000	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
a-BHC	mg/kg	60	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Alachlor	mg/kg	200	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Aldrin	mg/kg	90	< 0.014	0.014	< 0.01	0.01	< 0.015	0.015	< 0.0037	0.0037	< 0.0039	0.0039	< 0.014	0.014
b-BHC	mg/kg	60	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Chlordane	mg/kg	4,000	< 0.14	0.14	< 0.1	0.1	< 0.15	0.15	< 0.037	0.037	< 0.039	0.039	< 0.14	0.14
d-BHC	mg/kg	NE	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Dieldrin	mg/kg	60	< 0.014	0.014	< 0.01	0.01	< 0.015	0.015	< 0.0037	0.0037	< 0.0039	0.0039	< 0.014	0.014
Endosulfan I	mg/kg	NE	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endosulfan II	mg/kg	NE	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endosulfan sulfate	mg/kg	NE	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endrin	mg/kg	8,000	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endrin aldehyde	mg/kg	NE	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Endrin ketone	mg/kg	NE	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
g-BHC	mg/kg	90	< 0.0057	0.0057	< 0.0041	0.0041	< 0.0061	0.0061	< 0.0015	0.0015	< 0.0016	0.0016	< 0.0055	0.0055
Heptachlor	mg/kg	200	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Heptachlor epoxide	mg/kg	100	< 0.028	0.028	< 0.02	0.02	< 0.03	0.03	< 0.0074	0.0074	< 0.0079	0.0079	< 0.027	0.027
Hexachlorobenzene	mg/kg	NE	< 0.014	0.014	< 0.01	0.01	< 0.015	0.015	< 0.0037	0.0037	< 0.0039	0.0039	< 0.014	0.014
Methoxychlor	mg/kg	130,000	< 0.14	0.14	< 0.1	0.1	< 0.15	0.15	< 0.037	0.037	< 0.039	0.039	< 0.14	0.14
Toxaphene	mg/kg	1,000	< 0.57	0.57	< 0.41	0.41	< 0.61	0.61	< 0.15	0.15	< 0.16	0.16	< 0.55	0.55
Polychlorinated Biphenyls - SW8082A														
PCB-1016	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1221	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1232	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1242	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1248	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1254	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1260	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1262	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
PCB-1268	mg/kg	NE	< 0.71	0.71	< 0.51	0.51	< 0.76	0.76	< 0.37	0.37	< 0.39	0.39	< 0.69	0.69
Semivolatiles - SW8270D														
1,1-Biphenyl	mg/kg	125	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
1,2,4,5-Tetrachlorobenzene	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
1,2,4-Trichlorobenzene	mg/kg	19,000	**< 1.2**	**1.2**	**< 1.5**	**1.5**	**< 1.5**	**1.5**	**< 0.26**	**0.26**	**< 0.28**	**0.28**	**< 1.3**	**1.3**
1,2-Dichlorobenzene	mg/kg	88,000	**< 1.2**	**1.2**	**< 1.5**	**1.5**	**< 1.5**	**1.5**	**< 0.26**	**0.26**	**< 0.28**	**0.28**	**< 1.3**	**1.3**
1,2-Diphenylhydrazine	mg/kg	1,000	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
1,3-Dichlorobenzene	mg/kg	150,000	**< 1.2**	**1.2**	**< 1.5**	**1.5**	**< 1.5**	**1.5**	**< 0.26**	**0.26**	**< 0.28**	**0.28**	**< 1.3**	**1.3**
1,4-Dichlorobenzene	mg/kg	7,000	**< 1.2**	**1.2**	**< 1.5**	**1.5**	**< 1.5**	**1.5**	**< 0.26**	**0.26**	**< 0.28**	**0.28**	**< 1.3**	**1.3**
2,2'-Oxybis(1-Chloropropane)	mg/kg	5,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4,5-Trichlorophenol	mg/kg	24,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4,6-Trichlorophenol	mg/kg	700	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4-Dichlorophenol	mg/kg	700	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4-Dimethylphenol	mg/kg	4,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,4-Dinitrophenol	mg/kg	700	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
2,4-Dinitrotoluene	mg/kg	700	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2,6-Dinitrotoluene	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Chloronaphthalene	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Chlorophenol	mg/kg	2,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Methylnaphthalene	mg/kg	96,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Methylphenol (o-cresol)	mg/kg	900	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
2-Nitroaniline	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
2-Nitrophenol	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
3&4-Methylphenol (m&p-cresol)	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
3,3'-Dichlorobenzidine	mg/kg	700	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
3-Nitroaniline	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
4,6-Dinitro-2-methylphenol	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
4-Bromophenyl phenyl ether	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
4-Chloro-3-methylphenol	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
4-Chloroaniline	mg/kg	1,300	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
4-Chlorophenyl phenyl ether	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
4-Nitroaniline	mg/kg	NE	< 2.7	2.7	< 3.3	3.3	< 3.4	3.4	< 0.6	0.6	< 0.63	0.63	< 3	3
4-Nitrophenol	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Acenaphthene	mg/kg	340,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Acenaphthylene	mg/kg	490,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Acetophenone	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Aniline	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Anthracene	mg/kg	1,000,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benz(a)anthracene	mg/kg	1,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benzidine	mg/kg	10	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benzo(a)pyrene	mg/kg	700	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	0.27	0.26	< 0.28	0.28	< 1.3	1.3
Benzo(b)fluoranthene	mg/kg	1,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	0.29	0.26	0.3	0.28	< 1.3	1.3
Benzo(ghi)perylene	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benzo(k)fluoranthene	mg/kg	12,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Benzoic acid	mg/kg	350,000	< 3.4	3.4	5.3	4.2	< 4.3	4.3	< 0.75	0.75	< 0.79	0.79	< 3.7	3.7
Benzyl butyl phthalate	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Bis(2-chloroethoxy)methane	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Bis(2-chloroethyl)ether	mg/kg	700	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Bis(2-ethylhexyl)phthalate	mg/kg	72,000	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9

Table 3
Sediment Human Health Assessment Table
Pickpocket Dam
Exeter, New Hampshire

LABORATORY IDENTIFICATION	Units	NHDES SRS	CN87690		CN87691		CN87692		CN87693		CN87694		CN87695	
COLLECTION DATE			04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023		04/18/2023	
CLIENT ID			SED-1		SED-2		SED-2 FD		SED-3		SED-4		SED-5	
			Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Carbazole	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Chrysene	mg/kg	120,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Di-n-butylphthalate	mg/kg	2,600,000	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Di-n-octylphthalate	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Dibenz(a,h)anthracene	mg/kg	700	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Dibenzofuran	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Diethyl phthalate	mg/kg	1,000,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Dimethylphthalate	mg/kg	700,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Fluoranthene	mg/kg	960,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	0.44	0.26	0.35	0.28	< 1.3	1.3
Fluorene	mg/kg	77,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Hexachlorobenzene	mg/kg	800	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Hexachlorobutadiene	mg/kg	17,000	**< 1.2**	**1.2**	**< 1.5**	**1.5**	**< 1.5**	**1.5**	**< 0.26**	**0.26**	**< 0.28**	**0.28**	**< 1.3**	**1.3**
Hexachlorocyclopentadiene	mg/kg	200,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Hexachloroethane	mg/kg	700	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	1,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Isophorone	mg/kg	1,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
N-Nitrosodi-n-propylamine	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
N-Nitrosodimethylamine	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
N-Nitrosodiphenylamine	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Naphthalene	mg/kg	5,000	**< 1.2**	**1.2**	**< 1.5**	**1.5**	**< 1.5**	**1.5**	**< 0.26**	**0.26**	**< 0.28**	**0.28**	**< 1.3**	**1.3**
Nitrobenzene	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Pentachloronitrobenzene	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Pentachlorophenol	mg/kg	3,000	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Phenanthrene	mg/kg	NE	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	0.32	0.26	< 0.28	0.28	< 1.3	1.3
Phenol	mg/kg	56,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	< 0.26	0.26	< 0.28	0.28	< 1.3	1.3
Pyrene	mg/kg	720,000	< 1.2	1.2	< 1.5	1.5	< 1.5	1.5	0.34	0.26	0.36	0.28	< 1.3	1.3
Pyridine	mg/kg	NE	< 1.7	1.7	< 2.1	2.1	< 2.1	2.1	< 0.38	0.38	< 0.4	0.4	< 1.9	1.9
Volatiles - SW8260C														
1,1,1,2-Tetrachloroethane	mg/kg	800	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	78,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	4,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	100	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	3,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	14,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	NE	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	100	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	19,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	mg/kg	130,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	100	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane	mg/kg	100	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	88,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	100	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	100	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	mg/kg	96,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	150,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	7,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	mg/kg	15,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	NE	< 0.073	0.073	-	-	-	-	-	-	-	-	-	-
2-Isopropyltoluene	mg/kg	NE	< 0.91	0.91	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	680,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	mg/kg	29,000	< 0.073	0.073	-	-	-	-	-	-	-	-	-	-
Acetone	mg/kg	75,000	< 0.29	0.29	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	500	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	300	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	NE	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	100	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	100	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Bromomethane	mg/kg	300	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	mg/kg	460,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	12,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	6,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	3,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Chloromethane	mg/kg	3,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	2,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	1,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Dibromomethane	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	mg/kg	1,000,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	120,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	17,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	mg/kg	330,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
m&p-Xylene	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone	mg/kg	51,000	< 0.073	0.073	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	mg/kg	200	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	100	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
n-Butylbenzene	mg/kg	110,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
n-Propylbenzene	mg/kg	85,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	5,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
p-Isopropyltoluene	mg/kg	NE	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	mg/kg	130,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	17,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
tert-Butylbenzene	mg/kg	100,000	**< 0.91**	**0.91**	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	2,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Tetrahydrofuran (THF)	mg/kg	NE	< 0.029	0.029	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	100,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Total Xylenes	mg/kg	500,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/kg	9,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
trans-1,4-dichloro-2-butene	mg/kg	NE	< 1.8	1.8	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	800	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	mg/kg	1,000,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Trichlorotrifluoroethane	mg/kg	NE	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	1,000	< 0.015	0.015	-	-	-	-	-	-	-	-	-	-

Notes
mg/Kg = milligram per kilogram
NE = No Standard Established
< = Not detected above the laboratory detection limit depicted to the right of the symbol.
Bolded is a detection limit above the NHDES SRS
Bolded, shaded, and underlined is a result detected above the NHDES SRS
NHDES SRS = New Hampshire Department of Environmental Services Soil Remediation Standards per 600 Env-Or-600
- Denotes analysis was not run for this sample

Figure 1: Site Location and Local Area Map

Pickpocket Dam | Brentwood and Exeter, New Hampshire

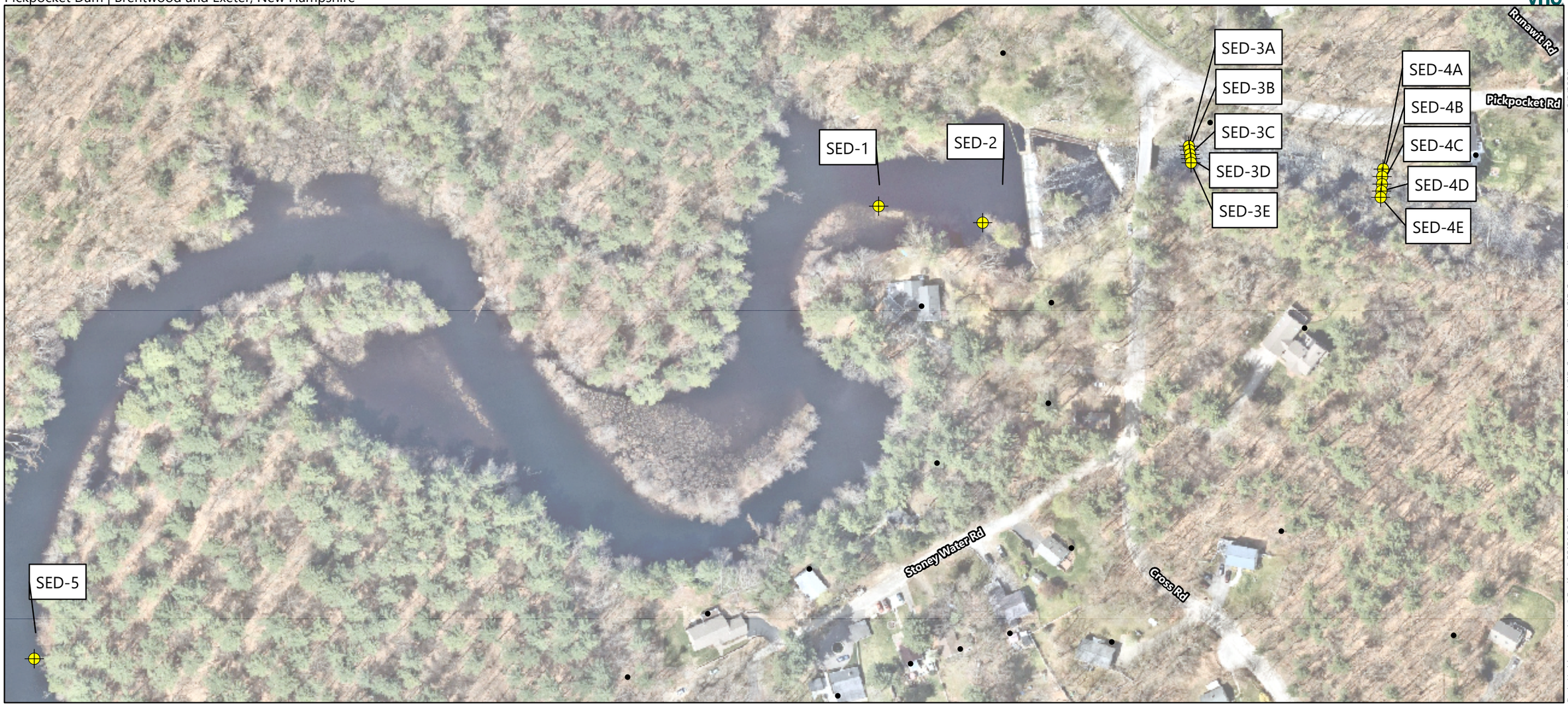
0 2,500 5,000 7,500 US Feet

Source: USGS Topo Map

Path: \\vhb.com\gis\proj\Bedford\52151.06 Pickpocket Dam Feasibili\Project\SIR_SamplingPlan\SIR_SamplingPlan.aprx (User: pcochrane; Date: 3/14/2023)

Figure 2: Sediment Sampling Plan

Pickpocket Dam | Brentwood and Exeter, New Hampshire



Source: NearMap Imagery, NHDOT Roads

Path: \\vhb.com\gis\proj\Bedford\52151.06 Pickpocket Dam Feasibili\Project\SIR_SamplingPlan\SIR_SamplingPlan.aprx (User: pcochrane, Date: 6/9/2023)

Field Notes

Date: April 18, 2023 **Notes Taken By:** Paige Cochrane

Place: Exeter, NH

Project No.: 52151.06 **Re:** SED-1

Field Sampling Data Sheet

General Information:

Date and Time: 4/18/2023	VHB Project #: 52151.06
Location (Town/City): Exeter, NH	Project Name: Pickpocket Dam
Field Sampler: Paige Cochrane	Project Manager: Jacob San Antonio
Photo #(s) and Direction: Yes	

Weather Conditions:

Current Weather and Temperature: 55 F, Clear
Weather within previous 72 hrs: Rainy and overcast

Sample Information:

Sample ID #: SED-1
Sample Location (GPS Coordinates or field ties): Upstream of Pickpocket Dam
Water Depth: 2.5 feet
Probing Depth: Until refusal

Field Notes

Sediment Type: Mucky soil
Sediment Description: Fine to very fine sand and silt, no rocks, trace organic material, “mucky”
Sample Type (composite, grab, etc.): Grab
Approx. Length of Sediment Core: Auger
Depth of penetration of the core into the sediment / amount of sediment recovery: N/A

Additional Comments / Observations:

Sample time: 10:05

- Sediment sample collected with hand auger off side of boat. Sediment sample was homogenized in a steel bowl. Prior to be deposited in the steel bowl, the bowl was cleaned with Alconox.

Field Notes

Date: April 18, 2023 **Notes Taken By:** Paige Cochrane

Place: Exeter, NH

Project No.: 52151.06 **Re:** SED-2

Field Sampling Data Sheet

General Information:

Date and Time: 4/18/2023	VHB Project #: 52151.06
Location (Town/City): Exeter, NH	Project Name: Pickpocket Dam
Field Sampler: Paige Cochrane	Project Manager: Jacob San Antonio
Photo #(s) and Direction: Yes	

Weather Conditions:

Current Weather and Temperature: 55 F, Sunny
Weather within previous 72 hrs: Rainy and overcast

Sample Information:

Sample ID #: SED-2
Sample Location (GPS Coordinates or field ties): Upstream of Pickpocket Dam
Water Depth: 6.6 feet
Probing Depth: Until refusal

Field Notes

Sediment Type: Mucky soil
Sediment Description: Fine to very fine brown sand with some silt, some organics, mucky
Sample Type (composite, grab, etc.): Grab
Approx. Length of Sediment Core: Auger
Depth of penetration of the core into the sediment / amount of sediment recovery: N/A

Additional Comments / Observations:

Sampling began at 9:45 am, finished at 9:50 am

Sediment sample collected with hand auger off boat near impounded sand. VHB collected enough sample volume for MS/D sample to be submitted. Sediment sample was homogenized in a steel bowl. Prior to be deposited in the steel bowl, the bowl was cleaned with Alconox.

Field Notes

Date: April 18, 2023 **Notes Taken By:** Eric Sirkovich

Place: Exeter, NH

Project No.: 52151.06 **Re:** SED-3

Field Sampling Data Sheet

General Information:

Date and Time: 4/18/2023; 11:40	VHB Project #: 52151.06
Location (Town/City): Exeter, NH	Project Name: Pickpocket Dam
Field Sampler: Paige Cochrane	Project Manager: Jacob San Antonio
Photo #(s) and Direction: Yes	

Weather Conditions:

Current Weather and Temperature: 55 F, Clear
Weather within previous 72 hrs: Rainy and overcast

Sample Information:

Sample ID #: SED-3 A-E
Sample Location (GPS Coordinates or field ties): Downstream of Pickpocket Dam
Water Depth: Less than 3 feet and variable
Probing Depth: 1 foot

Field Notes

Sediment Type: River very rocky with minimal surficial sediment
Sediment Description: See below
Sample Type (composite, grab, etc.): Composite
Approx. Length of Sediment Core: Auger
Depth of penetration of the core into the sediment / amount of sediment recovery: N/A

Additional Comments / Observations:

Sample time: 11:40

3A: Coarse to medium sand and rounded small rocks, trace silt, no organics, low density

3B: Medium sand, little to some silt, some small rounded rocks, some organics, low density

3C: Fine to very fine sand and silt, some rounded rocks, some organics, low density; sample preserved for VOCs 3D: Medium sand and rounded gravel, little silt, trace organics, low density

3E: Medium to coarse sand and rounded gravel, low density

No odor in any sample. Trace glass throughout samples.

Discrete sediment samples were homogenized in a steel bowl. Prior to be deposited in the steel bowl, the bowl was cleaned with Alconox.

Field Notes

Date: April 18, 2023 **Notes Taken By:** Paige Cochrane

Place: Exeter, NH

Project No.: 52151.06 **Re:** SED-4

Field Sampling Data Sheet

General Information:

Date and Time: 4/18/2023	VHB Project #: 52151.06
Location (Town/City): Exeter, NH	Project Name: Pickpocket Dam
Field Sampler: Paige Cochrane	Project Manager: Jacob San Antonio
Photo #(s) and Direction: Yes	

Weather Conditions:

Current Weather and Temperature: 55 F, Clear
Weather within previous 72 hrs: Rainy

Sample Information:

Sample ID #: SED-4
Sample Location (GPS Coordinates or field ties): Downstream of Pickpocket Dam
Water Depth: Less than 3 feet and variable
Probing Depth: 1 foot

Field Notes

Sediment Type: Rocky with minimal sediment at the surface. Water flowing
Sediment Description: See below
Sample Type (composite, grab, etc.): Composite (A-E)
Approx. Length of Sediment Core: Auger to 1 foot per SAP
Depth of penetration of the core into the sediment / amount of sediment recovery: 1 foot

Additional Comments / Observations:

Sample Time: 12:30

4A: Coarse to medium sand and rounded gravel, some rounded rocks, low density; sample preserved for VOCs

4B: Coarse to medium sand, some rounded gravel, trace silt, no organics, low density

4C: Same as 4B

4D: Same as 4B

4E: Coarse to medium sand and gravel, no organics

Discrete sediment samples were homogenized in a steel bowl. Prior to be deposited in the steel bowl, the bowl was cleaned with Alconox.

Field Notes

Date: April 18, 2023 **Notes Taken By:** Paige Cochrane

Place: Exeter, NH

Project No.: 52151.06 **Re:** SED-5

Field Sampling Data Sheet

General Information:

Date and Time: 4/18/2023; 9:00	VHB Project #: 52151.06
Location (Town/City): Exeter, NH	Project Name: Pickpocket Dam
Field Sampler: Paige Cochrane	Project Manager: Jacob San Antonio
Photo #(s) and Direction: Yes	

Weather Conditions:

Current Weather and Temperature: 55 F, Clear
Weather within previous 72 hrs: Rainy and overcast

Sample Information:

Sample ID #: SED-5
Sample Location (GPS Coordinates or field ties): Upstream of Pickpocket Dam
Water Depth: 7.5 feet
Probing Depth: Until refusal

Field Notes

Sediment Type: Mucky soil
Sediment Description: Fine to very fine and silt, some to trace organics, mucky
Sample Type (composite, grab, etc.): Grab
Approx. Length of Sediment Core: N/A to Ponar sampler
Depth of penetration of the core into the sediment / amount of sediment recovery: N/A

Additional Comments / Observations:

- Sample Time: 9:00
-
- VHB attempted to collect sample with Ponar Sampler but was unable to collect.
- VHB collected sample with auger and contained within a steel bowl that was transferred to plastic bag. Auger and bowl rinsed after sampling.
- Discrete sediment samples were homogenized in a steel bowl. Prior to be deposited in the steel bowl, the bowl was cleaned with Alconox.

PHOENIX
Environmental Laboratories, Inc.

Thursday, May 18, 2023

Attn: Paige Cochrane
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151

Project ID: PICKPOCKET DAM
SDG ID: GCN87690
Sample ID#s: CN87690 - CN87695

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

Enclosed are revised Analysis Report pages. Please replace and discard the original pages. If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Sample Id Cross Reference

May 18, 2023

SDG I.D.: GCN87690

Project ID: PICKPOCKET DAM

Client Id	Lab Id	Matrix
SED-1	CN87690	SEDIMENT
SED-2	CN87691	SEDIMENT
SED-2 FD	CN87692	SEDIMENT
SED-3	CN87693	SEDIMENT
SED-4	CN87694	SEDIMENT
SED-5	CN87695	SEDIMENT

PHOENIX
Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 18, 2023

FOR: Attn: Paige Cochrane
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151

Sample Information		Custody Information		Date	Time
Matrix:	SEDIMENT	Collected by:		04/18/23	10:05
Location Code:	VHB-MA	Received by:	CP	04/20/23	15:15
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCN87690
Phoenix ID: CN87690

Project ID: PICKPOCKET DAM
Client ID: SED-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.33	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Arsenic	9.64	0.67	mg/Kg	1	04/22/23	CPP	SW6010D	
Beryllium	0.60	0.27	mg/Kg	1	04/22/23	CPP	SW6010D	
Cadmium	0.49	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Chromium	23.8	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Copper	8.5	0.7	mg/kg	1	04/22/23	CPP	SW6010D	
Iron	15000	50	mg/Kg	10	04/22/23	CPP	SW6010D	
Mercury	< 0.07	0.07	mg/Kg	2	04/24/23	PM	SW7471B	
Manganese	496	3.3	mg/Kg	10	04/22/23	CPP	SW6010D	
Nickel	14.9	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Lead	29.0	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Antimony	< 3.3	3.3	mg/Kg	1	04/22/23	CPP	SW6010D	
Selenium	< 1.3	1.3	mg/Kg	1	04/22/23	CPP	SW6010D	
Thallium	< 3.0	3.0	mg/Kg	1	04/22/23	CPP	SW6010D	
Zinc	70.0	0.7	mg/Kg	1	04/22/23	CPP	SW6010D	
Percent Solid	34		%		04/20/23	CV	SW846-%Solid	
Chloride	< 147	147	mg/kg	10	04/30/23	BS/EG	SW9056A	
Nitrogen Tot Kjeldahl	2880	413	mg/Kg	1	04/28/23	KDB	E351.1	1
Field Extraction	Completed				04/18/23		SW5035A	1
Mercury Digestion	Completed				04/21/23	AL/AL	SW7471B	
Soil Extraction for PCB	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for Pesticide	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for SVOA	Completed				04/20/23	S/MO/M	SW3546	
Total Metals Digest	Completed				04/20/23	B/P	SW3050B	
Sieve Test	Completed	0	%		04/28/23	*	ASTM C136, C117	

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Polychlorinated Biphenyls								
PCB-1016	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1221	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1232	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1242	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1248	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1254	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1260	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1262	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1268	ND	0.71	mg/Kg	5	04/27/23	SC	SW8082A	
QA/QC Surrogates								
% DCBP	66		%	5	04/27/23	SC	30 - 150 %	
% DCBP (Confirmation)	69		%	5	04/27/23	SC	30 - 150 %	
% TCMX	73		%	5	04/27/23	SC	30 - 150 %	
% TCMX (Confirmation)	77		%	5	04/27/23	SC	30 - 150 %	
Pesticides								
4,4' -DDD	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
4,4' -DDE	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
4,4' -DDT	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
a-BHC	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Alachlor	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	1
Aldrin	ND	0.014	mg/Kg	2	04/28/23	AW	SW8081B	
b-BHC	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Chlordane	ND	0.14	mg/Kg	2	04/28/23	AW	SW8081B	
d-BHC	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Dieldrin	ND	0.014	mg/Kg	2	04/28/23	AW	SW8081B	
Endosulfan I	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Endosulfan II	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Endosulfan sulfate	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Endrin	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Endrin aldehyde	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Endrin ketone	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
g-BHC	ND	0.0057	mg/Kg	2	04/28/23	AW	SW8081B	
Heptachlor	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Heptachlor epoxide	ND	0.028	mg/Kg	2	04/28/23	AW	SW8081B	
Hexachlorobenzene	ND	0.014	mg/Kg	2	04/28/23	AW	SW8081B	1
Methoxychlor	ND	0.14	mg/Kg	2	04/28/23	AW	SW8081B	
Toxaphene	ND	0.57	mg/Kg	2	04/28/23	AW	SW8081B	
QA/QC Surrogates								
% DCBP	67		%	2	04/28/23	AW	30 - 150 %	
% DCBP (Confirmation)	93		%	2	04/28/23	AW	30 - 150 %	
% TCMX	67		%	2	04/28/23	AW	30 - 150 %	
% TCMX (Confirmation)	105		%	2	04/28/23	AW	30 - 150 %	
Volatiles								
1,1,1,2-Tetrachloroethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,1,1-Trichloroethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,1,2,2-Tetrachloroethane	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	

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1,1,2-Trichloroethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,1-Dichloroethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,1-Dichloroethene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,1-Dichloropropene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,2,3-Trichlorobenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,2,3-Trichloropropane	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,2,4-Trichlorobenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,2,4-Trimethylbenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,2-Dibromo-3-chloropropane	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,2-Dibromoethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,2-Dichlorobenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,2-Dichloroethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,2-Dichloropropane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,3,5-Trimethylbenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,3-Dichlorobenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
1,3-Dichloropropane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
1,4-Dichlorobenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
2,2-Dichloropropane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
2-Chlorotoluene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
2-Hexanone	ND	L 0.073	mg/Kg	1	05/17/23	JLI	SW8260C	
2-Isopropyltoluene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	1
4-Chlorotoluene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
4-Methyl-2-pentanone	ND	L 0.073	mg/Kg	1	05/17/23	JLI	SW8260C	
Acetone	ND	L 0.29	mg/Kg	1	05/17/23	JLI	SW8260C	
Acrylonitrile	ND	L 0.029	mg/Kg	1	05/17/23	JLI	SW8260C	
Benzene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Bromobenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
Bromochloromethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Bromodichloromethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Bromoform	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Bromomethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Carbon Disulfide	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Carbon tetrachloride	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Chlorobenzene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Chloroethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Chloroform	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Chloromethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
cis-1,2-Dichloroethene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
cis-1,3-Dichloropropene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Dibromochloromethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Dibromomethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Dichlorodifluoromethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Ethylbenzene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Hexachlorobutadiene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
Isopropylbenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
m&p-Xylene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Methyl Ethyl Ketone	ND	L 0.073	mg/Kg	1	05/17/23	JLI	SW8260C	
Methyl t-butyl ether (MTBE)	ND	L 0.029	mg/Kg	1	05/17/23	JLI	SW8260C	
Methylene chloride	ND	L 0.029	mg/Kg	1	05/17/23	JLI	SW8260C	

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Naphthalene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
n-Butylbenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
n-Propylbenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
o-Xylene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
p-Isopropyltoluene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
sec-Butylbenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
Styrene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
tert-Butylbenzene	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C	
Tetrachloroethene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Tetrahydrofuran (THF)	ND	L 0.029	mg/Kg	1	05/17/23	JLI	SW8260C	
Toluene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Total Xylenes	ND	0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
trans-1,2-Dichloroethene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
trans-1,3-Dichloropropene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
trans-1,4-dichloro-2-butene	ND	1.8	mg/Kg	50	05/17/23	JLI	SW8260C	
Trichloroethene	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Trichlorofluoromethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Trichlorotrifluoroethane	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
Vinyl chloride	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C	
QA/QC Surrogates								
% 1,2-dichlorobenzene-d4	92		%	1	05/17/23	JLI	70 - 130 %	
% Bromofluorobenzene	80		%	1	05/17/23	JLI	70 - 130 %	
% Dibromofluoromethane	93		%	1	05/17/23	JLI	70 - 130 %	
% Toluene-d8	96		%	1	05/17/23	JLI	70 - 130 %	
% 1,2-dichlorobenzene-d4 (50x)	99		%	50	05/17/23	JLI	70 - 130 %	
% Bromofluorobenzene (50x)	95		%	50	05/17/23	JLI	70 - 130 %	
% Dibromofluoromethane (50x)	90		%	50	05/17/23	JLI	70 - 130 %	
% Toluene-d8 (50x)	100		%	50	05/17/23	JLI	70 - 130 %	
Oxygenates & Dioxane								
1,4-Dioxane	ND	L 0.29	mg/Kg	1	05/17/23	JLI	SW8260C (OXY)	
Diethyl ether	ND	0.91	mg/Kg	50	05/17/23	JLI	SW8260C (OXY)	
Di-isopropyl ether	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C (OXY)	1
Ethyl tert-butyl ether	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C (OXY)	1
tert-amyl methyl ether	ND	L 0.015	mg/Kg	1	05/17/23	JLI	SW8260C (OXY)	1
Semivolatiles								
1,1-Biphenyl	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
1,2,4,5-Tetrachlorobenzene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
1,2,4-Trichlorobenzene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
1,2-Dichlorobenzene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
1,2-Diphenylhydrazine	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D	
1,3-Dichlorobenzene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
1,4-Dichlorobenzene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
2,2'-Oxybis(1-Chloropropane)	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	1
2,4,5-Trichlorophenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
2,4,6-Trichlorophenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dichlorophenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dimethylphenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dinitrophenol	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D	

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2,4-Dinitrotoluene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
2,6-Dinitrotoluene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
2-Chloronaphthalene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
2-Chlorophenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
2-Methylnaphthalene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
2-Methylphenol (o-cresol)	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
2-Nitroaniline	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
2-Nitrophenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
3,3'-Dichlorobenzidine	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
3-Nitroaniline	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
4,6-Dinitro-2-methylphenol	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
4-Bromophenyl phenyl ether	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
4-Chloro-3-methylphenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
4-Chloroaniline	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
4-Chlorophenyl phenyl ether	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
4-Nitroaniline	ND	2.7	mg/Kg	1	04/21/23	AW	SW8270D
4-Nitrophenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Acenaphthene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Acenaphthylene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Acetophenone	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Aniline	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Anthracene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Benz(a)anthracene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Benzidine	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Benzo(a)pyrene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Benzo(b)fluoranthene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Benzo(ghi)perylene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Benzo(k)fluoranthene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Benzoic acid	ND	3.4	mg/Kg	1	04/21/23	AW	SW8270D
Benzyl butyl phthalate	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Bis(2-chloroethoxy)methane	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Bis(2-chloroethyl)ether	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Bis(2-ethylhexyl)phthalate	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Carbazole	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Chrysene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Dibenz(a,h)anthracene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Dibenzofuran	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Diethyl phthalate	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Dimethylphthalate	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Di-n-butylphthalate	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Di-n-octylphthalate	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Fluoranthene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Fluorene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorobenzene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorobutadiene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorocyclopentadiene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Hexachloroethane	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Indeno(1,2,3-cd)pyrene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D

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Isophorone	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Naphthalene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Nitrobenzene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodimethylamine	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodi-n-propylamine	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodiphenylamine	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Pentachloronitrobenzene	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Pentachlorophenol	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
Phenanthrene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Phenol	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Pyrene	ND	1.2	mg/Kg	1	04/21/23	AW	SW8270D
Pyridine	ND	1.7	mg/Kg	1	04/21/23	AW	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	68		%	1	04/21/23	AW	30 - 130 %
% 2-Fluorobiphenyl	55		%	1	04/21/23	AW	30 - 130 %
% 2-Fluorophenol	46		%	1	04/21/23	AW	30 - 130 %
% Nitrobenzene-d5	65		%	1	04/21/23	AW	30 - 130 %
% Phenol-d5	62		%	1	04/21/23	AW	30 - 130 %
% Terphenyl-d14	35		%	1	04/21/23	AW	30 - 130 %

1 = This parameter is not certified by the primary accrediting authority (NY NELAC) for this matrix. NY NELAC does not offer certification for all parameters at this time.

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

* See Attached. Sieve Analysis performed by Tri State Materials Testing Lab, LLC. Accredited by the National Voluntary Laboratory Accreditation Program; NVLAP Lab Code 200010-0.

Volatile Comment:
L flag signifies that this sample was not collected in accordance with EPA method 5035. NELAC requires the laboratory to qualify the volatile soil data as biased low.

Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
May 18, 2023
Reviewed and Released by: Greg Lawrence, Assistant Lab Director

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 18, 2023

FOR: Attn: Paige Cochrane
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151

Sample Information		Custody Information		Date	Time
Matrix:	SEDIMENT	Collected by:		04/18/23	9:50
Location Code:	VHB-MA	Received by:	CP	04/20/23	15:15
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCN87690
Phoenix ID: CN87691

Project ID: PICKPOCKET DAM
Client ID: SED-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.36	0.36	mg/Kg	1	04/22/23	CPP	SW6010D	
Arsenic	7.92	0.73	mg/Kg	1	04/22/23	CPP	SW6010D	
Beryllium	0.56	0.29	mg/Kg	1	04/22/23	CPP	SW6010D	
Cadmium	0.44	0.36	mg/Kg	1	04/22/23	CPP	SW6010D	
Chromium	23.3	0.36	mg/Kg	1	04/22/23	CPP	SW6010D	
Copper	8.7	0.7	mg/kg	1	04/22/23	CPP	SW6010D	
Iron	11700	55	mg/Kg	10	04/22/23	CPP	SW6010D	
Mercury	< 0.08	0.08	mg/Kg	2	04/24/23	PM	SW7471B	
Manganese	341	3.6	mg/Kg	10	04/22/23	CPP	SW6010D	
Nickel	13.6	0.36	mg/Kg	1	04/22/23	CPP	SW6010D	
Lead	32.2	0.36	mg/Kg	1	04/22/23	CPP	SW6010D	
Antimony	< 3.6	3.6	mg/Kg	1	04/22/23	CPP	SW6010D	
Selenium	< 1.5	1.5	mg/Kg	1	04/22/23	CPP	SW6010D	
Thallium	< 3.3	3.3	mg/Kg	1	04/22/23	CPP	SW6010D	
Zinc	62.0	0.7	mg/Kg	1	04/22/23	CPP	SW6010D	
Percent Solid	32		%		04/20/23	CV	SW846-%Solid	
Chloride	< 156	156	mg/kg	10	04/30/23	BS/EG	SW9056A	
Nitrogen Tot Kjeldahl	3470	438	mg/Kg	1	04/28/23	KDB	E351.1	1
Client MS/MSD	Completed				04/25/23			
Soil Extraction for PCB	Completed				04/25/23	C/MO	SW3545A	
Soil Extraction for Pesticide	Completed				04/25/23	C/MO	SW3545A	
Mercury Digestion	Completed				04/21/23	AL/AL	SW7471B	
Soil Extraction for SVOA	Completed				04/20/23	S/MO/M	SW3546	
Total Metals Digest	Completed				04/20/23	B/P	SW3050B	
Sieve Test	Completed	0	%		04/28/23	*	ASTM C136, C117	

Project ID: PICKPOCKET DAM
Client ID: SED-2

Phoenix I.D.: CN87691

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Polychlorinated Biphenyls								
PCB-1016	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1221	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1232	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1242	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1248	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1254	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1260	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1262	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1268	ND	0.51	mg/Kg	5	04/27/23	SC	SW8082A	
QA/QC Surrogates								
% DCBP	59		%	5	04/27/23	SC	30 - 150 %	
% DCBP (Confirmation)	58		%	5	04/27/23	SC	30 - 150 %	
% TCMX	54		%	5	04/27/23	SC	30 - 150 %	
% TCMX (Confirmation)	60		%	5	04/27/23	SC	30 - 150 %	
Pesticides								
4,4' -DDD	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
4,4' -DDE	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
4,4' -DDT	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
a-BHC	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Alachlor	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	1
Aldrin	ND	0.01	mg/Kg	2	04/27/23	KCA	SW8081B	
b-BHC	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Chlordane	ND	0.1	mg/Kg	2	04/27/23	KCA	SW8081B	
d-BHC	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Dieldrin	ND	0.01	mg/Kg	2	04/27/23	KCA	SW8081B	
Endosulfan I	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Endosulfan II	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Endosulfan sulfate	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Endrin	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Endrin aldehyde	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Endrin ketone	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
g-BHC	ND	0.0041	mg/Kg	2	04/27/23	KCA	SW8081B	
Heptachlor	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Heptachlor epoxide	ND	0.02	mg/Kg	2	04/27/23	KCA	SW8081B	
Hexachlorobenzene	ND	0.01	mg/Kg	2	04/27/23	KCA	SW8081B	1
Methoxychlor	ND	0.1	mg/Kg	2	04/27/23	KCA	SW8081B	
Toxaphene	ND	0.41	mg/Kg	2	04/27/23	KCA	SW8081B	
QA/QC Surrogates								
% DCBP	58		%	2	04/27/23	KCA	30 - 150 %	
% DCBP (Confirmation)	70		%	2	04/27/23	KCA	30 - 150 %	
% TCMX	56		%	2	04/27/23	KCA	30 - 150 %	
% TCMX (Confirmation)	69		%	2	04/27/23	KCA	30 - 150 %	
Semivolatiles								
1,1-Biphenyl	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,2,4,5-Tetrachlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,2,4-Trichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-2

Phoenix I.D.: CN87691

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
1,2-Dichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,2-Diphenylhydrazine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
1,3-Dichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,4-Dichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,2'-Oxybis(1-Chloropropane)	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	1
2,4,5-Trichlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4,6-Trichlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dichlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dimethylphenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dinitrophenol	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dinitrotoluene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,6-Dinitrotoluene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Chloronaphthalene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Chlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Methylnaphthalene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Methylphenol (o-cresol)	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Nitroaniline	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
2-Nitrophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
3&4-Methylphenol (m&p-cresol)	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
3,3'-Dichlorobenzidine	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
3-Nitroaniline	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
4,6-Dinitro-2-methylphenol	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
4-Bromophenyl phenyl ether	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
4-Chloro-3-methylphenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
4-Chloroaniline	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
4-Chlorophenyl phenyl ether	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
4-Nitroaniline	ND	3.3	mg/Kg	1	04/21/23	AW	SW8270D	
4-Nitrophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Acenaphthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Acenaphthylene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Acetophenone	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Aniline	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Anthracene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benz(a)anthracene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzidine	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(a)pyrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(b)fluoranthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(ghi)perylene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(k)fluoranthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzoic acid	5.3	4.2	mg/Kg	1	04/21/23	AW	SW8270D	
Benzyl butyl phthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Bis(2-chloroethoxy)methane	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Bis(2-chloroethyl)ether	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Bis(2-ethylhexyl)phthalate	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Carbazole	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Chrysene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Dibenz(a,h)anthracene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Dibenzofuran	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Diethyl phthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-2

Phoenix I.D.: CN87691

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dimethylphthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Di-n-butylphthalate	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
Di-n-octylphthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Fluoranthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Fluorene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorobutadiene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorocyclopentadiene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachloroethane	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Indeno(1,2,3-cd)pyrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Isophorone	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Naphthalene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Nitrobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodimethylamine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodi-n-propylamine	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodiphenylamine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
Pentachloronitrobenzene	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
Pentachlorophenol	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
Phenanthrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Phenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Pyrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Pyridine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	74		%	1	04/21/23	AW	30 - 130 %
% 2-Fluorobiphenyl	67		%	1	04/21/23	AW	30 - 130 %
% 2-Fluorophenol	67		%	1	04/21/23	AW	30 - 130 %
% Nitrobenzene-d5	68		%	1	04/21/23	AW	30 - 130 %
% Phenol-d5	70		%	1	04/21/23	AW	30 - 130 %
% Terphenyl-d14	53		%	1	04/21/23	AW	30 - 130 %

Project ID: PICKPOCKET DAM
Client ID: SED-2

Phoenix I.D.: CN87691

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

1 = This parameter is not certified by the primary accrediting authority (NY NELAC) for this matrix. NY NELAC does not offer certification for all parameters at this time.

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

* See Attached. Sieve Analysis performed by Tri State Materials Testing Lab, LLC. Accredited by the National Voluntary Laboratory Accreditation Program; NVLAP Lab Code 200010-0.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
May 18, 2023
Reviewed and Released by: Greg Lawrence, Assistant Lab Director

PHOENIX
Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 18, 2023

FOR: Attn: Paige Cochrane
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151

Sample Information		Custody Information		Date	Time
Matrix:	SEDIMENT	Collected by:		04/18/23	9:50
Location Code:	VHB-MA	Received by:	CP	04/20/23	15:15
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCN87690
Phoenix ID: CN87692

Project ID: PICKPOCKET DAM
Client ID: SED-2 FD

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.31	0.31	mg/Kg	1	04/22/23	CPP	SW6010D	
Arsenic	12.4	0.62	mg/Kg	1	04/22/23	CPP	SW6010D	
Beryllium	0.59	0.25	mg/Kg	1	04/22/23	CPP	SW6010D	
Cadmium	0.60	0.31	mg/Kg	1	04/22/23	CPP	SW6010D	
Chromium	23.1	0.31	mg/Kg	1	04/22/23	CPP	SW6010D	
Copper	9.2	0.6	mg/kg	1	04/22/23	CPP	SW6010D	
Iron	12500	46	mg/Kg	10	04/22/23	CPP	SW6010D	
Mercury	< 0.07	0.07	mg/Kg	2	04/24/23	PM	SW7471B	
Manganese	396	3.1	mg/Kg	10	04/22/23	CPP	SW6010D	
Nickel	14.3	0.31	mg/Kg	1	04/22/23	CPP	SW6010D	
Lead	33.3	0.31	mg/Kg	1	04/22/23	CPP	SW6010D	
Antimony	< 3.1	3.1	mg/Kg	1	04/22/23	CPP	SW6010D	
Selenium	< 1.2	1.2	mg/Kg	1	04/22/23	CPP	SW6010D	
Thallium	< 2.8	2.8	mg/Kg	1	04/22/23	CPP	SW6010D	
Zinc	72.4	0.6	mg/Kg	1	04/22/23	CPP	SW6010D	
Percent Solid	33		%		04/20/23	CV	SW846-%Solid	
Chloride	< 152	152	mg/kg	10	04/30/23	BS/EG	SW9056A	
Nitrogen Tot Kjeldahl	3370	425	mg/Kg	1	04/28/23	KDB	E351.1	1
Mercury Digestion	Completed				04/21/23	AL/AL	SW7471B	
Soil Extraction for PCB	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for Pesticide	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for SVOA	Completed				04/20/23	S/MO/M	SW3546	
Total Metals Digest	Completed				04/20/23	B/P	SW3050B	

Polychlorinated Biphenyls

PCB-1016	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A
PCB-1221	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A

Project ID: PICKPOCKET DAM
Client ID: SED-2 FD

Phoenix I.D.: CN87692

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
PCB-1232	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1242	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1248	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1254	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1260	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1262	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1268	ND	0.76	mg/Kg	5	04/27/23	SC	SW8082A	
QA/QC Surrogates								
% DCBP	61		%	5	04/27/23	SC	30 - 150 %	
% DCBP (Confirmation)	67		%	5	04/27/23	SC	30 - 150 %	
% TCMX	66		%	5	04/27/23	SC	30 - 150 %	
% TCMX (Confirmation)	73		%	5	04/27/23	SC	30 - 150 %	
Pesticides								
4,4' -DDD	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDE	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDT	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
a-BHC	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Alachlor	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	1
Aldrin	ND	0.015	mg/Kg	2	04/29/23	AW	SW8081B	
b-BHC	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Chlordane	ND	0.15	mg/Kg	2	04/29/23	AW	SW8081B	
d-BHC	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Dieldrin	ND	0.015	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan I	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan II	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan sulfate	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin aldehyde	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin ketone	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
g-BHC	ND	0.0061	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor epoxide	ND	0.03	mg/Kg	2	04/29/23	AW	SW8081B	
Hexachlorobenzene	ND	0.015	mg/Kg	2	04/29/23	AW	SW8081B	1
Methoxychlor	ND	0.15	mg/Kg	2	04/29/23	AW	SW8081B	
Toxaphene	ND	0.61	mg/Kg	2	04/29/23	AW	SW8081B	
QA/QC Surrogates								
% DCBP	60		%	2	04/29/23	AW	30 - 150 %	
% DCBP (Confirmation)	75		%	2	04/29/23	AW	30 - 150 %	
% TCMX	59		%	2	04/29/23	AW	30 - 150 %	
% TCMX (Confirmation)	70		%	2	04/29/23	AW	30 - 150 %	
Semivolatiles								
1,1-Biphenyl	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,2,4,5-Tetrachlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,2,4-Trichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,2-Dichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,2-Diphenylhydrazine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
1,3-Dichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
1,4-Dichlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-2 FD

Phoenix I.D.: CN87692

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
2,2'-Oxybis(1-Chloropropane)	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	1
2,4,5-Trichlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4,6-Trichlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dichlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dimethylphenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dinitrophenol	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
2,4-Dinitrotoluene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2,6-Dinitrotoluene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Chloronaphthalene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Chlorophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Methylnaphthalene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Methylphenol (o-cresol)	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
2-Nitroaniline	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
2-Nitrophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
3&4-Methylphenol (m&p-cresol)	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
3,3'-Dichlorobenzidine	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
3-Nitroaniline	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
4,6-Dinitro-2-methylphenol	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
4-Bromophenyl phenyl ether	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
4-Chloro-3-methylphenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
4-Chloroaniline	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
4-Chlorophenyl phenyl ether	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
4-Nitroaniline	ND	3.4	mg/Kg	1	04/21/23	AW	SW8270D	
4-Nitrophenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Acenaphthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Acenaphthylene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Acetophenone	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Aniline	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Anthracene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benz(a)anthracene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzidine	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(a)pyrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(b)fluoranthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(ghi)perylene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzo(k)fluoranthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Benzoic acid	ND	4.3	mg/Kg	1	04/21/23	AW	SW8270D	
Benzyl butyl phthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Bis(2-chloroethoxy)methane	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Bis(2-chloroethyl)ether	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Bis(2-ethylhexyl)phthalate	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Carbazole	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Chrysene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Dibenz(a,h)anthracene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Dibenzofuran	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Diethyl phthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Dimethylphthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Di-n-butylphthalate	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D	
Di-n-octylphthalate	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	
Fluoranthene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-2 FD

Phoenix I.D.: CN87692

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluorene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorobutadiene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachlorocyclopentadiene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Hexachloroethane	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Indeno(1,2,3-cd)pyrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Isophorone	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Naphthalene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Nitrobenzene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodimethylamine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodi-n-propylamine	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
N-Nitrosodiphenylamine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
Pentachloronitrobenzene	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
Pentachlorophenol	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
Phenanthrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Phenol	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Pyrene	ND	1.5	mg/Kg	1	04/21/23	AW	SW8270D
Pyridine	ND	2.1	mg/Kg	1	04/21/23	AW	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	74		%	1	04/21/23	AW	30 - 130 %
% 2-Fluorobiphenyl	63		%	1	04/21/23	AW	30 - 130 %
% 2-Fluorophenol	49		%	1	04/21/23	AW	30 - 130 %
% Nitrobenzene-d5	72		%	1	04/21/23	AW	30 - 130 %
% Phenol-d5	67		%	1	04/21/23	AW	30 - 130 %
% Terphenyl-d14	44		%	1	04/21/23	AW	30 - 130 %

1 = This parameter is not certified by the primary accrediting authority (NY NELAC) for this matrix. NY NELAC does not offer certification for all parameters at this time.

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
May 18, 2023
Reviewed and Released by: Greg Lawrence, Assistant Lab Director

PHOENIX
Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 18, 2023

FOR: Attn: Paige Cochrane
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151

Sample Information		Custody Information		Date	Time
Matrix:	SEDIMENT	Collected by:		04/18/23	11:40
Location Code:	VHB-MA	Received by:	CP	04/20/23	15:15
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCN87690
Phoenix ID: CN87693

Project ID: PICKPOCKET DAM
Client ID: SED-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.12	0.12	mg/Kg	1	04/22/23	CPP	SW6010D	
Arsenic	4.69	0.24	mg/Kg	1	04/22/23	CPP	SW6010D	
Beryllium	0.18	0.10	mg/Kg	1	04/22/23	CPP	SW6010D	
Cadmium	0.16	0.12	mg/Kg	1	04/22/23	CPP	SW6010D	
Chromium	21.6	0.12	mg/Kg	1	04/22/23	CPP	SW6010D	
Copper	5.3	0.2	mg/kg	1	04/22/23	CPP	SW6010D	
Iron	10700	18	mg/Kg	10	04/22/23	CPP	SW6010D	
Mercury	< 0.03	0.03	mg/Kg	2	04/24/23	PM	SW7471B	
Manganese	577	12	mg/Kg	100	04/25/23	CPP	SW6010D	
Nickel	12.3	0.12	mg/Kg	1	04/22/23	CPP	SW6010D	
Lead	10.9	0.12	mg/Kg	1	04/22/23	CPP	SW6010D	
Antimony	< 1.2	1.2	mg/Kg	1	04/22/23	CPP	SW6010D	
Selenium	< 0.5	0.5	mg/Kg	1	04/22/23	CPP	SW6010D	
Thallium	< 1.1	1.1	mg/Kg	1	04/22/23	CPP	SW6010D	
Zinc	28.4	0.2	mg/Kg	1	04/22/23	CPP	SW6010D	
Percent Solid	88		%		04/20/23	CV	SW846-%Solid	
Chloride	< 57	57	mg/kg	10	04/30/23	BS/EG	SW9056A	
Nitrogen Tot Kjeldahl	401	163	mg/Kg	1	04/28/23	KDB	E351.1	1
Mercury Digestion	Completed				04/21/23	AL/AL	SW7471B	
Soil Extraction for PCB	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for Pesticide	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for SVOA	Completed				04/24/23	R/MO	SW3546	
Total Metals Digest	Completed				04/20/23	B/P	SW3050B	
Sieve Test	Completed	0	%		04/28/23	*	ASTM C136, C117	

Polychlorinated Biphenyls

PCB-1016	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A

Project ID: PICKPOCKET DAM
Client ID: SED-3

Phoenix I.D.: CN87693

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
PCB-1221	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
PCB-1232	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
PCB-1242	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
PCB-1248	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
PCB-1254	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
PCB-1260	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
PCB-1262	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
PCB-1268	ND	0.37	mg/Kg	10	04/27/23	SC	SW8082A	
QA/QC Surrogates								
% DCBP	66		%	10	04/27/23	SC	30 - 150 %	
% DCBP (Confirmation)	67		%	10	04/27/23	SC	30 - 150 %	
% TCMX	67		%	10	04/27/23	SC	30 - 150 %	
% TCMX (Confirmation)	70		%	10	04/27/23	SC	30 - 150 %	
Pesticides								
4,4' -DDD	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDE	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDT	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
a-BHC	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Alachlor	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	1
Aldrin	ND	0.0037	mg/Kg	2	04/29/23	AW	SW8081B	
b-BHC	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Chlordane	ND	0.037	mg/Kg	2	04/29/23	AW	SW8081B	
d-BHC	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Dieldrin	ND	0.0037	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan I	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan II	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan sulfate	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin aldehyde	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin ketone	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
g-BHC	ND	0.0015	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor epoxide	ND	0.0074	mg/Kg	2	04/29/23	AW	SW8081B	
Hexachlorobenzene	ND	0.0037	mg/Kg	2	04/29/23	AW	SW8081B	1
Methoxychlor	ND	0.037	mg/Kg	2	04/29/23	AW	SW8081B	
Toxaphene	ND	0.15	mg/Kg	2	04/29/23	AW	SW8081B	
QA/QC Surrogates								
% DCBP	59		%	2	04/29/23	AW	30 - 150 %	
% DCBP (Confirmation)	53		%	2	04/29/23	AW	30 - 150 %	
% TCMX	59		%	2	04/29/23	AW	30 - 150 %	
% TCMX (Confirmation)	65		%	2	04/29/23	AW	30 - 150 %	
Semivolatiles								
1,1-Biphenyl	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2,4,5-Tetrachlorobenzene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2,4-Trichlorobenzene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2-Dichlorobenzene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2-Diphenylhydrazine	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
1,3-Dichlorobenzene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-3

Phoenix I.D.: CN87693

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
1,4-Dichlorobenzene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	1
2,4,5-Trichlorophenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4,6-Trichlorophenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dichlorophenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dimethylphenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dinitrophenol	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dinitrotoluene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2,6-Dinitrotoluene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Chloronaphthalene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Chlorophenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Methylnaphthalene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Methylphenol (o-cresol)	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Nitroaniline	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Nitrophenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
3&4-Methylphenol (m&p-cresol)	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
3,3'-Dichlorobenzidine	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
3-Nitroaniline	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
4,6-Dinitro-2-methylphenol	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Bromophenyl phenyl ether	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Chloro-3-methylphenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Chloroaniline	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Chlorophenyl phenyl ether	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Nitroaniline	ND	0.6	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Nitrophenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Acenaphthene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Acenaphthylene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Acetophenone	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Aniline	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
Anthracene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Benz(a)anthracene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzidine	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(a)pyrene	0.27	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(b)fluoranthene	0.29	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(ghi)perylene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(k)fluoranthene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzoic acid	ND	0.75	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzyl butyl phthalate	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Bis(2-chloroethoxy)methane	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Bis(2-chloroethyl)ether	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
Bis(2-ethylhexyl)phthalate	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
Carbazole	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
Chrysene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Dibenz(a,h)anthracene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Dibenzofuran	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Diethyl phthalate	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Dimethylphthalate	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	
Di-n-butylphthalate	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D	
Di-n-octylphthalate	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-3

Phoenix I.D.: CN87693

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluoranthene	0.44	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Fluorene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachlorobenzene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachlorobutadiene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachlorocyclopentadiene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachloroethane	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Isophorone	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Naphthalene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Nitrobenzene	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
N-Nitrosodimethylamine	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D
N-Nitrosodi-n-propylamine	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
N-Nitrosodiphenylamine	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D
Pentachloronitrobenzene	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D
Pentachlorophenol	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D
Phenanthrene	0.32	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Phenol	ND	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Pyrene	0.34	0.26	mg/Kg	1	04/24/23	KCA	SW8270D
Pyridine	ND	0.38	mg/Kg	1	04/24/23	KCA	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	85		%	1	04/24/23	KCA	30 - 130 %
% 2-Fluorobiphenyl	77		%	1	04/24/23	KCA	30 - 130 %
% 2-Fluorophenol	76		%	1	04/24/23	KCA	30 - 130 %
% Nitrobenzene-d5	76		%	1	04/24/23	KCA	30 - 130 %
% Phenol-d5	84		%	1	04/24/23	KCA	30 - 130 %
% Terphenyl-d14	69		%	1	04/24/23	KCA	30 - 130 %

1 = This parameter is not certified by the primary accrediting authority (NY NELAC) for this matrix. NY NELAC does not offer certification for all parameters at this time.

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

* See Attached. Sieve Analysis performed by Tri State Materials Testing Lab, LLC. Accredited by the National Voluntary Laboratory Accreditation Program; NVLAP Lab Code 200010-0.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
May 18, 2023
Reviewed and Released by: Greg Lawrence, Assistant Lab Director

PHOENIX
Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 18, 2023

FOR: Attn: Paige Cochrane
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151

Sample Information		Custody Information		Date	Time
Matrix:	SEDIMENT	Collected by:		04/18/23	12:30
Location Code:	VHB-MA	Received by:	CP	04/20/23	15:15
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCN87690
Phoenix ID: CN87694

Project ID: PICKPOCKET DAM
Client ID: SED-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.11	0.11	mg/Kg	1	04/22/23	CPP	SW6010D	
Arsenic	10.7	0.22	mg/Kg	1	04/22/23	CPP	SW6010D	
Beryllium	0.31	0.09	mg/Kg	1	04/22/23	CPP	SW6010D	
Cadmium	0.28	0.11	mg/Kg	1	04/22/23	CPP	SW6010D	
Chromium	35.5	0.11	mg/Kg	1	04/22/23	CPP	SW6010D	
Copper	6.9	0.2	mg/kg	1	04/22/23	CPP	SW6010D	
Iron	20300	17	mg/Kg	10	04/22/23	CPP	SW6010D	
Mercury	< 0.03	0.03	mg/Kg	2	04/24/23	PM	SW7471B	
Manganese	713	11	mg/Kg	100	04/25/23	CPP	SW6010D	
Nickel	13.3	0.11	mg/Kg	1	04/22/23	CPP	SW6010D	
Lead	9.41	0.11	mg/Kg	1	04/22/23	CPP	SW6010D	
Antimony	< 1.1	1.1	mg/Kg	1	04/22/23	CPP	SW6010D	
Selenium	< 0.4	0.4	mg/Kg	1	04/22/23	CPP	SW6010D	
Thallium	< 1.0	1.0	mg/Kg	1	04/22/23	CPP	SW6010D	
Zinc	43.9	0.2	mg/Kg	1	04/22/23	CPP	SW6010D	
Percent Solid	82		%		04/20/23	CV	SW846-%Solid	
Chloride	< 61	61	mg/kg	10	04/30/23	BS/EG	SW9056A	
Nitrogen Tot Kjeldahl	447	197	mg/Kg	1	04/28/23	KDB	E351.1	1
Mercury Digestion	Completed				04/21/23	AL/AL	SW7471B	
Soil Extraction for PCB	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for Pesticide	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for SVOA	Completed				04/24/23	R/MO	SW3546	
Total Metals Digest	Completed				04/20/23	B/P	SW3050B	
Sieve Test	Completed	0	%		04/28/23	*	ASTM C136, C117	

Polychlorinated Biphenyls

PCB-1016	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A

Project ID: PICKPOCKET DAM
Client ID: SED-4

Phoenix I.D.: CN87694

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
PCB-1221	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
PCB-1232	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
PCB-1242	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
PCB-1248	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
PCB-1254	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
PCB-1260	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
PCB-1262	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
PCB-1268	ND	0.39	mg/Kg	10	04/28/23	SC	SW8082A	
QA/QC Surrogates								
% DCBP	71		%	10	04/28/23	SC	30 - 150 %	
% DCBP (Confirmation)	87		%	10	04/28/23	SC	30 - 150 %	
% TCMX	79		%	10	04/28/23	SC	30 - 150 %	
% TCMX (Confirmation)	83		%	10	04/28/23	SC	30 - 150 %	
Pesticides								
4,4' -DDD	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDE	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDT	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
a-BHC	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Alachlor	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	1
Aldrin	ND	0.0039	mg/Kg	2	04/29/23	AW	SW8081B	
b-BHC	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Chlordane	ND	0.039	mg/Kg	2	04/29/23	AW	SW8081B	
d-BHC	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Dieldrin	ND	0.0039	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan I	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan II	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan sulfate	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin aldehyde	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin ketone	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
g-BHC	ND	0.0016	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor epoxide	ND	0.0079	mg/Kg	2	04/29/23	AW	SW8081B	
Hexachlorobenzene	ND	0.0039	mg/Kg	2	04/29/23	AW	SW8081B	1
Methoxychlor	ND	0.039	mg/Kg	2	04/29/23	AW	SW8081B	
Toxaphene	ND	0.16	mg/Kg	2	04/29/23	AW	SW8081B	
QA/QC Surrogates								
% DCBP	72		%	2	04/29/23	AW	30 - 150 %	
% DCBP (Confirmation)	63		%	2	04/29/23	AW	30 - 150 %	
% TCMX	74		%	2	04/29/23	AW	30 - 150 %	
% TCMX (Confirmation)	78		%	2	04/29/23	AW	30 - 150 %	
Semivolatiles								
1,1-Biphenyl	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
1,2,4,5-Tetrachlorobenzene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
1,2,4-Trichlorobenzene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
1,2-Dichlorobenzene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
1,2-Diphenylhydrazine	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
1,3-Dichlorobenzene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-4

Phoenix I.D.: CN87694

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
1,4-Dichlorobenzene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	1
2,4,5-Trichlorophenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2,4,6-Trichlorophenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2,4-Dichlorophenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2,4-Dimethylphenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2,4-Dinitrophenol	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
2,4-Dinitrotoluene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2,6-Dinitrotoluene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2-Chloronaphthalene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2-Chlorophenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2-Methylnaphthalene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2-Methylphenol (o-cresol)	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
2-Nitroaniline	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
2-Nitrophenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
3&4-Methylphenol (m&p-cresol)	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
3,3'-Dichlorobenzidine	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
3-Nitroaniline	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
4,6-Dinitro-2-methylphenol	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
4-Bromophenyl phenyl ether	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
4-Chloro-3-methylphenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
4-Chloroaniline	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
4-Chlorophenyl phenyl ether	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
4-Nitroaniline	ND	0.63	mg/Kg	1	04/25/23	KCA	SW8270D	
4-Nitrophenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Acenaphthene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Acenaphthylene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Acetophenone	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Aniline	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
Anthracene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Benz(a)anthracene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Benzidine	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Benzo(a)pyrene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Benzo(b)fluoranthene	0.3	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Benzo(ghi)perylene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Benzo(k)fluoranthene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Benzoic acid	ND	0.79	mg/Kg	1	04/25/23	KCA	SW8270D	
Benzyl butyl phthalate	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Bis(2-chloroethoxy)methane	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Bis(2-chloroethyl)ether	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
Bis(2-ethylhexyl)phthalate	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
Carbazole	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
Chrysene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Dibenz(a,h)anthracene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Dibenzofuran	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Diethyl phthalate	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Dimethylphthalate	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	
Di-n-butylphthalate	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D	
Di-n-octylphthalate	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-4

Phoenix I.D.: CN87694

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluoranthene	0.35	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Fluorene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Hexachlorobenzene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Hexachlorobutadiene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Hexachlorocyclopentadiene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Hexachloroethane	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Indeno(1,2,3-cd)pyrene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Isophorone	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Naphthalene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Nitrobenzene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
N-Nitrosodimethylamine	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D
N-Nitrosodi-n-propylamine	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
N-Nitrosodiphenylamine	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D
Pentachloronitrobenzene	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D
Pentachlorophenol	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D
Phenanthrene	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Phenol	ND	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Pyrene	0.36	0.28	mg/Kg	1	04/25/23	KCA	SW8270D
Pyridine	ND	0.4	mg/Kg	1	04/25/23	KCA	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	94		%	1	04/25/23	KCA	30 - 130 %
% 2-Fluorobiphenyl	86		%	1	04/25/23	KCA	30 - 130 %
% 2-Fluorophenol	81		%	1	04/25/23	KCA	30 - 130 %
% Nitrobenzene-d5	83		%	1	04/25/23	KCA	30 - 130 %
% Phenol-d5	90		%	1	04/25/23	KCA	30 - 130 %
% Terphenyl-d14	75		%	1	04/25/23	KCA	30 - 130 %

1 = This parameter is not certified by the primary accrediting authority (NY NELAC) for this matrix. NY NELAC does not offer certification for all parameters at this time.

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

* See Attached. Sieve Analysis performed by Tri State Materials Testing Lab, LLC. Accredited by the National Voluntary Laboratory Accreditation Program; NVLAP Lab Code 200010-0.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
May 18, 2023
Reviewed and Released by: Greg Lawrence, Assistant Lab Director

PHOENIX
Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 18, 2023

FOR: Attn: Paige Cochrane
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151

Sample Information		Custody Information		Date	Time
Matrix:	SEDIMENT	Collected by:		04/18/23	9:00
Location Code:	VHB-MA	Received by:	CP	04/20/23	15:15
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCN87690
Phoenix ID: CN87695

Project ID: PICKPOCKET DAM
Client ID: SED-5

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.33	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Arsenic	13.9	0.65	mg/Kg	1	04/22/23	CPP	SW6010D	
Beryllium	0.70	0.26	mg/Kg	1	04/22/23	CPP	SW6010D	
Cadmium	0.47	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Chromium	24.1	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Copper	8.9	0.7	mg/kg	1	04/22/23	CPP	SW6010D	
Iron	13600	49	mg/Kg	10	04/22/23	CPP	SW6010D	
Mercury	< 0.06	0.06	mg/Kg	2	04/24/23	PM	SW7471B	
Manganese	379	3.3	mg/Kg	10	04/22/23	CPP	SW6010D	
Nickel	14.7	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Lead	31.3	0.33	mg/Kg	1	04/22/23	CPP	SW6010D	
Antimony	< 3.3	3.3	mg/Kg	1	04/22/23	CPP	SW6010D	
Selenium	< 1.3	1.3	mg/Kg	1	04/22/23	CPP	SW6010D	
Thallium	< 2.9	2.9	mg/Kg	1	04/22/23	CPP	SW6010D	
Zinc	61.1	0.7	mg/Kg	1	04/22/23	CPP	SW6010D	
Percent Solid	36		%		04/20/23	CV	SW846-%Solid	
Chloride	< 139	139	mg/kg	10	04/30/23	BS/EG	SW9056A	
Nitrogen Tot Kjeldahl	2110	441	mg/Kg	1	04/28/23	KDB	E351.1	1
Mercury Digestion	Completed				04/21/23	AL/AL	SW7471B	
Soil Extraction for PCB	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for Pesticide	Completed				04/26/23	B/MO/F	SW3546	
Soil Extraction for SVOA	Completed				04/24/23	R/MO	SW3546	
Total Metals Digest	Completed				04/20/23	B/P	SW3050B	
Sieve Test	Completed	0	%		04/28/23	*	ASTM C136, C117	

Polychlorinated Biphenyls

PCB-1016	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A

Project ID: PICKPOCKET DAM
Client ID: SED-5

Phoenix I.D.: CN87695

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
PCB-1221	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1232	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1242	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1248	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1254	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1260	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1262	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
PCB-1268	ND	0.69	mg/Kg	5	04/27/23	SC	SW8082A	
QA/QC Surrogates								
% DCBP	73		%	5	04/27/23	SC	30 - 150 %	
% DCBP (Confirmation)	76		%	5	04/27/23	SC	30 - 150 %	
% TCMX	81		%	5	04/27/23	SC	30 - 150 %	
% TCMX (Confirmation)	88		%	5	04/27/23	SC	30 - 150 %	
Pesticides								
4,4' -DDD	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDE	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
4,4' -DDT	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
a-BHC	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Alachlor	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	1
Aldrin	ND	0.014	mg/Kg	2	04/29/23	AW	SW8081B	
b-BHC	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Chlordane	ND	0.14	mg/Kg	2	04/29/23	AW	SW8081B	
d-BHC	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Dieldrin	ND	0.014	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan I	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan II	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Endosulfan sulfate	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin aldehyde	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Endrin ketone	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
g-BHC	ND	0.0055	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Heptachlor epoxide	ND	0.027	mg/Kg	2	04/29/23	AW	SW8081B	
Hexachlorobenzene	ND	0.014	mg/Kg	2	04/29/23	AW	SW8081B	1
Methoxychlor	ND	0.14	mg/Kg	2	04/29/23	AW	SW8081B	
Toxaphene	ND	0.55	mg/Kg	2	04/29/23	AW	SW8081B	
QA/QC Surrogates								
% DCBP	73		%	2	04/29/23	AW	30 - 150 %	
% DCBP (Confirmation)	86		%	2	04/29/23	AW	30 - 150 %	
% TCMX	73		%	2	04/29/23	AW	30 - 150 %	
% TCMX (Confirmation)	101		%	2	04/29/23	AW	30 - 150 %	
Semivolatiles								
1,1-Biphenyl	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2,4,5-Tetrachlorobenzene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2,4-Trichlorobenzene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2-Dichlorobenzene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
1,2-Diphenylhydrazine	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
1,3-Dichlorobenzene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-5

Phoenix I.D.: CN87695

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
1,4-Dichlorobenzene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2,2'-Oxybis(1-Chloropropane)	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	1
2,4,5-Trichlorophenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4,6-Trichlorophenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dichlorophenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dimethylphenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dinitrophenol	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
2,4-Dinitrotoluene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2,6-Dinitrotoluene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Chloronaphthalene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Chlorophenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Methylnaphthalene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Methylphenol (o-cresol)	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Nitroaniline	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
2-Nitrophenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
3&4-Methylphenol (m&p-cresol)	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
3,3'-Dichlorobenzidine	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
3-Nitroaniline	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
4,6-Dinitro-2-methylphenol	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Bromophenyl phenyl ether	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Chloro-3-methylphenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Chloroaniline	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Chlorophenyl phenyl ether	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Nitroaniline	ND	3	mg/Kg	1	04/24/23	KCA	SW8270D	
4-Nitrophenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Acenaphthene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Acenaphthylene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Acetophenone	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Aniline	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
Anthracene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Benz(a)anthracene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzidine	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(a)pyrene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(b)fluoranthene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(ghi)perylene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzo(k)fluoranthene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzoic acid	ND	3.7	mg/Kg	1	04/24/23	KCA	SW8270D	
Benzyl butyl phthalate	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Bis(2-chloroethoxy)methane	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Bis(2-chloroethyl)ether	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
Bis(2-ethylhexyl)phthalate	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
Carbazole	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
Chrysene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Dibenz(a,h)anthracene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Dibenzofuran	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Diethyl phthalate	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Dimethylphthalate	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	
Di-n-butylphthalate	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D	
Di-n-octylphthalate	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D	

Project ID: PICKPOCKET DAM
Client ID: SED-5

Phoenix I.D.: CN87695

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluoranthene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Fluorene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachlorobenzene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachlorobutadiene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachlorocyclopentadiene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Hexachloroethane	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Indeno(1,2,3-cd)pyrene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Isophorone	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Naphthalene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Nitrobenzene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
N-Nitrosodimethylamine	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D
N-Nitrosodi-n-propylamine	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
N-Nitrosodiphenylamine	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D
Pentachloronitrobenzene	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D
Pentachlorophenol	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D
Phenanthrene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Phenol	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Pyrene	ND	1.3	mg/Kg	1	04/24/23	KCA	SW8270D
Pyridine	ND	1.9	mg/Kg	1	04/24/23	KCA	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	83		%	1	04/24/23	KCA	30 - 130 %
% 2-Fluorobiphenyl	72		%	1	04/24/23	KCA	30 - 130 %
% 2-Fluorophenol	74		%	1	04/24/23	KCA	30 - 130 %
% Nitrobenzene-d5	71		%	1	04/24/23	KCA	30 - 130 %
% Phenol-d5	81		%	1	04/24/23	KCA	30 - 130 %
% Terphenyl-d14	69		%	1	04/24/23	KCA	30 - 130 %

1 = This parameter is not certified by the primary accrediting authority (NY NELAC) for this matrix. NY NELAC does not offer certification for all parameters at this time.

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

* See Attached. Sieve Analysis performed by Tri State Materials Testing Lab, LLC. Accredited by the National Voluntary Laboratory Accreditation Program; NVLAP Lab Code 200010-0.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
May 18, 2023
Reviewed and Released by: Greg Lawrence, Assistant Lab Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

NY # 11301

QA/QC Report

May 18, 2023

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 673934 (mg/kg), QC Sample No: CN87691 2X (CN87690, CN87691, CN87692, CN87693, CN87694, CN87695)													
Mercury - Soil	BRL	0.03	<0.08	<0.08	NC	125	103	19.3	86.4	85.1	1.5	70 - 130	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.													
QA/QC Batch 673803 (mg/kg), QC Sample No: CN87691 (CN87690, CN87691, CN87692, CN87693, CN87694, CN87695)													
ICP Metals - Soil													
Antimony	BRL	3.3	<3.6	<3.7	NC	102	106	3.8	80.4	79.4	1.3	75 - 125	35
Arsenic	BRL	0.67	7.92	8.65	8.80	98.2	97.5	0.7	95.1	98.6	3.6	75 - 125	35
Beryllium	BRL	0.27	0.56	0.52	NC	99.2	103	3.8	96.4	100	3.7	75 - 125	35
Cadmium	BRL	0.33	0.44	0.47	NC	99.3	108	8.4	95.3	99.2	4.0	75 - 125	35
Chromium	BRL	0.33	23.3	22.6	3.10	97.9	100	2.1	94.1	97.9	4.0	75 - 125	35
Copper	BRL	0.67	8.7	8.73	0.30	93.6	95.6	2.1	92.9	96.8	4.1	75 - 125	35
Iron	BRL	5.0	11700	11500	1.70	95.5	91.0	4.8	NC	NC	NC	75 - 125	35
Lead	BRL	0.33	32.2	30.5	5.40	91.0	89.7	1.4	93.3	97.5	4.4	75 - 125	35
Manganese	BRL	0.33	341	338	0.90	101	98.2	2.8	94.2	106	11.8	75 - 125	35
Nickel	BRL	0.33	13.6	13.4	1.50	96.7	103	6.3	94.3	98.6	4.5	75 - 125	35
Selenium	BRL	1.3	<1.5	<1.5	NC	92.8	95.0	2.3	90.5	92.9	2.6	75 - 125	35
Silver	BRL	0.33	<0.36	<0.37	NC	97.3	94.7	2.7	93.5	97.4	4.1	75 - 125	35
Thallium	BRL	3.0	<3.3	<3.3	NC	92.7	98.0	5.6	90.6	94.9	4.6	75 - 125	35
Zinc	BRL	0.67	62.0	62.0	0	99.6	96.8	2.9	90.8	95.9	5.5	75 - 125	35
Comment:													
Additional Criteria: LCS acceptance range is 80-120% MS acceptance range 75-125%.													

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

NY # 11301

QA/QC Report

May 18, 2023

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 675590 (mg/L), QC Sample No: CN87691 (CN87690, CN87691, CN87692, CN87693, CN87694, CN87695)													
Chloride	BRL	5.0	73.3	<156	NC				99.2			90 - 110	20
QA/QC Batch 674856 (mg/Kg), QC Sample No: CN87691 17.5X (CN87690, CN87691, CN87692, CN87693, CN87694, CN87695)													
Nitrogen Tot Kjeldahl	BRL	3.51	3470	3430	1.20	99.9			101			75 - 125	30

Comment:

TKN is reported as Organic Nitrogen in the Blank, LCS, DUP and MS.

Additional criteria: LCS acceptance range for waters is 85-115% and for soils is 75-125%. MS acceptance range is 75-125%.

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NY # 11301

QA/QC Report

May 18, 2023

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 674561 (mg/Kg), QC Sample No: CN87698 2X (CN87690, CN87692, CN87693, CN87694, CN87695)										
Polychlorinated Biphenyls - Sediment										
PCB-1016	ND	0.033	83	81	2.4	88	92	4.4	40 - 140	30
PCB-1221	ND	0.033							40 - 140	30
PCB-1232	ND	0.033							40 - 140	30
PCB-1242	ND	0.033							40 - 140	30
PCB-1248	ND	0.033							40 - 140	30
PCB-1254	ND	0.033							40 - 140	30
PCB-1260	ND	0.033	99	98	1.0	102	102	0.0	40 - 140	30
PCB-1262	ND	0.033							40 - 140	30
PCB-1268	ND	0.033							40 - 140	30
% DCBP (Surrogate Rec)	83	%	96	95	1.0	90	92	2.2	30 - 150	30
% DCBP (Surrogate Rec) (Confirm	78	%	92	93	1.1	87	90	3.4	30 - 150	30
% TCMX (Surrogate Rec)	71	%	80	77	3.8	80	82	2.5	30 - 150	30
% TCMX (Surrogate Rec) (Confirm	74	%	87	84	3.5	85	86	1.2	30 - 150	30
QA/QC Batch 674463 (mg/Kg), QC Sample No: CN89272 2X (CN87691)										
Polychlorinated Biphenyls - Sediment										
PCB-1016	ND	0.033	72	78	8.0	61	68	10.9	40 - 140	30
PCB-1221	ND	0.033							40 - 140	30
PCB-1232	ND	0.033							40 - 140	30
PCB-1242	ND	0.033							40 - 140	30
PCB-1248	ND	0.033							40 - 140	30
PCB-1254	ND	0.033							40 - 140	30
PCB-1260	ND	0.033	73	79	7.9	62	67	7.8	40 - 140	30
PCB-1262	ND	0.033							40 - 140	30
PCB-1268	ND	0.033							40 - 140	30
% DCBP (Surrogate Rec)	72	%	69	73	5.6	53	61	14.0	30 - 150	30
% DCBP (Surrogate Rec) (Confirm	68	%	70	70	0.0	50	57	13.1	30 - 150	30
% TCMX (Surrogate Rec)	68	%	64	70	9.0	56	64	13.3	30 - 150	30
% TCMX (Surrogate Rec) (Confirm	69	%	65	68	4.5	56	65	14.9	30 - 150	30
QA/QC Batch 674562 (mg/Kg), QC Sample No: CN87698 2X (CN87690, CN87692, CN87693, CN87694, CN87695)										
Pesticides - Sediment										
4,4' -DDD	ND	0.0017	108	95	12.8	88	95	7.7	40 - 140	30
4,4' -DDE	ND	0.0017	97	90	7.5	77	84	8.7	40 - 140	30
4,4' -DDT	ND	0.0017	97	90	7.5	78	83	6.2	40 - 140	30
a-BHC	ND	0.001	86	79	8.5	61	68	10.9	40 - 140	30
Alachlor	ND	0.0033	NA	NA	NC	NA	NA	NC	40 - 140	30
Aldrin	ND	0.001	94	84	11.2	66	73	10.1	40 - 140	30
b-BHC	ND	0.001	85	81	4.8	70	77	9.5	40 - 140	30
Chlordane	ND	0.033	102	93	9.2	81	86	6.0	40 - 140	30
d-BHC	ND	0.0033	54	46	16.0	41	45	9.3	40 - 140	30
Dieldrin	ND	0.001	97	90	7.5	75	82	8.9	40 - 140	30

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Endosulfan I	ND	0.0033	90	89	1.1	70	72	2.8	40 - 140	30	
Endosulfan II	ND	0.0033	100	97	3.0	79	87	9.6	40 - 140	30	
Endosulfan sulfate	ND	0.0033	95	90	5.4	76	81	6.4	40 - 140	30	
Endrin	ND	0.0033	97	90	7.5	76	81	6.4	40 - 140	30	
Endrin aldehyde	ND	0.0033	95	88	7.7	69	69	0.0	40 - 140	30	
Endrin ketone	ND	0.0033	96	89	7.6	76	82	7.6	40 - 140	30	
g-BHC	ND	0.001	85	77	9.9	67	68	1.5	40 - 140	30	
Heptachlor	ND	0.0033	87	80	8.4	63	70	10.5	40 - 140	30	
Heptachlor epoxide	ND	0.0033	90	83	8.1	68	77	12.4	40 - 140	30	
Hexachlorobenzene	ND	0.0033	54	46	16.0	39	43	9.8	40 - 140	30	
Methoxychlor	ND	0.0033	93	87	6.7	78	82	5.0	40 - 140	30	
Toxaphene	ND	0.13	NA	NA	NC	NA	NA	NC	40 - 140	30	
% DCBP	73	%	79	73	7.9	65	69	6.0	30 - 150	30	
% DCBP (Confirmation)	80	%	85	76	11.2	69	73	5.6	30 - 150	30	
% TCMX	70	%	80	73	9.2	60	64	6.5	30 - 150	30	
% TCMX (Confirmation)	73	%	86	76	12.3	63	67	6.2	30 - 150	30	

QA/QC Batch 674465 (mg/Kg), QC Sample No: CN89272 2X (CN87691)

Pesticides - Sediment

4,4' -DDD	ND	0.0017	68	62	9.2	74	65	12.9	40 - 140	30	
4,4' -DDE	ND	0.0017	63	58	8.3	94	73	25.1	40 - 140	30	
4,4' -DDT	ND	0.0017	62	56	10.2	67	64	4.6	40 - 140	30	
a-BHC	ND	0.001	59	55	7.0	52	48	8.0	40 - 140	30	
Alachlor	ND	0.0033	NA	NA	NC	NA	NA	NC	40 - 140	30	
Aldrin	ND	0.001	61	56	8.5	57	87	41.7	40 - 140	30	r
b-BHC	ND	0.001	56	51	9.3	62	66	6.3	40 - 140	30	
Chlordane	ND	0.033	63	57	10.0	94	97	3.1	40 - 140	30	
d-BHC	ND	0.0033	36	35	2.8	30	43	35.6	40 - 140	30	l,r
Dieldrin	ND	0.001	62	58	6.7	58	63	8.3	40 - 140	30	
Endosulfan I	ND	0.0033	60	57	5.1	71	44	47.0	40 - 140	30	r
Endosulfan II	ND	0.0033	66	60	9.5	64	64	0.0	40 - 140	30	
Endosulfan sulfate	ND	0.0033	63	56	11.8	54	49	9.7	40 - 140	30	
Endrin	ND	0.0033	63	59	6.6	50	56	11.3	40 - 140	30	
Endrin aldehyde	ND	0.0033	61	55	10.3	86	86	0.0	40 - 140	30	
Endrin ketone	ND	0.0033	66	57	14.6	56	51	9.3	40 - 140	30	
g-BHC	ND	0.001	56	52	7.4	59	57	3.4	40 - 140	30	
Heptachlor	ND	0.0033	60	56	6.9	50	85	51.9	40 - 140	30	r
Heptachlor epoxide	ND	0.0033	60	56	6.9	79	71	10.7	40 - 140	30	
Hexachlorobenzene	ND	0.0033	39	35	10.8	33	31	6.3	40 - 140	30	l
Methoxychlor	ND	0.0033	65	57	13.1	63	51	21.1	40 - 140	30	
Toxaphene	ND	0.13	NA	NA	NC	NA	NA	NC	40 - 140	30	
% DCBP	63	%	59	52	12.6	47	64	30.6	30 - 150	30	r
% DCBP (Confirmation)	78	%	67	61	9.4	69	64	7.5	30 - 150	30	
% TCMX	60	%	58	56	3.5	51	48	6.1	30 - 150	30	
% TCMX (Confirmation)	64	%	62	61	1.6	69	62	10.7	30 - 150	30	

QA/QC Batch 673828 (mg/Kg), QC Sample No: CN87691 (CN87690, CN87691, CN87692)

Semivolatiles - Sediment

1,1-Biphenyl	ND	0.23	57	65	13.1	67	64	4.6	40 - 140	30	
1,2,4,5-Tetrachlorobenzene	ND	0.23	57	62	8.4	67	65	3.0	40 - 140	30	
1,2,4-Trichlorobenzene	ND	0.23	59	65	9.7	66	65	1.5	40 - 140	30	
1,2-Dichlorobenzene	ND	0.18	57	64	11.6	56	58	3.5	40 - 140	30	
1,2-Diphenylhydrazine	ND	0.23	59	65	9.7	70	66	5.9	40 - 140	30	
1,3-Dichlorobenzene	ND	0.23	55	62	12.0	56	57	1.8	40 - 140	30	

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,4-Dichlorobenzene	ND	0.23	53	61	14.0	55	56	1.8	40 - 140	30	
2,2'-Oxybis(1-Chloropropane)	ND	0.23	52	59	12.6	56	58	3.5	40 - 140	30	
2,4,5-Trichlorophenol	ND	0.23	68	75	9.8	85	83	2.4	40 - 140	30	
2,4,6-Trichlorophenol	ND	0.13	67	74	9.9	86	82	4.8	30 - 130	30	
2,4-Dichlorophenol	ND	0.13	66	72	8.7	78	75	3.9	30 - 130	30	
2,4-Dimethylphenol	ND	0.23	68	75	9.8	85	83	2.4	30 - 130	30	
2,4-Dinitrophenol	ND	0.23	16	11	37.0	70	71	1.4	30 - 130	30	l,r
2,4-Dinitrotoluene	ND	0.13	61	67	9.4	71	68	4.3	30 - 130	30	
2,6-Dinitrotoluene	ND	0.13	66	74	11.4	79	76	3.9	40 - 140	30	
2-Chloronaphthalene	ND	0.23	59	66	11.2	71	66	7.3	40 - 140	30	
2-Chlorophenol	ND	0.23	62	70	12.1	67	69	2.9	30 - 130	30	
2-Methylnaphthalene	ND	0.23	62	67	7.8	72	69	4.3	40 - 140	30	
2-Methylphenol (o-cresol)	ND	0.23	61	70	13.7	72	75	4.1	40 - 140	30	
2-Nitroaniline	ND	0.33	95	101	6.1	96	92	4.3	40 - 140	30	
2-Nitrophenol	ND	0.23	67	77	13.9	77	75	2.6	40 - 140	30	
3&4-Methylphenol (m&p-cresol)	ND	0.23	58	67	14.4	67	68	1.5	30 - 130	30	
3,3'-Dichlorobenzidine	ND	0.13	72	77	6.7	82	72	13.0	40 - 140	30	
3-Nitroaniline	ND	0.33	84	92	9.1	88	82	7.1	40 - 140	30	
4,6-Dinitro-2-methylphenol	ND	0.23	28	17	48.9	69	68	1.5	30 - 130	30	l,r
4-Bromophenyl phenyl ether	ND	0.23	61	68	10.9	66	63	4.7	40 - 140	30	
4-Chloro-3-methylphenol	ND	0.23	71	77	8.1	85	83	2.4	30 - 130	30	
4-Chloroaniline	ND	0.23	65	67	3.0	64	57	11.6	40 - 140	30	
4-Chlorophenyl phenyl ether	ND	0.23	59	63	6.6	66	66	0.0	40 - 140	30	
4-Nitroaniline	ND	0.23	70	75	6.9	82	79	3.7	40 - 140	30	
4-Nitrophenol	ND	0.23	69	73	5.6	84	87	3.5	30 - 130	30	
Acenaphthene	ND	0.23	61	66	7.9	69	66	4.4	30 - 130	30	
Acenaphthylene	ND	0.13	57	63	10.0	65	61	6.3	40 - 140	30	
Acetophenone	ND	0.23	55	64	15.1	62	65	4.7	40 - 140	30	
Aniline	ND	0.33	58	67	14.4	52	47	10.1	40 - 140	30	
Anthracene	ND	0.23	62	68	9.2	69	68	1.5	40 - 140	30	
Benz(a)anthracene	ND	0.23	65	70	7.4	73	70	4.2	40 - 140	30	
Benzidine	ND	0.33	<10	<10	NC	<10	<10	NC	40 - 140	30	l,m
Benzo(a)pyrene	ND	0.13	66	72	8.7	81	76	6.4	40 - 140	30	
Benzo(b)fluoranthene	ND	0.16	59	63	6.6	70	66	5.9	40 - 140	30	
Benzo(ghi)perylene	ND	0.23	68	76	11.1	75	69	8.3	40 - 140	30	
Benzo(k)fluoranthene	ND	0.23	57	60	5.1	64	64	0.0	40 - 140	30	
Benzoic Acid	ND	0.67	11	<10	NC	104	98	5.9	30 - 130	30	l
Benzyl butyl phthalate	ND	0.23	65	70	7.4	78	75	3.9	40 - 140	30	
Bis(2-chloroethoxy)methane	ND	0.23	59	64	8.1	68	68	0.0	40 - 140	30	
Bis(2-chloroethyl)ether	ND	0.13	54	60	10.5	58	58	0.0	40 - 140	30	
Bis(2-ethylhexyl)phthalate	ND	0.23	67	71	5.8	78	75	3.9	40 - 140	30	
Carbazole	ND	0.23	67	72	7.2	66	63	4.7	40 - 140	30	
Chrysene	ND	0.23	65	70	7.4	73	69	5.6	40 - 140	30	
Dibenz(a,h)anthracene	ND	0.13	68	73	7.1	72	69	4.3	40 - 140	30	
Dibenzofuran	ND	0.23	61	66	7.9	73	72	1.4	40 - 140	30	
Diethyl phthalate	ND	0.23	62	68	9.2	71	69	2.9	40 - 140	30	
Dimethylphthalate	ND	0.23	61	68	10.9	73	72	1.4	40 - 140	30	
Di-n-butylphthalate	ND	0.67	63	68	7.6	60	59	1.7	40 - 140	30	
Di-n-octylphthalate	ND	0.23	67	74	9.9	65	62	4.7	40 - 140	30	
Fluoranthene	ND	0.23	60	66	9.5	57	57	0.0	40 - 140	30	
Fluorene	ND	0.23	62	68	9.2	71	71	0.0	40 - 140	30	
Hexachlorobenzene	ND	0.13	63	68	7.6	67	65	3.0	40 - 140	30	
Hexachlorobutadiene	ND	0.23	62	65	4.7	65	62	4.7	40 - 140	30	

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Hexachlorocyclopentadiene	ND	0.23	42	44	4.7	<10	<10	NC	40 - 140	30	m
Hexachloroethane	ND	0.13	55	62	12.0	49	45	8.5	40 - 140	30	
Indeno(1,2,3-cd)pyrene	ND	0.23	67	77	13.9	72	67	7.2	40 - 140	30	
Isophorone	ND	0.13	55	59	7.0	63	62	1.6	40 - 140	30	
Naphthalene	ND	0.23	59	65	9.7	66	65	1.5	40 - 140	30	
Nitrobenzene	ND	0.13	58	67	14.4	64	66	3.1	40 - 140	30	
N-Nitrosodimethylamine	ND	0.23	43	49	13.0	30	27	10.5	40 - 140	30	m
N-Nitrosodi-n-propylamine	ND	0.13	54	62	13.8	60	62	3.3	40 - 140	30	
N-Nitrosodiphenylamine	ND	0.13	60	66	9.5	67	63	6.2	40 - 140	30	
Pentachloronitrobenzene	ND	0.23	59	64	8.1	66	66	0.0	40 - 140	30	
Pentachlorophenol	ND	0.23	59	60	1.7	74	73	1.4	30 - 130	30	
Phenanthrene	ND	0.13	60	66	9.5	68	68	0.0	40 - 140	30	
Phenol	ND	0.23	61	72	16.5	69	71	2.9	30 - 130	30	
Pyrene	ND	0.23	60	64	6.5	55	54	1.8	30 - 130	30	
Pyridine	ND	0.23	39	44	12.0	25	22	12.8	40 - 140	30	l,m
% 2,4,6-Tribromophenol	80	%	61	68	10.9	75	74	1.3	30 - 130	30	
% 2-Fluorobiphenyl	71	%	57	62	8.4	67	64	4.6	30 - 130	30	
% 2-Fluorophenol	73	%	57	65	13.1	61	60	1.7	30 - 130	30	
% Nitrobenzene-d5	69	%	56	62	10.2	61	65	6.3	30 - 130	30	
% Phenol-d5	75	%	60	69	14.0	68	66	3.0	30 - 130	30	
% Terphenyl-d14	64	%	52	53	1.9	49	49	0.0	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 674242 (mg/Kg), QC Sample No: CN87704 (CN87693, CN87694, CN87695)

Semivolatiles - Sediment

1,1-Biphenyl	ND	0.23	76	81	6.4	77	83	7.5	40 - 140	30	
1,2,4,5-Tetrachlorobenzene	ND	0.23	75	79	5.2	78	83	6.2	40 - 140	30	
1,2,4-Trichlorobenzene	ND	0.23	68	72	5.7	76	80	5.1	40 - 140	30	
1,2-Dichlorobenzene	ND	0.18	59	63	6.6	69	73	5.6	40 - 140	30	
1,2-Diphenylhydrazine	ND	0.23	83	86	3.6	77	82	6.3	40 - 140	30	
1,3-Dichlorobenzene	ND	0.23	57	62	8.4	69	72	4.3	40 - 140	30	
1,4-Dichlorobenzene	ND	0.23	56	60	6.9	67	70	4.4	40 - 140	30	
2,2'-Oxybis(1-Chloropropane)	ND	0.23	60	64	6.5	70	73	4.2	40 - 140	30	
2,4,5-Trichlorophenol	ND	0.23	100	102	2.0	96	103	7.0	40 - 140	30	
2,4,6-Trichlorophenol	ND	0.13	93	97	4.2	91	98	7.4	30 - 130	30	
2,4-Dichlorophenol	ND	0.13	85	92	7.9	88	95	7.7	30 - 130	30	
2,4-Dimethylphenol	ND	0.23	87	93	6.7	92	102	10.3	30 - 130	30	
2,4-Dinitrophenol	ND	0.23	88	94	6.6	76	81	6.4	30 - 130	30	
2,4-Dinitrotoluene	ND	0.13	94	97	3.1	89	95	6.5	30 - 130	30	
2,6-Dinitrotoluene	ND	0.13	94	99	5.2	87	97	10.9	40 - 140	30	
2-Chloronaphthalene	ND	0.23	76	81	6.4	78	84	7.4	40 - 140	30	
2-Chlorophenol	ND	0.23	73	78	6.6	82	86	4.8	30 - 130	30	
2-Methylnaphthalene	ND	0.23	77	82	6.3	83	88	5.8	40 - 140	30	
2-Methylphenol (o-cresol)	ND	0.23	77	85	9.9	88	92	4.4	40 - 140	30	
2-Nitroaniline	ND	0.33	98	99	1.0	83	100	18.6	40 - 140	30	
2-Nitrophenol	ND	0.23	71	76	6.8	77	84	8.7	40 - 140	30	
3&4-Methylphenol (m&p-cresol)	ND	0.23	78	85	8.6	85	92	7.9	30 - 130	30	
3,3'-Dichlorobenzidine	ND	0.13	45	51	12.5	22	38	53.3	40 - 140	30	m,r
3-Nitroaniline	ND	0.33	37	41	10.3	32	37	14.5	40 - 140	30	l,m
4,6-Dinitro-2-methylphenol	ND	0.23	92	98	6.3	82	89	8.2	30 - 130	30	
4-Bromophenyl phenyl ether	ND	0.23	90	92	2.2	83	88	5.8	40 - 140	30	

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
4-Chloro-3-methylphenol	ND	0.23	96	99	3.1	90	98	8.5	30 - 130	30	
4-Chloroaniline	ND	0.23	14	16	13.3	28	22	24.0	40 - 140	30	l,m
4-Chlorophenyl phenyl ether	ND	0.23	83	89	7.0	81	87	7.1	40 - 140	30	
4-Nitroaniline	ND	0.23	93	94	1.1	88	95	7.7	40 - 140	30	
4-Nitrophenol	ND	0.23	119	122	2.5	111	123	10.3	30 - 130	30	
Acenaphthene	ND	0.23	82	85	3.6	79	88	10.8	30 - 130	30	
Acenaphthylene	ND	0.13	78	81	3.8	78	82	5.0	40 - 140	30	
Acetophenone	ND	0.23	67	71	5.8	74	79	6.5	40 - 140	30	
Aniline	ND	0.33	69	78	12.2	82	81	1.2	40 - 140	30	
Anthracene	ND	0.23	92	93	1.1	84	92	9.1	40 - 140	30	
Benz(a)anthracene	ND	0.23	92	92	0.0	81	95	15.9	40 - 140	30	
Benzidine	ND	0.33	<10	<10	NC	<10	<10	NC	40 - 140	30	l,m
Benzo(a)pyrene	ND	0.13	101	103	2.0	98	104	5.9	40 - 140	30	
Benzo(b)fluoranthene	ND	0.16	95	95	0.0	95	98	3.1	40 - 140	30	
Benzo(ghi)perylene	ND	0.23	99	101	2.0	78	83	6.2	40 - 140	30	
Benzo(k)fluoranthene	ND	0.23	89	92	3.3	82	91	10.4	40 - 140	30	
Benzoic Acid	ND	0.67	113	114	0.9	96	105	9.0	30 - 130	30	
Benzyl butyl phthalate	ND	0.23	93	94	1.1	88	96	8.7	40 - 140	30	
Bis(2-chloroethoxy)methane	ND	0.23	73	78	6.6	76	82	7.6	40 - 140	30	
Bis(2-chloroethyl)ether	ND	0.13	61	66	7.9	72	74	2.7	40 - 140	30	
Bis(2-ethylhexyl)phthalate	ND	0.23	96	96	0.0	84	91	8.0	40 - 140	30	
Carbazole	ND	0.23	94	94	0.0	86	95	9.9	40 - 140	30	
Chrysene	ND	0.23	95	96	1.0	84	93	10.2	40 - 140	30	
Dibenz(a,h)anthracene	ND	0.13	99	99	0.0	81	86	6.0	40 - 140	30	
Dibenzofuran	ND	0.23	83	86	3.6	82	90	9.3	40 - 140	30	
Diethyl phthalate	ND	0.23	88	93	5.5	83	90	8.1	40 - 140	30	
Dimethylphthalate	ND	0.23	86	89	3.4	79	87	9.6	40 - 140	30	
Di-n-butylphthalate	ND	0.67	92	93	1.1	81	88	8.3	40 - 140	30	
Di-n-octylphthalate	ND	0.23	100	104	3.9	85	92	7.9	40 - 140	30	
Fluoranthene	ND	0.23	94	93	1.1	75	95	23.5	40 - 140	30	
Fluorene	ND	0.23	88	90	2.2	85	95	11.1	40 - 140	30	
Hexachlorobenzene	ND	0.13	89	91	2.2	83	91	9.2	40 - 140	30	
Hexachlorobutadiene	ND	0.23	69	73	5.6	76	82	7.6	40 - 140	30	
Hexachlorocyclopentadiene	ND	0.23	73	81	10.4	66	62	6.3	40 - 140	30	
Hexachloroethane	ND	0.13	56	60	6.9	69	71	2.9	40 - 140	30	
Indeno(1,2,3-cd)pyrene	ND	0.23	99	100	1.0	83	86	3.6	40 - 140	30	
Isophorone	ND	0.13	68	72	5.7	71	76	6.8	40 - 140	30	
Naphthalene	ND	0.23	70	76	8.2	80	83	3.7	40 - 140	30	
Nitrobenzene	ND	0.13	67	72	7.2	76	81	6.4	40 - 140	30	
N-Nitrosodimethylamine	ND	0.23	52	57	9.2	45	46	2.2	40 - 140	30	
N-Nitrosodi-n-propylamine	ND	0.13	67	72	7.2	73	77	5.3	40 - 140	30	
N-Nitrosodiphenylamine	ND	0.13	87	90	3.4	80	87	8.4	40 - 140	30	
Pentachloronitrobenzene	ND	0.23	87	89	2.3	80	86	7.2	40 - 140	30	
Pentachlorophenol	ND	0.23	107	107	0.0	102	114	11.1	30 - 130	30	
Phenanthrene	ND	0.13	89	91	2.2	80	95	17.1	40 - 140	30	
Phenol	ND	0.23	73	79	7.9	78	84	7.4	30 - 130	30	
Pyrene	ND	0.23	94	91	3.2	74	92	21.7	30 - 130	30	
Pyridine	ND	0.23	52	65	22.2	49	51	4.0	40 - 140	30	
% 2,4,6-Tribromophenol	81	%	80	81	1.2	77	83	7.5	30 - 130	30	
% 2-Fluorobiphenyl	79	%	75	78	3.9	74	79	6.5	30 - 130	30	
% 2-Fluorophenol	72	%	65	71	8.8	73	77	5.3	30 - 130	30	
% Nitrobenzene-d5	70	%	63	67	6.2	71	75	5.5	30 - 130	30	
% Phenol-d5	77	%	73	78	6.6	78	83	6.2	30 - 130	30	

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
% Terphenyl-d14	76	%	80	75	6.5	65	72	10.2	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 678174 (mg/Kg), QC Sample No: CO01061 (CN87690)

Volatiles - Sediment (Low Level)

1,1,1,2-Tetrachloroethane	ND	0.005	108	104	3.8	95	98	3.1	70 - 130	30	
1,1,1-Trichloroethane	ND	0.005	109	106	2.8	100	103	3.0	70 - 130	30	
1,1,2-Trichloroethane	ND	0.005	103	99	4.0	95	94	1.1	70 - 130	30	
1,1-Dichloroethane	ND	0.005	108	104	3.8	103	105	1.9	70 - 130	30	
1,1-Dichloroethene	ND	0.005	113	109	3.6	105	109	3.7	70 - 130	30	
1,1-Dichloropropene	ND	0.005	109	104	4.7	97	100	3.0	70 - 130	30	
1,2-Dibromoethane	ND	0.005	107	102	4.8	98	98	0.0	70 - 130	30	
1,2-Dichloroethane	ND	0.005	108	102	5.7	101	103	2.0	70 - 130	30	
1,2-Dichloropropane	ND	0.005	102	98	4.0	95	97	2.1	70 - 130	30	
1,3-Dichloropropane	ND	0.005	108	102	5.7	101	103	2.0	70 - 130	30	
1,4-dioxane	ND	0.1	106	117	9.9	107	150	33.5	70 - 130	30	m,r
2,2-Dichloropropane	ND	0.005	108	103	4.7	98	101	3.0	70 - 130	30	
2-Hexanone	ND	0.025	99	94	5.2	78	71	9.4	70 - 130	30	
4-Methyl-2-pentanone	ND	0.025	99	95	4.1	88	83	5.8	70 - 130	30	
Acetone	ND	0.01	108	103	4.7	95	90	5.4	70 - 130	30	
Acrylonitrile	ND	0.005	101	98	3.0	92	90	2.2	70 - 130	30	
Benzene	ND	0.001	104	100	3.9	95	98	3.1	70 - 130	30	
Bromochloromethane	ND	0.005	110	107	2.8	102	105	2.9	70 - 130	30	
Bromodichloromethane	ND	0.005	104	99	4.9	93	95	2.1	70 - 130	30	
Bromoform	ND	0.005	101	98	3.0	84	85	1.2	70 - 130	30	
Bromomethane	ND	0.005	119	113	5.2	116	120	3.4	70 - 130	30	
Carbon Disulfide	ND	0.005	106	102	3.8	94	97	3.1	70 - 130	30	
Carbon tetrachloride	ND	0.005	112	108	3.6	98	101	3.0	70 - 130	30	
Chlorobenzene	ND	0.005	106	102	3.8	93	95	2.1	70 - 130	30	
Chloroethane	ND	0.005	106	100	5.8	96	105	9.0	70 - 130	30	
Chloroform	ND	0.005	109	105	3.7	102	105	2.9	70 - 130	30	
Chloromethane	ND	0.005	105	104	1.0	99	102	3.0	70 - 130	30	
cis-1,2-Dichloroethene	ND	0.005	109	105	3.7	100	103	3.0	70 - 130	30	
cis-1,3-Dichloropropene	ND	0.005	104	100	3.9	93	95	2.1	70 - 130	30	
Dibromochloromethane	ND	0.003	105	101	3.9	93	95	2.1	70 - 130	30	
Dibromomethane	ND	0.005	107	102	4.8	98	99	1.0	70 - 130	30	
Dichlorodifluoromethane	ND	0.005	122	116	5.0	111	114	2.7	70 - 130	30	
Di-isopropyl ether	ND	0.005	104	100	3.9	102	104	1.9	70 - 130	30	
Ethyl tert-butyl ether	ND	0.005	105	102	2.9	102	104	1.9	70 - 130	30	
Ethylbenzene	ND	0.001	104	100	3.9	89	91	2.2	70 - 130	30	
m&p-Xylene	ND	0.002	106	101	4.8	87	88	1.1	70 - 130	30	
Methyl ethyl ketone	ND	0.005	102	99	3.0	92	88	4.4	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	0.001	103	100	3.0	108	108	0.0	70 - 130	30	
Methylene chloride	ND	0.005	103	99	4.0	99	103	4.0	70 - 130	30	
o-Xylene	ND	0.002	103	99	4.0	86	87	1.2	70 - 130	30	
Styrene	ND	0.005	98	94	4.2	79	80	1.3	70 - 130	30	
tert-amyl methyl ether	ND	0.005	100	96	4.1	96	97	1.0	70 - 130	30	
Tetrachloroethene	ND	0.005	102	98	4.0	87	88	1.1	70 - 130	30	
Tetrahydrofuran (THF)	ND	0.005	102	99	3.0	100	98	2.0	70 - 130	30	
Toluene	ND	0.001	103	98	5.0	91	93	2.2	70 - 130	30	
trans-1,2-Dichloroethene	ND	0.005	110	105	4.7	101	103	2.0	70 - 130	30	

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
trans-1,3-Dichloropropene	ND	0.005	104	100	3.9	93	94	1.1	70 - 130	30
Trichloroethene	ND	0.005	105	102	2.9	94	96	2.1	70 - 130	30
Trichlorofluoromethane	ND	0.005	119	114	4.3	112	116	3.5	70 - 130	30
Trichlorotrifluoroethane	ND	0.005	106	101	4.8	97	101	4.0	70 - 130	30
Vinyl chloride	ND	0.005	109	105	3.7	103	106	2.9	70 - 130	30
% 1,2-dichlorobenzene-d4	99	%	99	99	0.0	99	98	1.0	70 - 130	30
% Bromofluorobenzene	97	%	101	100	1.0	96	95	1.0	70 - 130	30
% Dibromofluoromethane	94	%	99	99	0.0	99	98	1.0	70 - 130	30
% Toluene-d8	99	%	99	98	1.0	99	98	1.0	70 - 130	30

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%, 25-160% for Chloroethane-HL and Trichlorofluoromethane-HL.

QA/QC Batch 678174H (mg/Kg), QC Sample No: CO01061 50X (CN87690 (50X))

Volatiles - Sediment (High Level)

1,1,2,2-Tetrachloroethane	ND	0.25	101	99	2.0	101	104	2.9	70 - 130	30
1,2,3-Trichlorobenzene	ND	0.25	108	110	1.8	106	115	8.1	70 - 130	30
1,2,3-Trichloropropane	ND	0.25	97	97	0.0	99	105	5.9	70 - 130	30
1,2,4-Trichlorobenzene	ND	0.25	111	109	1.8	112	117	4.4	70 - 130	30
1,2,4-Trimethylbenzene	ND	0.25	106	107	0.9	109	111	1.8	70 - 130	30
1,2-Dibromo-3-chloropropane	ND	0.25	95	91	4.3	89	97	8.6	70 - 130	30
1,2-Dichlorobenzene	ND	0.25	104	103	1.0	105	106	0.9	70 - 130	30
1,3,5-Trimethylbenzene	ND	0.25	109	110	0.9	112	114	1.8	70 - 130	30
1,3-Dichlorobenzene	ND	0.25	107	107	0.0	108	110	1.8	70 - 130	30
1,4-Dichlorobenzene	ND	0.25	107	107	0.0	109	110	0.9	70 - 130	30
2-Chlorotoluene	ND	0.25	109	110	0.9	111	113	1.8	70 - 130	30
2-Isopropyltoluene	ND	0.25	107	108	0.9	109	111	1.8	70 - 130	30
4-Chlorotoluene	ND	0.25	109	111	1.8	112	113	0.9	70 - 130	30
Bromobenzene	ND	0.25	105	105	0.0	105	107	1.9	70 - 130	30
Diethyl ether	ND	0.25	82	71	14.4	84	79	6.1	70 - 130	30
Hexachlorobutadiene	ND	0.25	107	108	0.9	106	109	2.8	70 - 130	30
Isopropylbenzene	ND	0.25	108	110	1.8	110	112	1.8	70 - 130	30
Naphthalene	ND	0.25	110	111	0.9	107	120	11.5	70 - 130	30
n-Butylbenzene	ND	0.25	116	117	0.9	119	122	2.5	70 - 130	30
n-Propylbenzene	ND	0.25	109	111	1.8	111	113	1.8	70 - 130	30
p-Isopropyltoluene	ND	0.25	113	114	0.9	114	117	2.6	70 - 130	30
sec-Butylbenzene	ND	0.25	111	113	1.8	113	115	1.8	70 - 130	30
tert-Butylbenzene	ND	0.25	108	110	1.8	109	112	2.7	70 - 130	30
trans-1,4-dichloro-2-butene	ND	0.25	96	94	2.1	96	100	4.1	70 - 130	30
% 1,2-dichlorobenzene-d4	99	%	99	99	0.0	99	100	1.0	70 - 130	30
% Bromofluorobenzene	97	%	100	100	0.0	99	99	0.0	70 - 130	30
% Dibromofluoromethane	91	%	96	95	1.0	94	95	1.1	70 - 130	30
% Toluene-d8	99	%	98	98	0.0	98	98	0.0	70 - 130	30

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%, 25-160% for Chloroethane-HL and Trichlorofluoromethane-HL.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

QA/QC Data

SDG I.D.: GCN87690

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
May 18, 2023

Thursday, May 18, 2023

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCN87690 - VHB-MA

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Comments

May 18, 2023 SDG I.D.: GCN87690

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report:

PEST Narration

AU-ECD4 04/27/23-1: CN87691

The following Continuing Calibration compounds did not meet % deviation criteria:
Samples: CN87691
Preceding CC 427B020 - Endrin 25%H (20%)
Succeeding CC 427B033 - None.

AU-ECD4 04/28/23-1: CN87690, CN87692, CN87693, CN87694, CN87695

The following Continuing Calibration compounds did not meet % deviation criteria:
Samples: CN87690
Preceding CC 428B033 - Endrin aldehyde 22%L (20%), Endrin Ketone 25%L (20%), Methoxychlor 30%L (20%)
Succeeding CC 428B047 - Methoxychlor 25%L (20%)
A low "1A" standard was run after the samples to demonstrate capability to detect any compounds outside of the CC acceptance criteria. All reported samples were ND for the affected compounds.
Samples: CN87692, CN87693, CN87694, CN87695
Preceding CC 428B047 - Methoxychlor 25%L (20%)
Succeeding CC 428B060 - 4,4'-DDD 23%L (20%), 4,4'-DDT 23%L (20%), Endrin aldehyde 22%L (20%), Methoxychlor 28%L (20%)
A low "1A" standard was run after the samples to demonstrate capability to detect any compounds outside of the CC acceptance criteria. All reported samples were ND for the affected compounds.

SVOA Narration

CHEM29 04/20/23-1: CN87690, CN87691, CN87692

For 8270 full list, the DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.
For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

The following Initial Calibration compounds did not meet recommended response factors: 2-Nitrophenol 0.059 (0.1), Hexachlorobenzene 0.081 (0.1)
The following Initial Calibration compounds did not meet minimum response factors: None.

The following Continuing Calibration compounds did not meet recommended response factors: 2-Nitrophenol 0.070 (0.1), Hexachlorobenzene 0.083 (0.1)
The following Continuing Calibration compounds did not meet minimum response factors: None.

Up to eight compounds can be outside of ICAL %RSD criteria and up to sixteen compounds can be outside of CCAL %Dev criteria if less than 40%.

CHEM36 04/24/23-1: CN87693, CN87694, CN87695

The following Initial Calibration compounds did not meet recommended response factors: 2-Nitrophenol 0.069 (0.1), Hexachlorobenzene 0.087 (0.1)
The following Initial Calibration compounds did not meet minimum response factors: None.

The following Continuing Calibration compounds did not meet recommended response factors: 2-Nitrophenol 0.069 (0.1), Hexachlorobenzene 0.087 (0.1)
The following Continuing Calibration compounds did not meet minimum response factors: None.

Up to eight compounds can be outside of ICAL %RSD criteria and up to sixteen compounds can be outside of CCAL %Dev criteria if less than 40%.

VOA Narration

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Comments

May 18, 2023 SDG I.D.: GCN87690

CHEM03 05/16/23-2: CN87690

The following Initial Calibration compounds did not meet RSD% criteria: Chloroethane 22% (20%)
The following Initial Calibration compounds did not meet maximum RSD% criteria: None.
The following Initial Calibration compounds did not meet recommended response factors: Tetrachloroethene 0.163 (0.2)
The following Initial Calibration compounds did not meet minimum response factors: None.

Up to eight compounds can be outside of ICAL %RSD criteria and up to sixteen compounds can be outside of CCAL %Dev criteria if less than 40%.

Cooler: Yes [X] No [ ]
Coolant: IPK [X] ICE [ ] No [ ]
Temp 1.2 °C Pg of

PHOENIX Environmental Laboratories, Inc.

CT/MA/RI CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: makrina@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-1102

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[X] Email: pcochrane@vhb.com

Customer: VHB
Address: 101 Walnut Street, Watertown, MA

Project: Rickpocket Dam
Report to: Paige Cochrane
Invoice to: 52151.06
Quote #: VH040623RM

Project P.O:

This section MUST be completed with Bottle Quantities.

Sampler's Signature: [signature] Date: 4/18/23

Client Sample - Information - Identification

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	*MS/MSD (May be billable at analysis unit rate)	Grain Size D-422	RP-13 + Fe	Manganese	Cyanide	TKN	5210	Pesticides 8081	PCBs 8082				GL Amber 8 oz. [X] w/H3PO4 [ ] NAHSO4	Soil VOA Vials [X] methanol [X] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml [ ] 1500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is	Ziploc Bag
87690	SED-1	SE	4/18/23	10:05		X	X	X	X	X	X	X	X				1	3											1
87691	SED-2			9:50		X	X	X	X	X	X	X	X				2	3											1
~~87692~~	SED-2 MS/MD			9:50	X		X	X	X	X	X	X	X				1	3											
~~87693~~	SED-2 FD			9:50			X	X	X	X	X	X	X				1	3		87692									
~~87694~~	SED-3			11:40		X	X	X	X	X	X	X	X				1	3		87693									1
~~87695~~	SED-4			12:30		X	X	X	X	X	X	X	X				1	3		87694									1
~~87696~~	SED-5			9:00		X	X	X	X	X	X	X	X				1	3		87695									1
	EB-1	L		11:00													1			87696									

Relinquished by:	Accepted by:	Date:	Time:
[signature]	[signature]	4/20/23	11:30
[signature]	[signature]	4/20/23	1515

Comments, Special Requirements or Regulations:
EB-1 on hold

Turnaround Time:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[ ] 4 Days*
[ ] 5 Days*
[X] Standard
[ ] Other _____

RI
[ ] RES DEC
[ ] I/C DEC
[ ] GA Leachability
[ ] GB Leachability
[ ] GA -GW Objectives
[ ] GB -GW Objectives
[ ] Other

CT
[ ] RCP Cert
[ ] GWPC
[ ] SWPC
[ ] GA PMC
[ ] GB PMC
[ ] SWPC
[ ] RES DEC
[ ] I/C DEC

MA
[ ] MCP Certification
[ ] GW-1
[ ] GW-2
[ ] GW-3
[ ] S-1
[ ] S-2
[ ] S-3
[ ] SW Protection
[ ] RCS-1 / RCGW-1
[ ] RCS-2 / RCGW-2
[ ] _____

Data Format
[X] Excel
[X] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist*
[ ] Full Data Package*
[ ] Phoenix Std
[ ] Other

***MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.**

*** SURCHARGES MAY APPLY**

State where samples were collected: NH

*** SURCHARGE APPLIES**

Form PEL126 Rev. 1/23

GRAIN SIZE DISTRIBUTION TEST DATA

4/28/2023

Client: : Phoenix Environmental Laboratories, Inc

Date: 04/28/2023

Project: : GCN 87690

Project Number: : GCN 87690

Location: Onsite

Depth: N/A

Sample Number: 304-23

Material Description: Marine Sediments

Liquid Limit: N/A

Plastic Limit: N/A

USCS Classification: N/A

AASHTO Classification: N/A

Test Date: 04/28/2023

Testing Remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87690)

Tested by: IC

Checked by: HC

Test Date: 04/28/2023 **Technician:** IC

Test remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87690)

Sieve Test Data (ASTM C117 & C136)

Post #200 Wash Test Weights (grams): Dry Specimen+Tare = 338.90
Tare Wt. = 0.00

Minus #200 from wash = 64.6%

Specimen Weights
Dry specimen+tare (gms.) = 957.90
Tare (gms.) = 0.00

Cumulative pan tare (gms.) = 0.00

Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Passing	Percent Retained
3/4"	0.00	100.0	0.0
1/4"	9.90	99.0	1.0
#4	12.70	98.7	1.3
#10	19.90	97.9	2.1
#40	89.50	90.7	9.3
#60	187.70	80.4	19.6
#100	264.90	72.3	27.7
#200	336.80	64.8	35.2

Pan + tare = 0 Tare = 0 Loss during sieving = 0.2%

Total loss (wash+pan/specimen) = 64.6%

Results

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.3	1.3	0.8	7.2	25.9	33.9			64.8

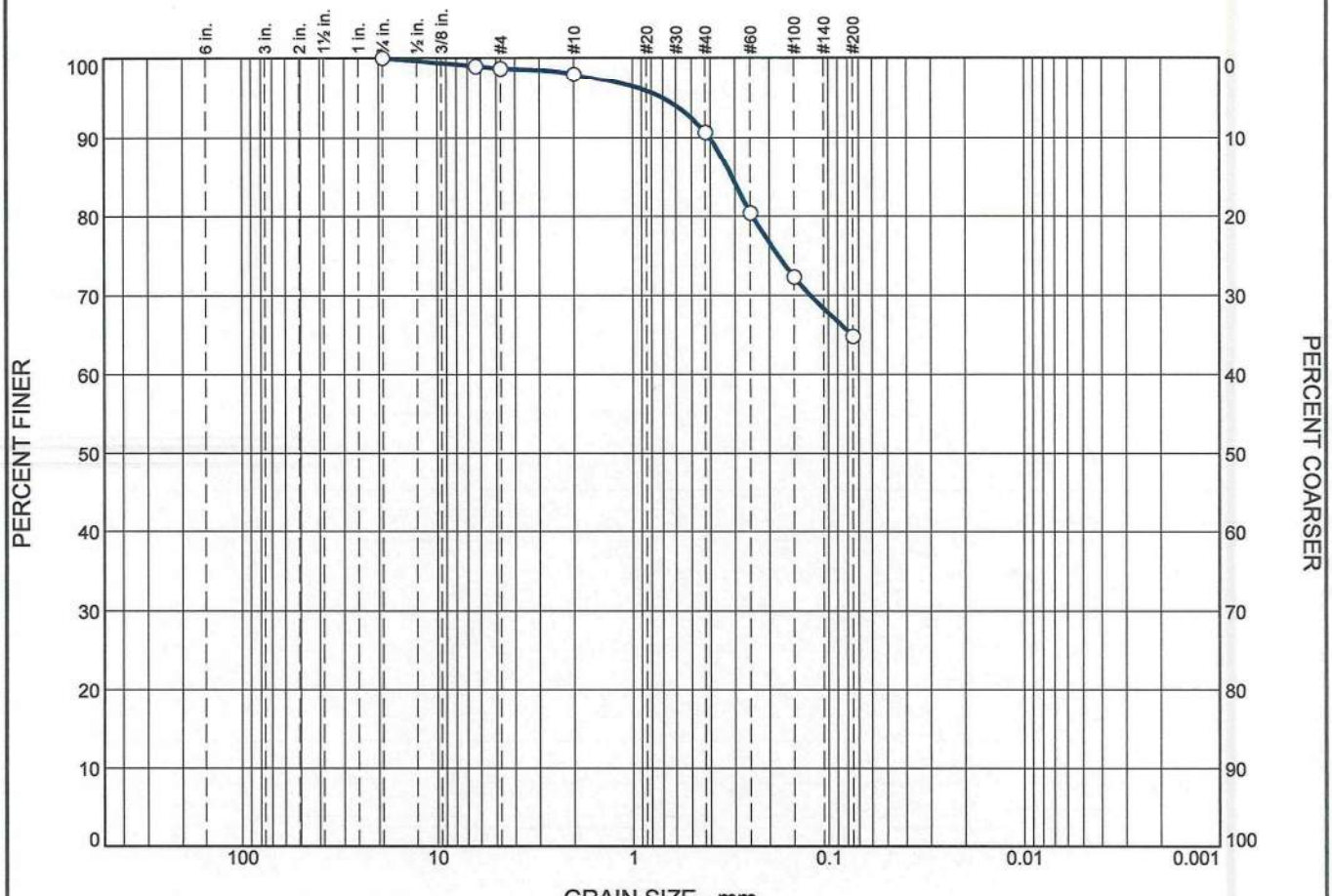
Distribution Data

Val	Diameter (mm.)
D_5	
D_{10}	
D_{15}	
D_{20}	
D_{30}	
D_{40}	
D_{50}	
D_{60}	
D_{80}	0.2443
D_{85}	0.3128
D_{90}	0.4047
D_{95}	0.7107

Fineness Modulus

0.57

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.3	0.8	7.2	25.9	64.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	N/A	N/A	0.3128							

MATERIAL DESCRIPTION	TEST DATE	USCS	NM
○ Marine Sediments	04/28/2023	N/A	

Project No. : GCN 87690 **Client:** : Phoenix Environmental Laboratories, Inc Date: 04/28/2023

Project: : GCN 87690

○ **Source of Sample:** Onsite **Depth:** N/A **Sample Number:** 304-23

Remarks:

○ ASTM C 117, ASTM C 136 (Sample ID= CN 87690)

Tri State Materials Testing Lab

Berlin, Connecticut

Figure

Tested By: IC **Checked By:** HC

GRAIN SIZE DISTRIBUTION TEST DATA

4/28/2023

Client: : Phoenix Environmental Laboratories, Inc

Date: 04/28/2023

Project: : GCN 87690

Project Number: : GCN 87690

Location: Onsite

Depth: N/A

Sample Number: 305-23

Material Description: Marine Sediments

Liquid Limit: N/A

Plastic Limit: N/A

USCS Classification: N/A

AASHTO Classification: N/A

Test Date: 04/28/2023

Testing Remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87691)

Tested by: IC

Checked by: HC

Test Date: 04/28/2023 **Technician:** IC

Test remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87691)

Sieve Test Data (ASTM C117 & C136)

Post #200 Wash Test Weights (grams): Dry Specimen+Tare = 367.40
Tare Wt. = 0.00

Minus #200 from wash = 46.3%

Specimen Weights
Dry specimen+tare (gms.) = 684.00
Tare (gms.) = 0.00

Cumulative pan tare (gms.) = 0.00

Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Passing	Percent Retained
#4	0.00	100.0	0.0
#10	3.00	99.6	0.4
#40	65.00	90.5	9.5
#60	178.30	73.9	26.1
#100	269.40	60.6	39.4
#200	365.60	46.5	53.5

Pan + tare = 0 Tare = 0 Loss during sieving = 0.3%

Total loss (wash+pan/specimen) = 46.3%

Results

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.4	9.1	44.0	53.5			46.5

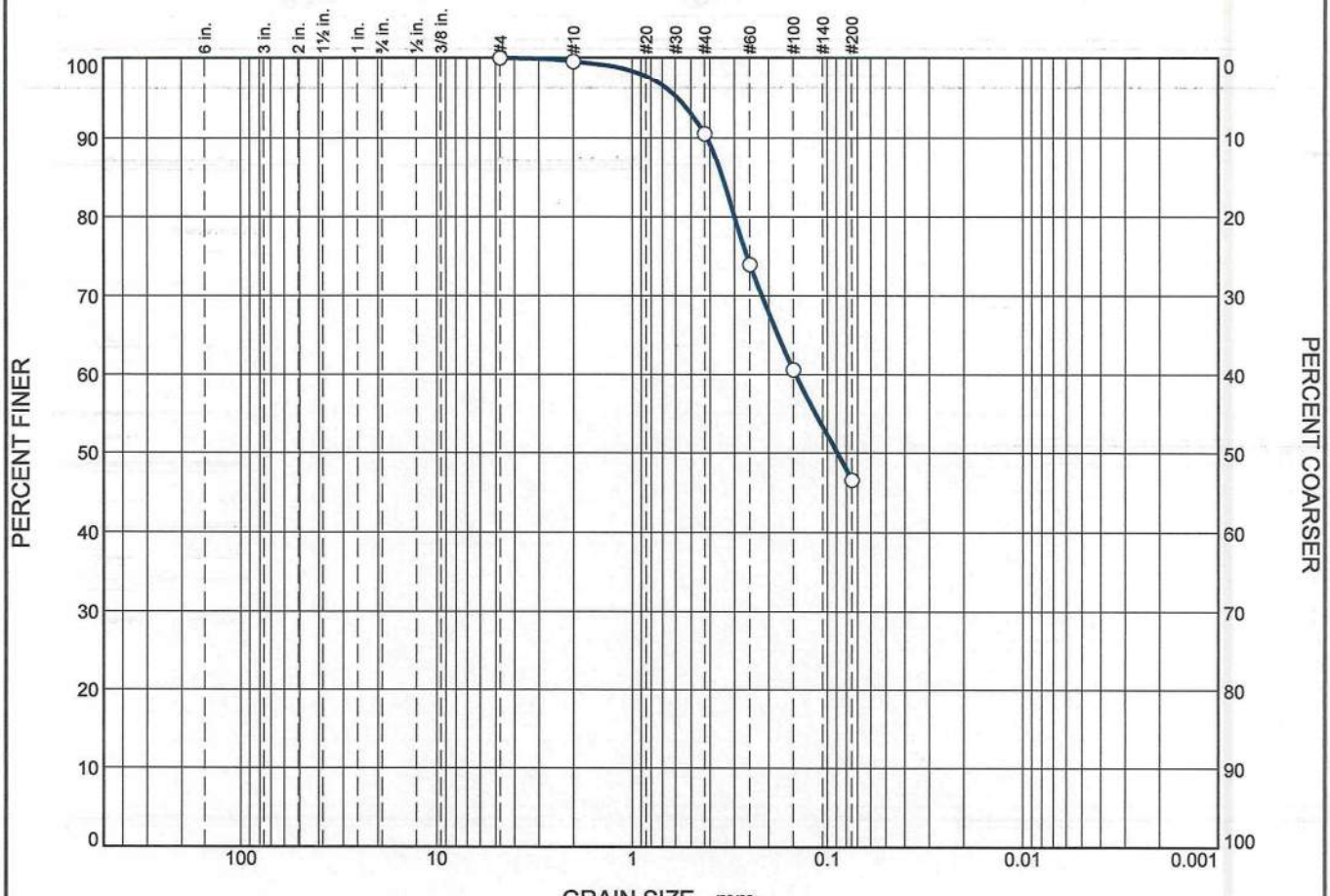
Distribution Data

Val	Diameter (mm.)
D_5	
D_{10}	
D_{15}	
D_{20}	
D_{30}	
D_{40}	
D_{50}	0.0893
D_{60}	0.1460
D_{80}	0.3000
D_{85}	0.3457
D_{90}	0.4139
D_{95}	0.5906

Fineness Modulus

0.66

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.4	9.1	44.0	46.5	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	N/A	N/A	0.3457	0.1460	0.0893					

MATERIAL DESCRIPTION	TEST DATE	USCS	NM
○ Marine Sediments	04/28/2023	N/A	

Project No. : GCN 87690 **Client:** : Phoenix Environmental Laboratories, Inc Date: 04/28/2023

Project: : GCN 87690

○ **Source of Sample:** Onsite **Depth:** N/A **Sample Number:** 305-23

Remarks:

○ ASTM C 117, ASTM C 136 (Sample ID= CN 87691)

Tri State Materials Testing Lab

Berlin, Connecticut

Figure

Tested By: IC **Checked By:** HC

GRAIN SIZE DISTRIBUTION TEST DATA

4/28/2023

Client: : Phoenix Environmental Laboratories, Inc

Date: 04/28/2023

Project: : GCN 87690

Project Number: : GCN 87690

Location: Onsite

Depth: N/A

Sample Number: 306-23

Material Description: Marine Sediments

Liquid Limit: N/A

Plastic Limit: N/A

USCS Classification: SP

AASHTO Classification: N/A

Test Date: 04/28/2023

Testing Remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87693)

Tested by: IC

Checked by: HC

Test Date: 04/28/2023 **Technician:** IC

Test remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87693)

Sieve Test Data (ASTM C117 & C136)

Post #200 Wash Test Weights (grams): Dry Specimen+Tare = 2716.60
Tare Wt. = 0.00

Minus #200 from wash = 3.0%

Specimen Weights
Dry specimen+tare (gms.) = 2799.60
Tare (gms.) = 0.00

Cumulative pan tare (gms.) = 0.00

Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Passing	Percent Retained
1 1/4"	0.00	100.0	0.0
3/4"	171.60	93.9	6.1
1/4"	1052.40	62.4	37.6
#4	1257.30	55.1	44.9
#10	1714.60	38.8	61.2
#40	2380.00	15.0	85.0
#60	2532.70	9.5	90.5
#100	2627.10	6.2	93.8
#200	2714.30	3.0	97.0

Pan + tare = 0 Tare = 0 Loss during sieving = 0.1%

Total loss (wash+pan/specimen) = 3.0%

Results

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	6.1	38.8	44.9	16.3	23.8	12.0	52.1			3.0

Distribution Data

Val	Diameter (mm.)
D_5	0.1187
D_{10}	0.2640
D_{15}	0.4254
D_{20}	0.6151
D_{30}	1.1835
D_{40}	2.1505
D_{50}	3.7221
D_{60}	5.8022
D_{80}	11.3414
D_{85}	13.3923
D_{90}	16.0880
D_{95}	20.2531

Fineness Modulus

4.68

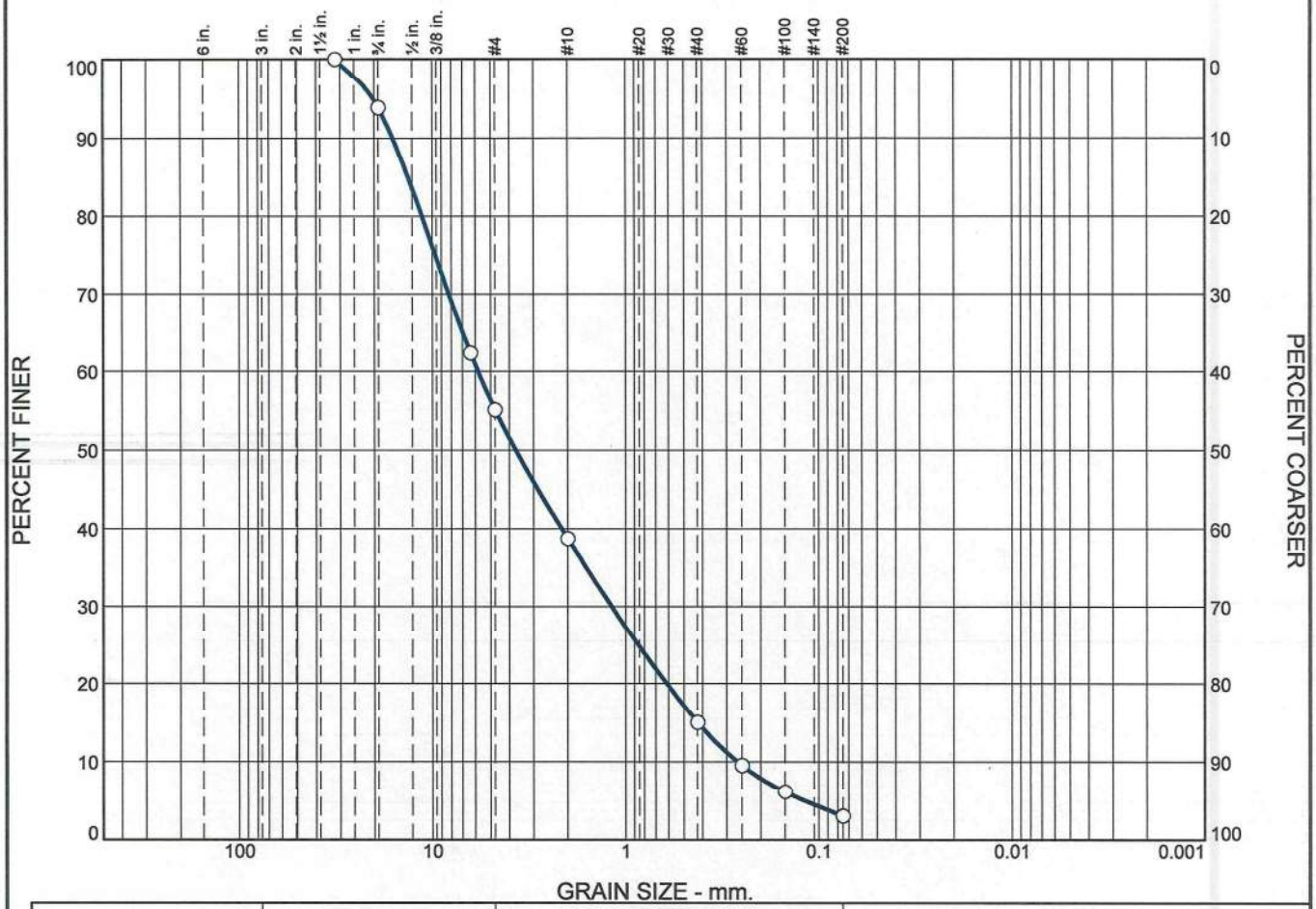
Coefficient of Uniformity (C_u)

21.98

Coefficient of Concavity (C_c)

0.91

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	6.1	38.8	16.3	23.8	12.0	3.0	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	N/A	N/A	13.3923	5.8022	3.7221	1.1835	0.4254	0.2640	0.91	21.98

MATERIAL DESCRIPTION	TEST DATE	USCS	NM
○ Marine Sediments	04/28/2023	SP	

Project No. : GCN 87690 **Client:** : Phoenix Environmental Laboratories, Inc Date: 04/28/2023

Project: : GCN 87690

○ **Source of Sample:** Onsite **Depth:** N/A **Sample Number:** 306-23

Remarks:

○ ASTM C 117, ASTM C 136 (Sample ID= CN 87693)

Tri State Materials Testing Lab

Berlin, Connecticut

Figure

Tested By: IC **Checked By:** HC

GRAIN SIZE DISTRIBUTION TEST DATA

4/28/2023

Client: : Phoenix Environmental Laboratories, Inc

Date: 04/28/2023

Project: : GCN 87690

Project Number: : GCN 87690

Location: Onsite

Depth: N/A

Sample Number: 307-23

Material Description: Marine Sediments

Liquid Limit: N/A

Plastic Limit: N/A

USCS Classification: SP

AASHTO Classification: N/A

Test Date: 04/28/2023

Testing Remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87694)

Tested by: IC

Checked by: HC

Test Date: 04/28/2023 **Technician:** IC

Test remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87694)

Sieve Test Data (ASTM C117 & C136)

Post #200 Wash Test Weights (grams): Dry Specimen+Tare = 4291.00
Tare Wt. = 0.00

Minus #200 from wash = 2.0%

Specimen Weights
Dry specimen+tare (gms.) = 4380.20
Tare (gms.) = 0.00

Cumulative pan tare (gms.) = 0.00

Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Passing	Percent Retained
1 1/4"	0.00	100.0	0.0
3/4"	320.30	92.7	7.3
1/4"	1718.40	60.8	39.2
#4	2031.80	53.6	46.4
#10	2825.40	35.5	64.5
#40	3893.90	11.1	88.9
#60	4089.50	6.6	93.4
#100	4187.50	4.4	95.6
#200	4288.40	2.1	97.9

Pan + tare = 0 Tare = 0 Loss during sieving = 0.1%

Total loss (wash+pan/specimen) = 2.0%

Tri State Materials Testing Lab

Results

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	7.3	39.1	46.4	18.1	24.4	9.0	51.5			2.1

Distribution Data

Val	Diameter (mm.)
D_5	0.1765
D_{10}	0.3850
D_{15}	0.5741
D_{20}	0.8075
D_{30}	1.4739
D_{40}	2.5287
D_{50}	4.0471
D_{60}	6.1691
D_{80}	11.9399
D_{85}	14.1084
D_{90}	16.9792
D_{95}	21.5832

Fineness Modulus

4.88

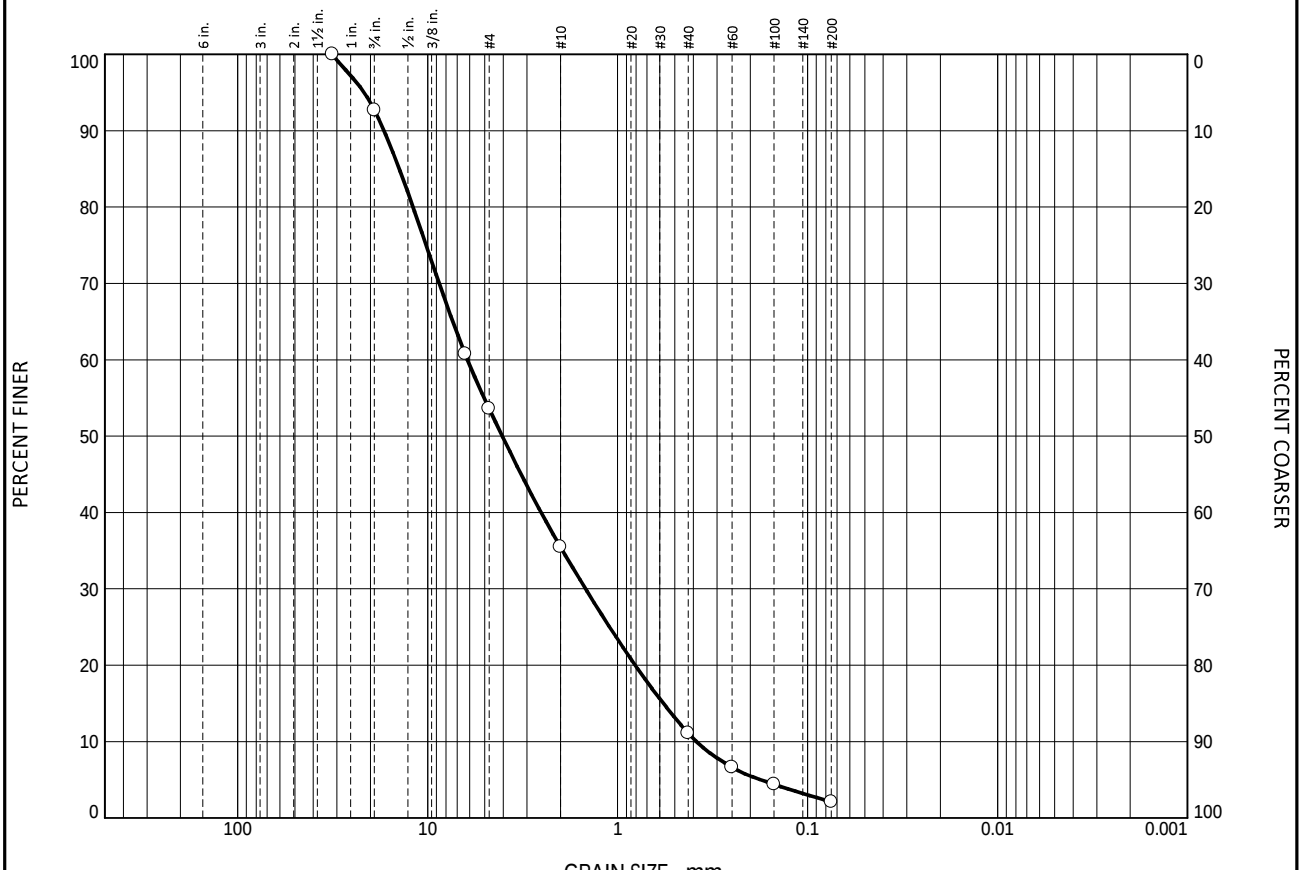
Coefficient of Uniformity (C_u)

16.02

Coefficient of Concavity (C_c)

0.91

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	7.3	39.1	18.1	24.4	9.0	2.1	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	N/A	N/A	14.1084	6.1691	4.0471	1.4739	0.5741	0.3850	0.91	16.02

MATERIAL DESCRIPTION	TEST DATE	USCS	NM
○ Marine Sediments	04/28/2023	SP	

Project No. : GCN 87690 Client: : Phoenix Environmental Laboratories, Inc Date: 04/28/2023

Project: : GCN 87690

○ Source of Sample: Onsite Depth: N/A Sample Number: 307-23

Remarks:

○ASTM C 117, ASTM C 136 (Sample ID= CN 87694)

Tri State Materials Testing Lab

Berlin, Connecticut

Figure

Tested By: IC Checked By: HC

GRAIN SIZE DISTRIBUTION TEST DATA

4/28/2023

Client: : Phoenix Environmental Laboratories, Inc

Date: 04/28/2023

Project: : GCN 87690

Project Number: : GCN 87690

Location: Onsite

Depth: N/A

Sample Number: 308-23

Material Description: Marine Sediments

Liquid Limit: N/A

Plastic Limit: N/A

USCS Classification: N/A

AASHTO Classification: N/A

Test Date: 04/28/2023

Testing Remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87695)

Tested by: IC

Checked by: HC

Test Date: 04/28/2023 **Technician:** IC

Test remarks: ASTM C 117, ASTM C 136 (Sample ID= CN 87695)

Sieve Test Data (ASTM C117 & C136)

Post #200 Wash Test Weights (grams): Dry Specimen+Tare = 175.00
Tare Wt. = 0.00

Minus #200 from wash = 64.7%

Specimen Weights
Dry specimen+tare (gms.) = 496.20
Tare (gms.) = 0.00

Cumulative pan tare (gms.) = 0.00

Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Passing	Percent Retained
3/4'	0.00	100.0	0.0
1/4"	3.80	99.2	0.8
#4	4.80	99.0	1.0
#10	7.90	98.4	1.6
#40	30.80	93.8	6.2
#60	47.20	90.5	9.5
#100	91.70	81.5	18.5
#200	173.90	65.0	35.0

Pan + tare = 0 Tare = 0 Loss during sieving = 0.2%

Total loss (wash+pan/specimen) = 64.7%

Results

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.0	1.0	0.6	4.6	28.8	34.0			65.0

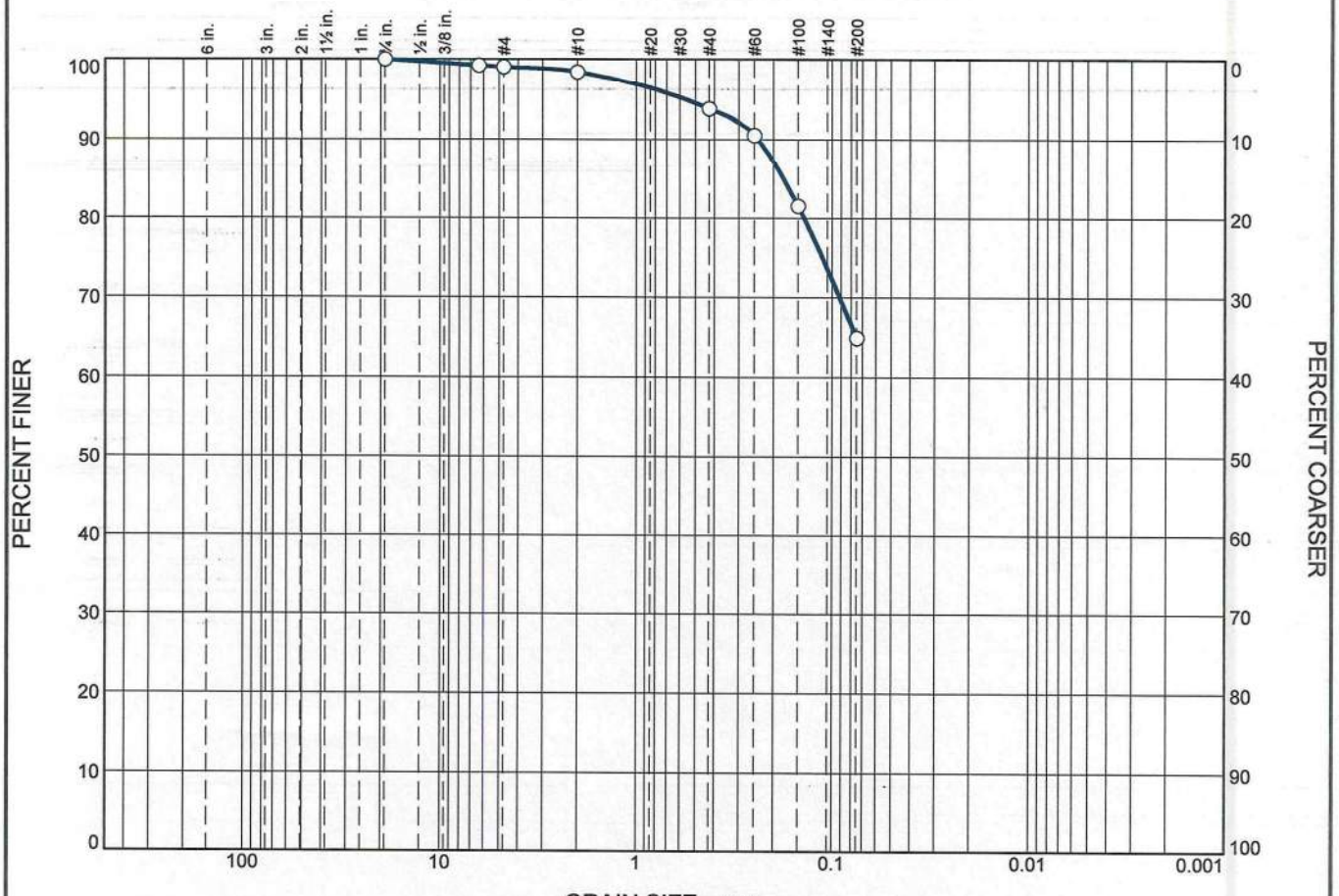
Distribution Data

Val	Diameter (mm.)
D_5	
D_{10}	
D_{15}	
D_{20}	
D_{30}	
D_{40}	
D_{50}	
D_{60}	
D_{80}	0.1397
D_{85}	0.1782
D_{90}	0.2404
D_{95}	0.5653

Fineness Modulus

0.37

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.0	0.6	4.6	28.8	65.0	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	N/A	N/A	0.1782							

MATERIAL DESCRIPTION	TEST DATE	USCS	NM
○ Marine Sediments	04/28/2023	N/A	

Project No. : GCN 87690 **Client:** : Phoenix Environmental Laboratories, Inc Date: 04/28/2023

Project: : GCN 87690

○ **Source of Sample:** Onsite **Depth:** N/A **Sample Number:** 308-23

Remarks:

○ ASTM C 117, ASTM C 136 (Sample ID= CN 87695)

Tri State Materials Testing Lab

Berlin, Connecticut

Figure

Tested By: IC **Checked By:** HC

3W4-308-23

Cooler: Yes ☐ No ☐
Coolant: IPK ☐ ICE ☐ No ☐
Temp °C Pg of

CHAIN OF CUSTODY RECORD

Page 1 of 1

PHOENIX Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Contact Options:
☐ Fax: 860-645-0823
☐ Phone: 800-827-5426
☐ Email: HelenG@PhoenixLabs.com

Customer: Tri State Materials Testing Lab
Address: 60 Woodland Rd
Berlin, CT
(203) 949-7733

Project #: GCN87690
Report to: HelenG@PhoenixLabs.com / Helen Geoghegan
Invoice to: AccountsPayable@PhoenixLabs.com
Quote# :

Project P.O: GCN87690

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature _____ Date: _____

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe
OIL=Oil **B**=Bulk **L**=Liquid

Analysis Request

Phoenix Sample ID	Sample Comment	Sample Matrix	Date Sampled	Time Sampled	Sieve/Hydrometer ASTM D422 & D7928	Gallon Zip Lock Baggie
CN87690		SED	4/18/2023	10:05 AM	x	1
CN87691		SED	4/18/2023	9:50 AM	x	1
CN87693		SED	4/18/2023	11:40 AM	x	1
CN87694		SED	4/18/2023	12:30 PM	x	1
CN87695		SED	4/18/2023	9:00 AM	x	1

Relinquished by:	Accepted by:	Date:	Time:
Lori Bailey		4-24-23	

Turnaround:
☐ 1 Day
☐ 2 Days
☐ 3 Days
☐ 5 Days
☐ 10 Days
☒ Standard
☐ Other_____

Report Type:
☒ Standard PDF
☐ Full Data Package
☐ NJ Reduced Deliverable
☐ NJ Full Deliverable
☐ NY ASP B

EDD Format:
☐ Excel
☐ GIS/Key
☐ EQuIS
☐ NJ Hazsite EDD
☐ NY EZ EDD (ASP)
☐ Other:_____

State Criteria:

Comments, Special Requirements or Regulations:

Please send notice as soon as possible not exceeding 24 hours of obtaining valid data, of the results of all drinking water samples that exceed any EPA or Department-established maximum contaminant level, maximum residual disinfectant level or reportable concentration.

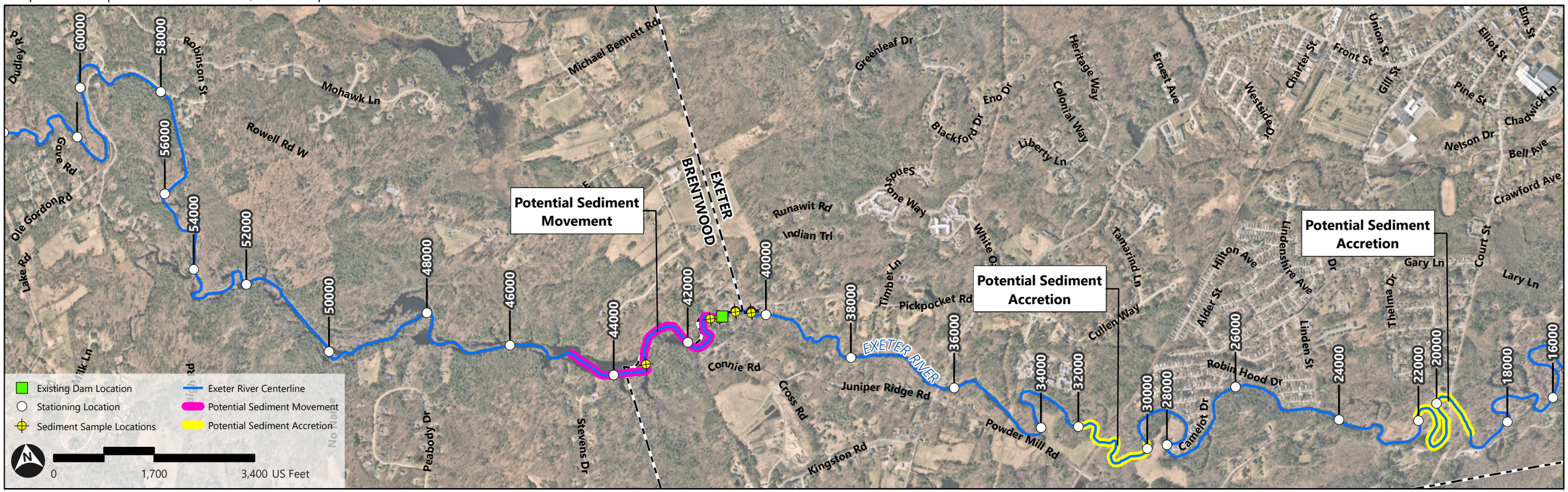
Please notify Phoenix Environmental Laboratories, Inc. immediately and prior to conducting analysis if certification is not held for the analyses requested.

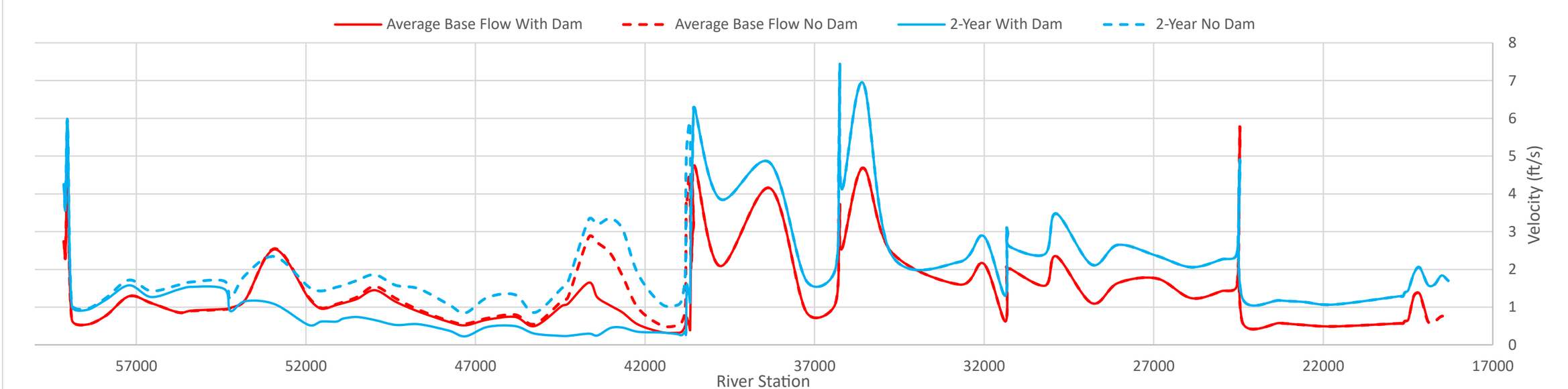
What State were samples collected?
MA

Appendix D: Sediment Transport Potential

Figure 4: Sediment Transport Analysis

Pickpocket Dam | Brentwood and Exeter, New Hampshire

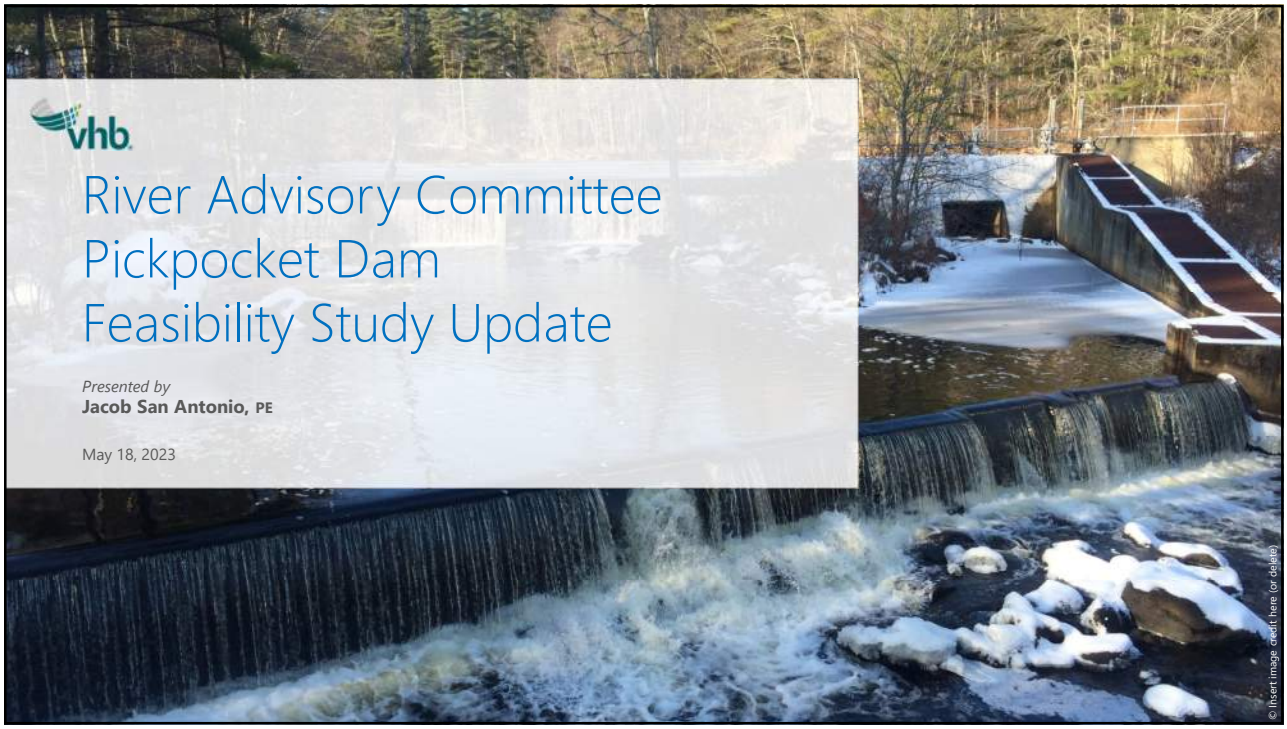




Source: NearMap Imagery, NHDOT Roads

Path: \\vhb.com\gis\proj\Bedford\52151.06 Pickpocket Dam Feasibili\Project\Sediment Transport\SedimentTransport.aprx (User: SPelletier, Date: 6/29/2023)

Appendix E: Stakeholder Presentation



1

Project Funding

- NHDES & NOAA – New Hampshire Coastal Program – Coastal Resilience Grant
- NHDES – Clean Water State Revolving Fund – Planning Grant (ARPA Funds)

2

Agenda

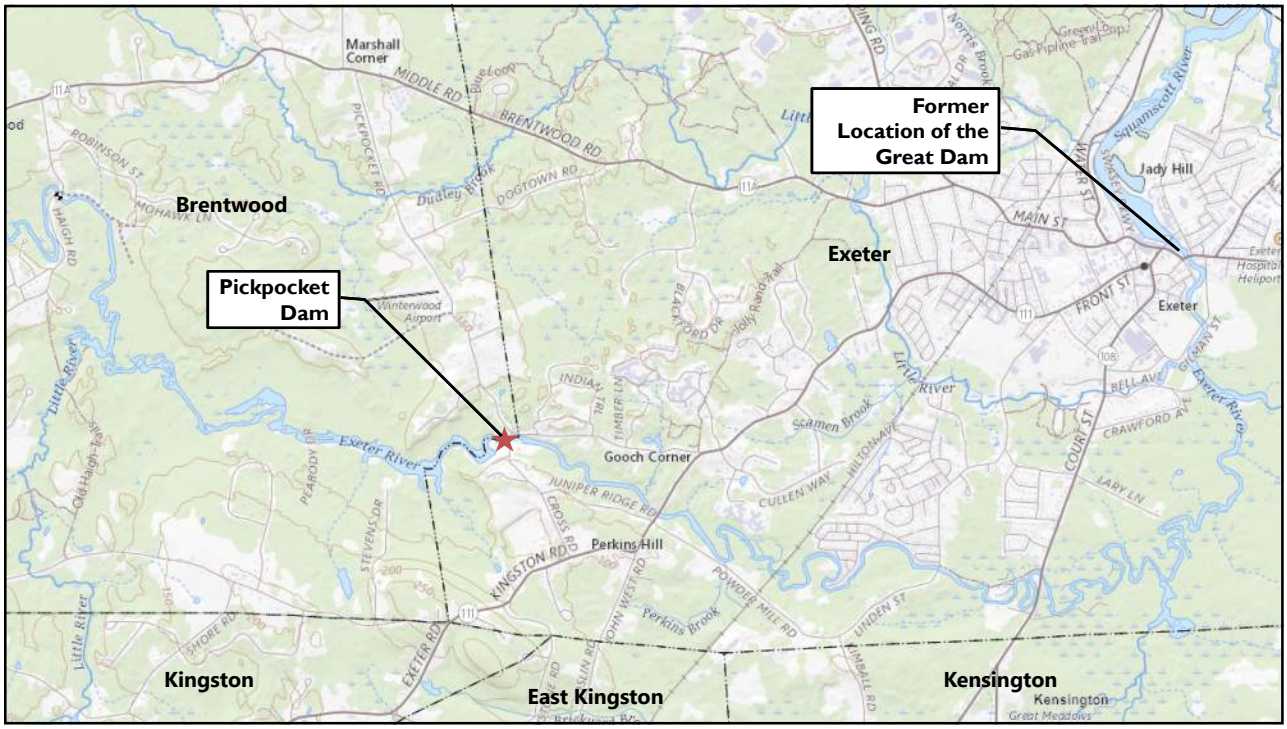
- Background
- Study Area and Dam Overview
- Prior Studies
- Feasibility Study Components and Schedule
- Preliminary Investigations
- Status Update
- Next Steps
- Questions

3

Background

- (March 2011) NHDES issues Letter of Deficiency – Breach Analysis Required
- (December 2016) VHB completes dam breach analysis
- (October 2017) Follow-up building survey by VHB
- (December 2017) Revised Dam breach analysis by VHB
- (January 2018) Dam breach analysis submitted to NHDES Dam Bureau
- (March 2018) Dam Bureau issues determination letter: High-Hazard
- (July 2019) Revised Letter of Deficiency (DSP#19-016)
- (August 2021) Request for Action - Extension of time to develop rehabilitation alternatives

4



5

Height – 15 Feet

Length – 230 Feet

Main Spillway Length – 130 Feet

6

7

8

Prior Studies

- Pickpocket Dam Breach Analysis
  - High Hazard: Showed impacts to first floor of one residential property with a foundation, and structural support for multiple mobile residential structures
  - Significant Hazard: Overtopping of Route 111 (Class II Roadway)
- Survey of Downstream Properties
- Development of Emergency Action Plan
- Hydrologic Study to Determine Design Storm
  - 10,000 CFS (250% of the 100-Year Flood)
- Preliminary Investigations of Potential Dam Modifications
  - Re-classification
  - Cross Road
  - Alt 1: Increase abutment height to pass the design storm
  - Alt 2: Add a second abutment to pass the design storm.
  - Alt 3: Remove the dam & fish weir

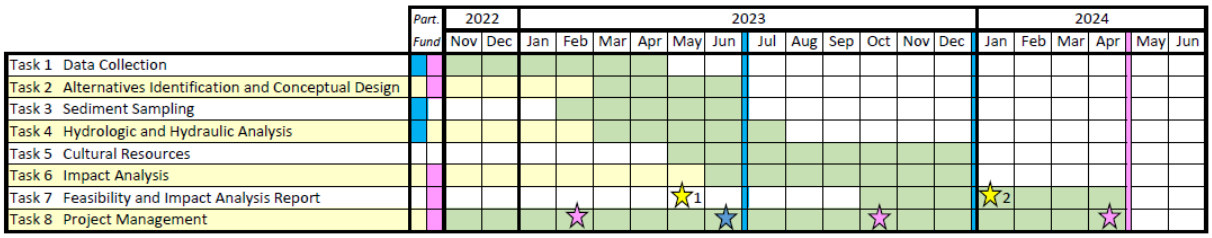
9

Feasibility Study Components

- Data Collection and Survey
- Alternatives Identification and Conceptual Design
- Sediment Sampling
- Hydrology and Hydraulics Analysis
- Cultural Resources
- Impact Analysis
- Feasibility and Impact Analysis Report

10

Feasibility Study Schedule



June 1, 2024 - Submit application to reconstruct the dam or a plan otherwise.
December 1, 2027 - Complete dam modification

Coastal Resilience Grant
Stormwater Planning Grant

Meetings: ☆

Consultant Update ☆1
Draft Final Report ☆2

11

Preliminary Investigation Dam Alternatives

Existing Conditions

Cross Road

Alt 1: Increase abutment height to pass the design storm

Alt 1a: Remove sediment island + above alterations

Alt 2: Add a second abutment to pass the design storm.

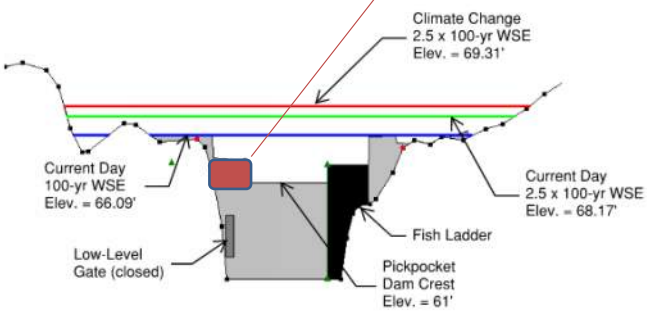
Alt 2a: Remove sediment island + above alterations

Alt 3: Remove the dam & fish weir

12

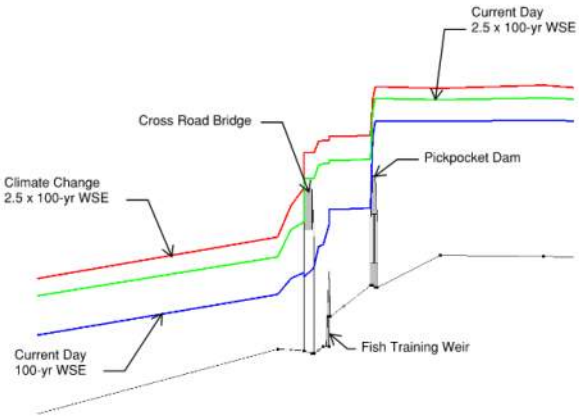
Existing Conditions

- Existing Abutment Elevation: 66.00
- Current dam consists of a crest, abutment, fish weir and ladder
- Portion of existing crest is obstructed by a sediment island



13

Existing Conditions; Cross Road Impacts

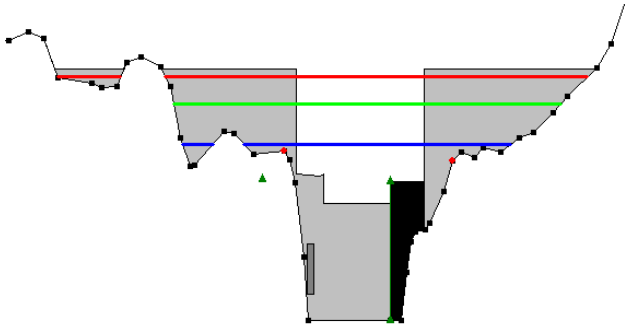


The Cross Road bridge found to have negligible impacts on water elevations at the dam's crest

14

Alt 1: Increase Abutment Height

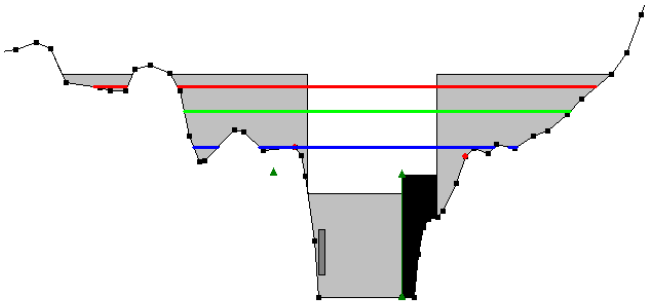
- Regulatory - Minimum Abutment Elevation: 69.96′ **(+3.96)**
- Climate Change - Minimum Abutment Elevation: 72.27′ **(+6.27)**
- Creates an increase in the 100-yr flood elevation (+0.16)
- No change to crest elevation & sediment island



15

Alt 1A: Remove Sediment Island, Increase Abutment Height

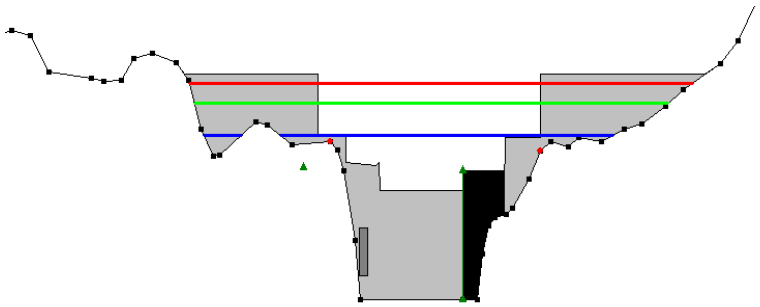
- Regulatory – Minimum Abutment Elevation: 69.33′ **(+3.33)**
- Climate Change - Minimum Abutment Elevation: 71.76′ **(+5.76)**
- Creates a decrease in the 100-yr flood elevation (-0.35)
- No change to crest elevation



16

Alt 2: Add Second Abutment

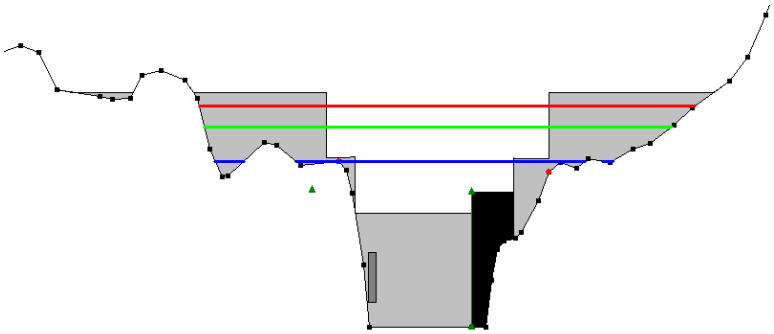
- Regulatory - Minimum Second Abutment Elevation: 69.24' **(+3.24)**
- Climate Change - Minimum Second Abutment Elevation: 71.17' **(+5.17)**
- Creates an increase in the 100-yr flood elevation (+0.13)
- No change to sediment island, crest or existing abutment elevations



17

Alt 2A: Remove Sediment Island, Add Second Abutment

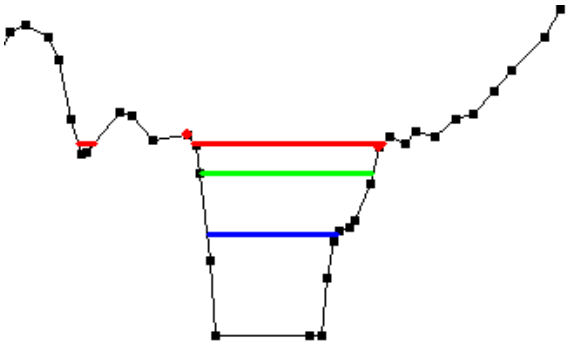
- Regulatory - Minimum Second Abutment Elevation: 68.82' **(+2.82)**
- Climate Change - Minimum Second Abutment Elevation: 70.76' **(+4.76)**
- Creates a decrease in the 100-yr flood elevation (-0.35)
- No change to crest or existing abutment elevations



18

Alt 3: Dam Removal

- Creates a decrease in the 100-yr flood elevation (-7.87)
- Removal of crest, abutments, fish weir, sediment island.



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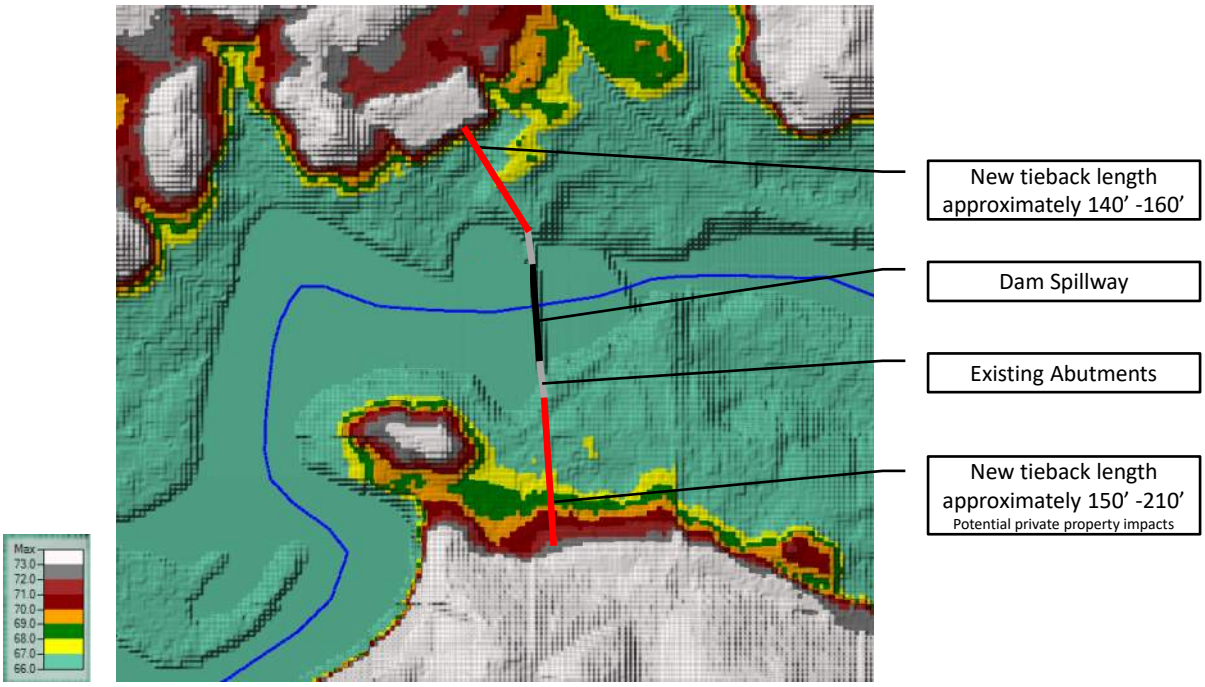

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Status Update

- Data Collection – Survey and Sediment probing – Complete
  - Currently processing the data to finalize base plan
- Alternatives Development – Underway
  - Dam Stabilization (stabilize abutments, rock anchors, etc.)
  - Dam Modification (partial removal, lowering spillway)
  - Dam Modification (spillway extension or modification)
  - Dam Reclassification (purchase downstream affected properties)
  - Dam Removal and River Restoration
- Sediment Sampling – Complete
  - Processing Results
- Hydrology and Hydraulics Analysis – Underway

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Sediment Sampling Plan

- Purpose to determine proper sediment management protocols and assess the potential for adverse effects downstream
- Due Diligence Review
- 5 Sediment Sample locations

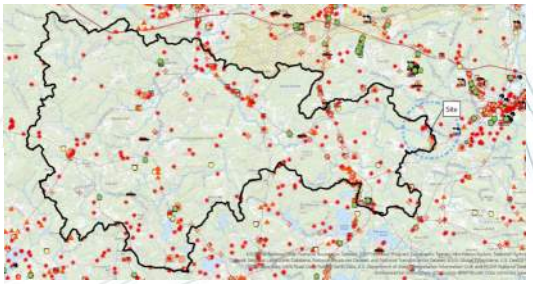
Table 2 Proposed Supplemental Sediment Sampling Scheme

Sample ID(s)	Sample Location Description	Grain Size Analysis	Chemical Analysis	Rationale
SED-1	Upstream of Pickpocket Dam	1	1	Evaluate existing conditions upstream
SED-2[1] SED-2MS; SED-2MSD; SED-2FD	Upstream of Pickpocket Dam	1	4[2]	Evaluate existing conditions upstream
SED-3 A-E SED-4 A-E	Downstream of Pickpocket Dam	2	2	Evaluate current downstream conditions
SED-5	Further upstream of Pickpocket Dam	1	1	Confirm sediment condition near previous 1,4-dioxane detection in surface water
EB-1[2]	Equipment blank	0	1	Equipment blank.
	Total:	5	9	

- VOCs including 1,4-Dioxane and MTBE via EPA method 8260
- Priority Pollutant 13 (PP-13) metals
- Iron
- Manganese
- Chloride
- TKN
- Polycyclic aromatic hydrocarbons (PAHs) by EPA method 8270
- Organochlorine pesticides by EPA method 8081
- Polychlorinated biphenyl (PCBs) by EPA method 8082

Table 1 Summary of Environmental Database Search Results

Type of Site	No. of Sites Located within the Dam Watershed
Aboveground Storage Tank (AST) Sites	12
Underground Storage Tank (UST) Sites	44
Remediation Sites	193
Hazardous Waste Generators	36
Solid Waste Facilities	16
NPDES Outfalls	0
Local Potential Contamination Sites	25
TOTAL:	326



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Preliminary Sediment Sampling Results

- No concentrations of pesticides or PCBs detected in sediment samples
- PAHs and metals detected in all sediment samples
- Arsenic the only contaminant detected in excess of the NHDES EV-600 Soil Remediation Standards
  - Consistent with background, arsenic is a natural occurring component of sediment and bedrock in NH
- The ecological resource risk for contaminants
  - Low - Metals and PAHs in SED-1 through SED-5
  - Moderate - Arsenic in SED-2, SED-4, and SED-5
  - Moderate - PAHs in SED-3 and SED-4

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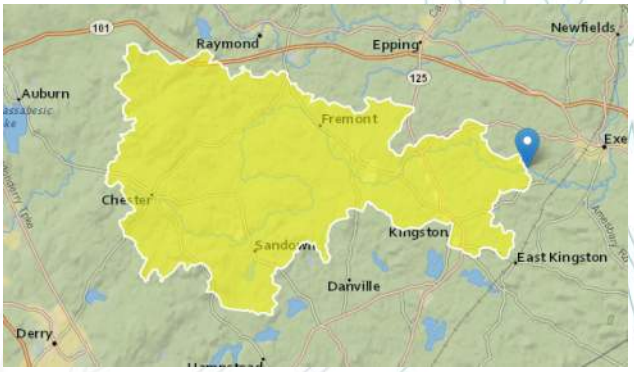
Status of Hydrologic and Hydraulic Analysis

- Hydrologic Analysis - New Hampshire Coastal Flood Risk Summary
  - Current Day Design Flood – 2.5 x 100 Year
    - 100 Year – 3,980 cfs
    - 3,980 cfs x 2.5 = 10,000 cfs
  - Evaluated Climate Change – 15% Increase
    - 100 Year – 5,940 cfs
    - 5,940 cfs x 2.5 = 14,900 cfs
    - 49% Increase of Design Flood

STEP 6 TABLE. APPROACH FOR CALCULATING PROJECTED EXTREME PRECIPITATION ESTIMATES BASED ON TOLERANCE FOR FLOOD RISK.

	HIGH	MEDIUM	LOW	VERY LOW
PROJECTED EXTREME PRECIPITATION ESTIMATE =	(Best available precipitation data) x (1.15)		(Best available precipitation data) x (>1.15)	



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Next Steps

- Finalize alternatives to carry through the analysis
- Cultural Resources Studies
  - Phase 1A Archaeological Survey
  - NHDHR Project Area Form
  - Individual Inventory Form
- Impact Analysis of the various alternatives
  - Rare species, fish passage, wetlands, recreational, invasive species, ice, water supplies, water quality, infrastructure, visual simulations
- Dam Inspection

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Draft Feasibility Study

1. Hydrology and Hydraulics
2. Impoundment Profiles
3. Floodplains
4. Dam Current Condition
5. Alternative Screening
6. Alternative Sketches and Estimate
7. Sediment and Scour Analysis
8. Cultural Resources
9. Impact Study – Fish Passage, Wetlands, Recreation
10. Water Supplies and Quality
11. Visual Simulations

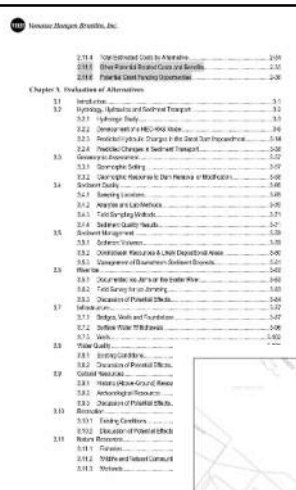


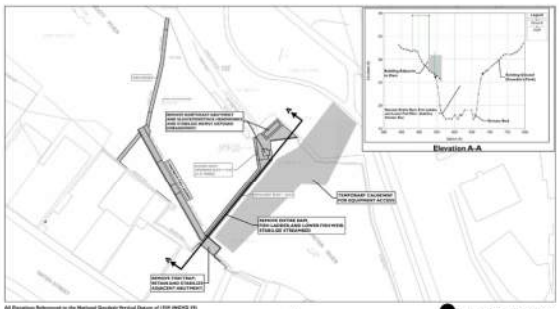
Table 2.11-4. Initial Construction and Mitigation Costs

Alternative	Design, Permitting and Construction	Infrastructure and Environmental Mitigation	Total
Alt A - No Action	-	$550,000	$550,000
Alt B – Dam Removal	$732,150	$512,608	$1,244,758
Alt F – Partial Removal	$1,338,630	$912,608	$2,251,238
Alt G – Stabilize in Place	$418,000	$565,000	$983,000
Alt H – Dam Modification	$1,016,000	$795,200	$1,811,200

Table 2.11-5. Total Costs including O&M and Replacement (30 Year Analysis)

Alternative	Initial Cost	O&M and Replacement Costs	Total
Alt A - No Action	$550,000	-	$550,000
Alt B – Dam Removal	$1,244,758	$0	$1,244,758
Alt F – Partial Removal	$2,251,238	$385,170	$2,636,408
Alt G – Stabilize in Place	$983,000	$181,894	$1,164,894
Alt H – Dam Modification	$1,811,200	$616,724	$2,427,924

Note:
1. No direct or O&M costs were calculated for the No Build Alternative because this alternative is not feasible due to safety concerns. However, lack of compliance with the NHDES Letters of Deficiency leaves the Town liable for potential future enforcement actions.



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Questions?

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