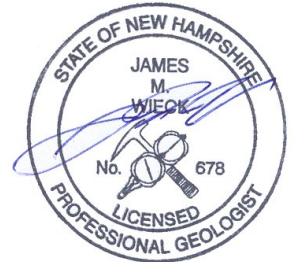


NHDES Waste Management Division
29 Hazen Drive; PO Box 95
Concord, NH 03302-0095

**2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 201111109, DES PROJECT NO. 27737
GWP-201111109-H-001**

Prepared For:

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GZA Project No. 04.0190030.02

Date of Report: May 2, 2022



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2021 ANNUAL SUMMARY REPORT

DARTMOUTH COLLEGE

Rennie Farm Site

Hanover, New Hampshire

NHDES SITE NO. 201111109, DES PROJECT NO. 277737

May 2, 2022

File No. 04.0190030.02



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File No. 04.0190030.02

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

Re: 2021 Annual Summary Report
Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES site No. 201111109, DES Project No. 277737
Groundwater Management Permit No. GWP-201111109-H-001

Dear Permit Coordinator:

The attached report was prepared by GZA GeoEnvironmental, Inc. (GZA) on behalf of Dartmouth College (Dartmouth) to provide the New Hampshire Department of Environmental Services (NHDES) an Annual Summary Report (ASR) for calendar year 2021. The ASR describes water quality monitoring associated with the Groundwater Management Permit (Permit) issued by NHDES on August 25, 2017 (GWP-201111109-H-001) and site remediation-related activities at the Rennie Farm Site in Hanover, New Hampshire (Site). Water quality monitoring summarized in the ASR was performed in accordance with Condition No. 7 of the Permit.

We appreciate your review of the report and look forward to receiving your comments. Should you have any questions, please do not hesitate to contact Mr. James M. Wieck at 603-232-8732 or 603-493-2874.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

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Attachment: Report

cc: Bree Carlson, P.E., CSP, Dartmouth College
Jessica Nylund, Esq., Dartmouth College
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1.0 INTRODUCTION

This report was prepared by GZA GeoEnvironmental, Inc. (GZA) on behalf of Dartmouth College (Dartmouth) to provide the New Hampshire Department of Environmental Services (NHDES) an Annual Summary Report (ASR) for 2021 summarizing water quality monitoring and remediation-related activities performed at Dartmouth's Rennie Farm property¹ in Hanover, New Hampshire (Site). Site investigation, monitoring, and remedial activities have been performed in response to the detection of 1,4-dioxane in groundwater beneath and downgradient of the Site. Water quality monitoring and remediation-related activities were performed, and this report was prepared in accordance with Condition No. 7 of the Groundwater Management Permit (Permit) issued by NHDES for the Site on August 25, 2017 (GWP-201111109-H-001).

Monitoring and remedial activities summarized in this ASR include:

- Permit-related groundwater, surface water, and private water supply well sampling;
- Sampling off-site private water supplies at the request of the individual property owners;
- Treatment system monitoring in accordance with the authorization to discharge under the United States Environment Protection Agency (EPA) Region One Remediation General Permit issued on April 21, 2017 (NHG910071);
- Groundwater level monitoring and flow/capture zone evaluation; and
- Supplemental groundwater extraction and treatment system performance monitoring.

Aerial-photograph-based Site locus and Site plans are included as **Figure 1A** and **Figure 2B**, respectively. The features shown on **Figure 1A** are also illustrated on **Figure 1B**, overlying portions of the United States Geological Survey (USGS) quadrangle maps illustrating the area. These figures have been updated to reflect the results of private water supply well sampling during 2021.

GZA's work and this report are subject to the Limitations included in **Appendix A**.

2.0 BACKGROUND

This section provides a summary of background information regarding the investigation and remediation of 1,4-dioxane related to the Site. Background information included in this section was presented in previous reports prepared by GZA and has been included herein and updated for the convenience of the reader. A list of previously submitted reports is included in **Table 1**. A copy of the conceptual Site model (CSM) is included in **Appendix B** and has been reviewed for consistency with the results of monitoring and investigations, and testing during 2021. The locations of groundwater monitoring wells are illustrated on **Figure 2A**, **Figure 2B**, and **Figure 2C**. The locations of private water supply wells are depicted on **Figure 1A** and **Figure 1B**.

1,4-dioxane was first detected at the Site in groundwater samples collected from monitoring well GZ-2 during April 2012. Sampling at that time was performed to monitor groundwater quality following the removal of laboratory animal carcasses from a less-than-half-acre portion of the Site (**Figure 3**). The laboratory animals were previously used by the Dartmouth Medical School in medical research involving radionuclides, and the carcasses were buried at the Site between the mid-1960s and 1978 under State and federal licenses. In accordance with State of New Hampshire Code of Administrative Rules Env-Or 600 (Contaminated Site Management), following discovery of 1,4-dioxane at the Site,

¹ 572 Hanover Center Road; Town of Hanover Tax Map 13, Block 14, Lot 1.



NHDES was notified, and additional water quality monitoring and Site Investigation (SI) activities were initiated under work plans approved by the NHDES.

The initial monitoring and investigation activities indicated that 1,4-dioxane was limited to the Site. However, detection of 1,4-dioxane at concentrations of 270 micrograms per liter ($\mu\text{g/L}$) to 520 $\mu\text{g/L}$ in groundwater samples collected from on-Site groundwater monitoring well GZ-9L during July 2015 suggested that off-site transport of 1,4-dioxane was possible. Collection of water quality samples from off-site water supply wells was proposed in GZA's work plan² dated September 1, 2015, and was initiated by Dartmouth in response to the detection of 1,4-dioxane in the groundwater samples collected from well GZ-9L. 1,4-dioxane was first detected in groundwater samples collected beyond the Site boundary on September 15, 2015, from the water supply well at 9 Rennie Road in Hanover, New Hampshire (Town of Hanover Tax Map 13, Block 81, Lot 1). The detected concentrations of 1,4-dioxane exceed the New Hampshire Ambient Groundwater Quality Standard³ (NH AGQS) for 1,4-dioxane at that time (3 $\mu\text{g/L}$). The NH AGQS for 1,4-dioxane was revised on September 1, 2018, to 0.32 $\mu\text{g/L}$. Bottled water was immediately provided, and a point-of-entry (POE) water treatment system was subsequently installed for the occupants of 9 Rennie Road. Except for samples collected from the water supply well at 9 Rennie Road, 1,4-dioxane has not been detected in water quality samples collected by GZA from over 140 private water supply wells within the area surrounding the Site.

Supplemental hydrogeologic investigations were necessary due to the exceedance of NH AGQS for 1,4-dioxane beyond the Site boundary. Objectives of the supplemental hydrogeologic investigations included: 1) further evaluation of the potential for the presence of human and environmental receptors; and 2) delineation of the extent of 1,4-dioxane beyond the Site boundary. Delineation of the extent of 1,4-dioxane beyond the Site boundary was necessary to meet the requirements of an SI report and for the establishment of a Permit, including a Groundwater Management Zone (GMZ).

The supplemental hydrogeologic investigation activities were completed in phases due to the complexity of groundwater flow within fractured bedrock groundwater systems and the properties of 1,4-dioxane. The investigations initially focused on further investigation of the source area and characterization of the fractured bedrock and overburden groundwater systems on Site beneath and east of the former animal carcass burial area. This was necessary to select and design a source area remedial alternative and to provide hydrogeologic data to select locations for the installation of monitoring wells downgradient of the Site. Subsequent investigations focused on delineation of the 1,4-dioxane plume and characterization of the overburden and fractured bedrock hydrogeologic systems east of the Site. The results of the supplemental hydrogeologic investigations are described in GZA's report⁴ dated May 6, 2016, Remedial Action Plan⁵ (RAP) dated September 1, 2016, and report⁶ dated July 14, 2017.

To be protective of human health and the environment, remediation and control of 1,4-dioxane transport from the source area was expedited. For this reason, the RAP for the Site was issued on September 1, 2016, prior to the completion of the supplemental hydrogeologic investigation. Phase II off-site plume delineation was completed concurrent with the construction of the on-Site groundwater extraction and treatment remedial system.

² Work plan by GZA titled "Work Plan, Off-site Water Supply Well Sampling, Dartmouth College, Rennie Farm site, Hanover Center Road, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737."

³ As defined in State of New Hampshire Code of Administrative Rules Env-Or 603.04 (Ambient Groundwater Quality Standards), Table 600-1.

⁴ Report by GZA titled "Report Phase I - Supplemental Hydrogeologic Investigation, Groundwater Management Zone Delineation and Water Supply Investigation, Dartmouth College, Rennie Farm site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737."

⁵ Report by GZA titled "Remedial Action Plan Report, Dartmouth College, Rennie Farm site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737."

⁶ Report by GZA titled "Report, Phase II - Supplemental Hydrogeologic Investigation, Groundwater Management Zone Delineation, and Application for Groundwater Management Permit, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737."



Startup of the groundwater extraction and treatment remedial system described in GZA's RAP⁷ dated September 1, 2016, and Remedial Design Report⁸ (RDR) dated December 2, 2016, occurred on February 1, 2017. Authorization to discharge under the United States Environment Protection Agency (EPA) Remediation General Permit (RGP) was needed for the proposed discharge of treated water to surface water at the anticipated system design flow rate of up to 15 gallons per minute (gpm). EPA was in the process of reissuing the RGP during early 2017, and coverage under the RGP was not available as of February 1, 2017. To expedite remediation in the absence of the RGP, groundwater treated during operation of the system was temporarily discharged under a Temporary Groundwater Discharge Permit⁹ (TGWDP) issued by NHDES on January 10, 2017. The hydraulic properties of the soil at the Site allowed this discharge at approximately 1 gpm.

The RGP became effective on April 8, 2017. GZA submitted Notices of Intent¹⁰ (NOIs) to discharge treated water under the RGP to EPA, including Dartmouth and GZA as operators of the system, on April 7, 2017, and authorization to discharge was authorized by EPA and NHDES on April 21, 2017 (NHG910071) at up to 25 gpm. The groundwater extraction and treatment system flow rate was increased on May 1, 2017.

An application for Permit was included in GZA's report dated July 14, 2017. The report also summarized Phase II hydrogeologic plume delineation investigations, remediation activities, and water quality monitoring and included the CSM in **Appendix B**. As noted in **Section 1.0**, NHDES issued a Permit for the Site (GWP-201111109-H-001) on August 25, 2017. Remedial system operation and monitoring under the Permit and RGP authorization are ongoing.

GZA completed a remedial investigation in the valley area east of the Site during 2017 through 2019. The remedial investigation was performed to provide information needed to design an expansion of the groundwater extraction system to increase capture of 1,4-dioxane in groundwater and accelerate remediation. The remedial design investigation was proposed in GZA's 2018 ASR and is described in GZA's report¹¹ dated March 23, 2020. The results of the remedial design investigations refine the understanding of groundwater flow and 1,4-dioxane transport within the overburden deposits to the east of the Site and are consistent with GZA's previously presented CSM.

The general design and objectives of the expansion of the remedial system are described in GZA's March 23, 2020 report and were approved by NHDES in their letter¹² dated May 1, 2020. The expansion of the groundwater extraction system was constructed during 2020, and a phased startup of additional extraction wells began on September 23, 2020 (bedrock wells RW-13 and RW-14) with startup of the off-site overburden wells (ORW-1 through ORW-15) occurring between January 20, 2021 and February 17, 2021, as described in GZA's 2020 ASR¹³ dated July 1, 2021. During 2021, off-site long-term performance monitoring wells were constructed proximate to off-site overburden groundwater extraction wells ORW-6, ORW-11, and ORW-14, as described in **Section 4.3.4**.

⁷ Report by GZA titled "Remedial Action Plan Report, Dartmouth College, Rennie Farm site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737."

⁸ Report by GZA titled "Remedial Design Plans and Construction Specifications Report, Dartmouth College, Rennie Farm site, Hanover Center Road, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737."

⁹ TGWDP 5B6.

¹⁰ NOIs by GZA titled "National Pollution Discharge Elimination System, Notice of Intent (NOI), Remediation General Permit, Rennie Farm site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737."

¹¹ Report titled "Remedial Design Plans and Construction Specifications Report, Groundwater Extraction System Expansion, Dartmouth College, Rennie Farm site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737, Groundwater Management Permit No. GWP-201111109-H-001."

¹² Letter by NHDES titled "Hanover – Dartmouth College Rennie Farm Site, Hanover Center Road, DES Site #201111109, Project #27737, Remedial Design Plans and Construction Specifications Report - Groundwater Extraction System Expansion, prepared by GZA GeoEnvironmental, Inc. (GZA), dated March 23, 2020."

¹³ Report titled "Annual Summary Report - 2020 Annual Summary Report, groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737"



3.0 WATER QUALITY MONITORING

This section summarizes Site-related water quality monitoring performed during 2021, including:

- Permit-related groundwater, surface water, and private water supply sampling;
- Sampling of groundwater extraction wells and supplemental and remedial performance monitoring wells;
- Periodic sampling of the water supply at 9 Rennie Road; and
- Sampling of water private supplies performed at the request of the individual property owners, including monthly sampling of the private water supply at 7 Rennie Road.

Remedial system performance-related groundwater monitoring data are summarized in **Section 4.0**.

Groundwater monitoring well construction details are summarized in **Table 2**. Groundwater monitoring well and surface water sampling locations are depicted on **Figure 2A** through **Figure 3**. 1,4-dioxane concentration data for groundwater monitoring wells, surface water sampling locations, and water supply wells are summarized in **Table 3A**, **Table 3B**, and **Table 3C**, respectively. Sample locations and dates are cross-referenced with EAI laboratory report ID numbers in **Table 4A**, **Table 4B**, and **Table 3C**, respectively. Field screening results for pH and specific conductance are summarized in **Table 5A** and **Table 5B**, respectively. Depth-to-groundwater and calculated hydraulic head data are summarized in **Table 6A** and **Table 6B**, respectively.

Analytical laboratory reports for samples collected during the March, June, and September 2021 were previously submitted to the NHDES in GZA’s report dated June 30, 2021, and data transmittals dated July 29 and November 5, 2021, respectively. Analytical laboratory reports not previously submitted to NHDES, including the results of the December 2021 sampling round, are included in **Appendix C**.

Permit-required sampling locations that could not be sampled during the 2021 Permit-related sampling rounds are summarized in the following table.

March 2021 Sampling Round		Reason Sample Not Collected
Monitoring Wells	GZ-2, GZ-3, GZ-5U, GZ-7U, GZ-14U, GZ-14L, GZ-18U, GZ-18L, GZ-19U, GZ-19L, Gz-20U, and GZ-23U	Dewatered due to groundwater extraction system operation
	GZ-27L, and GZ-35L	Water in well frozen
Private Water Supply Wells	28 Rennie Road, and 612 Hanover Center Road	Access could not be obtained for sample collection



June 2021 Sampling Round		Reason Sample Not Collected
Monitoring Wells	GZ-14U, and GZ-14L	Dewatered due to groundwater extraction system operation
Private Water Supply Wells	22 Rennie Road, 28 Rennie Road, and 612 Hanover Center Road	Access could not be obtained for sample collection

September 2021 Sampling Round		Reason Sample Not Collected
Monitoring Wells	GZ-1, GZ-3, GZ-4, GZ-12L, GZ-13L, GZ-14U, GZ-14L, GZ-18U, GZ-19U, GZ-19L, GZ-20U, GZ-23U, and GZ-43U	Dewatered due to groundwater extraction system operation
Private Water Supply Wells	22 Rennie Road, 28 Rennie Road, and 612 Hanover Center Road	Access could not be obtained for sample collection

December 2021 Sampling Round		Reason Sample Not Collected
Monitoring Wells	GZ-14U, and GZ-35L	Dewatered due to groundwater extraction system operation
Private Water Supply Wells	22 Rennie Road, 28 Rennie Road, and 612 Hanover Center Road	Access could not be obtained for sample collection

3.1 GROUNDWATER

Permit-related groundwater quality samples were collected by GZA personnel during March, June, September, and December 2021, as required under the monitoring program in the Permit. Sampling of additional monitoring wells for analysis of 1,4-dioxane was also completed during 2021, as described in **Section 4.3.5**. Refer to **Table 3A** for sampling dates for individual monitoring wells, including permit-related and supplemental sampling. Recently installed off-site overburden performance monitoring wells (*i.e.*, wells GZ-OMP-6A/6B/6C/6D; GZ-OMP-11A/11B/11C/11D; and GZ-OMP-14A/14B/14C/14D) were sampled during November 2021. The installation and sampling of the recently installed wells is described in **Section 4.3.4** and **Section 4.3.5**, respectively.

Water quality samples were collected in accordance with State of New Hampshire Code of Administrative Rules Env-Or 610.02 (Sampling and Analysis) and submitted to Eastern Analytical, Inc. (EAI) in Concord, New Hampshire, for laboratory analysis of 1,4-dioxane using low level analytical methods (EPA Method 8260 Selective Ion Method [SIM]). Groundwater monitoring wells were purged prior to sampling, and groundwater samples collected using inertia, peristaltic pumps, and bailers. Groundwater purged from monitoring wells was discharged to the ground surface and allowed to infiltrate near the respective wellhead.

Recent 1,4-dioxane concentration data for groundwater, surface water, and certain water supply well monitoring locations are summarized on **Figure 6A** and **Figure 6B**. Charts including 1,4-dioxane concentration data plotted over time are included in **Appendix D**.



Results of the analyses of groundwater samples for 1,4-dioxane during the subject period include:

General

The detected concentrations and spatial distribution of 1,4-dioxane in groundwater samples collected during 2021 are consistent with the results of previous sampling and our understanding of site hydrogeology and historical use as described in GZA's CSM in **Appendix B**. Groundwater level and 1,4-dioxane concentration monitoring data indicate capture of groundwater within the source area and the on-Site portion of the 1,4-dioxane plume by the on-Site groundwater extraction system¹⁴. The off-site overburden groundwater extraction system has not been operating long enough to impact the extent of the plume or fully predict its capture zone and project remedial operational time frames; however, the groundwater monitoring data indicate the extents of the plume are stable.

3.1.1 On-site

The following provide a summary of the results of monitoring completed on the Site.

- 1,4-dioxane was detected above EAI's analytical laboratory reporting limit (RL) of 0.2 µg/L in samples collected from 12 of the 41¹⁵ on-site Permit-related groundwater monitoring locations. Detected concentrations of 1,4-dioxane range from 0.21 µg/L (GZ-10L; March) to 79 µg/L (GZ-9D; March) in bedrock groundwater samples and from 0.38 µg/L (GZ-6; September) to 22 µg/L (GZ-2; September) in overburden groundwater samples.
- One or more of the concentrations of 1,4-dioxane detected in the samples collected from each of the 12 wells where 1,4-dioxane was detected exceed the NH AGQS (bedrock groundwater monitoring wells GZ-5L, GZ-7L, GZ-10L, GZ-14L, GZ-9L, GZ-9D, GZ-17L, GZ-18L, and GZ-20L; and overburden groundwater monitoring wells GZ-2, GZ-6, and GZ-22U).
- Collectively, the concentrations of 1,4-dioxane detected in groundwater samples collected from monitoring wells within the estimated capture zone of the groundwater extraction system continue to indicate that reductions in concentration have occurred in response to the operation of the system. Potential reductions in 1,4-dioxane related to the operation of the groundwater extraction system are summarized in Section 4.3.5.
- The following summarize 1,4-dioxane concentration trends for on-Site groundwater monitoring locations with sufficient data to enable trend evaluation:
 - **GZ-2 and GZ-3** - Results of the analysis of groundwater samples collected during 2021 from overburden monitoring well GZ-2, located proximate to the source area, range from 1.4 µg/L (December) to 22 µg/L (September). Collectively, the 1,4-dioxane concentration data for monitoring well GZ-2 indicate an overall downward concentration trend from a maximum concentration of 370 µg/L (July 2012) (**Chart 1**). The June and, most notably, September 2021 concentrations were elevated relative to the recent trend, while the concentration in the December 2021 sample was consistent with the overall trend. The elevated concentrations may be related to variations in the rate of infiltration associated with precipitation events. GZ-3 was dry at the time of each of the 2021 sampling rounds, likely due to the operation of the groundwater extraction system.
 - **GZ-10L** - Results of the analyses of samples collected from this well screened in shallow fractured bedrock during March and September 2021 indicate concentrations of 1,4-dioxane of 0.21 µg/L and 0.37 µg/L, respectively. The concentration of 1,4-dioxane has remained stable and below the range of concentrations detected in samples prior to the startup of the remedial system since March 2019 (**Chart 2**).
 - **GZ-17L** - Results of the analysis of samples collected during 2021 from shallow fractured bedrock monitoring well GZ-17L range from 3.4 µg/L (September) to 8.70 µg/L (March). The concentrations of 1,4-dioxane

¹⁴ Including recently installed fractured bedrock groundwater extraction wells RW-13 and RW-14.

¹⁵ Samples could not be collected from 14 locations due the absence of groundwater in the well.



detected in the samples from this well during 2021 indicate an increase in concentration (**Chart 2**). The increase may be due to changes in the direction of groundwater flow due to the operation¹⁶ of nearby fractured bedrock groundwater extraction wells RW-13 and RW-14. The elevation of water gauged in well GZ-17L decreased by up to approximately 20 feet following the startup of groundwater extraction wells (**Chart 15**).

- **GZ-9L** - Results of the analysis of groundwater samples collected during 2021 from bedrock monitoring well GZ-9L range from 0.46 µg/L (December) to 6.3 µg/L (March). The results of the analysis of the samples indicate a decrease in concentration during 2021 compared to prior samples, which range from 12 µg/L (March 2019) to 520 µg/L (July 22, 2015). Collectively, the data indicate a decreasing concentration trend since July 2015, with a potential recent decrease in concentration related to the operation of fractured bedrock groundwater extraction wells RW-13 and RW-14 (**Chart 3**).
- **GZ-9D** - Results of the analysis of groundwater samples collected during 2021 from bedrock monitoring well GZ-9D range from 25 µg/L (June) to 79 µg/L (March). The results of the analysis of the samples collected during March and December 2021 indicate an increase in 1,4-dioxane concentration (**Chart 3**) relative to the recent stable trend in a relatively narrow range between approximately 11 µg/L and 13 µg/L. The increasing trend may be a result of changes in the direction of groundwater flow in response to recent operation of the off-site groundwater extraction system (*i.e.*, RW-13 and RW-14). The elevation of water in well GZ-9D decreased following the startup of RW-13 and RW-14.

Field screening measurements of groundwater samples for pH collected from monitoring wells located on the Site during 2021 range from 5.9 Standard Units (S.U.) (GZ-7L; March) to 8.3 S.U. (GZ-24L, and GZ-24D; December). Measurements of pH during the subject period from samples collected on Site are consistent with previous measurements from respective locations. The data were reviewed using standard descriptive statistics and comparisons made to historical data, data from source, on-Site, and bedrock and overburden sampling locations. No spatial or temporal trends were identified in the pH data.

Field screening measurements of groundwater samples for specific conductance collected from monitoring wells located on the Site range from 48 micro siemens per centimeter (µS/cm) (GZ-31L; March) to 432 µS/cm (GZ-7L; March). The arithmetic average of the measurements of specific conductance measured in samples collected from on-Site groundwater monitoring wells during 2021 is 195 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.

3.1.2 Off-site

1,4-dioxane was detected above EAI's RL (0.20 µg/L) in samples collected from 11 of the 33 off-site groundwater monitoring well locations sampled under the Permit during 2021 at concentrations ranging from 0.26 µg/L to 13 µg/L in fractured bedrock groundwater samples, and from 0.22 µg/L to 540 µg/L in overburden groundwater samples. 1,4-dioxane was also detected in samples collected from each of 16 of the monitoring wells installed as part of the remedial design investigation during 2019 (non-Permit monitoring wells [*i.e.*, GZ-40M, GZ-40L, GZ-42L, GZ-44 – GZ-53, GZ-54U, GZ-54D, and GZ-55]). The concentrations of 1,4-dioxane detected in the samples collected by GZA during 2021 are consistent with the results of sampling during 2020 summarized in GZA's report¹⁷ dated July 1, 2021, and GZA's CSM.

1,4-dioxane was not detected in the samples collected from the downgradient perimeter monitoring locations during 2021 (*i.e.*, wells GZ-32U/L/D, GZ-33U/L, GZ-34U/L/D, GZ-35U/L/D, and GZ-36U), and collectively the results of monitoring do not indicate movement of the extents of the plume.

¹⁶ Beginning September 23, 2020.

¹⁷ Report titled "Annual Summary Report - 2020 Annual Summary Report, groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737"



1,4-dioxane concentration trends for certain off-site locations are plotted in **Appendix D**, including GZ-26U and GZ-41U **Chart 4**; GZ-27U/L/D **Chart 5**; GZ-39D and GZ-40D **Chart 6**; and GZ-25D and GZ-37D **Chart 7**. The concentration trends suggest relatively stable concentrations; however, the concentration plot for bedrock groundwater well GZ-25D suggests a gradually increasing trend which may be stabilizing.

The following summarize 1,4-dioxane data for selected monitoring wells screened in fractured bedrock.

GZ-25D – The concentration trend of 1,4-dioxane in samples collected from this monitoring well is depicted on (**Chart 7**). The detected concentrations of 1,4-dioxane range from a low of 0.29 µg/L in September 2016 to the current maximum of 1.4 µg/L (September 2021). An increasing concentration trend is apparent through September 2021. While not included in the data summarized herein, the results of the analysis of a groundwater sample collected from this well by GZA during March 2022 (1.4 µg/L) is equal to the concentration detected in the sample collected during September 2021, suggesting the concentration of 1,4-dioxane at this location may be stabilizing. This well is anticipated to be near the northern extent of the plume in fractured bedrock groundwater, with the northern extent of the plume located between GZ-25D and GZ-33L.

GZ-27D – The 1,4-dioxane concentration trend for samples collected from this well is depicted on **Chart 5**. The detected concentrations have decreased from a maximum of 11 µg/L in November 2016 to 2.6 µg/L in December 2021, with an overall decreasing trend and relative stability since December 2018.

GZ-37D – The 1,4-dioxane concentration trend for samples collected from this well is depicted on (**Chart 7**). The detected concentrations of 1,4-dioxane range from a maximum of 1.5 µg/L (September 2018) to the current low of 0.29 µg/L in December 2021. An increasing concentration trend is apparent from February 2017 through September 2018, followed by a decreasing concentration trend through December 2021. This well is anticipated to be near the eastern limit of the plume.

GZ-39D - 1,4-dioxane has been detected in samples collected from monitoring well GZ-39D at concentrations ranging from 0.26 µg/L (September 2021) to 2.6 µg/L (December 2016) with an overall decreasing concentration trend (**Chart 6**).

GZ-40D – The 1,4-dioxane concentration data for samples collected from this monitoring well are summarized on (**Chart 6**). The detected concentrations of 1,4-dioxane range from a maximum of 13 µg/L (July 2017 and September 2021) to a low of 8.5 µg/L in December 2018. The data indicate a generally stable concentration of 1,4-dioxane.

The concentrations of 1,4-dioxane detected in groundwater samples collected from overburden wells during 2021 are consistent with the results of previous monitoring. The maximum concentrations of 1,4-dioxane were detected in groundwater samples collected from shallow overburden wells GZ-40U (390 µg/L; December to 540 µg/L; March) and GZ-42U (160 µg/L; December to 410 µg/L; March). Wells GZ-40U and GZ-42U are located near the estimated axis of the plume and within the groundwater discharge zone. The detected concentrations are generally consistent with previously collected samples from these wells (**Table 3A.3** and **Chart 4**); however, the concentration of 1,4-dioxane detected in the December 2021 samples collected from GZ-40U (390 µg/L) and GZ-42U (160 µg/L) are anomalously low. The concentration data for each of these locations suggests relatively stable concentrations with potential gradually decreasing trends during 2020 and 2021.

Field screening measurements of groundwater samples collected from monitoring wells located off-site for pH range from 6.5 S.U. (GZ-39U; March) to 9.2 S.U. (GZ-17U; December). Measurements of pH during the subject period are consistent with previous measurements for respective locations. The data were reviewed using standard descriptive statistics and comparisons made to historical data, data from source, on-Site, and bedrock and overburden sampling locations. No spatial or temporal trends were identified in the pH data.



Field screening measurements of specific conductance for groundwater samples collected from wells located off-site range from 120 $\mu\text{S}/\text{cm}$ (GZ-40D; March) to 723 $\mu\text{S}/\text{cm}$ (GZ-38U; March). The arithmetic average of specific conductance measured in samples collected from off-site groundwater monitoring wells is 219 $\mu\text{S}/\text{cm}$. Measurements of specific conductance during the subject period are generally consistent with previous measurements for respective locations. No spatial or temporal trends were identified in the specific conductance data.

3.2 SURFACE WATER

Surface water samples were collected from monitoring locations Stream-1 through Stream-6 during March, June, September, and December 2021, and surface water samples were collected from location Stream-11 during March and September 2021. Surface water monitoring locations are depicted on **Figure 4**. Surface water quality samples were collected, containerized, transported, and analyzed in consideration of applicable NHDES and EPA protocols. Surface water samples were submitted to EAI for laboratory analysis of 1,4-dioxane using low-level analytical methods (EPA Method 8260 SIM). Refer to **Table 3B** for sampling dates and results. Sample locations and dates are cross-referenced with EAI laboratory report ID numbers in **Table 4B**.

The following summarize the results of the surface water sampling during 2021:

- 1,4-dioxane was not detected in the surface water samples collected during 2021. Under low streamflow conditions, which typically occur during the September monitoring round, 1,4-dioxane has been detected during several previous monitoring events in samples collected from locations Stream-3 and Stream-4. Stream flow at the time of the September 2021 sampling round appeared to be greater than recent years. It is unlikely that the operation of the off-site overburden groundwater extraction well system has had sufficient time to influence the concentration of 1,4-dioxane in surface water at Stream-3 and Stream-4.
- Field screening measurements of surface water samples for pH during 2021 range from 7.3 SU (Stream-1 and Stream-3; December) to 8.8 SU (Stream-2 and Stream-5; December). The measurements of pH made by GZA during 2021 are consistent with previous measurements. No spatial or temporal trends were identified in the pH data.
- Field screening measurements of surface water samples for specific conductance range from 52 $\mu\text{S}/\text{cm}$ (Stream- 11; March) to 247 $\mu\text{S}/\text{cm}$ (Stream-2; September). The arithmetic average of the measurements of specific conductance for the surface water samples collected during 2021 is 141 $\mu\text{S}/\text{cm}$. Measurements of specific conductance during the subject period are generally consistent with previous measurements. No spatial trends were identified in the specific conductance data. Specific conductance measurements suggest a potential correlation with seasonal changes in stream flow (*i.e.*, increases in specific conductance during periods of low stream flow for the majority of the seven surface water monitoring locations).

3.3 WATER SUPPLY SAMPLING

Water supply sampling during the subject period includes:

- Sampling of the water supplies for the 15 properties included in the Permit-related sampling¹⁸ program during each Permit-related sampling round, except as described in **Section 3.0**.
- Monthly sampling of the private water supplies for 7 Rennie Road and 9 Rennie Road (also included in quarterly Permit-related sampling rounds); and

¹⁸ Includes private water supplies for 7, 9, 22, 26, 28, 30, 38, 39, 42, and 47 Rennie Road; 8 and 10 Dairy Lane; 39 Tranquil Brook Lane; and 594 Hanover Center Road.



- Sampling of two private water supplies in response to requests by property owners (669 Hanover Center Road [July 7, 2021]; and 3 Dairy Lane [July 29, 2021]). A sample was also collected at the request of the property owner from the water supply at 32 Pelton Lane, Lyme, on January 4, 2022, and the results are included in this report.

Sample collection dates associated with individual private water supply samples are summarized in **Table 3C**, along with results and analytical laboratory report identification number. Approximate water supply well locations are illustrated on **Figure 1A** and **Figure 4** (Permit-related sampling locations). The results of prior sampling and analysis for 1,4-dioxane are also summarized in **Table 3C**.

Water supplies were generally sampled following a 20-minute purge of water from the well. The only exceptions were at residences where GZA was requested by the property owner to minimize water purged due to concerns regarding well yield. In these cases, water was typically purged for 5 minutes to 10 minutes. Additional purging to remove potentially stagnant water from piping within the home was performed based on observations of the piping.

Except for the results from the analysis of samples collected from the private water supply for 9 Rennie Road, the analysis of each of the residential water supply samples did not detect 1,4-dioxane above the laboratory RL. The 9 Rennie Road property is currently vacant and is owned by Dartmouth College.

The analysis of samples from the residential water supply at 9 Rennie Road during the 2021 detected 1,4-dioxane at concentrations ranging from 8.6 µg/L (December 16, 2021) to 14 µg/L (July 15, 2021). The results of the analyses are generally consistent with the results of the analysis of samples collected during prior sampling rounds (2.7 µg/L May 21, 2020, to 15 µg/L January 23, 2020). A plot of 1,4-dioxane concentrations over time for the water supply at 9 Rennie Road is included on **Chart 9** in **Appendix D**.

The chart illustrates the variability in concentration over the approximately 12.3 µg/L range in which it has been detected. Use of the water supply at 9 Rennie Road was discontinued when the occupants moved from 9 Rennie Road during November 2019 (the property is currently vacant and is owned by Dartmouth College). Pseudo-radial flow to the private water supply well when it was in use likely contributed to the frequent fluctuations in concentration during this period. The overall increase in concentration and relative stability of the trend following the discontinuation of the use of the private water supply may reflect the overall concentration in fractured bedrock at this location (*i.e.*, 13 µg/L to 14 µg/L).

3.3.1 POE TREATMENT SYSTEM SAMPLING

A POE treatment system was constructed by Dartmouth at 9 Rennie Road. In addition to the untreated water samples described in **Section 3.3**, POE midpoint and effluent samples were previously collected by GZA and analyzed by EAI for 1,4-dioxane using low-level analytical methods (EPA Method 8260 SIM). The occupants moved from 9 Rennie Road during November 2019, and the property has remained vacant since. Consequently, POE performance monitoring and carbon replacement has not been performed since 2019. Dartmouth College currently owns and maintains the 9 Rennie Road property.

4.0 REMEDIATION SYSTEM PERFORMANCE MONITORING

This section includes descriptions of the primary components of the groundwater extraction and treatment subsystems that comprise the Site remediation system and a summary of the results of groundwater treatment system and extraction system performance monitoring completed during 2021.

4.1 REMEDIAL SYSTEM DESCRIPTION

This subsection includes descriptions of the primary components of the groundwater extraction and treatment subsystems. The remediation system was constructed by Dartmouth to capture 1,4-dioxane in groundwater within



overburden and fractured bedrock in the source area (*i.e.*, historical animal carcass burial area) and remove 1,4-dioxane from groundwater prior to discharge to surface water. Groundwater has also been extracted from fractured bedrock on-Site along the axis of the plume at one location (extraction well RW-7) since startup of the on-Site remedial system in 2017 to capture 1,4-dioxane downgradient of the source area.

The design of the system assumes an observational approach, and modifications can be made to certain elements of the system, including:

- The number of active groundwater extraction wells;
- Pump type and position/flow rate; and
- Total system flow rate and treatment system capacity.

No substantial modifications have been made to the groundwater treatment system since startup.

Modifications to the groundwater extraction system were made during 2020 and 2021 to capture 1,4-dioxane in groundwater within overburden off-site in the center of the plume and in fractured bedrock at a location selected to limit the potential for plume expansion and accelerate the dissipation of the plume in fractured bedrock. The layout of the primary on-Site components of the groundwater extraction and treatment systems are depicted on **Figure 8A**, **Figure 8B**, and the layout of the primary off-site components of the groundwater extraction system are depicted on **Figure 8B**.

Selected groundwater extraction well construction information is summarized in **Table 7**, including pump intake (target drawdown) elevations. The primary on-Site components of the groundwater extraction and treatment systems include:

Groundwater Extraction

Overburden

- Seven overburden groundwater extraction wells (RW-1, RW-3, RW-4, RW-6, RW-9, RW-10, and RW-11) installed during 2016 at the locations depicted on Figure 8A. Wells are screened within the overburden and highly weathered bedrock. The locations of the wells were selected based on the estimated direction of 1,4-dioxane transport in groundwater and a detailed evaluation of the elevation of the bedrock surface utilizing ground penetrating radar. Each well was constructed using 6-inch internal diameter PVC including a sump installed within bedrock, such that the pump intake can be positioned approximately 1 foot below the top of bedrock. Each well is equipped with a pneumatically driven level maintaining pump. In general, the overburden extraction wells pump only during times of infiltration due to dewatering from the operation of the bedrock groundwater extraction well pumps.
- Fifteen overburden groundwater extraction wells constructed off-site along an approximately 350-foot line roughly orthogonal to the axis of the plume to intercept the 1,4-dioxane plume prior to flow into the unnamed stream northeast of the Site. The extraction wells are designated ORW-1 through ORW-15 and numbered from south to north (**Figure 8B**; the ORW designation is used to differentiate the wells from the on-Site groundwater extraction wells). The well spacing along the 350-foot line is approximately 25 feet. Groundwater containing 1,4-dioxane originating from the Site is anticipated to flow initially through bedrock fractures downward and to the northeast, and then through overburden within the valley with subsequent transport to surface water in the unnamed stream. The intent of the design of the overburden wellfield is to capture the majority of 1,4-dioxane transported within overburden as practicable prior to transport in groundwater to the stream. The selected well design is intended to balance the technical challenges presented by the low hydraulic conductivity of the overburden, vertical concentration gradient, width of the plume, and presence of an upward vertical hydraulic



gradient. Each well is equipped with a pneumatically driven level maintaining pump. A phased startup of the overburden extraction wells occurred between January 20 and February 17, 2021.

Bedrock

- Five bedrock groundwater extraction wells (RW-2, RW-5, RW-7, RW-8, and RW-12) were installed during 2016 at the locations illustrated on **Figure 8A**. The locations of the wells were selected based on the estimated direction of 1,4-dioxane transport in groundwater. The wells each consist of a 6-inch-diameter open bedrock boring with steel casings seated into bedrock. Each well is equipped with a pneumatically driven level maintaining pump.
- Two bedrock groundwater extraction wells (RW-13 and RW-14) were constructed adjacent to the downgradient Site boundary on either side of the axis of the plume at the locations depicted on **Figure 8B**. Each well is equipped with a pneumatically driven level maintaining pump. Extraction of groundwater from fractured bedrock immediately west of Rennie Road is anticipated to further capture 1,4-dioxane in groundwater within fractured bedrock while limiting the potential for encountering flowing artesian conditions, which would limit the effectiveness of the remedial system. The well locations were also selected in consideration of avoiding steeply sloping ground surface and presence of wetlands east of Rennie Road. The vertical axis of the plume is estimated to transition from fractured bedrock to overburden between elevation 850 feet to elevation 860 feet at a point east of Rennie Road. RW-13 and RW-14 were drilled to 847 feet and 865 feet, respectively, to intersect the plume without creating a vertical pathway below the estimated plume depth. Bedrock groundwater extraction wells RW-13, and RW-14 began operating along with Pumping Module No. 2 during September 2020.

Groundwater Pumping Equipment

- An aboveground utilidor was constructed to provide an insulated and heated structure for conveyance of the compressed air lines to and water from the off-site overburden groundwater extraction wells (*i.e.*, wells ORW-1 through ORW-15). Use of an aboveground utilidor was selected to limit excavation within wetlands areas. The utilidor consists of two sections (north and south) originating from a pumping module (Pumping Module No. 1) constructed at the location depicted on **Figure 8B**.
- Pumping Module No. 1, consisting of an approximately 12 feet by 20 feet wood-framed and sided shed structure, houses equipment needed to pump groundwater from the overburden groundwater extraction wells to Pumping Module No. 2. Equipment housed in Pumping Module No. 1 includes an air compressor, compressed air supply and extracted water manifolds, a groundwater flow equalization tank, and particulate filters, a discharge pump, a flow meter, and level sensors and controls. The air and water manifolds allow for the independent control and sampling of each of the overburden groundwater extraction wells. The discharge pump that pumps groundwater to a second pumping module (Pumping Module No. 2) and the supply of compressed air to the pneumatic pumps are controlled by the level of water in the flow equalization tank in concert with the levels in equalization tanks located in Pumping Module 2 and the groundwater system building on the Site. The layout of Pumping Module No. 1, including equipment and a simplified process and instrumentation diagram, is depicted on Figure 11.
- An existing cottage at 8 Rennie Road was modified to house Pumping Module No. 2. Pumping Module No. 2 contains equipment needed to pump groundwater from bedrock groundwater extraction wells RW-13 and RW-14 and groundwater from Pumping Module No. 1 to the on-Site treatment system. Equipment housed in Pumping Module No. 2 includes an air compressor, compressed air supply and extracted water manifolds, a groundwater flow equalization tank, and particulate filters, a discharge pump, a flow meter, and level sensors and controls. The air and water manifolds allow for the independent control and sampling of each of the bedrock groundwater extraction wells. The discharge pump that pumps groundwater to the treatment system and the supply of compressed air to the pneumatic pumps are controlled by the level of water in the flow equalization tank in concert with the level in equalization tanks located in the groundwater system building on the Site. The layout of Pumping Module No. 2, including equipment and a simplified process and instrumentation diagram, is depicted on **Figure 12**.



- A 1.25-inch internal diameter water line and electrical supply and control lines from Pumping Module No. 1 to the east side of Rennie Road were constructed in aboveground insulated and heat tape-equipped conduits to limit excavation within the steeply sloping and wetland areas and the need to cut trees. A backup compressed air line to supply compressed air to or from Pumping Module No. 2 was also constructed in conduit above ground from Module No. 1 to Rennie Road. Water lines, electrical control lines, and backup compressed air lines were also constructed from Pumping Module No. 2 toward the treatment system and are connected to existing underground piping and conduit near groundwater extraction well RW-7 (**Figure 8B**).

Dedicated underground piping and conduit were constructed from the treatment system to a point near groundwater extraction well RW-7 during construction of the on-Site groundwater extraction system in 2016 in anticipation of the potential expansion of the system. Use of above-ground piping and conduit from RW-7 to Pumping Module No. 2 was selected to limit excavation within this steeply sloping area and the need to cut trees.

Directional drilling methods were used to install a 12-inch internal diameter pipe beneath Rennie Road to convey water and electrical control lines beneath Rennie Road. Precast concrete manhole structures were installed at each end of the 12-inch pipe. On the eastern side of Rennie Road, the manhole structure is used to transition the water, air, and control lines from aboveground into the 12-inch pipe. On the western side of Rennie Road, the manhole structure is used to transition the lines from the 12-inch pipe to below ground lines buried in a trench excavated from the manhole to Pumping Module No. 2.

- Underground piping was constructed during 2016 between the on-Site groundwater extraction wells and treatment system and between the treatment system and discharge location (**Figure 8A**).

Groundwater Treatment

- The groundwater treatment system designed to remove 1,4-dioxane from groundwater is located on the Site, as shown on **Figure 8A** and **Figure 9**. A process diagram is illustrated on **Figure 10**. The treatment system includes pretreatment to remove total iron and manganese consisting of bag filters and liquid-phase granular activated carbon (LGAC). Pretreatment is intended to limit the potential for fouling of the treatment system. Treatment of 1,4-dioxane is by absorption using Ambersorb media contained in two canisters used in series. The treatment system is designed for an influent flow rate of 15 gallons per minute (gpm) and is expandable to 25 gpm.
- The system includes periodic steam regeneration of the Ambersorb media to remove the captured 1,4-dioxane. 1,4-dioxane is removed from the resulting condensate using two approximately 7-cubic-foot LGAC canisters in series. The condensate treatment LGAC is physically separate from the pre-treatment LGAC. Treated condensate is combined with treatment system influent and flows through the treatment system. Condensate treatment LGAC is periodically transported from the Site for disposal at an appropriate disposal facility. Ambersorb media regeneration and condensate treatment LGAC replacement frequencies are based on midpoint 1,4-dioxane concentration data and flow monitoring.
- A compacted crushed stone pad was constructed to support the aboveground components of the groundwater extraction and treatment systems. The pad is enclosed within a chain-link fence. Components within the pad area include: two Conex boxes housing groundwater extraction and treatment equipment; a 55-KW generator used to supplement a 200-amp electrical service during regeneration of the Ambersorb media; two 1,000-gallon propane tanks are used to fuel the 55-KW generator, and a boiler also used during Ambersorb regeneration, and an air dryer and chiller used to support the treatment system. The generator, propane tank, air dryer, and chiller are placed on concrete pads constructed within the crushed stone pad.
- A dry well was constructed to discharge boiler blow-down water per regeneration cycle. The dry well has been registered with NHDES. The dry well location is illustrated on **Figure 8A**.
- The treated water is discharged to an on-Site location northeast and downslope of the treatment system, as illustrated on **Figure 8A**. Treated water is discharged into a subsurface rip rap constructed area up slope of the intermittent stream located on Site and downgradient of the source area. Discharge of treated groundwater is performed under



United States Environmental Protection Agency (EPA) Region 1 Remediation General Permit (RGP) (No. NHG910071), which is considered the State Discharge Permit required in RSA 485-A:13, I(a).

4.2 REMEDIAL TREATMENT SYSTEM PERFORMANCE STANDARDS

Treatment system performance standards include:

- NH AGQS; and
- Effluent Limitations included with the EPA authorization to discharge under the RGP.

The NH AGQS and EPA Effluent Limit for 1,4-dioxane are 0.32 µg/L and 3.0 µg/L, respectively. Additional Effluent Limits are included in the EPA and NHDES authorization letters included in **Appendix E**.

4.3 REMEDIAL SYSTEM PERFORMANCE MONITORING

Remedial system monitoring is conducted to provide data to evaluate performance of the groundwater extraction, and treatment systems relative to the remedial objectives listed in **Section 4.1** and performance standards listed in **Section 4.2** includes:

- Monthly treatment system influent and effluent water quality monitoring required under RGP authorization to discharge, including:
 - 1,4-dioxane by EPA Method 522;
 - Acetone by EPA Method 1624B;
 - Volatile organic compounds (VOCs) by EPA Method 624;
 - Total metals including: antimony, arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, zinc, and trivalent chromium by Method 200.8, and hexavalent chromium by Method 7196A;
 - Suspended Solids by Method 2540D-97;
 - Chloride by Method 4500CIE-97;
 - Total Cyanide by ASTM Method D7511;
 - Ammonia-N by Method TM NH3-001;
 - Phenol by EPA Method 625; and
 - pH field analysis by GZA.
- Groundwater level monitoring to evaluate capture of groundwater, performed during Permit-related sampling rounds and supplemental sampling and water level measurement rounds (as needed).
- Daily treatment system flow to evaluate regeneration frequency and compliance with the discharge limit under the RGP authorization to discharge (0.036 million gallons per day ([GPD]; 36,000 GPD)/average of 25 gpm).
- Supplemental sampling for 1,4-dioxane by EPA Method 8260 SIM at selected locations within the treatment system (sampling locations depicted on Figure 9 and Figure 10) performed prior to Ambersorb regeneration and during condensate treatment to guide Ambersorb media regeneration and LGAC replacement, including:
 - Treatment system influent and effluent;
 - Midpoint between Ambersorb media canisters; and
 - Condensate treatment system LGAC influent, midpoint, and effluent.
- Periodic supplemental groundwater quality monitoring of groundwater extraction system performance monitoring wells (i.e., GZ-PM and GZ-OPM series groundwater monitoring wells) for 1,4-dioxane using EPA Method 8260 SIM; and



- Periodic supplemental groundwater quality monitoring of groundwater extraction wells and system influent and effluent for 1,4-dioxane EPA Method 8260 SIM and cyanide (total and free).

The following subsections summarize the results of the remedial system performance monitoring and indicate that the remedial system meets the objectives listed in **Section 4.1**.

4.3.1 Treatment System Influent and Effluent Monitoring

Treatment system influent and effluent monitoring results are summarized in **Table 8A** (influent) and **Table 8B** (effluent). Sampling locations are depicted on **Figure 9**. The results of monthly RGP-related monitoring during the period from May 1, 2017, through December 2021 are summarized in **Table 8A** and **Table 8B**, along with the results of sampling performed during the period from February 1, 2017, through April 30, 2017, during which the maximum discharge rate was 1 gpm and discharge was performed under a TGWDP. The following summarize the results of influent and effluent monitoring during 2021:

Influent

- 1,4-dioxane was the only VOC detected in influent samples collected during 2021.
- The detected concentrations of 1,4-dioxane in treatment system influent samples ranged from 5.5 µg/L (August) to 36 µg/L (April). This range includes the results of supplemental influent monitoring for 1,4-dioxane summarized in Table 10. The average of the 2021 influent 1,4-dioxane concentration data is 19.2 µg/L (based on 35 samples). Year 2021 1,4-dioxane concentration data are summarized on Chart 10 with the results of historical monitoring and collectively indicate a decreasing concentration trend consistent with the operation of the groundwater extraction system through 2020. With the startup of the off-site groundwater extraction system, influent 1,4-dioxane concentrations increased in 2021. Continued monitoring is needed to establish the concentration trend.
- Total metals including arsenic, copper, iron, nickel, and zinc were detected in one or more of the influent samples collected during 2021 and are anticipated to be naturally occurring.
- Total cyanide was detected in the influent sample collected in April at a concentration of 7.6 µg/L and is anticipated to be naturally occurring. Total cyanide has been detected in influent samples collected in previous years, as summarized in Table 12. The laboratory RL for total cyanide is 5 µg/L.
- Chloride was consistently detected in influent samples collected during 2021 at concentrations ranging from 1,900 µg/L to 5,700 µg/L and is anticipated to be naturally occurring.
- Ammonia-N was not detected in the influent samples collected during 2021 above the laboratory RL (0.05 mg/L). Ammonia-N was detected in the treatment system influent samples collected in 2020. The periodic detection of ammonia-N in the treatment system influent and effluent is consistent with the historical agricultural use of the area, and ammonia-N has not been detected in the effluent at concentrations exceeding surface water quality criteria.
- Measurements of influent pH ranged from 6.53 SU to 6.83 SU and is within the range pH of naturally occurring in groundwater within New Hampshire.
- Laboratory analyses of influent water quality samples for the remainder of the water quality parameters required under the Site's RGP Authorization and listed above were below their respective RLs. Please refer to **Table 8A** for RLs associated with individual samples and parameters.

Effluent

- The concentrations of water quality parameters monitored under the RGP were below their respective Effluent Limitations for the Site throughout 2021.



- VOCs excluding 1,4-dioxane were not detected above analytical laboratory RLs within the effluent (treated water) samples collected during 2021.
- 1,4-dioxane was detected at a concentration of 0.21 µg/L in the treatment system effluent sample collected on July 12, 2021. The detected concentration is below the Effluent Limit under the RGP (3 µg/L) and NHAGQS (0.32 µg/L). Based on the results of supplemental sampling, the detection of 1,4-dioxane in the July 2021 effluent sample is not anticipated to be representative of the effluent water quality. The reason for the detection is not known and a sampling or laboratory error cannot be ruled out. Specifically, 1,4-dioxane was not detected in the treatment system midpoint sample, collected between the two Ambersorb canisters (halfway point in treatment), collected on July 14, 2021, which was collected prior to regeneration of the Ambersorb media later that day. The Ambersorb media was regenerated on June 22, 2021, prior to July 14, 2021, with the next regeneration occurring on July 29, 2021. Samples were also collected from the system midpoint on June 22 and July 29, 2021, prior to regeneration, and from the system midpoint and effluent on July 26, 2021, following receipt of the result of the July 14, 2021 effluent sample. 1,4-dioxane was not detected in any of the supplemental samples above the laboratory RL of 0.20 µg/L.
- Total metals, including chromium, copper, nickel, and zinc, were detected in one or more effluent samples at concentrations below their respective Effluent Limitations.
- Total cyanide was not detected in the effluent samples collected during 2021 above the laboratory RL (5 µg/L).
- Ammonia-N was not detected in the effluent samples collected during 2021 above the laboratory RL (0.05 mg/L).
- Chloride was detected in the effluent samples collected during 2021. Chloride is monitored and reported under the RGP authorization but has no Effluent Limit. Chloride effluent concentrations are consistent with influent concentrations and ranged from 2,000 µg/L to 5,500 µg/L.
- Measurements of effluent pH during 2021 range from 6.52 SU to 6.76 SU. The measurements of pH are within the allowed Effluent Limit range of pH (6.5 SU to 8.0 SU).
- Laboratory analyses of effluent water quality samples for the remainder of the water quality parameters required under the Site's RGP Authorization and listed above were below their respective RLs. Please refer to **Table 8B** for RLs associated with individual samples and parameters.

4.3.2 Treatment System Flow Rate Data

Treatment system flow rate monitoring data are summarized on **Chart 11A** (Feb 2017 – 2021) and **Chart 11B** (2020 and 2021) in **Appendix D**, along with precipitation data from a monitoring station located approximately 6 miles from the Site. Due to the location of the source area groundwater extraction wells within an upland area, the flow rate of the system varies with the rate of infiltration of water from precipitation and snowpack melt. Treatment system flow rates are allowed to vary within the operable range of the treatment system to maintain target drawdown levels within the groundwater extraction wells. Target drawdown levels can be varied by adjusting individual pump intake depths. During 2021 the daily average treatment system flow rate was between approximately 1.3 gpm and 12.1 gpm (arithmetic average 8.1 gpm). Approximately 4,130,677 gallons of groundwater were treated by the groundwater treatment system during 2021, which is approximately 126 percent greater than during 2020.¹⁹ The increase in flow rate relative to 2020 is largely due to the increase in groundwater extraction from the operation of extraction wells RW-13 and RW-14, and to a lesser extent ORW-1 through ORW-15.

4.3.3 Treatment System 1,4-dioxane Concentration Data

Treatment system Ambersorb media regeneration was performed a total of 21 times during 2021. Regeneration was performed on the dates listed in **Table E.1** in **Appendix E**. Results of the analysis of supplemental treatment system

¹⁹ 2020 total system flow equals approximately 1,829,646 gallons.



1,4-dioxane concentration samples collected during each regeneration are summarized along with the results of RGP- related influent sampling for 1,4-dioxane in **Table 10**. Sample locations are illustrated on **Figure 9**. The following summarize the results of the treatment system 1,4-dioxane concentration monitoring:

- As noted in **Section 4.3.1**, influent 1,4-dioxane concentrations detected during 2021 range from 5.5 µg/L (August) to 36 µg/L (April) and have an arithmetic average of approximately 19.5 µg/L. For comparison, the averages of the influent concentration data during 2019 and 2020 were approximately 15 µg/L and 10.5 µg/L, respectively. Influent concentration data collected to date are depicted in **Chart 10**. A Mann Kendall analysis of the influent concentration data²⁰ from startup of the on-Site system until the startup of the off-site extraction system indicated a decreasing concentration trend with a confidence level of 95 percent (**Appendix E**). Based on extrapolation of the trendline for the data to the NH AGQS prior to the startup of the off-site groundwater extraction system, the estimated time to the influent concentration reaching NH AGQS, based on operation of the onsite system only, was anticipated to be approximately five years from startup of the system (*i.e.*, approximately 2021). The startup of the off-site overburden groundwater extraction system has increased system influent concentrations, as noted above. A Mann Kendall analysis of the influent concentration data collected since startup of the off-site groundwater extraction system did not indicate a trend at the 95 percent confidence interval (**Appendix E**).
- 1,4-dioxane was not detected in any of the 24 Ambersorb media midpoint samples collected during 2021 above the analytical laboratory RL of 0.2 µg/L, but as noted above, 1,4-dioxane was detected in one treatment system effluent sample (0.21 µg/L; July 12, 2021). While 1,4-dioxane has only been detected within a treatment system midpoint sample one time since the start of the operation of the treatment system (April 15, 2020; 0.39 µg/L), its presence at the midpoint would be a normal occurrence for operation of the treatment system, and the removal capacity of the second Ambersorb media container is available for treatment at that point in the groundwater treatment process. As noted in Section 4.3.1, the detection of 1,4-dioxane in the July 2021 effluent sample is not anticipated to be representative of the effluent water quality, based on the results of supplemental treatment system sampling.
- Condensate treatment influent samples range in concentration from 670 µg/L to 3,500 µg/L. Due to the increased flow rate and influent concentration related to the operation of the off-site overburden groundwater extraction wells, the number of media regenerations increased from 11 in 2020 to 21 in 2021, and the average condensate concentration increased from 1,035 µg/L in 2020 to 1,773 µg/L in 2021. Importantly, the concentration of 1,4-dioxane in the condensate decreases throughout the regeneration of the media, and the influent sample concentration is therefore only an indicator of the concentration near the beginning of the regeneration period and cannot be used to calculate mass removal.
- Relatively low concentrations of 1,4-dioxane have been intermittently detected in the condensate treatment LGAC midpoint, and effluent samples and the data used to manage LGAC. The LGAC effluent is injected into the treatment system influent and treated using the Ambersorb media.

Condensate treatment LGAC canisters (approximately 7 cubic feet of LGAC each), when removed from the condensate treatment system, are drained and carbon transferred to drums and stored on-Site in a custom constructed watertight roll-off prior to off-site disposal. Documentation of the construction of the carbon roll-off is included in **Appendix E**.

During 2021, LGAC was managed at the Site under the guidance of by Chase Environmental Group, Inc. (Chase). Due to the naturally occurring presence of radon in the area, transfer of carbon is performed with the guidance and under the observation of Chase. Removal of carbon from the treatment system had previously been performed on a roughly annual basis. During 2021 within the system, carbon was replaced on May 19 and December 16, 2021, consistent with the increased flowrate and frequency of Ambersorb media regeneration.

²⁰ Based on the results of 92 samples.



4.3.4 Groundwater Extraction System Capture Data

The groundwater level and 1,4-dioxane concentration data collected during 2021 indicate that the objectives of the groundwater extraction system were met during 2021, including:

1. Capture of the 1,4-dioxane plume in overburden and shallow fractured bedrock groundwater within the source area.
2. Capture of the 1,4-dioxane plume in shallow fractured bedrock groundwater downgradient of the Site to the extent possible east of RW-13 and RW-14.
3. Capture of the majority of 1,4-dioxane transported within overburden as practicable prior to transport in groundwater to the unnamed stream east of the Site and Rennie Road.

Depth-to-groundwater level and calculated hydraulic head (expressed as elevation) data are summarized in **Table 6A** and **Table 6B**, respectively. Estimated fractured bedrock groundwater hydraulic head contours based on depth-to-water levels measured during September 2021 are illustrated on **Figure 5A** and **Figure 6B** (**Figure 6B** includes year 2021 1,4-dioxane concentration data for performance monitoring wells). The estimated capture zone of the on-Site groundwater treatment system is depicted on **Figure 5A**. Estimated overburden groundwater hydraulic head contours within the off-site remediation/plume area are depicted on **Figure 5B**. Cross sections depicting hydraulic head and 1,4-dioxane concentration data are included on **Figure 7A** and **Figure 7B**. Water level trends for selected wells are illustrated on **Chart 12** through **Chart 20**.

Collectively, the groundwater level data are consistent with capture of groundwater within the source area and the majority of the 1,4-dioxane plume that is present on Site. Groundwater levels on and off-site fluctuate in response to precipitation events.

Source Area

Groundwater level monitoring data collected during 2021 indicate drawdowns²¹ of the groundwater level of up to approximately 49 feet in bedrock monitoring wells proximate to the source area (GZ-PM-2L; **Chart 21**) and capture of groundwater within the source area (**Figure 6B**). Groundwater level drawdowns within GZ-PM series wells screened in bedrock proximate to the source area during 2021 range from approximately 2.6 feet (GZ-PM-4L; December) to approximately 47 feet (GZ-PM-2L; September), with the averages of the measured drawdowns in the GZ-PM series wells screened in fractured bedrock ranging from 20.5 feet (December) to 29.1 feet (March). Groundwater level drawdowns within GZ-PM series wells screened in overburden²² proximate to the source area during 2021 when water was present range from approximately 2.7 feet (GZ-PM-4U; December) to approximately 11.5 feet (GZ-PM-3U; September) with the averages of the measured drawdowns in the GZ-PM series wells screened in overburden ranging from 7.1 feet (December) to 9.5 feet (September). GZ-PM series groundwater level monitoring data are summarized in **Table 6A** and **Table 6B** and in plots on **Chart 20** and **Chart 21**.

Downgradient Fractured Bedrock

Water level data for downgradient on-site wells GZ-9L and GZ-9D and well GZ-17L, located along the eastern Site boundary and near the axis of the plume, continue to indicate that water level decreases have occurred within fractured bedrock downgradient of the groundwater extraction system. **Figure 5A** and **Figure 6B** depict hydraulic head contours in shallow fractured bedrock and are consistent with the capture of the 1,4-dioxane plume within the source area and as far east as Rennie Road.

²¹ Relative to pre-system startup water levels gauged on May 1, 2017.

²² Excluding well GZ-PM-6U which appears to be hydraulically isolated from the groundwater extraction system. Excludes dry wells.



Recent decreases in water level at wells GZ-9L and GZ-9D and well GZ-17L are likely due to the startup of fractured bedrock groundwater extraction wells RW-13 and RW-14 on September 23, 2020 (**Chart 15**); however, the water levels in each of these wells was at its previous lowest level on September 14, 2020, with the water level in GZ-9D and GZ-17L decreasing further following the startup of RW-13 and RW-14. The water level also decreased by more than 20 feet in fractured bedrock groundwater monitoring wells GZ-51 and GZ-52, located east of Rennie Road, following the startup of RW-13 and RW-14. The water level in these wells increased in the spring of 2021 but remained approximately 10 feet lower than startup of RW-13 and RW-14. Decreases in water levels in on-Site bedrock groundwater monitoring well GZ-24D, anticipated to be located beyond the capture zone of the groundwater extraction system, indicate that a portion of the decrease in bedrock groundwater levels is due to decreases in local precipitation/infiltration rates (**Chart 15**).

Downgradient Overburden

The low hydraulic conductivity of the glacial till deposits and upward hydraulic gradient within the valley east of the Site limit the drawdown that can be created by the off-site overburden groundwater extraction system (*i.e.*, wells ORW- 1 through ORW-15). Overburden groundwater hydraulic head contours are depicted on **Figure 5B**.

Twelve overburden performance monitoring wells (*i.e.*, GZ-OMP-6A/6B/6C/6D; GZ-OMP-11A/11B/11C/11D; and GZ- OMP-14A/14B/14C/14D) were installed during October 11 through 14, 2021 to provide additional water quality and level data for evaluation of capture. The wells are constructed in three groups, each consisting of four wells comprising two couplets at radial distances of approximately 5 feet and 10 feet downgradient of overburden groundwater extraction wells ORW-6, ORW-11, and ORW-14.

Overburden Extraction Well	Monitoring Well ID	Distance from Extraction Well (feet)	Screen Depth (feet)
ORW-6	OMP-6A	5	5 - 10
	OPM-6B	5	10 - 15
	OPM-6C	10	5 - 10
	OMP-6D	10	10 - 15
ORW-11	OMP-11A	5	5 - 10
	OPM-11B	5	10 - 15
	OPM-11C	10	5 - 10
	OMP-11D	10	10 - 15
ORW-14	OMP-14A	5	5 - 10
	OPM-14B	5	10 - 15
	OPM-14C	10	5 - 10
	OMP-14D	10	10 - 15

The monitoring wells were installed by New England Boring Contractors (NEBC) of Derry, NH, using drive and wash drilling methods. NEBC collected soil samples at a maximum vertical interval of 5-feet using Standard Penetration Test methods with a 2-foot long, 2-inch outer diameter (OD), 1.5-inch internal diameter (ID) split spoon soil sampler. Monitoring wells were constructed using 2-inch ID PVC screen and riser sections and completed using a protective roadway box.

GZA’s field engineer observed and documented NEBC’s soil sampling and well installation activities. Soil samples were texturally and visually characterized and field screened for total VOCs using a photoionization detector (PID) by GZA’s field engineer. The deposits encountered while drilling the soil borings are consistent with the deposits previously encountered within the subject area (*i.e.*, glacial till deposits). GZA’s boring logs, which include monitoring well installation diagrams, are presented in **Appendix F**.



Transducers have been deployed in each of the off-site overburden groundwater extraction performance monitoring wells to evaluate long-term trends in hydraulic head to evaluate capture. The long-term hydraulic head data will be used along with 1,4-dioxane concentration data to evaluate capture and the rate of reduction in concentration within the overburden plume. Because of the limited effect of the system on groundwater level elevation, groundwater level and 1,4-dioxane concentration data collected over time in conjunction with extraction well 1,4-dioxane concentration data are needed to evaluate the performance of the off-site overburden groundwater extraction system and estimate the time needed to reach the point where further remediation of off-site overburden groundwater will become impracticable.

4.3.5 Supplemental Groundwater Monitoring

Groundwater monitoring and extraction well samples are periodically collected to supplement the Permit-required sampling and provide supplemental data for system operation.

Groundwater Extraction Well Sampling

During 2021 samples were collected of water pumped from each of the off-site overburden groundwater extraction wells during February and September and submitted to EAI for laboratory analysis of 1,4-dioxane. The results of the analyses are summarized below and in **Table 9B**. EAI’s laboratory report for samples collected during February were previously submitted to the NHDES. EAI’s laboratory report for the samples collected during September are included in **Appendix C**.

Unit	Extraction Well	1,4-dioxane concentration (µg/L)		
		2/23/21	9/23/21	12/17/21
Date		2/23/21	9/23/21	12/17/21
Bedrock	RW-13	2.2	1.6	1.3
	RW-14	8.1	5.9	5.6
Overburden	ORW-1	21	19	-
	ORW-2	49	38	-
	ORW-3	41	29	-
	ORW-4	41	29	-
	ORW-5	59	46	-
	ORW-6	110	100	-
	ORW-7	140	110	-
	ORW-8	280	190	-
	ORW-9	340	230	-
	ORW-10	340	280	-
	ORW-11	640	490	-
	ORW-12	170	190	-
	ORW-13	200	180	-
	ORW-14	200	170	-
	ORW-15	55	47	-

The spatial distribution of 1,4-dioxane along the 350 foot overburden groundwater extraction well line suggests the axis of the plume is located near well ORW-11, which is approximately 50 feet north of the previous estimate of the location and is considered consistent with the CSM.

The combined initial flow from the overburden groundwater extraction wells is approximately 1.5 gpm. Pumping Module No. 1 effluent was also sampled for analysis of 1,4-dioxane with concentration of 140 µg/L. While the total flow from the overburden groundwater extraction well field is limited, the higher concentrations of 1,4-dioxane result in the initial estimated rate of mass removal being greater than 20 times the mass removal rate of the on-Site system



at the end of 2020. Short and long-term performance monitoring is needed to evaluate the effects of the system on groundwater quality over time and the time to the end of active remediation.

GZ-PM Series Monitoring Wells

Groundwater samples were collected from GZ-PM series monitoring wells (GZ-PM-1U/L through GZ-PM-9L) during March, June, and September 2021 to provide additional 1,4-dioxane concentration data proximate to the source area for the evaluation of the performance of the operation of the groundwater treatment system. Samples were collected from a total of 7 of the 15 GZ-PM series monitoring wells during March, 12 of the GZ-PM series wells in June, and 11 of the GZ-PM series monitoring wells during September. The amount of water in the remaining wells was not enough to collect a sample due to dewatering by the groundwater system and/or limited infiltration of precipitation.

Samples were submitted to EAI for analysis of 1,4-dioxane by EPA Method 8260B SIM. The results of the analyses are summarized in **Table 9A** (Sample locations and dates are cross-referenced with EAI laboratory report ID numbers in **Table 4D**). Results of the analyses of samples collected for 1,4-dioxane analysis during 2021 are also summarized on **Figure 6B**.

To evaluate the effectiveness of the source remediation, changes in 1,4-dioxane concentration detected since startup of the on-Site groundwater extraction system for the GZ-PM series wells²³ are summarized, along with changes in concentration for other monitoring wells located on-Site and downgradient of the source area are summarized in **Table 11**. During 2021 samples were collected from 20 of the 21 monitoring wells included in the comparisons included in **Table 11**. While continuing to exhibit fluctuations in concentration, the data collected following startup of the remedial system also continue to indicate that decreases in the concentration of 1,4-dioxane have occurred in response to the remedial system.

Based on comparisons included in **Table 11**, the concentrations of 1,4-dioxane in samples collected from 17 of the 20 wells decreased by 26 percent (GZ-9D) to 100 percent (*i.e.*, 1,4-dioxane was not detected above the RL; GZ-PM-1U, GZ-PM-3U, and GZ-PM-9L) relative to pre remedial system startup. The concentration of 1,4-dioxane detected in samples collected from 10 of the 20 monitoring wells decreased relative to 2020²⁴, and 3 remained unchanged. Increases concentration relative to 2020 (GZ-20L, GZ-7L, GZ-10L, GZ-17L, GZ-PM-4L, GZ-PM-5L, and GZ-PM-6U) are related to fluctuations in concentration and are anticipated to be consistent with the overall decreasing concentration trend. Relative to the pre-startup data, the average of the decreases in concentration is approximately 38 µg/L, and the average of the percent change in concentration at locations where concentrations decreased is approximately 81 percent²⁵. The percent decrease in concentration is greater for source area wells (88%) and GZ-PM series wells (84%) relative to downgradient wells (71%).

The concentration of 1,4-dioxane detected in samples collected from 2 of the 21 wells (GZ-17L and GZ-PM-1L) increased relative to the initial samples. The initial 1,4-dioxane concentrations for these locations are 2.5 µg/L (GZ-17L) and 2.7 µg/L (GZ-PM-1L). Based on the concentration trend for well GZ-17L (**Chart 2**), the increase in concentration at well GZ-17L to 3.4 µg/L (December 2021) is likely due to changes in the direction of groundwater flow related to the startup of fractured bedrock groundwater extraction well RW-13 during September 2021. Based on the historical data for well GZ-PM-1L, the pre-startup concentration for this well (2.7 µg/L) may be anomalously low, or the concentration may have been increased due to the operation of the system. The concentration at this location increased to a maximum of 22 µg/L (August 2017) following the startup of the system and has generally decreased to the present. Relative to the maximum concentration at this location, the December 2021 concentration (3.9 µg/L) indicates a decrease of 18.1 µg/L (approximately 82%).

²³ Wells that have been consistently dry (GZ-PM-7U and GZ-PM-8U) or for which results of analyses have never detected 1,4-dioxane (GZ-PM-8L) are not included in the comparison.

²⁴ Based on last sample collected during 2020.

²⁵ Calculations exclude wells where the decrease in the detected concentration was less than 5 µg/L due to the disproportionate effect on the average value and potential for the change to be unrelated to the operation of the remedial system.



Fluctuations in concentration within the areas of the plume downgradient of the source area and within the capture zone are apparent in the groundwater quality data and may be the result of seasonal variation in infiltration and the effects of the groundwater capture by the remedial system. The concentration of 1,4-dioxane in groundwater samples collected from the Site monitoring wells is anticipated to vary as groundwater with varying concentrations of 1,4- dioxane flows under the influence of the remedial system, past the monitoring wells, and toward the extraction wells.

GZ-OMP Series Monitoring Wells

The monitoring wells were sampled by GZA on November 3, 2021, and samples submitted to EAI for analysis of 1,4- dioxane by EPA Method 8260B SIM. The following table summarizes the results of the analyses. EA's analytical laboratory reports are included **Appendix C**.

Monitoring Well	1,4-dioxane Concentration (ug/L)
GZ-OPM-6A	62
GZ-OPM-6B	96
GZ-OPM-6C	59
GZ-OPM-6D	110
GZ-OPM-11A	69
GZ-OPM-11B	81
GZ-OPM-11C	99
GZ-OPM-11D	430
GZ-OPM-14A	250
GZ-OPM-14B	280
GZ-OPM-14C	120
GZ-OPM-14D	400

The detected concentrations of 1,4-dioxane are consistent with our understanding of the spatial distribution of 1,4- dioxane based on the sampling of monitoring and groundwater extraction wells screened within overburden off- site. The GZ-OMP series wells will be sampled periodically to evaluate changes in concentration within the plume over time.

Supplemental Overburden Groundwater Monitoring Wells

Supplemental sampling of overburden groundwater monitoring wells during 2021 included 14 wells located in the off- site groundwater remediation area. The samples were collected by GZA and submitted to EAI for analysis of 1,4- dioxane using EPA Method 8260 SIM to provide additional concentration data needed to evaluate the long-term performance of the off-site overburden groundwater extraction system. Monitoring wells sampled include GZ-40M, GZ-40L, GZ-42L, GZ-44 through GZ-50, GZ-53, GZ-54U, GZ-54D, and GZ-55. The locations of the monitoring wells are depicted on **Figure 2C**.

Except for well GZ-54U, each of the wells was sampled on March 18, 2021. The results of the analyses were previously reported in GZA's year 2020 ASR and are summarized in **Table 3A.3**. Wells GZ-47 and GZ-54U were sampled on September 24, 2021. The results of the analyses are also summarized in **Table 3A.3** and **Section 3.1.2**, and EAI's laboratory report is included in **Appendix C**.



Supplemental Fractured Bedrock Groundwater Monitoring Wells

Two wells screened in fractured bedrock and located downgradient of fractured bedrock groundwater extraction wells RW-13 and RW-14 (GZ-51 and GZ-52) were sampled by GZA on March 18, September 24, and December 17, 2021. Samples were collected from the wells to provide data needed to evaluate the influence of pumping RW-13 and RW-14.

The samples were submitted to EAI for analysis of 1,4-dioxane using EPA Method 8260 SIM. The results of the analyses are summarized in **Table 3A.3**, and EAI's laboratory reports not previously submitted in GZA's year 2020 ASR are included in **Appendix C**. The results of the analyses indicate stable concentrations of 1,4-dioxane within the fractures intersected by GZ-51 and GZ-52, averaging 9.9 µg/L and 4.2 µg/L, respectively.

4.3.6 Estimate of Duration of Active Remediation for Financial Assurance

Continued collection of groundwater and remedial system performance data are necessary to calculate estimates of the duration of active remediation (*i.e.*, operation of the groundwater extraction and treatment systems).

Relative to the operation of source area groundwater extraction system, the decreases in 1,4-dioxane concentration in source area groundwater (**Table 11**), the decrease in treatment system influent concentration (**Chart 10**), and the miscibility of 1,4-dioxane (*i.e.*, dissolved-phase source) suggest that the period of active remediation of the source area will be less than 10 years (*i.e.*, to be completed prior to 2027). Notably, the treatment system influent concentration trend prior to startup of the off-site overburden wells suggests that, without the operation of the off-site groundwater extraction wells, the influent concentration might have already decreased to the point where operation of the source area groundwater extraction wells would become impracticable (*i.e.*, concentrations become too low to justify treatment). The increase in the influent concentration related to the operation of the off-site overburden groundwater extraction wells necessitates operation of the treatment system and extends the period during which it is impracticable to operate the source area groundwater extraction wells.

The decreasing influent concentration trend related to the source area is in part due to the dewatering of source area (*i.e.*, leaving 1,4-dioxane in pore water within the unsaturated zone and reducing the rate of removal from the source area). 1,4-dioxane stranded in pore water is transported to groundwater through infiltration of precipitation, but this process is anticipated to be slower than transport within the saturated zone. Supplemental measures may be needed to remove 1,4-dioxane from the unsaturated zone, potentially including periodically turning off the groundwater pumps within the source area to allow rebound of the groundwater level and reconnection of the stranded porewater. Any change in operation will be reviewed with the NHDES prior to implementation.

Monitoring of the off-site portion of the 1,4-dioxane plume continues to indicate that the plume is in a steady state condition and water supply well monitoring indicates that no additional private water supply wells have been impacted by the Site. Notwithstanding, Dartmouth College voluntarily expanded the groundwater extraction system during 2020 to include additional capture of bedrock and overburden groundwater to accelerate the remediation of groundwater and further protect human health and the environment. Startup of the off-site groundwater extraction system was completed during January 2021.

GZA had proposed including an estimate of the time to completion of the active remediation off-site in this ASR. However, based on the available data, it is GZA's opinion that additional monitoring of 1,4-dioxane concentration trends and water level response to the operation of the off-site overburden groundwater extraction wells is needed to calculate an estimate of the time at which operation of the off-site system will become impracticable and monitored natural attenuation will become the remedial alternative for the residual contamination. This was in part due to the time need to install the GZ-OPM series monitoring wells during 2021. The likely period of active remediation will be further evaluated based on data collection completed through 2022, and an estimate of the duration of active remediation provide within the year 2022 annual summary report.



5.0 SUMMARY

This section summarizes GZA's conclusions and the results of monitoring based on the information described in **Section 3.0** and **Section 4.0** and the CSM included in **Appendix B**.

5.1 Water Quality Monitoring and Permit Compliance

The results of Permit-required and supplemental groundwater monitoring performed during 2021 indicate compliance with the GMZ described in the Permit and are consistent with the GZA's CSM. The following subsections describe conclusions specific to groundwater, surface water, water supply well monitoring, and 1,4-dioxane transport.

5.1.1 Groundwater Monitoring Well Sampling

- The 1,4-dioxane concentration trends for off-site groundwater monitoring wells suggest the lateral and vertical extents of the plume are relatively stable. The off-site monitoring data indicate the potential for 1,4-dioxane transport northward within in the valley is limited, and discharge of the plume to the stream is occurring.

5.1.2 Surface Water Sampling

- 1,4-dioxane was not detected above the laboratory RL in samples collected from the surface water monitoring locations during 2021.

5.1.3 Water Supply Sampling

- Except for the results from the analysis of samples collected from the inactive private water supply at 9 Rennie Road, the analysis of each of the off-site residential water supply samples did not detect 1,4-dioxane above the laboratory RL. The 9 Rennie Road property is currently vacant and is owned by Dartmouth College.
- The analysis of samples from the residential water supply well at 9 Rennie Road during the 2021 detected 1,4-dioxane at concentrations ranging from 8.6 µg/L to 14 µg/L. The results of the analyses are generally consistent with the results of the analysis of samples collected during prior years but indicate overall higher and more stable concentrations of 1,4-dioxane that, in the absence of withdrawals from the water supply well, likely reflect the concentration in groundwater.

5.1.4 1,4-dioxane Transport

- The spatial distribution of the 1,4-dioxane concentration and hydraulic head data collected during 2021 are consistent with previously collected data and advective 1,4-dioxane transport, including:
 - Historic transport of 1,4-dioxane within groundwater vertically downward through overburden and into fractured bedrock within in the source area, with subsequent transport toward the east and northeast within the fractured bedrock groundwater system.
 - Historic 1,4-dioxane transport within the fractured bedrock groundwater system consistent with the dominant northeast trending and steeply dipping bedrock fracture orientation.
 - Lateral and vertical 1,4-dioxane concentration gradients indicate that the vertical axis of the plume, downgradient of the capture zone of the groundwater extraction system, transitions from fractured bedrock to overburden at approximately elevation 850 feet to elevation 860 feet at a location east of Rennie Road. 1,4-dioxane is transported laterally and vertically upward relative to the ground surface, discharging through the glacial till deposits, eventually flowing to the unnamed tributary to Hewes Brook, where it is diluted within the flow of surface water.



- Limited underflow of the stream in the valley area occurs, as indicated by the detection of low concentrations of 1,4-dioxane in samples collected from bedrock groundwater monitoring well GZ-37D. The underflow is estimated to be limited to the areas surrounding the stream by the convergent groundwater flow to the west associated with the upland area to the east of the stream.

5.2 Groundwater Remediation System Monitoring

- Collectively, the treatment system performance data indicate that the combined groundwater extraction and treatment systems are meeting the remedial objectives and performance criteria.
- Effluent water quality throughout 2021 met the RGP Effluent Limitations.
- 1,4-dioxane concentration data collected following startup of the remedial system continue to indicate that overall decreases in the concentration of 1,4-dioxane have occurred within the capture zone. The concentrations of 1,4-dioxane at 17 of 20 wells decreased by 26 percent to 100 percent relative to the pre-startup data. The average of the decreases in concentration is approximately 28 µg/L, and the average of the percent change in concentration at locations where concentrations decreased is approximately 69 percent.
- During 2021 the treatment system flow rate was between approximately 1.3 gpm to 12.1 gpm (arithmetic average 8.1 gpm). Approximately 4,130,677 gallons of groundwater were treated by the groundwater treatment system during 2021, which is approximately 126 percent greater than during 2020. The increase flow rate trend is due to the operation of groundwater extraction wells RW-13, RW-14, and ORW-1 through ORW-15.
- The detected concentrations of 1,4-dioxane in treatment system influent samples ranged from 5.5 µg/L to 36 µg/L (average 19.2 µg/L). Influent concentrations increased from a low of 3.7 µg/L due to the operation of off-site overburden groundwater extraction wells ORW-1 through ORW-15.
- The groundwater level and 1,4-dioxane concentration data collected during 2021 indicate that the objectives of the groundwater extraction system were met during 2021, including:
 - Capture of the 1,4-dioxane plume in overburden and shallow fractured bedrock groundwater within the source area.
 - Capture of the 1,4-dioxane plume in shallow fractured bedrock groundwater downgradient of the Site to the extent possible east of RW-13 and RW-14.
 - Capture of the majority of 1,4-dioxane transported within overburden as practicable prior to transport in groundwater to the unnamed stream east of the Site and Rennie Road.
- The low hydraulic conductivity of the glacial till deposits and upward hydraulic gradient within the valley east of the Site limit the drawdown that can be created by the off-site overburden groundwater extraction system. Because of the limited effect of the system on groundwater level elevation, groundwater level and 1,4-dioxane concentration data collected over time in conjunction with extraction well 1,4-dioxane concentration data are needed to evaluate the performance of the off-site overburden groundwater extraction system and estimate the time needed to reach the point where off-site overburden groundwater will become impracticable.
- Additional monitoring of 1,4-dioxane concentration trends and water level response to the operation of the off-site overburden groundwater extraction wells is needed to calculate an estimate of the time at which operation of the off-site system will become impracticable, and monitored natural attenuation will become the remedial alternative for the residual contamination.



6.0 RECOMMENDATIONS

Based on our understanding of Site conditions and the results of monitoring during 2021, GZA recommends continued operation of the remedial systems constructed on-Site and off-site.

GZA also recommends continued collection of supplemental hydraulic head and water quality data as needed to evaluate concentration trends and estimate the time at which the operation of the off-site groundwater extraction system will become impracticable (*i.e.*, concentrations become too low to justify treatment) and requests an extension of the time originally proposed to complete the evaluation and determination of the need for Financial Assurance plan²⁶. GZA currently anticipates that an estimate of the time to discontinuation of the active phase of the remediation can be prepared and included within the ASR for 2022. This request for an extension consider the limited operational time of the off-site system and available performance monitoring data; the stability of the 1,4-dioxane plume; lack of human receptors; success of the source remediation measures, and voluntary nature and operational condition of the off-site groundwater extraction system constructed by Dartmouth.

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²⁶ As required under State of New Hampshire Code of Administrative Rules Env-Or 606.02.



Tables

**TABLE 1
SUMMARY OF PREVIOUSLY COMPLETED REPORTS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Date	Report Title	Author	Subject
9-Dec-11	Dartmouth College Rennie Farm Site, Discovery and Management of Chemical Wastes, Etna, New Hampshire	GZA	VOC contaminated soil discovery and management
17-Jan-12	Dartmouth College Rennie Farm Site, Chemical Waste Management/Groundwater Monitoring Program, Etna, New Hampshire		VOC contaminated soil discovery and management
14-Jun-12	Dartmouth College Rennie Farm Site, Groundwater Monitoring Results/Notice of AGQS Exceedance, Etna, New Hampshire		Notification of detection of 1,4-dioxane in groundwater
15-Jan-13	Groundwater Monitoring Results for July and November Sampling Events, Dartmouth College Rennie Farm Site, Etna, New Hampshire		Water quality monitoring
17-Jan-14	Groundwater Monitoring Results for 2013 Sampling Events, Dartmouth College Rennie Farm Site, Etna, New Hampshire		Water quality monitoring
24-Jun-14	Supplemental Hydrogeologic Investigation Work Plan, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Supplement Site Investigation (SSI) work plan
31-Dec-14	Letter Report and Work Plan, Supplemental Hydrogeologic Investigation, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		SSI results and work plan for additional investigations
1-Sep-15	Work Plan, Off-Site Water Supply Well Sampling, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Summary of SSI activities and work plan for off-site water supply sampling
11-Nov-15	Letter Report, Off-site Water Supply Well Sampling, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Summary of off-site water supply sampling
2-Dec-15	Work Plan, Supplemental Hydrogeologic Investigation – Phase I, Groundwater Management Zone Delineation and Water Supply Investigation, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		SSI Work Plan including two phases of SSI activities, with activities focused on on-site (Phase I) and off-site (Phase II) investigations
10-Feb-16	Water Quality Monitoring Summary, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Interim summary of groundwater quality data provide at the request of NHDES
6-May-16	Report Phase I - Supplemental Hydrogeologic Investigation, Groundwater Management Zone Delineation and Water Supply Investigation, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737		Results of Phase I SSI and proposal for Phase II SSI
25-Jul-16	License No. 276R Amendment Request, Rennie Farm Decommissioning, Laboratory Waste Test Pit Excavation Work Plan, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, DES Site No. 201111109, Project No. 27737		Work plan describing laboratory waste encountered in test pit excavations and proposed removal of the waste
5-Aug-16	Revised License No. 276R Amendment Request, Rennie Farm Decommissioning, Laboratory Waste Test Pit Excavation Work Plan, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, DES Site No. 201111109, Project No. 27737		Version of July 25, 2016 work plan revised to address NHDES and NHRHS comments
1-Sep-16	Remedial Action Plan Report, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737		Remedial Action Plan (RAP) summarizing additional on site investigations and proposing groundwater extraction and treatment as a remedial approach

**TABLE 1
SUMMARY OF PREVIOUSLY COMPLETED REPORTS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Date	Report Title	Author	Subject
28-Sep-16	Work Plan Addendum, Supplemental Hydrogeologic Investigation – Phase II, Groundwater Management Zone Delineation, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES site No. 201111109, DES Project No. 277737	GZA	Work plan proposing additional off-site monitoring well locations
25-Oct-16	Work Plan Addendum, Proposed Borehole Geophysical Logging and Groundwater Sampling, 668 Hanover Center Road, Hanover, New Hampshire (Ivan and Olga Garlova Property), Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Work plan proposing source investigations related to the water supply well at 668 Hanover Center Road
23-Nov-16	Remedial Design Monitoring Well Data Summary, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Summary of preliminary results in support of remedial design
12-Feb-16	Remedial Design Plans and Construction Specifications Report, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Description of remedial design proposed in the RAP
27-Dec-16	Application for Temporary Groundwater Discharge Permit, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Application to discharge treated water from the groundwater extraction and treatment system under a Temporary Groundwater Discharge Permit (TGWDP) until authorization to discharge treated water under the EPA Remediation General Permit can be obtained
10-Feb-17	Data Transmittal, Initial Treatment System Analytical Data, Temporary Groundwater Discharge Permit (Permit), Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Initial treatment system performance monitoring data performed under the TGWDP
8-Mar-17	Source Investigation – 668 Hanover Center Road, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Results of source investigations related to the water supply well at 668 Hanover Center Road
7-Apr-17	National Pollution Discharge Elimination System, Notice of Intent (NOI), Remediation General Permit, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Notice of Intent to discharge treated groundwater under the EPA Region One Remediation General Permit.
14-Jul-17	Phase II - Supplemental Hydrogeologic Investigation, Groundwater Management Zone Delineation and Application for Groundwater Management Permit, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Results of Phase II hydrogeologic investigation, including off-site investigations, and source area excavation; includes Groundwater Management Permit application
10-Nov-17	Remediation General Permit Effluent Limitation Violation Documentation, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		Documentation of Effluent Limitation violation and response actions
16-Nov-17	Data Transmittal - September 2017 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		September 2017 Groundwater Management Permit-related sampling round results
14-Mar-18	Annual Summary Report - 2017 Annual Summary Report, groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		2017 Groundwater Management annual summary results and discussion
11-May-18	Data Transmittal - March 2018 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		March 2018 Groundwater Management Permit-related sampling round results
3-Aug-18	Data Transmittal - June 2018 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		June 2018 Groundwater Management Permit-related sampling round results
14-Nov-18	Data Transmittal - September 2018 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		September 2018 Groundwater Management Permit-related sampling round results
30-Nov-18	Results of Initial PFAS Screening, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737	GZA	PFAS sampling results in groundwater

**TABLE 1
SUMMARY OF PREVIOUSLY COMPLETED REPORTS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Date	Report Title	Author	Subject
29-Mar-19	Annual Summary Report - 2018 Annual Summary Report, groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		2018 Groundwater Management annual summary results and discussion
14-May-19	Data Transmittal - March 2019 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		March 2019 Groundwater Management Permit-related sampling round results
30-Jul-19	Data Transmittal - June 2019 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		June 2019 Groundwater Management Permit-related sampling round results
18-Nov-19	Data Transmittal - September 2019 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		September 2019 Groundwater Management Permit-related sampling round results
23-Mar-20	Remedial Design Plans and Construction Specifications Report, Groundwater Extraction System Expansion, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737, Groundwater Management Permit No. GWP-201111109-H-001		Results of off-site subsurface investigation and groundwater extraction system expansion design plans and construction specifications
14-Apr-20	Annual Summary Report - 2019 Annual Summary Report, groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		2019 Groundwater Management annual summary results and discussion
11-May-20	Data Transmittal - March 2020 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		March 2020 Groundwater Management Permit-related sampling round results
29-Jul-20	Data Transmittal - June 2020 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		June 2020 Groundwater Management Permit-related sampling round results
8-Dec-20	Data Transmittal - September 2020 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		September 2020 Groundwater Management Permit-related sampling round results
1-Jul-21	Annual Summary Report - 2020 Annual Summary Report, groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		2020 Groundwater Management annual summary results and discussion
13-Oct-21	Data Transmittal - June 2021 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		June 2021 Groundwater Management Permit-related sampling round results
8-Nov-21	Data Transmittal - September 2021 Water Quality Monitoring Round, Groundwater Management Permit GWP-201111109-H-001, Dartmouth College, Rennie Farm Site, Hanover Center Road, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737		September 2021 Groundwater Management Permit-related sampling round results

Notes:

- NHDES and DES indicate New Hampshire Department of Environmental Services; NHRHS indicates New Hampshire Radiological Health Section; EPA indicates United States Environmental Protection Agency.
- SSI indicates supplemental site investigation; RAP indicates remedial action plan.

**TABLE 2
MONITORING WELL CONSTRUCTION SUMMARY**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Well ID	Screened Hydrogeologic Unit	Ground Surface Elevation	PVC/TOC Reference Point Elevation	Depth to Bedrock	Bedrock Surface Elevation	Top of Well Screen Depth	Top of Well Screen Elevation	Bottom of Well Screen Depth	Bottom of Well Screen Elevation
GZ-1	Bedrock	1,083.6	1,086.73	6.0	1,077.6	6.5	1,077.1	11.5	1,072.1
GZ-2	Overburden	1,077.9	1,081.91	12.5	1,065.4	8.0	1,069.9	13.0	1,064.9
GZ-3	Overburden	1,076.8	1,079.93	14.5	1,062.3	4.5	1,072.3	14.5	1,062.3
GZ-4	Overburden	1,081.2	1,084.47	-	-	7.0	1,074.2	12.0	1,069.2
GZ-5U	Overburden	1,043.2	1,045.57	12.0	1,031.2	8.0	1,035.2	13.0	1,030.2
GZ-5L	Bedrock	1,042.6	1,045.37	18.5	1,024.1	25.0	1,017.6	30.0	1,012.6
GZ-6	Overburden	1,062.4	1,065.04	10.0	1,052.4	6.0	1,056.4	11.0	1,051.4
GZ-7U	Overburden	1,061.5	1,064.44	25.0	1,036.5	20.0	1,041.5	25.0	1,036.5
GZ-7L	Bedrock	1,061.8	1,064.71	25.0	1,036.8	28.0	1,033.8	33.0	1,028.8
GZ-8U	Overburden	1,046.3	1,049.28	-	-	12.0	1,034.3	17.0	1,029.3
GZ-8L	Bedrock	1,046.4	1,049.38	17.0	1,029.4	28.0	1,018.4	33.0	1,013.4
GZ-9U	Overburden	1,009.1	1,011.31	-	-	12.0	997.1	17.0	992.1
GZ-9L	Bedrock	1,008.1	1,010.33	23.0	985.1	37.5	970.6	42.5	965.6
GZ-9D	Bedrock	1,007.5	1,009.93	19.0	988.5	83	924.5	93	914.5
GZ-10U	Overburden	999.6	1,002.09	8.0	991.6	3.0	996.6	8.0	991.6
GZ-10L	Bedrock	999.8	1,002.50	9.2	990.6	20.0	979.8	25.0	974.8
GZ-11U	Overburden	985.3	987.97	4.0	981.3	4.0	981.3	9.0	982.3
GZ-11L	Bedrock	985.6	988.34	4.0	981.6	15.0	970.6	20.0	965.6
GZ-12L	Bedrock	1,080.6	1,083.29	7.5	1,073.1	9.0	1,071.6	14.0	1,066.6
GZ-13L	Bedrock	1,080.9	1,083.52	5.5	1,075.4	11.0	1,069.9	15.0	1,065.9
GZ-14U	Overburden	1,079.5	1,081.87	6.0	1,073.5	12.5	1,067.0	7.8	1,071.7
GZ-14L	Bedrock	1,079.7	1,082.06	6.0	1,073.7	12.5	1,067.2	16.0	1,063.7
GZ-15L	Bedrock	1,085.2	1,087.65	11.5	1,073.7	27.8	1,057.4	37.8	1,047.4
GZ-16D	Bedrock	1,089.5	1,090.83	2.0	1,087.5	18.0	1,071.5	260.0	829.5
GZ-17L	Bedrock	968.9	971.40	23.0	945.9	48.0	920.9	53.0	915.9

**TABLE 2
MONITORING WELL CONSTRUCTION SUMMARY**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Well ID	Screened Hydrogeologic Unit	Ground Surface Elevation	PVC/TOC Reference Point Elevation	Depth to Bedrock	Bedrock Surface Elevation	Top of Well Screen Depth	Top of Well Screen Elevation	Bottom of Well Screen Depth	Bottom of Well Screen Elevation
GZ-18U	Overburden	1,077.6	1,080.06	12.7	1,064.9	5.0	1,072.6	10.0	1,067.6
GZ-18L	Bedrock	1,077.7	1,080.67	12.7	1,065.0	16.0	1,061.7	21.0	1,056.7
GZ-19U	Overburden	1,077.3	1,080.46	11.0	1,066.3	5.0	1,072.3	10.0	1,067.3
GZ-19L	Bedrock	1,077.1	1,080.03	11.0	1,066.1	15.0	1,062.1	20.0	1,057.1
GZ-20U	Overburden	1,080.4	1,083.16	9.5	1,070.9	3.5	1,076.9	8.5	1,071.9
GZ-20L	Bedrock	1,080.4	1,083.52	9.5	1,070.9	14.0	1,066.4	19.0	1,061.4
GZ-22U	Overburden	1,079.2	1,078.66	8.2	1,071.0	3.2	1,076.0	8.2	1,071.0
GZ-23U	Overburden	1,080.2	1,083.13	8.5	1,071.7	4.5	1,075.7	8.5	1,071.7
GZ-24U	Overburden	983.2	984.92	-	-	13.5	969.7	18.5	964.7
GZ-24L	Bedrock	982.9	984.75	25.0	957.9	31.0	951.9	36.0	946.9
GZ-24D	Bedrock	982.5	984.99	25.0	957.5	72.0	910.5	82.0	900.5
GZ-25U	Overburden	859.0	861.47	-	-	20.0	839.0	25.0	834.0
GZ-25L	Overburden	858.0	860.25	-	-	42.0	816.0	47.0	811.0
GZ-25D	Bedrock	858.6	861.17	81.0	777.6	90.0	768.6	105.0	753.6
GZ-26U	Overburden	881.9	884.12	-	-	15.0	866.9	20.0	861.9
GZ-26D	Bedrock	882.0	no well	31.0	851.0	80.0	802.0	85.0	797.0
GZ-27U	Overburden	897.0	898.83	-	-	19.0	878.0	24.0	873.0
GZ-27L	Overburden	897.1	899.13	-	-	46.4	850.7	51.4	845.7
GZ-27D	Bedrock	896.4	898.23	69.0	827.4	70.5	825.9	80.5	815.9
GZ-28U	Overburden	906.0	907.91	-	-	45.0	861.0	50.0	856.0
GZ-28L	Overburden	906.0	908.15	-	-	69.0	837.0	79.0	827.0
GZ-28D	Bedrock	905.9	908.24	102.0	803.9	107.5	798.4	122.5	783.4
GZ-29L	Bedrock	1,011.6	1,014.01	5.4	1,006.2	25.0	986.6	40.0	971.6
GZ-30U	Bedrock	1,081.3	1,083.65	2.0	1,079.3	13.0	1,068.3	18.0	1,063.3
GZ-30L	Bedrock	1,080.9	1,083.47	2.0	1,078.9	30.0	1,050.9	40.0	1,040.9
GZ-31L	Bedrock	1,084.1	1,086.72	6.0	1,078.1	26.5	1,057.6	41.5	1,042.6

**TABLE 2
MONITORING WELL CONSTRUCTION SUMMARY**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Well ID	Screened Hydrogeologic Unit	Ground Surface Elevation	PVC/TOC Reference Point Elevation	Depth to Bedrock	Bedrock Surface Elevation	Top of Well Screen Depth	Top of Well Screen Elevation	Bottom of Well Screen Depth	Bottom of Well Screen Elevation
GZ-32U	Overburden	834.4	836.09	-	-	27.0	807.4	32.0	802.4
GZ-32L	Overburden	834.3	836.78	-	-	63.0	771.3	68.0	766.3
GZ-32D	Bedrock	836.3	838.03	70.0	766.3	112.0	724.3	122.0	714.3
GZ-33U	Overburden	847.6	849.32	-	-	15.0	832.6	20.0	827.6
GZ-33L	Overburden	848.4	850.22	-	-	45.0	803.4	50.0	798.4
GZ-34U	Overburden	891.8	894.44	-	-	15.5	876.3	20.5	871.3
GZ-34L	Bedrock	892.2	894.46	60.0	832.2		892.2		892.2
GZ-34D	Bedrock	892.4	894.40	60.0	832.4	120.0	772.4	130.0	762.4
GZ-35U	Overburden	868.3	870.96	-	-	40.0	828.3	45.0	823.3
GZ-35L	Overburden	867.5	869.56	-	-	64.0	803.5	69.0	798.5
GZ-35D	Bedrock	867.8	868.75	84.0	783.8	104.0	763.8	124.0	743.8
GZ-36U	Overburden	823.0	825.06	-	-	20.5	802.5	25.5	797.5
GZ-37U	Overburden	896.2	898.02	-	-	15.0	881.2	20.0	876.2
GZ-37L	Bedrock	896.4	898.26	72.0	824.4	85.0	811.4	95.0	801.4
GZ-37D	Bedrock	896.7	898.27	72.0	824.7	123.0	773.7	143.0	753.7
GZ-38U	Overburden	891.0	892.94	-	-	14.0	877.0	19.0	872.0
GZ-39U	Overburden	888.7	890.62	-	-	9.5	879.2	14.5	874.2
GZ-39L	Overburden	889.4	891.31	-	-	22.5	866.9	27.5	861.9
GZ-39D	Bedrock	888.7	890.65	49.0	839.7	94.0	794.7	99.0	789.7
GZ-40U	Overburden	876.7	878.62	-	-	10.0	866.7	15.0	861.7
GZ-40M	Overburden	876.5	878.79	-	-	30.0	846.5	35.0	841.5
GZ-40L	Overburden	877.3	879.63	-	-	50.0	827.3	55.0	822.3
GZ-40D	Bedrock	875.9	877.87	64.0	811.9	76.5	799.4	86.5	789.4
GZ-41U	Overburden	876.8	878.82	-	-	10.0	866.8	15.0	861.8
GZ-42U	Overburden	858.6	860.53	-	-	14.5	844.1	19.5	839.1
GZ-42L	Overburden	859.4	861.72	-	-	30.0	829.4	35.0	824.4

**TABLE 2
MONITORING WELL CONSTRUCTION SUMMARY**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Well ID	Screened Hydrogeologic Unit	Ground Surface Elevation	PVC/TOC Reference Point Elevation	Depth to Bedrock	Bedrock Surface Elevation	Top of Well Screen Depth	Top of Well Screen Elevation	Bottom of Well Screen Depth	Bottom of Well Screen Elevation
GZ-43U	Overburden	1,075.4	1,077.80	8.2	1,067.2	5.0	1,070.4	13.0	1,062.4
GZ-44	Overburden	852.6	854.90	-	-	10.0	842.6	15.0	837.6
GZ-45	Overburden	856.5	858.81	-	-	10.0	846.5	15.0	841.5
GZ-46	Overburden	863.8	866.16	-	-	15.0	848.8	20.0	843.8
GZ-47	Overburden	871.5	873.83	-	-	43.0	828.5	48.0	823.5
GZ-48	Overburden	888.0	890.29	-	-	10.0	878.0	15.0	873.0
GZ-49	Overburden	902.8	905.15	-	-	10.0	892.8	15.0	887.8
GZ-50	Overburden	922.5	924.87	-	-	10.0	912.5	15.0	907.5
GZ-51	Bedrock	938.7	941.16	20.0	918.7	54.0	884.7	64.0	874.7
GZ-52	Bedrock	942.2	945.17	20.0	922.2	49.0	893.2	79.0	863.2
GZ-53	Overburden	871.8	874.09	-	-	15.0	856.8	20.0	851.8
GZ-54U	Overburden	872.8	875.09	-	-	20.1	852.7	25.1	847.7
GZ-54D	Overburden	872.8	875.15	-	-	61.3	811.5	66.3	806.5
GZ-55	Overburden	871.9	874.21	62.5	809.4	60.0	811.9	65.0	806.9
GZ-PM-1U	Bedrock	1,075.3	1,077.48	33.0	1,042.3	30.0	1,045.3	40.0	1,035.3
GZ-PM-1L	Bedrock	1,075.4	1,077.43	33.0	1,042.4	53.0	1,022.4	58.0	1,017.4
GZ-PM-2U	Bedrock	1,075.4	1,077.24	6.0	1,069.4	33.0	1,042.4	48.0	1,027.4
GZ-PM-2L	Bedrock	1,072.1	1,073.93	6.0	1,066.1	68.5	1,003.6	78.5	993.6
GZ-PM-3U	Overburden	1,072.2	1,074.05	11.0	1,061.2	5.0	1,067.2	15.0	1,057.2
GZ-PM-3L	Bedrock	1,079.7	1,081.97	10.1	1,069.6	25.0	1,054.7	50.0	1,029.7
GZ-PM-4U	Overburden	1,079.4	1,081.61	9.0	1,070.4	2.0	1,077.4	20.0	1,059.4
GZ-PM-4L	Bedrock	1,077.3	1,080.28	9.0	1,068.3	30.0	1,047.3	45.0	1,032.3
GZ-PM-5U	Overburden	1,078.0	1,080.36	13.0	1,065.0	10.0	1,068.0	20.0	1,058.0
GZ-PM-5L	Bedrock	1,072.4	1,074.38	13.0	1,059.4	20.0	1,052.4	50.0	1,022.4
GZ-PM-6U	Overburden	1,072.2	1,074.41	14.0	1,058.2	5.0	1,067.2	15.0	1,057.2
GZ-PM-7U	Overburden	1,075.3	1,077.36	20.0	1,055.3	10.0	1,065.3	20.0	1,055.3
GZ-PM-8U	Overburden	1,077.8	1,080.18	-	-	9.5	1,068.3	14.5	1,063.3
GZ-PM-8L	Bedrock	1,079.2	1,081.29	17.0	1,062.2	25.0	1,054.2	50.0	1,029.2
GZ-PM-9L	Bedrock	1,079.3	1,081.48	9.5	1,069.8	19.5	1,059.8	49.5	1,029.8

**TABLE 2
MONITORING WELL CONSTRUCTION SUMMARY**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Well ID	Screened Hydrogeologic Unit	Ground Surface Elevation	PVC/TOC Reference Point Elevation	Depth to Bedrock	Bedrock Surface Elevation	Top of Well Screen Depth	Top of Well Screen Elevation	Bottom of Well Screen Depth	Bottom of Well Screen Elevation
GZ-OPM-6A	Overburden	869.4	869.07	-	-	5.0	864.4	10.0	859.4
GZ-OPM-6B	Overburden	869.4	869.02	-	-	15.0	854.4	20.0	849.4
GZ-OPM-6C	Overburden	869.2	868.92	-	-	5.0	864.2	10.0	859.2
GZ-OPM-6D	Overburden	869.3	869.02	-	-	15.0	854.3	20.0	849.3
GZ-OPM-11A	Overburden	869.4	869.17	-	-	5.0	864.4	10.0	859.4
GZ-OPM-11B	Overburden	869.3	868.97	-	-	15.0	854.3	20.0	849.3
GZ-OPM-11C	Overburden	869.0	868.71	-	-	5.0	864.0	10.0	859.0
GZ-OPM-11D	Overburden	869.1	868.77	-	-	15.0	854.1	20.0	849.1
GZ-OPM-14A	Overburden	867.5	867.21	-	-	5.0	862.5	10.0	857.5
GZ-OPM-14B	Overburden	867.7	867.30	-	-	15.0	852.7	20.0	847.7
GZ-OPM-14C	Overburden	867.5	867.21	-	-	5.0	862.5	10.0	857.5
GZ-OPM-14D	Overburden	867.4	867.15	-	-	15.0	852.4	20.0	847.4
WSW-1	Bedrock	1,080.2	1,082.38	22.0	1,058.2	120.0	960.2	580.0	500.2

Notes:

1. Units are feet.
2. Vertical datum is NAVD 88.
3. Overburden encountered in borings by GZA generally consist of glacial till deposits.
4. Well screen depths are relative to ground surface elevation; depth-to-groundwater is relative to top of PVC riser of monitoring well.
5. "-" indicates no data/not measured.
6. Ground surface and reference elevations are based on surveys by WSP Transportation and Infrastructure during October 2014, June 2015, January 2016, June 2016, and January 2017, and level elevation surveys by GZA during April and July 2019, and November 2021.
7. PVC indicates top of PVC well riser; TOC indicates top of protective well casing.

TABLE 3A.1
1,4-DIOXANE CONCENTRATION DATA – SOURCE AREA GROUNDWATER MONITORING LOCATIONS

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #20111109, DES Project #27737

Date Sampled	GZ-1/R	GZ-2	GZ-3	GZ-4	GZ-12L	GZ-13L	GZ-14U	GZ-14L	GZ-18U	GZ-18L	GZ-19U	GZ-19L	GZ-20U	GZ-20L	GZ-22U	GZ-23U	GZ-43U
11/20/2009	-	-	-	-													
10/12/2010	-	-	-	-													
5/19/2011	-	-	-	-													
10/27/2011	-	-	-	-													
11/29/2011	<50	<50	<50	<50													
12/5/2011	-	-	-	-													
12/12/2011	-	-	-	-													
12/19/2011	-	-	-	-													
4/19/2012	-	150	<50	<50													
5/23/2012	-	190	<50	<50													
7/25/2012	-	250/370*	<50/30*	-													
11/30/2012	-	160/220*	<50/32*	-													
3/13/2013	-	170/220*	<50/<0.25*	<50/1.4*													
6/20/2013	-	90/71*	<50/3.9*	<50/0.59*													
7/31/2013	-	120/150*	<50/4.2*	<50/0.37*													
9/25/2013	-	140/120*	<50/25*	<50/<0.25*													
12/19/2013	-	90/94*	<50/59*	<50/<0.25*													
4/17/2014	-	<50/9.6*	<50/19*	<50/<0.25*													
6/12/2014	-	<50/91*	<50/2.7*	<50/<0.25*													
8/22/2014	dry	160	21	dry													
9/5/2014	-	-	-	-													
7/8/2015	<0.25	47	2.7	<0.25													
7/22/2015	-	-	-	-													
9/15/2015	-	-	-	-													
10/1/2015	-	-	-	-													
11/10/2015	-	-	52	-													
12/9/2015	-	37/40	38	-													
1/6/2016	-	15	17	-													
2/11/2016	-	27	8.5	-	2.4	0.65	550	27									
2/19/2016	-	-	-	-	-	-	-	-									
3/8-9/2016	-	13	4.4	-	1.5	0.45	600	13									
4/11/2016	-	21	4.3	-	0.96	0.39	560	27									
4/21/2016	-	-	-	-	-	-	-	-									
5/11-13/2016	-	51	2.1	-	-	-	500	49									
6/23-24/2016	-	90	4.8	-	-	-	dry	170	89	67	51	19	dry	3.2	dry	dry	
7/18-19/2016	-	98	dry	-	dry	dry	dry	dry	dry	70	dry	68	dry	6.8	dry	dry	
8/18/2016	-	dry	dry	-	dry	dry	dry	dry	dry	dry	dry	dry	dry	13	dry	dry	
9/15-20/2016	-	-	dry	dry	dry	dry	dry	dry	dry	dry	dry	-	dry	16	-	dry	
10/27/2016	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	-	dry	20	-	dry	
11/29/2016	-	dry	dry	-	-	-	-	250	-	190	-	73	-	-	-	-	
12/2-8/2016	-	75	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	
12/28-29/2016	-	74	15	dry	dry	1.8	34	120	dry	88	dry	53	dry	43	dry	<0.25	
1/18/2017	-	-	-	-	-	-	-	-	97	-	dry	-	dry	-	-	dry	dry
1/24/2017	-	37	37	-	-	-	-	81	-	-	-	-	-	10	-	-	dry
2/21-24/2017	-	50	64	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8
3/27-29/2017	-	4.0	33	-	-	-	-	39	-	-	-	-	37	2.7	-	-	-
4/24/2017	-	9.6	20	-	-	-	140	23	-	-	-	-	-	-	-	-	12
5/17/2017	<0.25	24	12	-	-	-	-	58	-	30	dry	-	-	-	-	-	-
6/19/2017	dry	15	15	dry	dry	-	dry	180	dry	15	dry	42	dry	-	-	-	-
7/27/2017	dry	dry	dry	dry	dry	-	dry	dry	dry	5.1	dry	dry	dry	0.85	-	dry	-
8/25/2017	-	dry	dry	dry	dry	dry	-	-	dry	dry	dry	dry	dry	4.2	-	dry	-
9/28/2017	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	4.5	dry	dry	dry
12/11-22/2017	-	dry	-	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-
3/22/2018	-	dry	48	-	-	-	dry	36	dry	14	dry	dry	dry	1.4	Could not locate	dry	-
6/22/2018	-	8.9	-	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-
9/10/2018	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	5.8	Could not locate	dry	dry
12/14-20/2018	-	2.5	-	-	-	-	dry	120	-	-	-	-	-	-	-	-	-
3/19-22/2019	-	dry	19	-	-	-	-	150	-	20	-	-	<0.2	0.97	Could not locate	-	-
6/21/2019	-	16	-	-	-	-	dry	110	-	-	-	-	-	-	-	-	-
9/12/2019	dry	27	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	30	Could not locate	dry	dry
12/13/2019	-	5.9	-	-	-	-	dry	27	-	-	-	-	-	-	-	-	-
3/11/2020	-	1.1	5.7	-	-	-	5.5	40	0.86	3.6	0.57	4.5	<0.2	0.74	25	<0.2	-
6/9/2020	-	10	-	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-
9/18/2020	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
12/18/2020	-	3.2	-	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-
3/15/2021	-	dry	dry	-	-	-	dry	dry	dry	dry	dry	dry	dry	1.5	0.39	dry	dry
6/14/2021	-	11	-	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-
9/22/2021	dry	22 ⁸	dry	dry	dry	dry	dry	dry	dry	23	dry	dry	dry	10	1.3	dry	dry
12/16/2021	-	1.4	-	-	-	-	dry	17	-	-	-	-	-	-	-	-	-

Notes:

1. Data indicate concentrations of 1,4-dioxane in micrograms per liter.
2. "<" indicates that 1,4-dioxane was not detected above the referenced reporting limit.
3. "N" indicates results of labeled and blind duplicate sample, respectively.
4. "-" indicates sampling location not included in respective sampling round.

5. "dry" indicates no water in monitoring well at the time of the respective sampling round.

6. "Value/Value" indicates analysis for 1,4-dioxane performed using EPA Method 8260B and 8260B SIM, respectively.

7. Shaded cells indicate well location was not installed at the time of the referenced sampling round.

8. Indicates GZ-2 resampled on October 14, 2021 based on comment included in laboratory report regarding potential lack of representativeness of sample collected on September 22, 2021 (21 ug/L).

TABLE 3A.2
1,4-DIOXANE CONCENTRATION DATA – SITE DOWN / SIDEGRADIENT MONITORING LOCATIONS

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Date Sampled	GZ-5U	GZ-5L	GZ-6	GZ-7U	GZ-7L	GZ-8U	GZ-8L	GZ-9U	GZ-9L	GZ-9D	GZ-10U	GZ-10L	GZ-11U	GZ-11L	GZ-15L	GZ-16D	GZ-17L	GZ-24U	GZ-24L	GZ-24D	GZ-29L	GZ-30U	GZ-30L	GZ-31L	AS-WSW	Dug Well		
11/20/2009																											Location not included in prior sampling rounds	
10/12/2010																												
5/19/2011																												
10/27/2011																												
11/29/2011																												
12/5/2011																												
12/12/2011																												
12/19/2011																												
4/19/2012																												
5/23/2012																												
7/25/2012																												
11/30/2012																												
3/13/2013																												
6/20/2013																												
7/31/2013																												
9/25/2013																												
12/19/2013																												
4/17/2014																												<50/1.8*
6/12/2014																											<50/1.5*	
8/22/2014	12/11	9.1	24	dry	2.1																						<50/1.2*	
9/5/2014	13	8.8	dry	dry	3.1																						2.0	
7/8/2015	8.7	4.9	17	5.9	1.1	<0.25	<0.25	<0.25	270		<0.25	0.93/1.0	<0.25	<0.25													1.1	
7/22/2015	-	-	-	-	-	<0.25	<0.25	<0.25	520		<0.25	1.5	<0.25	<0.25													-	
9/15/2015	-	-	-	-	-	-	-	-	300/380*		-	<50/1.6*	-	-														-
10/1/2015	-	-	-	-	-	-	-	-	-		-	-	-	-													2.8/3.0	
11/10/2015	-	-	-	-	-	-	-	-	350		-	1.1	-	-													-	
12/9/2015	-	-	-	-	-	-	-	-	340		-	1.3	-	-													-	
1/6/2016	-	-	-	-	-	-	-	-	300		-	1.2	-	-													1.5	
2/11/2016	-	-	-	-	-	-	-	-	290	-	-	1.2	-	-													1.6	
2/19/2016	-	-	-	-	-	-	-	-	-	75	-	-	-	-													-	
3/8-9/2016	-	-	-	-	-	-	-	-	160	83	-	0.90	-	-													1.1	
4/11/2016	-	-	-	-	-	<0.25	<0.25	<0.25	77	94	<0.25	0.95	<0.25	<0.25													0.93	
4/21/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-													-	
5/11-13/2016	-	-	11	-	-	-	-	-	160	-	-	0.57	-	-													0.95	
6/23-24/2016	-	-	-	-	-	-	-	-	210	180	-	0.97	-	-													1.7	
7/18-19/2016	-	-	-	-	-	-	-	-	180	190	-	1.4	-	-													1.6	
8/18/2016	dry	6.9	dry	dry	1.4	-	-	-	190	210	-	2.2	-	-													2.3	
9/15-20/2016	dry	12	dry	-	-	-	-	-	180	190	-	2.2	-	-													3.3	
10/27/2016	dry	32	dry	dry	1.1	-	-	dry	120	160	-	dry	-	-													-	
11/11/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-													-	
11/22-29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-													-	
12/2-8/2016	dry	13	0.50	dry	0.43	dry	-	dry	160	120	<0.25	0.67	<0.25	<0.25													3.6	
12/28-29/2016	dry	7.8	dry	dry	0.39	dry	-	<0.25	110	110	-	1.6	-	-													1.6	
1/10-18/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	-	-	<0.25	-	-	-	-	-	<0.25	-	-	-	
1/24-25/2017	6.2	6.8	2.8	-	2.9	-	-	-	88	86	-	2.1	-	-	-	-	-	2.5	-	-	-	<0.25	<0.25	<0.25	-	-	2.8	
2/21-24/2017	-	9.3	-	-	1.1	-	-	-	76	230	-	1.8	-	-	<0.25	-	-	2.9	-	-	-	-	-	-	-	-	3.9	
3/27-29/2017	3.7	11	-	-	-	-	-	-	120	200	-	1.2	-	-	-	-	-	2.9	-	-	<0.25	-	-	-	-	-	1.6	
4/24/2017	5.0	11	4.3	5.4	2.3	-	-	-	64	6.7	-	0.65	-	-	-	-	2.9	-	-	-	-	-	-	-	-	0.97		
5/17/2017	4.1	5.1	-	-	-	-	-	-	52	46	-	0.81	-	-	-	-	2.1	-	-	-	-	-	-	-	-	-	0.64	
6/19-20/2017	2.6	2.8	2.9	3.8	0.45	-	dry	-	71	22	dry	1.1	-	-	-	-	1.6	-	-	<0.25	-	-	-	-	-	-	0.35	
7/27/2017	1.4	2.9	-	0.69	-	-	-	-	93	23	dry	-	-	-	-	-	1.8	-	-	<0.25	-	-	-	-	-	-	0.46	
8/25/2017	dry	4.8	dry	dry	1.8	-	-	-	120	22	-	1.4	-	-	-	-	1.6	-	-	<0.25	-	-	-	-	-	-	-	
9/27-29/2017	dry	5.7	dry	dry	1.2	<0.25	<0.25	<0.25	110	22	dry	1.6	<0.25	<0.25	<0.25	<0.25	1.4	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	
12/11-22/2017	-	-	-	-	-	-	-	-	25	21	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	
3/22/2018	0.33	2.7	1.2	1.6	0.60	<0.25	dry	-	3.2	15	-	2.1	<0.25	<0.25	<0.25	<0.25	1.1	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-		
6/19/2018	-	-	-	-	-	-	-	-	66	13	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	
9/10/2018	dry	2.8	dry	dry	1.6	<0.25	dry	<0.25	130	14	dry	1.3	dry	<0.2	<0.25	<0.25	0.53	<0.25	<0.25	<0.25	<0.2	<0.25	<0.25	<0.25	<0.25	-		
12/14-20/2018	-	-	-	-	-	-	-	-	110	11	-	-	-	-	-	-	-	-	-	<0.2	Frozen	-	-	-	-	-	-	
3/19-22/2019	0.44	1.6	0.30	-	0.42	<0.2	-	-	12	13	-	0.26	<0.2	<0.2	<0.2	<0.2	1.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-		
6/21-26/2019	-	-	-	-	-	-	-	-	19	12	-	-	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	
9/12/2019	dry	2.5	dry	dry	1.5	<0.2	dry	<0.2	55	14	dry	0.39	dry	<0.2	<0.2	<0.2	0.92	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-		
12/13/2019	-	-	-	-	-	-	-	-	100	15	-	-	-	-	-	-	-	-	-	<0.2	Frozen	-	-	-	-	-	-	
3/11-17/2020	0.26	1.2	<0.2	0.39	<0.2	<0.2	<0.2	-	46	12	-	0.29	<0.2	<0.2	<0.2	<0.2	1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-		
6/9/2020	-	-	-	-	-	-	-	-	63	13	-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	-	-	-	-	-	
9/18/2020	dry	2.8	dry	dry	1.3	dry	dry	dry	62	dry	dry	dry	<0.2	<0.2	<0.2	<0.2	0.38	dry	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-		
12/18/2020	-	-	-	-	-	-	-	-	dry	78	-	-	-	-	-	-	-	-	-	<0.2	Frozen	-	-	-	-	-	-	
3/15/2021	dry	2.1	0.59	dry	1.3	<0.2	<0.2	-	6.3	79	-	0.21	<0.2	<0.2	<0.2	<0.2	8.70	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-		
6/14/2021	-	-	-	-	-	-	-	-	2.4	25	-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	-	-	-	-		
9/22/2021	dry	0.88	0.38	dry	1.5	<0.2	<0.2	<0.2	6.0	45	dry	0.37	<0.2	<0.2	<0.2	<0.2	3.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-		
12/15/2021	-	-	-	-	-	-	-	-	0.46	64	-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	-	-	-	-	-	

Notes:

- 1. Data indicate concentrations of 1,4-dioxane in micrograms per liter.
- 2. "<" indicates that 1,4-dioxane was not detected above the referenced reporting limit.
- 3. "I" indicates results of labeled and blind duplicate sample, respectively.
- 4. "-" indicates sampling location not included in respective sampling round.

TABLE 3A-3
1,4-DIOXANE CONCENTRATION DATA – OFF-SITE GROUNDWATER MONITORING LOCATIONS

Dartmouth College, Renne Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

GZ-25U		GZ-25L		GZ-25D		GZ-26U		GZ-26L		GZ-27U		GZ-27L		GZ-27D		GZ-28U		GZ-28L		GZ-28D		GZ-32U		GZ-32L		GZ-32D		GZ-33U		
Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	
9/8/2016	<0.25	9/20/2016	<0.25	9/9/2016	0.5	9/16/2016	33	9/9/2016	26	10/6/2016	5.1	11/11/2016	5.9	11/11/2016	11	12/8/2016	<0.25	12/12/2016	<0.25	11/23/2016	<0.25	10/18/2016	<0.25	12/9/2016	0.47	11/23/2016	<0.25	10/6/2016	<0.25	
9/20/2016	<0.25	11/11/2016	<0.25	9/20/2016	0.29	11/11/2016	21	Well Decommissioned		1/18/2017	6.4	1/11/2017	4.1	1/18/2017	4.3	1/18/2017	<0.25	1/18/2017	<0.25	1/11/2017	<0.25	1/11/2017	<0.25	1/11/2017	<0.25	11/11/2016	<0.25	11/11/2016	<0.25	
10/16/2017	<0.25	8/29/2017	<0.25	8/28/2017	0.62	5/18/2017	18			7/27/2017	5.5	10/12/2017	6.1	7/27/2017	6	10/11/2017	<0.25	10/11/2017	<0.25	10/11/2017	<0.25	2/8/2017	<0.25	1/31/2017	<0.25	2/8/2017	<0.25	10/6/2017	<0.25	
3/29/2018	<0.25	10/6/2017	<0.25	10/6/2017	0.57	10/12/2017	29			10/12/2017	6.9	12/11/2017	7.8	10/12/2017	5.9	4/2/2018	<0.25	12/22/2017	Frozen	12/14/117	<0.25	7/27/2017	<0.25	2/8/2017	<0.25	7/27/2017	<0.25	3/29/2018	<0.25	
9/17/2018	<0.2	3/29/2018	<0.25	3/27/2018	0.77	3/28/2018	22			12/11/2017	9.7	3/28/2018	6.2	12/11/2017	5.6	4/2/2018	<0.25	4/2/2018	<0.25	8/28/2017	<0.25	3/9/2017	<0.25	8/28/2017	<0.25	9/18/2018	<0.2	9/18/2018	<0.2	
3/20/2019	<0.2	9/17/2018	<0.2	9/17/2018	0.69	9/17/2018	19			3/28/2018	7.4	6/21/2018	4.2	3/28/2018	4.6	3/22/2019	<0.2	6/27/2018	<0.25	6/27/2018	<0.25	10/6/2017	<0.25	8/28/2017	<0.25	10/6/2017	<0.25	3/20/2019	<0.2	
9/16/2019	<0.2	3/20/2019	Frozen	3/20/2019	1.1	3/20/2019	Frozen			6/21/2018	7.1	9/17/2018	5.1	6/21/2018	3.6	9/13/2019	<0.2	9/12/2018	<0.25	9/12/2018	<0.25	12/21/2017	Frozen	10/6/2017	<0.25	12/21/2017	Frozen	9/17/2019	<0.2	
3/16/2020	Frozen	9/16/2019	<0.2	9/16/2019	0.71	9/16/2019	15			9/17/2018	9.1	12/18/2018	4.1	9/17/2018	3.3	3/17/2020	<0.2	12/18/2018	<0.2	12/18/2018	<0.2	3/28/2018	Frozen	12/21/2017	<0.25	3/28/2018	Frozen	3/10/2020	<0.2	
6/16/2020	<0.2	3/16/2020	Frozen	3/16/2020	0.95	3/16/2020	Frozen			12/18/2018	6.5	3/22/2019	5.7	12/18/2018	2.3	9/17/2020	<0.2	3/22/2019	<0.2	3/22/2019	<0.2	6/20/2018	<0.25	3/28/2018	<0.25	6/20/2018	<0.25	9/18/2020	<0.2	
9/17/2020	<0.2	6/16/2020	<0.2	9/16/2020	1.2	6/16/2020	19			3/22/2019	8.8	6/25/2019	5.3	3/22/2019	3.3	6/24/2021	<0.2	6/24/2019	<0.2	9/12/2018	<0.25	6/20/2018	<0.25	3/28/2018	<0.25	9/12/2018	<0.25	3/16/2021	<0.2	
3/17/2021	<0.2	9/17/2020	<0.2	3/23/2021	1.3	9/16/2020	16			6/25/2019	7.2	9/16/2019	4.4	6/25/2019	2.5	9/13/2019	<0.2	9/13/2019	<0.2	12/17/2018	Frozen	9/12/2018	<0.25	12/17/2018	<0.25	12/17/2018	<0.2	9/22/2021	<0.2	
9/23/2021	<0.2	3/16/2021	<0.2	9/21/2021	1.4	3/24/2021	17			9/16/2019	7.5	12/16/2019	6.9	9/16/2019	2.4	9/21/2021	<0.2	12/18/2019	Frozen	12/18/2019	Frozen	3/20/2019	Frozen	12/17/2018	<0.2	3/20/2019	<0.2	9/22/2021	<0.2	
		9/23/2021	<0.2			9/22/2021	17			12/16/2019	9.9	3/16/2020	4.4	12/16/2019	3.4			3/16/2020	Frozen	3/16/2020	Frozen	6/24/2019	<0.2	3/20/2019	Frozen	6/24/2019	<0.2			
										3/16/2020	Frozen	6/9/2020	5.1	3/16/2020	3.0			6/10/2020	<0.2	6/9/2020	<0.2	9/17/2019	<0.2	6/24/2019	<0.2	9/17/2019	<0.2			
										6/9/2020	Packer In Well	9/17/2020	3.8	6/9/2020	3.0			9/18/2020	<0.2	9/17/2020	<0.2	12/18/2019	Frozen	9/17/2019	<0.2	12/18/2019	<0.2			
										9/17/2020	9.4	12/16/2020	3.7	9/16/2020	3.0			3/24/2021	<0.2	12/15/2020	<0.2	3/11/2020	Frozen	12/18/2019	<0.2	3/10/2020	<0.2			
										12/16/2020	8.6	6/15/2021	3.7	3/24/2021	3.2			6/16/2021	<0.2	3/24/2021	<0.2	6/9/2020	<0.2	6/9/2020	<0.2	6/9/2020	<0.2			
										3/16/2021	7.7	9/23/2021	3.5	6/15/2021	2.8			9/21/2021	<0.2	6/16/2021	<0.2	9/18/2020	<0.2	6/9/2020	<0.2	9/17/2020	<0.2			
										6/15/2021	8.3	12/15/2021	3.5	9/21/2021	3.1			12/15/2021	<0.2	9/21/2021	<0.2	3/24/2021	<0.2	9/17/2020	<0.2	12/21/2020	<0.2			
										9/22/2021	7.2			12/16/2021	2.6					6/17/2021	<0.2	12/15/2020	<0.2	3/23/2021	<0.2					
										12/15/2021	5.7										9/22/2021	<0.2	3/24/2021	<0.2	6/16/2021	<0.2				
																					12/16/2021	<0.2	9/21/2021	<0.2	9/21/2021	<0.2				
																						9/21/2021	<0.2	12/16/2021	<0.2					
																						12/16/2021	<0.2							

GZ-33L		GZ-34U		GZ-34L		GZ-34D		GZ-35U		GZ-35L		GZ-35D		GZ-36U		GZ-37U		GZ-37L		GZ-37D		GZ-38U		GZ-39U		GZ-39L		GZ-39D	
Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]
10/17/2016	<0.25	1/13/2017	0.25	12/29/2016	<0.25	12/14/2016	<0.25	11/11/2016	<0.25	11/11/2016	<0.25	11/11/2016	<0.25	1/13/2017	<0.25	12/14/2016	<0.25	12/14/2016	<0.25	12/12/2016	0.60	10/3/2016	<0.25	10/3/2016	<0.25	10/3/2016	<0.25	11/22/2016	1.8
10/28/2016	<0.25	1/31/2017	<0.25	1/11/2017	<0.25	1/11/2017	<0.25	1/17/2017	<0.25	1/18/2017	<0.25	1/17/2017	<0.25	1/31/2017	<0.25	1/12/2017	<0.25	1/13/2017	<0.25	1/17/2017	0.48	1/17/2017	<0.25	1/17/2017	<0.25	1/17/2017	<0.25	12/9/2016	2.6
10/6/2017	<0.25	2/8/2017	2.0	2/27/2017	<0.25	2/27/2017	<0.25	8/28/2017	<0.25	8/28/2017	<0.25	8/28/2017	<0.25	2/8/2017	<0.25	6/20/2017	<0.25	2/28/2017	<0.25	10/6/2017	0.30	10/6/2017	<0.25	10/11/2017	0.25	10/11/2017	<0.25	10/11/2017	1.8
3/29/2018	<0.25	4/3/2017	<0.25	7/27/2017	<0.25	7/27/2017	<0.25	10/6/2017	<0.25	8/28/2017	<0.25	10/6/2017	<0.25	2/27/2017	<0.25	10/12/2017	<0.25	10/12/2017	<0.25	4/3/2017	0.48	3/27/2018	<0.25	3/27/2018	<0.25	3/27/2018	<0.25	12/11/2017	1.6
9/18/2018	<0.2	5/19/2017	<0.25	8/28/2017	<0.25	10/11/2017	<0.25	12/21/2017	<0.25	12/21/2017	<0.25	10/6/2017	<0.25	12/21/2017	<0.25	10/12/2017	<0.25	10/11/2017	<0.25	5/19/2017	0.34	9/17/2018	<0.2	9/17/2018	<0.2	3/28/2018	1.2	3/28/2018	1.2
3/20/2019	<0.2	7/27/2017	<0.25	10/11/2017	<0.25	12/11/2017	Frozen	3/26/2018	<0.25	3/29/2018	<0.25	12/21/2017	<0.25	12/21/2017	<0.25	3/28/2018	<0.25	3/28/2018	<0.25	6/20/2017	<0.25	3/20/2019	<0.2	3/20/2019	<0.2	3/20/2019	Frozen	6/21/2018	1.1
9/17/2019	<0.2	8/28/2017	<0.25	12/11/2017	Frozen	3/28/2018	<0.25	6/20/2018	<0.25	6/20/2018	<0.25	3/27/2018	<0.25	6/26/2018	<0.25	6/26/2018	<0.25	6/26/2018	<0.25	7/26/2017	0.51	9/16/2019	<0.2	9/16/2019	<0.2	9/17/2018	1.0	9/17/2018	1.0
3/10/2020	<0.2	10/11/2017	<0.25	3/27/2018	<0.25	6/25/2015	<0.25	9/12/2018	<0.25	6/20/2018	<0.25	6/20/2018	<0.25	9/19/2018	<0.2	9/19/2018	<0.2	8/29/2017	0.47	3/16/2020	<0.2	3/16/2020	<0.2	3/16/2020	Frozen	12/17/2018	0.68	12/17/2018	0.68
9/18/2020	<0.2	12/11/2017	<0.25	6/25/2018	<0.25	9/19/2018	<0.2	12/17/2018	<0.2	9/12/2018	<0.25	9/12/2018	<0.25	12/19/2018	<0.2	12/19/2018	<0.2	10/12/2017	0.54	9/16/2020	<0.2	9/17/202							

TABLE 3B
1,4-DIOXANE CONCENTRATION DATA – SURFACE WATER MONITORING LOCATIONS

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Sample Collection Date	Surface Water Sampling Location												
	Stream - 1	Stream-1A	Stream-2	Stream-3	Stream-4	Stream-5	Stream-6	Stream-7	Stream-8	Stream-9	Stream-10	Stream-11	Stream-12
7/9/2015	0.98	-	-	-	-	-	-	-	-	-	-	-	-
7/22/2015	1.1	-	-	-	-	-	-	-	-	-	-	-	-
11/10/2015	1.0	-	-	-	-	-	-	-	-	-	-	-	-
12/9/2015	1.5	-	<0.25	<0.25	-	-	-	-	-	-	-	-	-
1/6-7/2016	1.5	-	<0.25	<0.25	-	-	-	-	-	-	-	-	-
2/10-11/2016	1.6	-	<0.25	<0.25	-	-	-	-	-	-	-	-	-
3/8/2016	1.1	-	<0.25	<0.25	-	-	-	-	-	-	-	-	-
4/12/2016	0.85	-	-	-	-	-	-	-	-	-	-	-	-
5/11-13/2016	1.0	-	<0.25	<0.25	-	-	-	-	-	-	-	-	-
6/23/2016	1.5	-	-	-	-	-	-	-	-	-	-	-	-
7/19/2016	1.9	-	<0.25	<0.25	-	-	-	-	-	-	-	-	-
8/19/2016	dry	-	<0.25	0.52	-	-	-	-	-	-	-	-	-
8/26/2016	dry	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-	-
9/28-30/2016	dry	dry	<0.25	0.48	0.36	<0.25	<0.25	-	-	-	-	-	-
10/24-28/2016	dry	dry	<0.25	0.57	0.62	0.49	<0.25	<50	<0.25	<0.25	<0.25	<0.25	<0.25
12/2-5/2016	dry	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	<0.25	-
12/28-29/2016	1.3	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	<0.25	-
1/23-24/2017	2.6	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	<0.25	-
2/23-24/2017	2.9	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	<0.25	-
3/24/2017	1.7	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	<0.25	-
4/24/2017	0.91	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	<0.25	-
5/18/2017	0.26	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-	-
6/19/2017	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	<0.25	-
7/27/2017	0.27	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	<0.25	-
8/25-29/2017	0.35	-	<0.25	0.36	0.26	<0.25	<0.25	-	-	-	-	<0.25	-
9/27/2017	0.37	-	-	-	0.34	<0.25	<0.25	-	-	-	-	<0.25	-
10/11/2017	-	-	<0.25	0.33	-	-	-	-	-	-	-	-	-
12/12-14/17	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-	-
3/22/2018	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	<0.25	-
6/25-27/2018	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-	-
9/10/2018	0.28	-	<0.2	0.23	0.21	<0.2	<0.2	-	-	-	-	<0.2	-
12/14-20/2018	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-
3/19-22/2019	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	<0.2	-
6/21-25/2019	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-
9/11-18/2019	<0.2	-	<0.2	0.28	0.25	<0.2	<0.2	-	-	-	-	<0.2	-
12/16-18/2019	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-
3/16/2020	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	<0.2	-
6/11/2020	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-
9/18/2020	dry	-	dry	2.8	1.0	dry	<0.2	-	-	-	-	dry	-
12/18/2020	dry	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-
3/12/2021	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	<0.2	-
6/16/2021	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-
9/21/2021	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	<0.2	-
12/15/2021	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-

Notes:

1. Data indicate concentrations of 1,4-dioxane in micrograms per liter.
2. "<" indicates that 1,4-dioxane was not detected above the referenced reporting limit.
3. "-" indicates sampling location not included in respective sampling round.
4. "dry" indicates no water at present at surface water location on the date of the respective sampling round.

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	13	17-1	7 Rennie Road	9/15/15	<0.25 ug/L	148024	Included in September 1, 2015 Work Plan; sampling after August 25, 2017 includes permit related and supplemental sampling.
			Permit Required Sampling Location	9/30/15	<0.25 ug/L	148486	
				11/12/15	<0.25 ug/L	150322	
				12/9/15	<0.25 ug/L	151249	
				1/6/16	<0.25 ug/L	151971	
				2/10/16	<0.25 ug/L	153008	
				3/9/16	<0.25 ug/L	153812	
				4/11/16	<0.25 ug/L	154768	
				5/20/16	<0.25 ug/L	156322	
				6/24/16	<0.25 ug/L	157587	
				7/18/16	<0.25 ug/L	158450	
				8/17/16	<0.25 ug/L	159610	
				9/16/16	<0.25 ug/L	160639	
				10/21/16	<0.25 ug/L	161929	
				11/30/16	<0.25 ug/L	163377	
				1/10/17	<0.25 ug/L	164654	
				2/23/17	<0.25 ug/L	165942	
				4/12/17	<0.25 ug/L	167511	
				5/16/17	<0.25 ug/L	168809	
				6/5/17	<0.25 ug/L	169474	
				7/7/17	<0.25 ug/L	170707	
				8/14/17	<0.25 ug/L	172209	
				9/18/17	<0.25 ug/L	173579	
				12/1/17	<0.25 ug/L	176561	
				1/18/18	<0.25 ug/L	178011	
				2/14/18	<0.25 ug/L	178905	
				3/22/18	<0.25 ug/L	179874	
				6/1/18	<0.25 ug/L	182503	
				6/22/18	<0.25 ug/L	183434	
				12/28/18	<0.2 ug/L	190703	
				1/23/19	<0.2 ug/L	191464	
				2/18/19	<0.2 ug/L	192211	
				3/18/19	<0.2 ug/L	193103	
				4/22/19	<0.2 ug/L	194469	
				6/6/19	<0.2 ug/L	196328	
				7/8/19	<0.2 ug/L	197515	
				9/3/19	<0.2 ug/L	199871	
				10/14/19	<0.2 ug/L	201831	
				11/25/19	<0.2 ug/L	203906	
				1/17/20	<0.2 ug/L	205865	
				3/2/20	<0.2 ug/L	207338	
	4/20/20	<0.2 ug/L	209299				
	5/21/20	<0.2 ug/L	210637				
	6/25/20	<0.2 ug/L	212065				
	8/1/20	<0.2 ug/L	213747				
	9/1/20	<0.2 ug/L	215147				
	10/19/20	<0.2 ug/L	217328				
	11/18/20	<0.2 ug/L	219067				
	12/30/20	<0.2 ug/L	220587				
	1/28/21	<0.2 ug/L	221667				
	2/25/21	<0.2 ug/L	222652				
	3/24/21	<0.2 ug/L	223708				
	4/29/21	<0.2 ug/L	225431				
	5/20/21	<0.2 ug/L	226553				
	6/22/21	<0.2 ug/L	228084				
	7/15/21	<0.2 ug/L	229151				
	8/27/21	<0.2 ug/L	231286				
	10/13/21	<0.2 ug/L	233690				
	11/24/21	<0.2 ug/L	235892				
Hanover	13	18-1	8 Rennie Road (on site dug well)	multiple rounds	Refer to Table 4A for data	Refer to Table 4A for data	Sampled since 12/19/13

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	13	81-1	9 Rennie Road	9/15/15	6.0 ug/L (5.9 ug/L duplicate)	148024	Included in September 1, 2015 Work Plan; point-of-entry treatment system also sampled on 11/10/15 through 4/12/17 at midpoint and effluent (finished treated water) with a result of <0.25 ug/L for each sample. Sampling after August 25, 2017 include permit related sampling.
			Permit Required Sampling Location	9/30/15	6.2 ug/L	148486	
				11/10/15	5.6 ug/L	150214	
				12/9/15	5.9 ug/L	151249	
				1/6/16	6.7 ug/L	151971	
				2/10/16	5.6 ug/L	153008	
				3/9/16	4.7 ug/L	153812	
				4/11/16	4.5 ug/L	154768	
				5/20/16	4.6 ug/L	156322	
				6/24/16	4.2 ug/L	157587	
				7/18/16	5.0 ug/L	158450	
				8/17/16	6.0 ug/L	159610	
				9/16/16	5.8 ug/L	160639	
				10/21/16	7.8 ug/L	161929	
				12/12/16	5.7 ug/L	163803	
				1/10/17	3.1 ug/L	164654	
				2/10/17	6.6 ug/L	165633	
				3/8/17	5.9 ug/L	166421	
				4/12/17	8.2 ug/L	167511	
				5/16/17	9.9 ug/L	168809	
				6/5/17	8.7 ug/L	169474	
				7/7/17	5.8 ug/L	170707	
				8/14/17	7.9 ug/L	172209	
				9/18/17	11 ug/L	173579	
				10/5/17	9.5 ug/L	174337	
				12/5/17	14 ug/L	176705	
				12/19/17	7.9 ug/L	177336	
				1/18/18	6.1 ug/L	178011	
				2/14/18	10.0 ug/L	178905	
				3/22/18	7.1 ug/L	179874	
				6/1/18	6.5 ug/L	182503	
				1/23/19	3.3 ug/L	191464	
				2/18/19	5.6 ug/L	192211	
	3/18/19	5.6 ug/L	193103				
	4/22/19	6.6 ug/L	194469				
	6/6/19	4.9 ug/L	196328				
	7/8/19	6.4 ug/L	197515				
	9/3/19	9.4 ug/L	199871				
	10/14/19	10 ug/L	201831				
	1/23/20	15 ug/L	205032				
	3/26/20	4.3 ug/L	208269				
	4/22/20	3.4 ug/L	209299				
	5/21/20	2.7 ug/L	210637				
	6/10/20	4.6 ug/L	211549				
	8/1/20	9.8 ug/L	213747				
	10/22/20	14 ug/L	217598				
	11/20/20	14 ug/L	219067				
	12/30/20	13 ug/L	220587				
	1/25/21	13 ug/L	221667				
	2/25/21	13 ug/L	222652				
	3/18/21	12 ug/L	223521				
	4/29/21	12 ug/L	225431				
	5/20/21	12 ug/L	226553				
	6/17/21	13 ug/L	227872				
	7/15/21	14 ug/L	229151				
	8/25/21	13 ug/L	231176				
	9/23/21	13 ug/L	232632				
	11/24/21	11 ug/L	235892				
Hanover	15	42-1	20 Rennie Road	not sampled	not sampled	not sampled	Included in September 1, 2015 Work Plan - no access

TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	15	41-1	22 Rennie Road Permit Required Sampling Location	9/15/15	<0.25 ug/L	148024	Included in September 1, 2015 Work Plan, sampling after August 25, 2017 include permit related sampling.
				9/30/15	<0.25 ug/L	148486	
				9/2/16	<0.25 ug/L	160032	
				11/3/16	<0.25 ug/L	162444	
				1/24/17	<0.25 ug/L	165030	
				5/31/17	<0.25 ug/L	169325	
				9/29/17	<0.25 ug/L	174005	
				12/18/17	<0.25 ug/L	177178	
				3/21/18	<0.25 ug/L	179838	
				6/19/18	<0.25 ug/L	183434	
				9/10/18	<0.25 ug/L	186690	
				12/21/18	<0.2 ug/L	190586	
				3/21/19	<0.2 ug/L	193277	
				6/13/19	<0.2 ug/L	196722	
				9/11/19	<0.2 ug/L	200413	
				12/13/19	<0.2 ug/L	204953	
				3/11/20	<0.2 ug/L	207787	
6/8/20	<0.2 ug/L	211549					
Hanover	15	51-1	26 Rennie Road Permit Required Sampling Location	3/11/16	<0.25 ug/L	153785	Sampled at Owner Request, sampling after August 25, 2017 include permit related sampling.
				4/12/16	<0.25 ug/L	154768	
				12/13/16	<0.25 ug/L	163842	
				12/18/17	<0.25 ug/L	177178	
				6/22/18	<0.25 ug/L	183434	
				9/10/2018	<0.25 ug/L	186690	
				12/13/18	<0.2 ug/L	190367	
				3/21/19	<0.2 ug/L	193277	
				6/28/19	<0.2 ug/L	197241	
				9/13/19	<0.2 ug/L	200413	
				12/18/19	<0.2 ug/L	204953	
				3/11/2020	<0.2 ug/L	207787	
				6/9/20	<0.2 ug/L	211549	
				9/14/20	<0.2 ug/L	215932	
				12/15/20	<0.2 ug/L	220267	
				3/11/21	<0.2 ug/L	223296	
				6/16/21	<0.2 ug/L	227872	
9/23/21	<0.2 ug/L	232632					
Hanover	15	51-1	28 Rennie Road Permit Required Sampling Location	11/14/16	<0.25 ug/L	162812	Sampled at Owner Request, sampling after August 25, 2017 include permit related sampling.
				6/12/17	<0.25 ug/L	169816	
				1/25/18	<0.25 ug/L	178218	
				6/8/18	<0.25 ug/L	182945	
				12/16/21	<0.2 ug/L	226845	
Hanover	15	50-1	30 Rennie Road Permit Required Sampling Location	8/26/16	<0.25 ug/L	159821	Sampled at Owner Request, sampling after August 25, 2017 include permit related sampling.
				9/9/16	<0.25 ug/L	160299	
				10/17/16	<0.25 ug/L	161725	
				11/14/16	<0.25 ug/L	162804	
				12/13/16	<0.25 ug/L	163842	
				1/17/17	<0.25 ug/L	164849	
				2/28/17	<0.25 ug/L	166040	
				3/30/17	<0.25 ug/L	167001	
				7/12/17	<0.25 ug/L	170948	
				9/28/17	<0.25 ug/L	174005	
				12/14/17	<0.25 ug/L	177120	
				3/21/18	<0.25 ug/L	179838	
				6/19/18	<0.25 ug/L	183434	
				9/10/18	<0.25 ug/L	186690	
				12/13/18	<0.2 ug/L	190367	
				3/19/19	<0.2 ug/L	193277	
				6/20/19	<0.2 ug/L	197018	
				9/12/19	<0.2 ug/L	200413	
				12/17/19	<0.2 ug/L	204953	
				3/9/20	<0.2 ug/L	207787	
6/10/20	<0.2 ug/L	211549					
9/14/20	<0.2 ug/L	215932					
12/14/20	<0.2 ug/L	220267					
3/15/21	<0.2 ug/L	223521					
6/14/21	<0.2 ug/L	227872					
9/20/21	<0.2 ug/L	232632					
12/14/21	<0.2 ug/L	236845					

TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	15	38-1	38 Rennie Road Permit Required Sampling Location	9/20/16	<0.25 ug/L	160742	Sampled at Owner Request, sampling after August 25, 2017 include permit related sampling.
				12/14/16	<0.25 ug/L	163943	
				7/12/17	<0.25 ug/L	170948	
				9/29/17	<0.25 ug/L	174005	
				12/12/17	<0.25 ug/L	177120	
				3/22/18	<0.25 ug/L	179838	
				6/26/18	<0.25 ug/L	183584	
				9/12/18	<0.25 ug/L	186690	
				12/13/18	<0.2 ug/L	190367	
				3/19/19	<0.2 ug/L	193277	
				6/26/19	<0.2 ug/L	197141	
				9/12/19	<0.2 ug/L	200413	
				12/17/19	<0.2 ug/L	204953	
				3/13/20	<0.2 ug/L	207878	
				6/8/20	<0.2 ug/L	211549	
				9/15/20	<0.2 ug/L	215932	
				12/15/20	<0.2 ug/L	220267	
				3/11/21	<0.2 ug/L	223296	
				6/17/21	<0.2 ug/L	227872	
				9/21/21	<0.2 ug/L	232632	
Hanover	15	37-1	39 Rennie Road Permit Required Sampling Location	11/17/15	<0.25 ug/L	150522	Sampled at Owner Request, sampling after August 25, 2017 include permit related sampling.
				12/15/15	<0.25 ug/L	151437	
				9/28/16	<0.25 ug/L	160983	
				6/12/17	<0.25 ug/L	169816	
				9/29/17	<0.25 ug/L	174005	
				12/18/17	<0.25 ug/L	177178	
				3/26/18	<0.25 ug/L	179895	
				6/21/18	<0.25 ug/L	183434	
				9/19/18	<0.2 ug/L	186834	
				12/21/18	<0.2 ug/L	190586	
				3/18/19	<0.2 ug/L	193103	
				6/25/19	<0.2 ug/L	197141	
				9/16/19	<0.2 ug/L	200535	
				12/16/19	<0.2 ug/L	204953	
				3/13/20	<0.2 ug/L	207878	
				6/9/20	<0.2 ug/L	211549	
				9/15/20	<0.2 ug/L	215932	
				12/16/20	<0.2 ug/L	220267	
				3/17/21	<0.2 ug/L	223521	
				6/17/21	<0.2 ug/L	227872	
9/23/21	<0.2 ug/L	232632					
Hanover	15	67-1	42 Rennie Road Permit Required Sampling Location	6/24/16	<0.25 ug/L	157587	Sampled at Owner Request, sampling after August 25, 2017 include permit related sampling.
				9/1/16	<0.25 ug/L	160032	
				12/21/17	<0.25 ug/L	177336	
				3/21/18	<0.25 ug/L	179838	
				6/22/18	<0.25 ug/L	183434	
				9/12/2018	<0.25 ug/L	186690	
				12/20/18	<0.2 ug/L	190586	
				6/20/19	<0.2 ug/L	197018	
				9/13/19	<0.2 ug/L	200413	
				12/18/19	<0.2 ug/L	204953	
				6/9/20	<0.2 ug/L	211549	
				9/15/20	<0.2 ug/L	215932	
				12/14/20	<0.2 ug/L	220267	
				3/12/21	<0.2 ug/L	223296	
				6/17/21	<0.2 ug/L	227872	
				9/20/21	<0.2 ug/L	232632	
Hanover	15	68-1	44 Rennie Road	7/19/16	<0.25 ug/L	158450	Sampled at Owner Request; surface water in pond also sampled with result of <0.25 ug/L
				8/2/16	<0.25 ug/L	158913	
				11/4/16	<0.25 ug/L	162465	
				2/28/17	<0.25 ug/L	166040	
				4/12/17	<0.25 ug/L	167511	
				11/20/17	<0.25 ug/L	176215	
				6/8/20	<0.2 ug/L	211549	
				6/8/20 (Pond)	<0.2 ug/L (Pond)	211549 (Pond)	

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	15	36-1	47 Rennie Road Permit Required Sampling Location	7/15/16	<0.25 ug/L	158334	Sampled at Owner Request, sampling after August 25, 2017 include permit related sampling.
				8/3/16	<0.25 ug/L	158957	
				10/13/16	<0.25 ug/L	161641	
				6/12/17	<0.25 ug/L	169816	
				9/28/17	<0.25 ug/L	174005	
				12/18/17	<0.25 ug/L	177178	
				3/22/18	<0.25 ug/L	179838	
				6/20/18	<0.25 ug/L	183434	
				9/17/18	<0.2 ug/L	186834	
				12/21/18	<0.2 ug/L	190586	
				3/19/19	<0.2 ug/L	193277	
				6/24/19	<0.2 ug/L	197141	
				9/12/19	<0.2 ug/L	200413	
				12/19/19	<0.2 ug/L	204953	
				6/8/20	<0.2 ug/L	211549	
				9/14/20	<0.2 ug/L	215932	
12/14/20	<0.2 ug/L	220267					
3/16/21	<0.2 ug/L	223521					
6/14/21	<0.2 ug/L	227872					
9/21/21	<0.2 ug/L	232632					
12/16/21	<0.2 ug/L	236845					
Hanover	15	31-1	48 Rennie Road	10/27/16	<0.25 ug/L	162127	Owner sampled well data not reported; GZA sampled rounds shown
				12/1/16	<0.25 ug/L	163445	
				10/27/17	<0.25 ug/L	175220	
				6/8/20	<0.2 ug/L	211549	
Hanover	15	33-1	50 Rennie Road	10/27/2017	<0.25 ug/L	175220	Sampled at Owner Request
Hanover	15	32-1	52 Rennie Road	9/16/16	<0.25 ug/L	160639	Sampled at Owner Request
				11/16/16	<0.25 ug/L	162940	
Hanover	5	95-1	272 Hanover Center Road	1/10/2017	<0.25 ug/L	164637	Sampled at Owner Request
Hanover	9	52-1	331 Hanover Center Road (Hanover Center Reservoir)	9/30/16	<0.25 ug/L	161073	Sampled at Request of Hanover Water Department
				10/27/16	<0.25 ug/L	162127	
Hanover	9	51-1	361 Hanover Center Road	9/2/16	<0.25 ug/L	160032	Sampled at Owner Request
				9/22/16	<0.25 ug/L	160828	
Hanover	9	50-1	365 Hanover Center Road	9/15/16	<0.25 ug/L	160639	Sampled at Owner Request
				11/7/16	<0.25 ug/L	162531	
Hanover	9	91-1	401 Hanover Center Road	11/10/16	<0.25 ug/L	162736	Sampled at Owner Request
				2/14/17	<0.25 ug/L	165678	
Hanover	13	76-1	463 Hanover Center Road	4/27/2017	<0.25 ug/L	168102	Sampled at Owner Request
				7/13/17	<0.25 ug/L	170948	
Hanover	12	170-1	472 Hanover Center Road	10/13/16	<0.25 ug/L	161641	Sampled at Owner Request
				11/14/16	<0.25 ug/L	162804	
Hanover	13	3-1	487 Hanover Center Road	12/8/16	<0.25 ug/L	163741	Sampled at Owner Request
				1/12/17	<0.25 ug/L	164764	
Hanover	12	13-1	494 Hanover Center Road	10/13/16	<0.25 ug/L	161641	Sampled at Owner Request
				11/3/16	<0.25 ug/L	162444	
				10/27/17	<0.25 ug/L	175220	
Hanover	13	10-1	544 Hanover Center Road	3/30/17	<0.25 ug/L	167001	Sampled at Owner Request
				4/27/17	<0.25 ug/L	168102	
Hanover	13	11-1	552 Hanover Center Road	9/2/16	<0.25 ug/L	160032	Sampled at Owner Request
				9/22/16	<0.25 ug/L	160828	
Hanover	13	12-1	562 Hanover Center Road	11/12/15	<0.25 ug/L	150322	Sampled at Owner Request
				12/22/15	<0.25 ug/L	151632	
Hanover	13	13-1	566 Hanover Center Road	1/6/16	<0.25 ug/L	151971	Sampled at Owner Request
				8/19/16	<0.25 ug/L	159611	
				10/20/16	<0.25 ug/L	161885	
				12/22/16	<0.25 ug/L	164218	
				6/12/17	<0.25 ug/L	169816	

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	13	22-1	587 Hanover Center Road	not reported	not reported	not reported	Owner sampled well
Hanover	13	15-1	588 Hanover Center Road	9/17/15 10/9/15	<0.25 ug/L <0.25 ug/L	148124 148910	Abandoned overburden water supply well sampled at owner request
Hanover	13	71-1	593 Hanover Center Road	9/15/16 10/12/16	<0.25 ug/L <0.25 ug/L	160639 161641	Sampled at Owner Request
Hanover	13	19-1	594 Hanover Center Road Permit Required Sampling Location	9/14/15 10/1/15 1/14/16 5/20/16 9/30/16 1/17/17 2/28/17 4/12/17 5/31/17 3/23/21 6/14/21 9/21/21 12/14/21	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L	147961 148589 152271 156322 161073 164849 166040 167511 169325 223745 227872 232632 236845	Included in September 1, 2015 Work Plan; sampling after August 25, 2017 include permit related sampling. Well winterized; no access during December 2017, March 2018, December 2018.
Hanover	13	20-1	603 Hanover Center Road	9/14/15 9/30/15 9/28/16 10/20/16	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L	147961 148486 160983 161885	Included in September 1, 2015 Work Plan; owner requested follow on sampling
Hanover	16	11-1	607 Hanover Center Road	9/20/16 11/7/16	<0.25 ug/L <0.25 ug/L	160742 162531	Sampled at Owner Request
Hanover	16	7-1	612 Hanover Center Road Permit Required Sampling Location	9/30/16 11/4/16 3/28/18 3/26/19	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.2 ug/L	161073 162465 179975 193346	Sampling after August 25, 2017 include permit related sampling.
Hanover	16	6-1	636 Hanover Center Road	10/13/16 11/14/16 5/6/20	<0.25 ug/L <0.25 ug/L <0.2 ug/L	161641 162804 210024	Sampled at Owner Request
Hanover	16	29-1	641 Hanover Center Road	10/18/16 11/16/16	<0.25 ug/L <0.25 ug/L	161787 162940	Sampled at Owner Request
Hanover	16	4-1	642 Hanover Center Road	2/28/17 4/27/17	<0.25 ug/L <0.25 ug/L	166040 168102	Sampled at Owner Request
Hanover	16	3-1	643 Hanover Center Road	10/20/16 11/21/16	<0.25 ug/L <0.25 ug/L	161885 163128	Sampled at Owner Request
Hanover	16	28-1	648 Hanover Center Road	10/20/16 11/21/16	<0.25 ug/L <0.25 ug/L	161885 163128	Sampled at Owner Request
Hanover	16	19-1	654 Hanover Center Road	10/21/16 12/8/16 8/10/17	<0.25 ug/L <0.25 ug/L <0.25 ug/L	161929 163741 172128	Sampled at Owner Request
Hanover	16	33-1	655 Hanover Center Road	9/22/16 10/24/16 12/31/18	<0.25 ug/L <0.25 ug/L <0.2 ug/L	160828 161967 190726	Sampled at Owner Request
Hanover	16	1-1	663 Hanover Center Road	9/22/16 10/6/16 11/29/16 1/3/17 6/21/19	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.2 ug/L	160828 161366 163305 164413 197018	Sampled at Owner Request
Hanover	16	21-1	668 Hanover Center Road	9/30/16 10/6/16 10/26/17 12/6/16 2/1/17 11/29/17	0.30 ug/L 0.28 ug/L 0.31 ug/L <0.25 ug/L 0.27 ug/L <0.25 ug/L	161073 161367 162070 163631 165269 176460	Sampled at Owner Request

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	16	32-1	669 Hanover Center Road	9/30/16	<0.25 ug/L	161073	Sampled at Owner Request
				10/18/16	<0.25 ug/L	161787	
				6/26/18	<0.25 ug/L	183584	
				6/20/19	<0.2 ug/L	197018	
				8/13/20	<0.2 ug/L	214424	
				7/7/21	<0.2 ug/L	228720	
Hanover	16	22-1	1 Dairy Lane	9/15/16	<0.25 ug/L	160639	Previous owner sampled well, data not reported; data shown for samples collected by GZA
				11/7/16	<0.25 ug/L	162531	
Hanover	16	23-1	3 Dairy Lane	8/26/16	<0.25 ug/L	159821	Sampled at Owner Request
				10/11/16	<0.25 ug/L	161542	
				11/22/16	<0.25 ug/L	163150	
				12/14/16	<0.25 ug/L	163943	
				1/17/16	<0.25 ug/L	164849	
				2/14/16	<0.25 ug/L	165678	
				3/30/17	<0.25 ug/L	167001	
				4/27/17	<0.25 ug/L	168102	
				5/31/17	<0.25 ug/L	169325	
				8/10/17	<0.25 ug/L	172128	
				9/13/17	<0.25 ug/L	173423	
				6/21/18	<0.25 ug/L	183434	
				3/11/20	<0.2 ug/L	207787	
				7/29/21	<0.2 ug/L	229953	
Hanover	16	24-1	5 Dairy Lane	9/28/16	<0.25 ug/L	160983	Sampled at Owner Request
				11/3/16	<0.25 ug/L	162444	
Hanover	16	25-1	7 Dairy Lane	2/2/16	<0.25 ug/L	152696	Sampled at Owner Request
				2/23/16	<0.25 ug/L	153271	
				10/17/16	<0.25 ug/L	161725	
				11/22/16	<0.25 ug/L	163150	
				9/15/15	<0.25 ug/L	148024	
Hanover	16	27-1	8 Dairy Lane Permit Required Sampling Location	9/30/15	<0.25 ug/L	148486	Included in September 1, 2015 Work Plan; sampling after August 25, 2017 include permit related sampling.
				11/4/16	<0.25 ug/L	162465	
				12/21/16	<0.25 ug/L	164165	
				1/18/17	<0.25 ug/L	164863	
				2/28/17	<0.25 ug/L	166040	
				4/27/17	<0.25 ug/L	168102	
				5/31/17	<0.25 ug/L	169325	
				6/26/17	<0.25 ug/L	170303	
				10/7/17	<0.25 ug/L	174406	
				12/19/17	<0.25 ug/L	177336	
				3/22/18	<0.25 ug/L	179838	
				6/26/18	<0.25 ug/L	183584	
				9/17/2018	<0.2 ug/L	186834	
				12/19/18	<0.2 ug/L	190586	
				6/25/20	<0.2 ug/L	212065	
				9/17/20	<0.2 ug/L	215932	
				12/16/20	<0.2 ug/L	220267	
				3/11/21	<0.2 ug/L	223296	
				6/16/21	<0.2 ug/L	227872	
				9/21/21	<0.2 ug/L	232632	
12/14/21	<0.2 ug/L	236845					

TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	16	26-1	9 Dairy Lane	12/22/15 1/6/16 9/28/16 2/28/17 9/10/2018	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L	151632 151971 160983 166040 186690	Sampled at Owner Request
Hanover	16	34-1	10 Dairy Lane Permit Required Sampling Location	9/11/15 9/25/15 10/24/16 9/29/17 12/19/17 3/21/18 6/20/18 9/10/18 12/13/18 3/21/19 6/10/19 9/11/19 12/13/19 3/10/20 6/8/20 9/14/20 12/14/20 3/1/21 6/14/21 9/20/21	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L	147923 148366 161967 174005 177336 179838 183434 186690 190367 193277 196526 200413 204953 207787 211549 215932 220267 223296 227872 232632	Included in September 1, 2015 Work Plan; sampling after August 25, 2017 include permit related sampling.
Hanover	13	23-1	2 Ferson Road	4/12/16 5/5/16 10/24/16	<0.25 ug/L <0.25 ug/L <0.25 ug/L	154768 155778 161967	Sampled at Owner Request
Hanover	13	79-1	3 Ferson Road	9/14/16 10/6/14	<0.25 ug/L <0.25 ug/L	160558 161366	Sampled at Owner Request; surface water in pond also sampled with result of <0.25 ug/L
Hanover	13	25-1	8 Ferson Road	11/12/15 12/15/15 12/6/16	<0.25 ug/L <0.25 ug/L <0.25 ug/L	150322 151437 163615	Sampled at Owner Request
Hanover	13	82-1	11 Ferson Road	9/22/16 10/13/16	<0.25 ug/L <0.25 ug/L	160828 161641	Sampled at Owner Request
Hanover	13	73-1	12 Ferson Road	6/7/16 6/24/16 11/10/16	<0.25 ug/L <0.25 ug/L <0.25 ug/L	156966 157587 162736	Sampled at Owner Request
Hanover	13	72-1	16 Ferson Road	12/13/16	<0.25 ug/L	163842	Sampled at Owner Request
Hanover	13	27-1	17 Ferson Road	12/14/20	<0.2 ug/L	220267	Sampled at Owner Request
Hanover	13	28-1	36 Ferson Road	6/7/16 6/24/16 3/30/17	<0.25 ug/L <0.25 ug/L <0.25 ug/L	156966 157587 167001	Sampled at Owner Request
Hanover	13	58-1	40 Ferson Road	6/7/16 6/24/16	<0.25 ug/L <0.25 ug/L	156966 157587	Sampled at Owner Request
Hanover	13		49 Ferson Road	9/17/2018	<0.2 ug/L	186834	Sampled at Owner Request
Hanover	13	69-1	191 Three Mile Road	1/24/17 2/28/17	<0.25 ug/L <0.25 ug/L	165030 166040	Sampled at Owner Request
Hanover	13	31-1	198 Three Mile Road	4/12/17 5/31/17	<0.25 ug/L <0.25 ug/L	167511 169325	Sampled at Owner Request
Hanover	15	65-1	3 Emily Lane	8/2/16 9/2/16	<0.25ug/L <0.25 ug/L	158913 160032	Sampled at Owner Request
Hanover	15	64-1	5 Emily Lane	8/25/16 10/6/16	<0.25 ug/L <0.25 ug/L	159821 161366	Sampled at Owner Request
Hanover	15	49-1	1 Fern Lane	9/16/16 10/6/16	<0.25 ug/L <0.25 ug/L	160639 161366	Sampled at Owner Request

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	15	69-1	3 Fern Lane	9/2/16 9/30/16	<0.25 ug/L <0.25 ug/L	160032 161079	Sampled at Owner Request
Hanover	15	70-1	5 Fern Lane	9/2/16 9/30/16 1/24/17 3/30/17 6/12/17 10/6/17 5/7/20	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L <0.2 ug/L	160032 161073 165030 167001 169816 174406 210024	Sampled at Owner Request
Hanover	15	71-1	7 Fern Lane	10/13/16 11/16/16	<0.25 ug/L <0.25 ug/L	161641 162940	Previous owner sampled well, data not reported; data shown for samples collected by GZA
Hanover	15	72-1	9 Fern Lane	9/22/16 10/18/16 1/10/17	<0.25 ug/L <0.25 ug/L <0.25 ug/L	160828 161787 164637	Sampled at Owner Request
Hanover	15	73-1	11 Fern Lane	9/16/16 10/18/16	<0.25 ug/L <0.25 ug/L	160639 161787	Sampled at Owner Request
Hanover	15	35-1	39 Tranquil Brook Lane Permit Required Sampling Location	10/6/17 1/18/18 3/26/18 6/27/18 4/10/19 6/25/19 1/23/20 6/8/20 9/15/20 3/18/21 6/14/21 9/20/21 12/14/21	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.20 ug/L <0.25 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L <0.2 ug/L	161073 174406 178011 179895 183584 194047 197141 206032 211549 215932 223521 227872 232632 236845	Sampling after August 25, 2017 include permit related sampling.
Hanover	16	17-1	15 Thompson Road	10/24/16 12/1/16	<0.25 ug/L <0.25 ug/L	161967 163445	Sampled at Owner Request
Hanover	16	20-1	32 Thompson Road	9/16/16 10/17/16	<0.25 ug/L <0.25 ug/L	160639 161725	Sampled at Owner Request
Hanover	13	80-1	45 Thompson Road	10/20/16 11/21/16	<0.25 ug/L <0.25 ug/L	161885 163128	Sampled at Owner Request
Hanover	15	101-1	3 Pingree Road	11/7/16 12/6/16	<0.25 ug/L <0.25 ug/L	162531 163615	Sampled at Owner Request
Hanover	15	98-1	4 Pingree Road	11/16/16 12/13/16	<0.25 ug/L <0.25 ug/L	162940 163842	Sampled at Owner Request
Hanover	15	100-1	5 Pingree Road	11/7/16 12/6/16	<0.25 ug/L <0.25 ug/L	162531 163615	Sampled at Owner Request; surface water in stream on property also sampled with result of <0.25 ug/L
Hanover	15	99-1	7 Pingree Road	11/3/16 12/14/16	<0.25 ug/L <0.25 ug/L	162444 163943	Sampled at Owner Request
Hanover	15	76-1	2 Mulherrin Farm Road	11/4/16 12/6/16	<0.25 ug/L <0.25 ug/L	162465 163615	Sampled at Owner Request
Hanover	15	96-1	3 Mulherrin Farm Road	12/21/16 1/17/17	<0.25 ug/L <0.25 ug/L	164165 164849	Sampled at Owner Request
Hanover	15	95-1	5 Mulherrin Farm Road	11/21/16 1/3/17	<0.25 ug/L <0.25 ug/L	163128 164413	Sampled at Owner Request
Hanover	15	79-1	6 Mulherrin Farm Road	1/4/17 2/1/17	<0.25 ug/L <0.25 ug/L	164413 165269	Sampled at Owner Request
Hanover	15	94-1	7 Mulherrin Farm Road	1/3/17 2/7/17	<0.25 ug/L <0.25 ug/L	164413 165499	Sampled at Owner Request
Hanover	15	81-1	8 Mulherrin Farm Road	9/19/16 10/18/16	<0.25 ug/L <0.25 ug/L	160742 161787	Sampled at Owner Request
Hanover	15	111-1	12 Mulherrin Farm Road	11/7/16 12/13/16	<0.25 ug/L <0.25 ug/L	162531 163842	Sampled at Owner Request
Hanover	15	110-1	14 Mulherrin Farm Road	10/27/16 1/4/17	<0.25 ug/L <0.25 ug/L	162127 164413	Sampled at Owner Request
Hanover	15	109-1	16 Mulherrin Farm Road	11/10/16 12/6/16	<0.25 ug/L <0.25 ug/L	162736 163615	Sampled at Owner Request

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Hanover	15	89-1	17 Mulherrin Farm Road	4/27/17 5/12/17	<0.25 ug/L <0.25 ug/L	168102 168703	Sampled at Owner Request
Hanover	15	108-1	18 Mulherrin Farm Road	11/4/16 12/14/16	<0.25 ug/L <0.25 ug/L	162465 163943	Sampled at Owner Request
Hanover	15	88-1	19 Mulherrin Farm Road	1/10/17 2/7/17	<0.25 ug/L <0.25 ug/L	164637 165499	Sampled at Owner Request
Hanover	15	107-1	20 Mulherrin Farm Road	11/7/16 12/5/16	<0.25 ug/L <0.25 ug/L	162531 163534	Sampled at Owner Request
Hanover	15	87-1	21 Mulherrin Farm Road	11/3/16 12/1/16	<0.25 ug/L <0.25 ug/L	162444 163445	Sampled at Owner Request
Hanover	15	84-1	27 Mulherrin Farm Road	11/21/16	<0.25 ug/L	163177	Sampled at Owner Request
Hanover	15	83-1	29 Mulherrin Farm Road	11/14/16	<0.25 ug/L	162804	Sampled at Owner Request; surface water in stream on property also sampled with result of <0.25 ug/L
Hanover	15	82-1	31 Mulherrin Farm Road	11/16/16 12/21/16	<0.25 ug/L <0.25 ug/L	162940 164165	Sampled at Owner Request
Hanover	12	91-1	1 Goodfellow Road	2/14/17	<0.25 ug/L	165678	Sampled at Owner Request
Hanover	12	45-1	12 Goodfellow Road	2/7/17	<0.25 ug/L	165499	Sampled at Owner Request
Hanover	12	44-1	13 Goodfellow Road	10/27/16 11/29/16	<0.25 ug/L <0.25 ug/L	162127 163305	Sampled at Owner Request
Hanover	12	41-1	16 Goodfellow Road	10/27/16 12/1/16	<0.25 ug/L <0.25 ug/L	162127 163445	Sampled at Owner Request
Hanover	12	221-1	18 Goodfellow Road	9/28/16 10/24/16	<0.25 ug/L <0.25 ug/L	160983 161967	Sampled at Owner Request
Hanover	12	129-1	33 Goodfellow Road	10/27/16 12/8/16	<0.25 ug/L <0.25 ug/L	162127 163741	Sampled at Owner Request
Hanover	12	223-1	38 Goodfellow Road	9/20/16 11/14/16	<0.25 ug/L <0.25 ug/L	160742 162804	Sampled at Owner Request
Hanover	15	75-1	177 Lyme Road	12/13/16 1/17/17	<0.25 ug/L <0.25 ug/L	163842 164849	Sampled at Owner Request
Hanover	15	28-1	182 Lyme Road	11/21/16	<0.25 ug/L	163128	Sampled at Owner Request; surface water in stream on property also sampled with result of <0.25 ug/L
Hanover	15	52-1	190 Lyme Road	10/20/16 12/1/16	<0.25 ug/L <0.25 ug/L	161885 163445	Sampled at Owner Request
Hanover	15	43	196 Lyme Road	10/24/16 11/21/16	<0.25 ug/L <0.25 ug/L	161967 163128	Sampled at Owner Request
Hanover	12	34-1	1 Wardrobe Road	10/24/16 11/21/16	<0.25 ug/L <0.25 ug/L	161967 163128	Sampled at Owner Request
Hanover	15	7-1	11 Grant Road	10/13/16 10/24/16	<0.25 ug/L <0.25 ug/L	161641 161967	Sampled at Owner Request
Hanover	15	9-1	15 Grant Road	4/27/2017	<0.25 ug/L	168102	Sampled at Owner Request
Hanover	12	150	2 Montview Drive	1/4/17 2/1/17	<0.25 ug/L <0.25 ug/L	164413 165269	Sampled at Owner Request
Hanover			18 Montview Drive	5/16/17 5/31/17	<0.25 ug/L <0.25 ug/L	168809 169325	Sampled at Owners Request
Lyme	401	55-multiple lots	85 Dartmouth College Highway, The Village	12/6/16	<0.25 ug/L	163615	Sampled at Owner Request; three individual wells sampled identified as 85 Dartmouth - 100, 85 Dartmouth - 400, and 85 Dartmouth - 701.
Lyme	401	55-123	95 Dartmouth College Highway, Klee Building	9/9/16	<0.25 ug/L	160299	Sampled at Owner Request
Lyme	401	55-123	95 Dartmouth College Highway, Bancroft Building	9/12/16	<0.25 ug/L	160376	Sampled at Owner Request
Lyme	401	42	36 Goose Pond Road	2/14/17 3/30/17	<0.25 ug/L <0.25 ug/L	165678 167001	Sampled at Owner Request
Lyme	401	39	72 Goose Pond Road	11/23/16	<0.25 ug/L	163198	Sampled at Owner Request; abandoned Kings Land Farm dug well; Stream-12 and shallow temporary PVC well also sampled at owners request with result of <0.25 ug/L (EAI ID 162173)
Lyme	401	20	51 Goose Pond Road	9/28/16 12/21/16	<0.25 ug/L <0.25 ug/L	160983 164165	Sampled at Owner Request
Lyme	401	38	104 Goose Pond Road	9/15/16 10/20/16	<0.25 ug/L <0.25 ug/L	160639 161885	Sampled at Owner Request
Lyme	401	37	138 Goose Pond Road	12/8/16	<0.25 ug/L	163741	Sampled at Owner Request
Lyme	401	36	142 Goose Pond Road	10/24/16 11/22/16	<0.25 ug/L <0.25 ug/L	161967 163150	Sampled at Owner Request

**TABLE 3C
1,4-DIOXANE CONCENTRATION DATA - WATER SUPPLY WELLS**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Town	Tax Map No.	Block - Lot Number	Street Address	Sampling Dates	Result of Analysis 1,4-dioxane (ug/L)	EAI Report ID	Comments
Lyme	401	35	144 Goose Pond Road	10/18/16 1/17/17	<0.25 ug/L <0.25 ug/L	161787 164849	Sampled at Owner Request
Lyme	401	34	148 Goose Pond Road	12/14/16 1/4/17 5/31/17 11/20/17	<0.25 ug/L <0.25 ug/L <0.25 ug/L <0.25 ug/L	163943 164413 169325 176215	Sampled at Owner Request
Lyme	401	23	149 Goose Pond Road	1/10/17 2/28/17	<0.25 ug/L <0.25 ug/L	164637 166040	Sampled at Owner Request
Lyme	401	33	154 Goose Pond Road	10/24/16 11/21/16	<0.25 ug/L <0.25 ug/L	161967 163128	Sampled at Owner Request
Lyme	401	31-2	158 Goose Pond Road	11/3/16	<0.25 ug/L	162444	Sampled at Owner Request
Lyme	401	31-1	162 Goose Pond Road	11/3/16	<0.25 ug/L	162444	Sampled at Owner Request
Lyme	410	75	174 Goose Pond Road	11/3/16 12/8/16	<0.25 ug/L <0.25 ug/L	162444 163741	Sampled at Owner Request
Lyme	410	74	176 Goose Pond Road	10/20/16 11/22/16	<0.25 ug/L <0.25 ug/L	161885 163150	Sampled at Owner Request
Lyme	410	70	216 Goose Pond Road	11/3/16 12/8/16	<0.25 ug/L <0.25 ug/L	162444 163741	Sampled at Owner Request
Lyme	410	58	305 Baker Hill Road	1/4/17 2/1/17	<0.25 ug/L <0.25 ug/L	164413 165269	Sampled at Owner Request
Lyme	401	30-1	320 Baker Hill Road	2/7/17	<0.25 ug/L	165499	Sampled at Owner Request
Lyme	410	77	321 Baker Hill Road	1/3/17	<0.25 ug/L	164413	Sampled at Owner Request
Lyme	410	79	331 Baker Hill Road	10/18/16	<0.25 ug/L	161787	Sampled at Owner Request
Lyme	401	29	342 Baker Hill Road	1/3/17 2/1/17	<0.25 ug/L <0.25 ug/L	164413 165269	Sampled at Owner Request
Lyme	12	126-1	4 Buskey Circle	8/10/17	<0.25 ug/L	172128	Sampled at Owner Request
Lyme	401	26	5 Pelton Lane	10/13/16 11/16/16	<0.25 ug/L <0.25 ug/L	161641 162940	Sampled at Owner Request
Lyme	401	28	12 Pelton Lane	10/13/16 11/14/16	<0.25 ug/L <0.25 ug/L	161641 162804	Sampled at Owner Request
Lyme	401	27	32 Pelton Lane	12/21/16 1/18/17 1/4/22	<0.25 ug/L <0.25 ug/L <0.20 ug/L	164165 164863 237413	Sampled at Owner Request

Notes:

1. Results are in micrograms per liter (ug/L).
2. "<" indicates not detected above the laboratory reporting limit shown.
3. "not reported" indicates well sampled by owner, results not reported to Dartmouth College; assumed not detected above reporting limit.
4. EAI Report ID indicates Eastern Analytical, Inc. (EAI) laboratory report identification number associated with referenced result.

TABLE 4B
SURFACE WATER SAMPLE LABORATORY REPORT SUMMARY
(4/25 - 12/31/2019)

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Sample Collection Date	Surface Water Sampling Location												
	Stream - 1	Stream-1A	Stream-2	Stream-3	Stream-4	Stream-5	Stream-6	Stream-7	Stream-8	Stream-9	Stream-10	Stream-11	Stream-12
5/18/2017	168977	-	168977	168977	168977	168977	168977	-	-	-	-	-	-
6/19/2017	170129	-	170129	170129	170129	170129	170129	-	-	-	-	170129	-
7/27/2017	171545	-	171545	171545	171545	171545	171545	-	-	-	-	171545	-
8/25-29/2017	172686	-	172743	172743	172743	172743	172743	-	-	-	-	172686	-
9/27/2017	174005	-	-	-	174005	174005	174005	-	-	-	-	174005	-
10/11/2017	-	-	174618	174618	-	-	-	-	-	-	-	-	-
12/13/2017	177102	-	177102	177102	177102	177102	177102	-	-	-	-	-	-
3/22/2018	179874	-	179974	179974	180023	180023	180023	-	-	-	-	179874	-
6/25-27/2018	183584	-	183584	183584	183584	183584	183584	-	-	-	-	-	-
9/10/2018	186834	-	186834	186834	186834	186834	186834	-	-	-	-	186834	-
12/14-20/2018	190367	-	190586	190586	190586	190586	190586	-	-	-	-	-	-
3/19/2019	193277	-	193277	193277	193277	193277	193277	-	-	-	-	193277	-
6/21/2019	197018	-	197141	197141	197141	197141	197141	-	-	-	-	-	-
9/12/2019	200413	-	200535	200535	200535	200535	200535	-	-	-	-	200535	-
12/16/2019	204953	-	204953	204953	204953	204953	204953	-	-	-	-	-	-
3/16/2020	207983	-	207983	207983	207983	207983	207983	-	-	-	-	207983	-
6/11/2020	211549	-	211549	211549	211549	211549	211549	-	-	-	-	-	-
9/17-18/2020	dry	-	dry	215931	215931	dry	215931	-	-	-	-	dry	-
12/16/2020	dry	-	220269	220269	220269	220269	220269	-	-	-	-	-	-
3/12/2021	223297	-	223297	223297	223297	223297	223297	-	-	-	-	223745	-
6/16/2021	-	-	-	-	-	-	-	-	-	-	-	-	-
9/21/2021	-	-	-	-	-	-	-	-	-	-	-	-	-
12/15/2021	236846	-	236846	236846	236846	236846	236846	-	-	-	-	-	-

Notes:

1. This table provides Eastern Analytical, Inc.'s (EAI's) laboratory report number associated with each sample. Refer to **Appendix C** for the individual laboratory reports.
2. "-" indicates sampling location not included in respective sampling round.
3. "dry" indicates no water at present at surface water location on the date of the respective sampling round.
4. Refer to text for information regarding additional surface water samples collected at the request of property owners.

**TABLE 4C
 SUPPLEMENTAL TREATMENT SYSTEM SAMPLE LABORATORY REPORT SUMMARY
 (4/25 - 12/31/2019)**

Dartmouth College, Rennie Farm Site
 Hanover, New Hampshire
 NHDES Site No. 201111109, DES Project No. 277737

Sample Collection Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
2/1/2017	165268	-	165268	-	-	-	165268
2/6/2017	165411	-	165411	-	-	-	165411
2/14/2017	165677	-	165677	-	-	-	165677
2/21/2017	165807	-	165807	-	-	-	165807
2/27/2017	166006	-	166006	-	-	-	166006
5/22/2017	169009	169009	169009	-	-	-	169009
5/24/2017	-	-	-	169126	169126	169126	-
5/30/2017	169254	169254	169254	-	-	-	169254
6/2/2017	-	-	-	169435	169435	169435	-
6/7/2017	169644	169644	169644	-	-	-	-
6/9/2017	-	-	-	169774	169774	169744	-
6/12/2017	169814	-	-	-	-	-	169814
6/14/2017	169999	169999	169999	169999	169999	169999	-
6/29/2017	170485	170485	170485	170485	170485	170485	-
7/6/2017	170650	-	-	-	-	-	170650
7/13/2017	171009	171009	171009	171009	171009	171009	-
7/26/2017	171544	171544	171544	171544	171544	171544	-
8/8/2017	171986	-	-	-	-	-	171986
8/15/2017	172338	172338	172338	172338	172338	172338	-
8/22/2017	172527	-	-	-	-	-	172527
9/8/2017	173215	-	-	-	-	-	173215
9/12/2017	173423	173423	173423	173423	173423	173423	-
10/13/2017	174658	-	-	-	-	-	174658
10/18/2017	174887	-	174887	174887	174887	174887	-
11/9/2017	175778	-	-	-	-	-	175778
11/13/2017	175934	-	175934	175934	175934	175934	-

TABLE 4C
SUPPLEMENTAL TREATMENT SYSTEM SAMPLE LABORATORY REPORT SUMMARY
(4/25 - 12/31/2019)

Dartmouth College, Rennie Farm Site
 Hanover, New Hampshire
 NHDES Site No. 201111109, DES Project No. 277737

Sample Collection Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
11/27/2017	176421	-	176421	176421	176421	176421	-
12/8/2017	176902	-	-	-	-	-	176902
1/2/2018	177584	-	177584	177584	177584	177584	-
1/8/2018	177675	-	-	-	-	-	177675
1/22/2018	178105	-	178105	178105	178105	178105	-
2/5/2018	178559	-	178559	178559	178559	178559	-
2/9/2018	178700	-	-	-	-	-	178700
2/21/2018	179064	-	179064	179064	179064	179064	-
3/6/2018	179388	-	179388	-	-	-	-
3/15/2018	179647	-	-	179646	179646	179646	179647
3/19/2018	179738	-	179738	179738	179738	179738	-
4/2/2018	180187	-	180187	180187	180187	-	-
4/12/2018	180699	-	180699	180699	180699	180699	-
4/17/2018	180782	-	-	-	-	-	180782
4/25/2018	181133	-	181133	181133	181133	181133	-
5/7/2018	181675	-	181675	181675	181675	181675	-
5/18/2018	182085	-	-	-	-	-	182085
5/22/2018	182193	-	182193	182193	182193	182193	-
6/12/2018	183099	-	183099	183099	183099	183099	-
6/21/2018	183404	-	-	-	-	-	183404
7/16/2018	184317	-	-	-	-	-	184317
7/18/2018	-	-	184509	184509	184509	-	-
7/26/2018	-	184748	184748	-	-	-	-
8/16/2018	185574	-	-	-	-	-	185574
9/6/2018	-	186384	186384	186384	186384	-	-
9/17/2018	186723	186722	-	-	-	-	186723
10/15/2018	187894	-	-	-	-	-	187894

TABLE 4C
SUPPLEMENTAL TREATMENT SYSTEM SAMPLE LABORATORY REPORT SUMMARY
(4/25 - 12/31/2019)

Dartmouth College, Rennie Farm Site
 Hanover, New Hampshire
 NHDES Site No. 201111109, DES Project No. 277737

Sample Collection Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
10/18/2018	-	188162	188162	188162	188162	-	-
11/14/2018	189175	-	-	-	-	-	189175
11/19/2018	-	189423	189423	189423	189423	-	-
12/13/2018	-	190368	190368	190368	190368	-	-
12/17/2018	190398	-	-	-	-	-	190398
1/2/2019	190850	-	190850	190850	190850	-	-
1/14/2019	191214	-	-	-	-	-	191214
1/23/2018	191464	-	191464	191464	191464	-	-
2/6/2019	191936	-	191936	191936	191936	-	-
2/12/2019	192058	-	-	-	-	-	192058
2/25/2019	192410	-	192410	192410	192410	-	-
3/14/2019	193027	-	-	-	-	-	193027
3/20/2019	193246	-	193246	193246	193246	-	-
4/8/2019	194036	-	194036	194036	194036	-	-
4/22/2019	194469	-	194469	194469	194469	-	-
4/24/2019	194548	-	-	-	-	-	194548
5/14/2019	195433	-	195433	195433	195433	-	-
5/20/2019	195627	-	-	-	-	-	195627
6/10/2019	196526	-	196526	196526	196526	-	-
6/17/2019	196793	-	-	-	-	-	196793
7/2/2019	197363	-	197363	197363	197363	-	-
7/11/2019	197809	-	-	-	-	-	197809
7/21/2019	198256	198256	198256	198256	198256	-	-
8/15/2019	199214	-	-	-	-	-	199214
8/21/2019	199463	-	199463	199463	199463	-	-

TABLE 4C
SUPPLEMENTAL TREATMENT SYSTEM SAMPLE LABORATORY REPORT SUMMARY
(4/25 - 12/31/2019)

Dartmouth College, Rennie Farm Site
 Hanover, New Hampshire
 NHDES Site No. 201111109, DES Project No. 277737

Sample Collection Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
9/19/2019	200570	-	-	-	-	-	200570
10/14/2019	201831	-	201831	201831	201831	-	-
10/17/2019	201991	-	-	-	-	-	201991
11/14/2019	203394	-	-	-	-	-	203394
11/18/2019	203633	-	203633	203633	203633	-	-
12/16/2019	204953	-	204953	204953	204953	-	-
12/19/2019	204948	-	-	-	-	-	204948
1/7/2020	205467	-	205467	205467	205467	-	-
1/13/2020	205624	-	-	-	-	-	205624
2/3/2020	206383	-	206383	206383	206383	206383	-
2/10/2020	206616	-	-	-	-	-	206616
3/6/2020	207578	-	207578	207578	207578	-	-
3/9/2020	207646	-	-	-	-	-	207646
3/25/2020	208269	-	208269	208269	208269	208269	-
4/8/2020	-	-	-	-	-	-	208829
4/9/2020	208948	-	-	-	-	-	-
4/15/2020	209172	-	209172	209172	209172	209172	-
5/6/2020	210023	-	210023	-	-	-	210023
5/8/2020	-	-	-	210107	210107	210107	-
6/1/2020	211044	-	211044	211044	211044	211044	-
6/11/2020	211550	-	-	-	-	-	211550
7/13/2020	212804	-	-	-	-	-	212804
8/3/2020	213897	-	213897	213897	213897	213897	-
8/11/2020	214291	-	-	-	-	-	214291
9/14/2020	215699	-	-	-	-	-	215699
10/15/2020	217219	-	217219	217219	217219	217219	-
10/19/2020	217327	-	-	-	-	-	217327
11/12/2020	218736	-	-	-	-	-	218736
11/24/2020	219262	-	219262	219262	219262	219262	-
12/14/2020	220039	-	-	-	-	-	220039
12/29/2020	220525	-	220525	220525	220525	220525	-

**TABLE 4C
SUPPLEMENTAL TREATMENT SYSTEM SAMPLE LABORATORY REPORT SUMMARY
(4/25 - 12/31/2019)**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Sample Collection Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
1/13/2021	221158	-	-	-	-	-	221158
1/19/2021	221320	-	221320	221320	221320	221320	-
2/3/2021	221937	-	221937	221937	221937	221937	-
2/10/2021	222172	-	-	-	-	-	222172
2/17/2021	222441	-	222441	222441	222441	222441	-
3/8/2021	223238	-	223238	223238	223238	223238	-
3/11/2021	223237	-	-	-	-	-	223237
3/23/2021	223708	-	223708	223708	223708	223708	-
4/5/2021	224317	-	224317	224317	224317	224317	-
4/13/2021	224593	-	-	-	-	-	224593
4/14/2021	224748	-	224748	224748	224748	224748	-
4/28/2021	225431	-	225431	225431	225431	225431	-
5/10/2021	225980	-	-	-	-	-	225980
5/11/2021	226169	-	226169	226169	226169	226169	-
5/24/2021	226737	-	226737	226737	226737	226737	-
6/7/2021	227441	-	227441	227441	227441	227441	-
6/10/2021	227526	-	-	-	-	-	227526
6/22/2021	228084	-	228084	228084	228084	228084	-
7/12/2021	228909	-	-	-	-	-	228909
7/14/2021	229151	-	229151	229151	229151	229151	-
7/26/2021	-	-	229674	-	-	-	229674
7/29/2021	229953	-	229953	229953	229953	229953	-
8/10/2021	230511	-	230511	230511	230511	230511	-
8/16/2021	230704	-	-	-	-	-	230704
8/23/2021	231176	-	231176	231176	231176	231176	-
9/7/2021	231808	-	231808	231808	231808	231808	-
9/16/2021	232227	-	-	-	-	-	232227
9/28/2021	232759	-	232759	232759	232759	232759	-
10/11/2021	233431	-	-	-	-	-	233431
10/18/2021	233920	-	233920	233920	233920	233920	-
11/8/2021	235037	-	235037	235037	235037	235037	-

TABLE 4C
SUPPLEMENTAL TREATMENT SYSTEM SAMPLE LABORATORY REPORT SUMMARY
(4/25 - 12/31/2019)

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Sample Collection Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
11/18/2021	235560	-	-	-	-	-	235560
11/22/2021	235851	-	235851	235851	235851	235851	-
12/7/2021	236354	-	236354	236354	236354	236354	-
12/13/2021	236597	-	-	-	-	-	236597
12/20/2021	237079	-	237079	237079	237079	237079	-

Notes:

1. This table provides Eastern Analytical, Inc.'s (EAI's) laboratory report number associated with each sample. Refer to **Appendix C** for the individual laboratory reports for samples collected during 2019.
2. "-" indicates sampling location not included in respective sampling round.
3. Refer to text for information regarding additional Treatment System samples collected.

**TABLE 4D
SUPPLEMENTAL GROUNDWATER PERFORMANCE SAMPLE LABORATORY REPORT SUMMARY
(4/25- 12/31/2019)**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

GZ-PM-1U		GZ-PM-1L		GZ-PM-2U		GZ-PM-2L		GZ-PM-3U		GZ-PM-3L		GZ-PM-4U	
Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]
12/29/2016	164306	12/29/2016	164306	12/28/2016	164306	12/28/2016	164306	1/26/2017	165127	1/26/2017	165127	1/25/2017	165084
7/27/2017	171545	7/27/2017	171545	1/26/2017	165127	1/26/2017	165127	9/29/2017	dry	9/29/2017	174005	9/29/2017	dry
9/29/2017	dry	8/25/2017	172686	7/27/2017	171545	7/27/2017	171545	1/25/2018	178217	1/25/2018	178217	1/25/2018	178217
1/25/2018	178217	9/29/2017	174005	9/29/2017	174005	8/25/2017	172686	12/20/2018	190586	9/18/2018	186834	12/20/2018	190586
12/26/2018	190622	1/25/2018	178217	1/25/2018	178106	9/29/2017	174005	12/18/2019	204953	12/20/2018	190586	12/18/2019	204953
12/18/2019	204953	12/26/2018	190622	12/26/2018	190622	1/25/2018	178217	6/17/2021	227873	12/18/2019	204953	3/17/2021	223522
12/22/2020	220336	12/18/2019	204953	12/18/2019	204953	9/12/2018	186690	9/27/2021	232859	6/16/2020	211709	6/17/2021	227873
6/17/2021	227873	6/16/2020	211709	6/16/2020	211709	12/26/2018	190622			12/18/2020	220268	9/27/2021	232859
		12/22/2020	220336	12/22/2020	220336	12/18/2019	204953			3/17/2021	223522		
		6/17/2021	227873	3/17/2021	223522	6/16/2020	211709			6/17/2021	227873		
		9/27/2021	232859	6/17/2021	227873	12/22/2020	220336			9/27/2021	232859		
				9/27/2021	232859	3/17/2021	223522						
						6/17/2021	227873						
						9/27/2021	232859						

GZ-PM-4L		GZ-PM-5U		GZ-PM-5L		GZ-PM-6U		GZ-PM-7U		GZ-PM-8U		GZ-PM-8L	
Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]	Sample Date	Result [µg/L]
1/25/2017	165084	1/25/2017	165084	1/25/2017	165084	1/26/2017	165127	1/26/2017	dry	1/26/2017	dry	1/25/2017	165084
9/29/2017	174005	9/29/2017	dry	9/29/2017	174005	9/29/2017	174005	9/29/2017	dry	9/29/2017	dry	9/29/2017	dry
1/25/2018	178217	1/25/2018	178217	1/25/2018	178217	1/25/2018	178217	1/25/2018	dry	1/25/2018	dry	1/25/2018	178106
9/18/2018	186834	12/26/2018	190622	9/18/2018	186834	12/20/2018	190586					12/26/2018	190622
12/20/2018	190586			12/26/2018	190622	12/18/2019	204953					12/18/2019	204953
12/18/2019	204953			12/18/2019	204953	6/16/2020	211709					12/18/2020	220268
12/18/2020	220268			6/16/2020	211709	3/17/2021	223522					6/17/2021	227873
3/17/2021	223522			12/18/2020	220268	6/17/2021	227873					9/27/2021	232859
6/17/2021	227873			3/17/2021	223522	9/27/2021	232859						
9/27/2021	232859			6/17/2021	227873								
				9/27/2021	232859								

GZ-PM-9L	
Sample Date	Result [µg/L]
1/26/2017	165127
9/29/2017	174005
1/25/2018	178106
9/18/2018	186834
12/26/2018	190622
12/18/2019	204953
12/18/2020	220268

TABLE 5A
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

	GZ-1/R	GZ-2	GZ-3	GZ-4	GZ-5U	GZ-5L	GZ-6	GZ-7U	GZ-7L	GZ-8U	GZ-8L	GZ-9U	GZ-9L	GZ-9D	GZ-10U	GZ-10L	GZ-11U
	Parameter: pH (Standard Units)																
7/22/15	-	-	-	-	-	-	-	-	-	7.2	7.0	7.9	6.2	Well not installed at time of sampling rounds	-	6.8	7.1
9/15/15	-	-	-	-	-	-	-	-	-	-	-	-	6.4		-	7.1	-
11/10/15	-	-	6.4	-	-	-	-	-	-	-	-	-	6.3		-	7.0	-
12/9/15	-	6.3	6.7	-	-	-	-	-	-	-	-	-	6.2		-	7.0	-
1/6/16	-	6.9	6.3	-	-	-	-	-	-	-	-	-	6.4		-	7.0	-
2/11/16	-	6.8	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	-	-	-
3/8/16	-	6.8	6.6	-	-	-	-	-	-	-	-	-	6.8	7.7	-	7.2	-
4/11/16	-	6.5	6.3	-	-	-	-	-	-	7.4	7.5	6.8	6.8	6.9	7.5	6.7	7.6
5/12/16	-	6.6	7.5	-	-	-	6.5	-	-	-	-	-	6.8	-	-	6.9	-
6/23/2016	-	6.5	6.6	-	-	-	-	-	-	-	-	-	6.5	7.4	-	7.3	-
7/19/2016	-	IR	IR	-	-	-	-	-	-	-	-	-	6.7	6.9	-	6.9	-
8/5/2016	-	dry	dry	dry	dry	6.7	dry	dry	IR	-	-	-	-	-	-	-	-
8/18/2016	-	dry	dry	-	dry	6.5	dry	dry	6.2	-	-	-	6.4	6.8	-	6.7	-
9/15/2016	-	IR	dry	dry	dry	6.7	dry	-	-	-	-	-	6.7	7.8	-	7.2	-
9/19/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/4/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/28/2016	dry	dry	dry	dry	dry	IR	dry	dry	IR	-	-	dry	7.4	7.6	-	dry	-
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016	-	6.9	6.6	dry	dry	6.3	dry	dry	5.2	dry	IR	8.2	6.9	7.1	-	7.4	-
1/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/11/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/12/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/13/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/16/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/17/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/23/2017	-	6.3	6.6	dry	IR	6.4	6.5	dry	5.1	-	-	-	6.6	6.8	-	6.8	-
1/25/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/21/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/23/2017	-	IR	6.5	-	dry	6.5	-	dry	5.1	-	-	-	6.7	7.2	-	6.8	-
3/24/2017	-	6.7	6.4	-	6.6	6.8	-	-	-	-	-	-	6.8	7.0	-	7.0	-
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	Not enough water to field screen				-	6.8	6.7	-	-	-	-	-	6.5	6.9	-	6.8	-
6/19/2017	dry	6.5	6.1	dry	7.1	6.9	6.3	6.7	6.6	-	dry	-	6.5	6.7	dry	7.0	-
7/27/2017	dry	dry	dry	dry	-	-	-	-	-	-	-	-	-	-	dry	-	-
8/25/2017	-	dry	dry	dry	dry	5.8	dry	dry	6.0	-	-	-	5.5	5.3	-	5.6	-
9/28/2017	dry	dry	dry	dry	dry	6.6	dry	dry	6.3	6.7	-	-	5.1	5.4	dry	-	-
12/11/2017	-	dry	-	-	-	-	-	-	-	-	-	-	6.6	6.9	-	-	-
3/19/2018	-	dry	6.5	-	6.8	6.7	6.6	7.0	6.8	7.1	dry	-	7.2	7.1	-	7.5	7.5
6/19/2018	-	7.0	-	-	-	-	-	-	-	-	-	-	7.6	7.1	-	-	-
9/10/2018	dry	IR	dry	dry	dry	6.6	dry	dry	6.8	8.0	dry	8.2	6.9	8.1	IR	-	dry
12/14/2018	-	5.9	-	-	-	-	-	-	-	-	-	-	6.9	7.7	-	-	-
3/18/2019	-	IR	5.9	-	7.0	6.8	6.8	-	6.6	7.6	dry	-	7.0	7.1	-	6.8	7.5
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	5.7	-	-	-	-	-	-	-	-	-	-	6.4	6.5	-	-	-
9/12/2019	dry	IR	dry	dry	dry	6.3	dry	dry	5.9	7.2	dry	7.5	6.1	6.7	dry	IR	dry
12/13/2019	-	7.1	-	-	-	-	-	-	-	-	-	-	8.0	8.9	-	-	-
3/11/2020	-	6.2	6.1	-	6.6	6.6	6.4	6.6	6.5	7.3	7.3	-	7.0	7.3	-	6.8	7.6
6/10/2020	-	IR	-	-	-	-	-	-	-	-	-	-	6.5	7.1	-	-	-
9/14/2020	dry	dry	dry	dry	dry	7.8	dry	dry	6.7	IR	IR	dry	IR	6.8	dry	dry	dry
12/14/2020	-	6.9	-	-	-	-	-	-	-	-	-	-	IR	8.6	-	-	-
3/15/2021	-	IR	dry	-	dry	6.9	6.3	IR	5.9	7.7	7.8	-	7.0	7.3	-	7.9	7.7
6/15/2021	-	IR	-	-	-	-	-	-	-	-	-	-	7.0	7.0	-	-	-
9/21/2021	dry	IR	dry	dry	dry	6.5	6.2	dry	6.7	7.8	dry	7.4	7.2	6.8	dry	7.3	7.6
12/15/2021	-	6.5	-	-	-	-	-	-	-	-	-	-	7.5	7.3	-	-	-

- Notes:
1. "-" indicates no data available in respective sampling round.
 2. "dry" indicates no water was in the well.
 3. "IR" Indicates insufficient recharge, recharge rate was insufficient to provide sample volume needed for field screening.
 4. "Frozen" Indicates the well was frozen and no measurements or samples could be taken.

TABLE 5A
FIELD SCREENING DATA - pH
Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

	GZ-11L	GZ-12L	GZ-13L	GZ-14U	GZ-14L	GZ-15L	GZ-17L	GZ-18U	GZ-18L	GZ-19U	GZ-19L	GZ-20U	GZ-20L	GZ-21L	GZ-22U	GZ-23U	GZ-24U	GZ-24L	GZ-24D	GZ-25U
	Parameter: pH (Standard Units)																			
7/22/15	8.0																			
9/15/15	-																			
11/10/15	-																			
12/9/15	-																			
1/6/16	-																			
2/11/16	-	6.8	6.8	6.6	6.7	-	-													
2/19/16	-	-	-	-	-	-	7.4													
3/8/16	-	6.5	7.0	6.6	6.5	-	7.6													
4/11/16	7.5	6.2	6.2	6.4	6.5	-	7.3													
5/12/16	-	-	-	6.6	6.8	-	7.2													
6/23/2016	-	-	-	dry	6.2	-	6.9	6.7	6.4	6.3	6.5	dry	6.4	-	IR	dry	-	-	-	-
7/19/2016	-	-	-	dry	dry	-	7.3	dry	6.3	dry	6.2	dry	6.2	-	dry	dry	-	-	-	-
8/5/2016	-	dry	dry	dry	dry	-	-	dry	IR	dry	dry	dry	6.4	-	dry	dry	-	-	-	-
8/18/2016	-	dry	dry	dry	dry	-	7.0	dry	dry	dry	dry	dry	6.5	-	dry	dry	-	-	-	-
9/15/2016	-	dry	dry	dry	dry	-	6.9	dry	dry	dry	IR	dry	6.3	-	IR	dry	-	-	-	-
9/19/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1
10/4/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/28/2016	-	dry	dry	dry	dry	-	7.7	dry	dry	dry	IR	dry	6.2	-	IR	dry	dry	7.8	7.6	-
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016	-	dry	6.6	6.2	6.2	-	7.7	dry	6.6	dry	6.4	dry	6.3	-	dry	6.9	-	-	-	-
1/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	dry	dry	-	-	-	-
1/11/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/12/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/13/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/16/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/17/2017	-	-	-	-	-	7.8	-	6.8	-	dry	-	dry	-	-	-	dry	8.7	-	-	-
1/23/2017	-	-	-	dry	7.3	-	7.0	-	-	-	-	dry	5.8	-	-	-	-	-	-	-
1/25/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/21/2017	-	-	-	-	-	7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/23/2017	-	-	-	-	-	7.6	7.5	-	-	-	-	-	-	-	-	-	Frozen	-	Frozen	-
3/24/2017	-	-	-	dry	6.4	-	7.3	-	-	-	-	6.6	6.5	-	-	-	-	-	7.3	-
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	-	-	-	-	6.6	-	7.1	-	-	dry	-	-	-	-	-	-	-	-	-	-
6/19/2017	-	dry	-	dry	6.3	-	6.8	dry	6.5	dry	6.2	dry	-	-	-	-	-	-	7.0	-
7/27/2017	-	dry	-	dry	dry	-	-	dry	dry	dry	dry	dry	-	-	-	dry	-	-	-	-
8/25/2017	-	dry	dry	-	-	-	6.6	dry	dry	dry	dry	dry	8.1	-	-	dry	-	-	6.6	-
9/28/2017	6.4	dry	dry	dry	dry	5.4	7.4	dry	dry	dry	dry	dry	-	-	dry	dry	8.0	7.3	7.5	8.0
12/11/2017	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	8.0	Frozen	-
3/19/2018	7.5	-	-	dry	6.7	7.6	7.5	dry	6.6	dry	dry	dry	7.8	-	-	dry	8.5	8.3	8.5	8.7
6/19/2018	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	9.9	9.5	-
9/10/2018	-	dry	dry	dry	dry	8.0	7.7	dry	dry	dry	dry	dry	6.0	-	-	dry	8.0	8.4	8.6	-
12/14/2018	-	-	-	dry	6.1	-	-	-	-	-	-	-	-	-	-	-	-	9.5	Frozen	-
3/18/2019	7.5	-	-	dry	6.3	6.5	7.6	dry	6.1	dry	dry	6.8	6.0	-	-	dry	8.1	8.0	8.2	8.2
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	-	-	dry	5.6	-	-	-	-	-	-	-	-	-	-	-	-	8.2	8.2	-
9/12/2019	7.8	dry	dry	dry	dry	6.9	6.9	dry	dry	dry	dry	dry	6.0	-	-	dry	7.7	8.0	8.2	8.4
12/13/2019	-	-	-	dry	11.5	-	-	-	-	-	-	-	-	-	-	-	-	7.9	Frozen	-
3/11/2020	8.1	-	-	6.2	5.8	7.7	7.2	6.5	6.2	6.0	6.2	7.0	6.2	-	6.5	6.9	7.5	8.2	8.4	Frozen
6/10/2020	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	7.9	8.2	-
9/14/2020	7.2	dry	dry	dry	dry	6.8	6.8	dry	dry	dry	dry	dry	dry	-	dry	dry	dry	7.4	7.5	6.9
12/14/2020	-	-	-	dry	IR	-	-	-	-	-	-	-	-	-	-	-	-	7.6	Frozen	-
3/15/2021	8.1	-	-	dry	dry	7.7	7.4	IR	IR	dry	dry	dry	6.7	-	6.8	dry	7.5	8.3	8.7	8.9
6/15/2021	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	8.0	8.2	-
9/21/2021	7.8	dry	IR	dry	dry	7.1	7.2	dry	6.1	dry	dry	dry	6.1	-	6.2	dry	8.1	8.3	8.2	8.8
12/15/2021	-	-	-	dry	6.4	-	-	-	-	-	-	-	-	-	-	-	-	8.3	8.3	-

TABLE 5A
FIELD SCREENING DATA - pH
Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

	GZ-25L	GZ-25D	GZ-26U	GZ-26L	GZ-27U	GZ-27L	GZ-27D	GZ-28U	GZ-28L	GZ-28D	GZ-29L	GZ-30U	GZ-30L	GZ-31L	GZ-32U	GZ-32L	GZ-32D	GZ-33U	GZ-33L	GZ-34U
	Parameter: pH (Standard Units)																			
7/22/15	Well not installed at time of sampling round																			
9/15/15																				
11/10/15																				
12/9/15																				
1/6/16																				
2/11/16																				
2/19/16																				
3/8/16																				
4/11/16																				
5/12/16																				
6/23/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/19/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/5/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/18/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/15/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/19/2016	8.1	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/4/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/28/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	7.3	-	-	-	-	IR	-
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/10/2017	-	-	-	-	-	-	-	-	-	-	9.1	IR	IR	-	-	-	-	-	-	-
1/11/2017	-	-	-	-	-	7.9	8.3	-	-	-	-	-	-	-	-	8.0	8.3	-	-	Frozen
1/12/2017	-	-	-	-	-	-	-	-	-	-	-	7.4	7.9	-	-	-	-	-	-	-
1/13/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5
1/16/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/17/2017	-	-	-	-	-	-	-	8.5	8.5	8.2	-	-	-	-	-	-	-	-	-	-
1/23/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/25/2017	-	-	-	-	-	-	-	-	-	-	7.6	7.0	7.4	-	-	-	-	-	-	-
2/21/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/23/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	-	IR
3/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	-	-	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1
6/19/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/27/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/25/2017	8.2	7.7	-	-	-	-	-	-	-	-	-	-	-	-	9.8	7.7	8.8	-	-	-
9/28/2017	7.9	7.7	7.3	-	7.5	7.4	8.0	8.6	8.4	8.2	6.3	6.1	6.1	5.3	10.1	8.6	8.0	7.8	7.8	8.8
12/11/2017	-	-	-	-	8.2	7.9	7.6	-	Frozen	7.0	-	-	-	-	-	-	-	-	-	8.4
3/19/2018	8.7	7.8	8.4	-	8.4	8.3	8.3	8.3	8.4	8.4	7.7	7.6	7.3	7.6	Frozen	8.4	Frozen	8.5	7.9	8.1
6/19/2018	-	-	-	-	9.1	8.5	8.7	-	8.1	8.3	-	-	-	-	8.5	8.5	8.1	-	-	8.4
9/10/2018	-	-	-	-	-	-	-	7.8	8.1	7.3	-	7.4	9.9	9.7	8.0	9.2	8.2	6.8	6.8	7.2
12/14/2018	-	-	-	-	8.0	8.1	8.2	-	8.5	8.4	-	-	-	-	Frozen	7.5	7.2	-	-	8.3
3/18/2019	Frozen	8.0	Frozen	-	7.9	7.8	8.0	8.2	8.2	8.1	8.8	7.5	7.3	6.5	Frozen	-	8.1	8.1	8.1	8.1
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	-	-	-	8.0	7.9	8.2	-	8.0	8.3	-	-	-	-	8.2	8.1	8.0	-	-	9.0
9/12/2019	8.3	7.6	7.2	-	8.0	7.7	8.1	8.0	7.8	8.2	8.0	6.8	7.5	6.5	8.2	8.1	7.8	8.0	8.2	7.8
12/13/2019	-	-	-	-	8.2	8.0	8.2	-	Frozen	Frozen	-	-	-	-	Frozen	8.1	8.1	-	-	Frozen
3/11/2020	Frozen	8.0	Frozen	-	-	8.0	8.8	8.5	Frozen	Frozen	8.3	7.3	7.7	6.7	Frozen	8.3	7.8	8.3	8.3	8.1
6/10/2020	-	-	-	-	Packer	7.8	8.2	-	8.4	8.3	-	-	-	-	8.3	8.3	8.9	-	-	8.3
9/14/2020	6.9	7.9	7.8	-	7.6	7.2	8.0	7.7	6.8	7.9	7.7	6.8	7.2	6.9	7.0	7.0	7.1	7.0	6.9	6.9
12/14/2020	-	-	-	-	8.2	8.4	Frozen	-	Frozen	8.6	-	-	-	-	Frozen	8.8	7.9	-	-	7.8
3/15/2021	8.7	7.9	7.8	-	8.6	Frozen	8.6	8.6	8.7	8.7	8.8	7.4	7.7	6.7	8.8	8.2	8.6	8.4	8.2	8.1
6/15/2021	-	-	-	-	7.8	7.8	8.2	-	8.4	8.4	-	-	-	-	8.3	8.0	7.8	-	-	7.8
9/21/2021	8.4	7.9	7.9	-	8.1	7.8	8.4	8.2	8.3	8.4	8.6	6.9	7.6	6.5	8.4	8.0	8.0	8.1	8.3	8.1
12/15/2021	-	-	-	-	9.2	8.5	8.9	-	8.5	8.4	-	-	-	-	7.2	7.0	8.0	-	-	8.2

TABLE 5A
FIELD SCREENING DATA - pH
Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

	GZ-34L	GZ-34D	GZ-35U	GZ-35L	GZ-35D	GZ-36U	GZ-37U	GZ-37L	GZ-37D	GZ-38U	GZ-39U	GZ-39L	GZ-39D	GZ-40U	GZ-40L	GZ-40M
	Parameter: pH (Standard Units)															
7/22/15	Well not installed at time of sampling round															
9/15/15																
11/10/15																
12/9/15																
1/6/16																
2/11/16																
2/19/16																
3/8/16																
4/11/16																
5/12/16																
6/23/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/19/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/5/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/18/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/15/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/19/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/4/2016	-	-	-	-	-	-	-	-	-	7.9	8.2	10.7	-	-	IR	-
10/28/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/11/2017	8.1	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/12/2017	-	-	-	-	-	-	8.2	8.2	Frozen	-	-	-	-	-	-	-
1/13/2017	-	-	-	-	-	8.7	8.4	-	8.8	-	-	-	-	-	-	-
1/16/2017	-	-	IR	-	-	-	-	-	-	8.3	IR	IR	-	-	-	-
1/17/2017	-	-	8.4	8.4	8.4	-	-	-	-	8.3	8.0	8.4	-	-	8.2	-
1/23/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/25/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/21/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/23/2017	7.7	7.3	Frozen	Frozen	-	8.0	-	-	8.0	-	-	-	-	-	-	-
3/24/2017	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	Frozen
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	-	-	-	-	-	-	-	-	7.4	-	-	-	-	-	7.4	-
6/19/2017	-	-	-	-	-	-	7.8	7.2	7.6	-	-	-	-	7.9	8.2	-
7/27/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/25/2017	7.4	-	7.7	7.4	7.3	-	-	-	8.3	-	-	-	-	-	8.0	-
9/28/2017	7.7	8.9	8.0	8.1	7.3	7.8	8.2	7.8	7.9	7.2	7.0	8.2	6.4	7.7	-	-
12/11/2017	Frozen	Frozen	-	-	-	-	Frozen	8.0	Frozen	-	-	-	7.7	7.9	-	-
3/19/2018	8.3	8.1	8.0	8.0	7.9	8.4	8.2	8.2	8.4	7.7	8.3	8.3	8.1	8.5	-	-
6/19/2018	8.5	8.4	8.3	8.4	8.1	8.4	8.2	8.6	8.7	-	-	-	8.3	8.7	-	-
9/10/2018	8.0	7.9	8.1	8.0	8.3	7.8	7.6	7.7	7.4	-	-	-	-	8.9	-	-
12/14/2018	8.1	Frozen	7.7	-	7.6	Frozen	8.3	8.2	8.6	-	-	-	7.8	7.9	-	-
3/18/2019	8.3	Frozen	8.1	8.1	8.1	Frozen	8.1	8.1	8.3	7.8	7.2	-	7.9	8.0	-	-
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.8	7.9
6/21/2019	7.7	8.1	8.1	8.1	7.7	9.2	8.0	7.9	8.3	-	-	-	7.7	6.8	-	-
9/12/2019	7.6	7.8	8.2	8.1	7.8	8.1	8.0	8.0	8.3	7.7	6.3	7.5	7.7	8.1	-	-
12/13/2019	8.1	Frozen	7.9	Frozen	8	Frozen	8.1	Frozen	Frozen	-	-	-	Frozen	8.6	-	-
3/11/2020	7.8	8.0	6.2	7.9	Frozen	8.0	8.0	8.2	8.6	8.0	6.7	Frozen	Frozen	8.6	-	-
6/10/2020	9.6	8.6	8.4	8.3	8.7	8.5	8.2	8.2	8.5	-	-	8.1	8.1	7.9	-	-
9/14/2020	7.0	7.1	7.0	7.0	6.9	7.0	7.7	7.9	6.9	7.8	6.8	6.9	6.8	7.0	-	-
12/14/2020	8.4	7.9	7.8	Frozen	Frozen	7.9	9.1	9.3	9.6	-	-	-	8.9	8.3	-	-
3/15/2021	8.1	8.2	8.2	Frozen	8.1	8.6	8.6	8.5	8.9	8.3	6.5	8.3	8.2	8.6	-	-
6/15/2021	7.0	7.8	8.3	8.3	7.9	8.0	8.5	8.4	8.6	-	-	-	8.0	8.2	-	-
9/21/2021	8.0	8.0	8.2	8.3	7.8	8.3	8.2	8.2	8.4	7.9	6.7	8.1	8.0	8.3	-	-
12/15/2021	8.1	8.2	8.1	Frozen	8.0	8.3	8.4	8.4	8.6	-	-	-	8.1	8.6	-	-

TABLE 5A
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

	GZ-40D	GZ-41U	GZ-42U	GZ-42L	GZ-43U	GZ-44	GZ-45	GZ-46	GZ-47	GZ-48	GZ-49	GZ-50	GZ-51	GZ-52
7/22/15														
9/15/15														
11/10/15														
12/9/15														
1/6/16														
2/11/16														
2/19/16														
3/8/16														
4/11/16														
5/12/16														
6/23/2016	-	-	-		-									
7/19/2016	-	-	-		-									
8/5/2016	-	-	-		-									
8/18/2016	-	-	-		-									
9/15/2016	-	-	-		-									
9/19/2016	-	-	-		-									
10/4/2016	-	-	-		-									
10/28/2016	-	-	-		-									
11/29/2016	-	-	-		-									
12/2/2016	-	-	-		-									
12/28/2016	-	-	-		-									
1/10/2017	-	-	-		-									
1/11/2017	-	-	-		-									
1/12/2017	-	-	-		-									
1/13/2017	-	-	-		-									
1/16/2017	-	-	-		-									
1/17/2017	8.0	8.3	-		-									
1/23/2017	-	-	-		-									
1/25/2017	-	-	-		-									
2/21/2017	-	-	-		7.2									
2/23/2017	7.1	-	8.4		7.2									
3/24/2017	-	-	7.9		-									
4/24/2017	-	-	-		-									
5/17/2017	7.0	-	7.7		-									
6/19/2017	8.0	-	8.2		-									
7/27/2017	-	-	-		-									
8/25/2017	-	-	7.8		-									
9/28/2017	6.7	7.8	7.2		dry									
12/11/2017	Frozen	Frozen	Frozen		-									
3/19/2018	-	8.1	8.2		-									
6/19/2018	8.3	8.1	8.8		-									
9/10/2018	-	-	-		dry									
12/14/2018	7.5	8.1	8.0		-									
3/18/2019	Frozen	7.8	7.8		-									
4/26/2019	-	-	-	8.1	-	7.8	8.1	8.0	7.9	7.8	7.9	7.9	8.1	8.0
6/21/2019	6.6	7.9	8.1	-	-	-	-	-	-	-	-	-	-	-
9/12/2019	6.8	8.0	8.3	-	dry	-	-	-	-	-	-	-	-	-
12/13/2019	Frozen	8.5	8.2	-	-	-	-	-	-	-	-	-	-	-
3/11/2020	Frozen	8.5	8.4	-	-	-	-	-	-	-	-	-	-	-
6/10/2020	8.4	8.2	8.7	-	-	-	-	-	-	-	-	-	-	-
9/14/2020	7.1	7.1	7.1	-	dry	-	-	-	-	-	-	-	-	-
12/14/2020	Frozen	8.1	8.4	Frozen	-	8.2	8.4	8.4	Frozen	9.5	9.2	8.6	8.2	9.6
3/15/2021	7.0	8.6	8.7	-	-	-	-	-	-	-	-	-	-	-
6/15/2021	6.9	8.3	8.4	-	-	-	-	-	-	-	-	-	-	-
9/21/2021	7.1	8.2	8.3	-	-	-	-	-	-	-	-	-	-	-
12/15/2021	7.7	9.1	8.2	-	-	-	-	-	-	-	-	-	-	-

Well not installed at time of sampling round

TABLE 5A
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

	GZ-53	GZ-54U	GZ-54D	GZ-55	Dug Well	Stream - 1	Stream-1A	Stream-2	Stream-3	Stream-4	Stream-5	Stream-6	Stream-7	Stream-8	Stream-10	Stream-11
					Parameter: pH (Standard Units)											
7/22/15					-	7.3	-	Location not included in network at time of round		-	-	-	-	-	-	-
9/15/15					-	-	-	Location not included in network at time of round		-	-	-	-	-	-	-
11/10/15					-	7.6	-	Location not included in network at time of round		-	-	-	-	-	-	-
12/9/15					-	7.7	-	7.7	7.9	-	-	-	-	-	-	-
1/6/16					6.7	7.1	-	8.1	8.1	-	-	-	-	-	-	-
2/11/16					-	-	-	-	-	-	-	-	-	-	-	-
2/19/16					-	-	-	-	-	-	-	-	-	-	-	-
3/8/16					7.0	8.3	-	8.2	8.5	-	-	-	-	-	-	-
4/11/16					7.2	7.3	-	-	-	-	-	-	-	-	-	-
5/12/16					7.2	7.3	-	8.0	7.9	-	-	-	-	-	-	-
6/23/2016					7.5	8.0	-	-	-	-	-	-	-	-	-	-
7/19/2016					6.9	7.0	-	8.1	8.1	-	-	-	-	-	-	-
8/5/2016					dry	-	-	-	-	-	-	-	-	-	-	-
8/18/2016					6.7	-	dry	7.7	7.8	-	-	-	-	-	-	-
9/15/2016					7.3	dry	-	-	7.6	-	-	-	-	-	-	-
9/19/2016					-	-	-	-	-	-	-	-	-	-	-	-
10/4/2016					-	-	-	-	-	-	-	-	-	-	-	-
10/28/2016					-	-	-	-	-	-	-	-	-	-	7.4	-
11/29/2016					-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016					-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016					7.1	7.7	-	8.3	8.2	8.1	8.5	8.4	8.3	-	-	7.6
1/10/2017					-	-	-	-	-	-	-	-	-	-	-	-
1/11/2017																
1/12/2017																
1/13/2017																
1/16/2017																
1/17/2017																
1/23/2017					6.7	7.1	-	7.6	7.3	7.6	7.7	7.4	7.6	-	-	7.4
1/25/2017					-	-	-	-	-	-	-	-	-	-	-	-
2/21/2017					-	-	-	-	-	-	-	-	-	-	-	-
2/23/2017					6.8	6.8	-	7.6	7.6	7.6	7.6	7.6	-	-	-	8.0
3/24/2017					6.9	7.5	-	7.5	7.6	7.8	7.8	7.8	-	-	-	7.9
4/24/2017					-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017					7.8	7.7	-	8.1	8.0	8.2	8.2	-	-	-	-	-
6/19/2017					8.7	8.3	-	8.2	8.0	7.8	7.9	8.0	-	-	-	8.4
7/27/2017					-	-	-	-	-	-	-	-	-	-	-	-
8/25/2017					-	5.8	-	7.5	7.8	7.5	7.2	7.3	-	-	-	7.0
9/28/2017					-	5.8	-	7.1	7.2	7.2	7.2	6.9	-	-	-	7.5
12/11/2017					-	8.2	-	7.9	7.4	7.3	8.2	8.0	-	-	-	-
3/19/2018					-	7.5	-	8.4	8.1	8.3	8.6	8.2	-	-	-	7.5
6/19/2018					-	8.5	-	7.7	8.0	8.4	8.2	8.4	-	-	-	-
9/10/2018					-	7.2	-	7.8	7.9	8.0	7.9	7.9	-	-	-	7.0
12/14/2018					-	8.6	-	8.2	8.4	8.9	8.2	7.7	-	-	-	-
3/18/2019					-	7.2	-	8.1	8.2	8.0	8.7	8.2	-	-	-	6.6
4/26/2019					-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	-	-	-	-	7.6	-	7.7	7.8	7.8	7.4	7.3	-	-	-	-
9/12/2019	-	-	-	-	-	7.7	-	8.1	7.7	8.0	7.5	7.4	-	-	-	7.4
12/13/2019	-	-	-	-	-	8.1	-	8.2	8.6	8.3	8.6	8.3	-	-	-	-
3/11/2020	-	-	-	-	-	8.2	-	8.7	8.4	7.9	7.9	7.8	-	-	-	7.4
6/10/2020	-	-	-	-	-	7.7	-	7.9	7.6	7.6	7.6	7.6	-	-	-	-
9/14/2020	-	-	-	-	-	dry	-	dry	7.0	7.0	dry	7.2	-	-	-	dry
12/14/2020	9.3	Frozen	8.7	Frozen	-	dry	-	8.4	8.2	7.7	9.0	8.3	-	-	-	-
3/15/2021	-	-	-	-	-	8.0	-	7.8	7.7	7.4	8.0	7.5	-	-	-	7.8
6/15/2021	-	-	-	-	-	7.8	-	7.8	7.6	8.1	8.0	7.7	-	-	-	-
9/21/2021	-	-	-	-	-	-	-	8.2	7.8	8.2	7.9	7.6	-	-	-	7.7
12/15/2021	-	-	-	-	-	7.3	-	8.8	7.3	8.4	8.8	8.6	-	-	-	-

Well not installed at time of sampling round

TABLE 5B
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	GZ-1/R	GZ-2	GZ-3	GZ-4	GZ-5U	GZ-5L	GZ-6	GZ-7U	GZ-7L	GZ-8U	GZ-8L	GZ-9U	GZ-9L	GZ-9D	GZ-10U	GZ-10L	GZ-11U	
Parameter: Specific Conductivity (µS/cm)																		
7/22/15	-	-	-	-	-	-	-	-	-	115	117	401	291	Well not installed at time of sampling rounds	-	170	166	
9/15/15	-	-	-	-	-	-	-	-	-	-	-	-	212		-	-	177	-
11/10/15	-	-	133	-	-	-	-	-	-	-	-	-	249		-	-	152	-
12/9/15	-	376	136	-	-	-	-	-	-	-	-	-	240		-	-	155	-
1/6/16	-	293	130	-	-	-	-	-	-	-	-	-	231		-	-	147	-
2/11/16	-	323	130	-	-	-	-	-	-	-	-	-	-		-	-	-	-
2/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-		259	-	-	-
3/8/16	-	347	134	-	-	-	-	-	-	-	-	-	273	165	-	148	-	
4/11/16	-	243	127	-	-	-	-	-	-	120	106	231	191	127	125	127	174	
5/12/16	-	219	125	-	-	-	137	-	-	-	-	-	283	-	-	124	-	
6/23/16	-	282	139	-	-	-	-	-	-	-	-	-	283	166	-	126	-	
7/19/16	-	-	-	-	-	-	-	-	-	-	-	-	266	189	-	131	-	
8/5/16	-	dry	dry	dry	dry	100	dry	dry	IR	-	-	-	-	-	-	-	-	
8/18/16	-	dry	dry	-	dry	99	dry	dry	481	-	-	-	275	202	-	149	-	
9/15/16	-	IR	dry	dry	dry	110	dry	-	-	-	-	-	254	211	-	146	-	
9/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10/4/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10/28/2016	dry	dry	dry	dry	dry	IR	dry	dry	IR	-	-	dry	268	241	-	dry	-	
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12/28/2016	-	281	148	dry	dry	110	dry	dry	1397	dry	IR	328	274	222	-	198	-	
1/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/11/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/12/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/13/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/16/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/17/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/23/2017	-	243	153	dry	IR	107	535	dry	1043	-	-	-	255	216	-	171	-	
1/25/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2/21/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2/23/2017	-	IR	172	-	dry	111	-	dry	1143	-	-	-	328	227	-	136	-	
3/24/2017	-	252	190	-	149	112	-	-	-	-	-	-	226	181	-	142	-	
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5/17/2017	Not enough water to sample				-	141	33	-	-	-	-	-	234	209	-	141	-	
6/19/2017	dry	296	183	dry	131	104	163	143	96	-	dry	-	204	201	dry	164	-	
7/27/2017	dry	dry	dry	dry	-	-	-	-	-	-	-	-	-	-	dry	-	-	
8/25/2017	-	dry	dry	dry	dry	105	dry	dry	430	-	-	-	199	219	-	146	-	
9/28/2017	dry	dry	dry	dry	dry	126	dry	dry	398	126	-	-	214	218	dry	-	-	
12/11/2017	-	dry	-	-	-	-	-	-	-	-	-	-	252	171	-	-	-	
3/19/2018	-	dry	237	-	128	121	198	109	108	131	dry	-	235	221	-	162	127	
6/19/2018	-	355	-	-	-	-	-	-	-	-	-	-	225	203	-	-	-	
9/10/2018	dry	IR	dry	dry	dry	99	dry	dry	323	116	dry	224	264	228	IR	-	dry	
12/14/2018	-	300	-	-	-	-	-	-	-	-	-	-	236	198	-	-	-	
3/18/2019	-	IR	238	-	98	94	181	dry	99	108	dry	-	200	189	-	133	103	
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6/21/2019	-	321	-	-	-	-	-	-	-	-	-	-	206	164	-	-	-	
9/12/2019	dry	IR	dry	dry	dry	97	dry	dy	309	108	dry	169	242	190	dry	IR	dry	
12/13/2019	-	298	-	-	-	-	-	-	-	-	-	-	246	184	-	-	-	
3/11/2020	-	237	178	-	97	91	154	88	89	89	93	-	198	167	-	119	112	
6/10/2020	-	IR	-	-	-	-	-	-	-	-	-	-	247	179	-	-	-	
9/14/2020	dry	dry	dry	dry	dry	102	dry	dry	239	IR	IR	dry	IR	212	dry	dry	dry	
12/14/2020	-	229	-	-	-	-	-	-	-	-	-	-	IR	181	-	-	-	
3/15/2021	-	IR	dry	-	dry	110	154	IR	495	120	92	-	314	185	-	118	104	
6/15/2021	-	IR	-	-	-	-	-	-	-	-	-	-	250	185	-	-	-	
9/21/2021	dry	IR	dry	dry	dry	118	176	dry	322	163	dry	192	254	219	dry	168	172	
12/15/2021	-	239	-	-	-	-	-	-	-	-	-	-	272	206	-	-	-	

- Notes:
1. "-" indicates no data available in respective sampling round.
 2. "dry" indicates no water was in the well.
 3. "IR" Indicates insufficient recharge, recharge rate was insufficient to provide sample volume needed for field screening.
 4. "Frozen" Indicates the well was frozen and no measurements or samples could be taken.

TABLE 5B
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	GZ-11L	GZ-12L	GZ-13L	GZ-14U	GZ-14L	GZ-15L	GZ-17L	GZ-18U	GZ-18L	GZ-19U	GZ-19L	GZ-20U	GZ-20L	GZ-21L	GZ-22U	GZ-23U	GZ-24U	GZ-24L	GZ-24D	GZ-25U	GZ-25L
	Parameter: Specific Conductivity (µS/cm)																				
7/22/15	236																				
9/15/15	-																				
11/10/15	-																				
12/9/15	-																				
1/6/16	-																				
2/11/16	-	153	123	472	123	-	-														
2/19/16	-	-	-	-	-	-	-	140													
3/8/16	-	140	128	510	139	-	-	140													
4/11/16	178	138	120	484	146	-	-	130													
5/12/16	-	-	-	422	125	-	-	131													
6/23/16	-	-	-	-	166	-	-	124	414	143	213	145	-	141	-	-	-	-	-	-	-
7/19/16	-	-	-	-	-	-	-	127	-	155	-	161	-	154	-	-	-	-	-	-	-
8/5/16	-	dry	dry	dry	dry	-	-	dry	IR	dry	dry	dry	165	-	dry	dry	-	-	-	-	-
8/18/16	-	dry	dry	dry	dry	-	-	119	dry	dry	dry	dry	183	-	dry	dry	-	-	-	-	-
9/15/16	-	dry	dry	dry	dry	-	-	126	dry	dry	dry	insuff. Recovery	163	-	IR	dry	-	-	-	-	-
9/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	540	256
10/4/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/28/2016	-	dry	dry	dry	dry	-	-	136	dry	dry	dry	insuff. Recovery	202	-	IR	dry	dry	270	191	-	-
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016	-	dry	173	225	256	-	-	131	dry	190	dry	209	dry	176	-	dry	403	-	-	-	-
1/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	dry	dry	-	-	-	-
1/11/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/12/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/13/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/16/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/17/2017	-	-	-	-	-	140	-	900	-	dry	-	dry	-	-	-	dry	120	-	-	-	-
1/23/2017	-	-	-	dry	235	-	134	-	-	-	-	dry	171	-	-	-	-	-	-	-	-
1/25/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/21/2017	-	-	-	-	-	171	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/23/2017	-	-	-	-	-	171	134	-	-	-	-	-	-	-	-	-	Frozen	-	Frozen	-	-
3/24/2017	-	-	-	dry	179	-	134	-	-	-	-	-	351	144	-	-	-	-	-	194	-
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	-	-	-	-	185	-	136	-	-	dry	-	-	-	-	-	-	-	-	-	-	-
6/19/2017	-	dry	-	dry	289	-	133	dry	140	dry	257	dry	-	-	-	-	-	-	-	178	-
7/27/2017	-	dry	-	dry	dry	-	-	dry	dry	dry	dry	dry	-	-	-	dry	-	-	-	-	-
8/25/2017	-	dry	dry	-	-	-	133	dry	dry	dry	dry	dry	160	-	-	dry	-	-	-	176	184
9/28/2017	238	dry	dry	dry	dry	149	133	dry	dry	dry	dry	dry	-	-	dry	dry	256	248	193	324	182
12/11/2017	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	242	Frozen	-	-
3/19/2018	209	-	-	dry	213	190	147	dry	175	dry	dry	dry	170	-	-	dry	60	284	202	345	204
6/19/2018	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	206	182	-	-
9/10/2018	-	dry	dry	dry	dry	139	132	dry	dry	dry	dry	dry	172	-	-	-	228	234	172	-	-
12/14/2018	-	-	-	dry	220	-	-	-	-	-	-	-	-	-	-	-	-	216	Frozen	-	-
3/18/2019	176	-	-	dry	309	136	119	dry	151	dry	dry	125	121	-	-	dry	49	239	169	252	Frozen
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	-	-	dry	164	-	-	-	-	-	-	-	-	-	-	-	-	199	155	-	-
9/12/2019	191	dry	dry	dry	dry	116	117	dry	dry	dry	dry	dry	199	-	-	dry	228	225	163	237	170
12/13/2019	-	-	-	dry	211	-	-	-	-	-	-	-	-	-	-	-	-	228	Frozen	-	-
3/11/2020	152	-	-	176	198	126	108	202	131	185	139	102	117	-	412	104	50	223	154	Frozen	Frozen
6/10/2020	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	226	149	-	-
9/14/2020	184	dry	dry	dry	dry	136	119	dry	dry	dry	dry	dry	dry	-	dry	dry	dry	194	141	204	154
12/14/2020	-	-	-	dry	IR	-	-	-	-	-	-	-	-	-	-	-	134	113	Frozen	-	-
3/15/2021	187	-	-	dry	dry	140	144	IR	IR	dry	dry	dry	143	-	111	dry	94	223	175	218	166
6/15/2021	-	-	-	dry	dry	-	-	-	-	-	-	-	-	-	-	-	-	260	198	-	-
9/21/2021	212	dry	IR	dry	dry	142	135	dry	192	dry	dry	dry	168	-	290	dry	258	244	206	237	172
12/15/2021	-	-	-	dry	177	-	-	-	-	-	-	-	-	-	-	-	-	244	205	-	-

TABLE 5B
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	GZ-25D	GZ-26U	GZ-26L	GZ-27U	GZ-27L	GZ-27D	GZ-28U	GZ-28L	GZ-28D	GZ-29L	GZ-30U	GZ-30L	GZ-31L	GZ-32U	GZ-32L	GZ-32D	GZ-33U	GZ-33L	GZ-34U	GZ-34L	GZ-34D	
	Parameter: Specific Conductivity (µS/cm)																					
7/22/15	Well not installed at time of sampling rounds																					
9/15/15																						
11/10/15																						
12/9/15																						
1/6/16																						
2/11/16																						
2/19/16																						
3/8/16																						
4/11/16																						
5/12/16																						
6/23/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8/5/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8/18/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9/15/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9/19/16	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10/4/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10/28/2016	-	-	-	-	-	-	-	-	-	-	-	-	223	-	-	-	-	-	IR	-	-	
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12/28/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	217	-	
1/10/2017	-	-	-	-	-	-	-	-	-	250	IR	IR	-	-	-	-	-	-	-	-	-	
1/11/2017	-	-	-	-	190	200	-	-	-	-	-	-	-	-	-	Frozen	150	-	-	Frozen	200	170
1/12/2017	-	-	-	-	-	-	-	-	-	-	370	490	-	-	-	-	-	-	-	-	-	
1/13/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	
1/16/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/17/2017	-	-	-	-	-	-	405	186	248	-	-	-	-	-	-	-	-	-	-	-	-	
1/23/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/25/2017	-	-	-	-	-	-	-	-	-	241	344	466	-	-	-	-	-	-	-	-	-	
2/21/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2/23/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	-	-	-	IR	217	199
3/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	-	151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	238	-	-
6/19/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	227	192	-	-	-	-	-	-	-
7/27/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/25/2017	175	-	-	-	-	-	-	-	-	-	-	-	-	352	198	183	-	-	-	-	215	-
9/28/2017	173	156	-	215	198	218	247	198	251	241	324	1,052	65	322	194	173	256	206	233	223	308	
12/11/2017	-	-	-	219	199	218	-	Frozen	249	-	-	-	-	-	-	-	-	-	255	Frozen	Frozen	
3/19/2018	162	247	-	224	228	239	380	214	272	265	238	772	61	Frozen	185	Frozen	274	213	255	236	225	
6/19/2018	-	-	-	204	202	224	-	191	251	-	-	-	-	206	190	171	-	-	272	242	194	
9/10/2018	-	-	-	-	-	-	276	188	252	-	195	675	66	202	196	173	281	232	164	232	203	
12/14/2018	-	-	-	186	175	202	-	178	232	-	-	-	-	Frozen	176	160	-	-	232	187	Frozen	
3/18/2019	164	Frozen	-	188	186	202	233	179	190	226	225	441	46	Frozen	-	159	252	193	222	203	Frozen	
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	-	-	168	165	179	-	156	216	-	-	-	-	165	157	143	-	-	182	174	211	
9/12/2019	156	133	-	190	180	201	216	177	233	212	207	428	52	184	175	153	210	190	206	196	202	
12/13/2019	-	-	-	186	186	201	-	Frozen	Frozen	-	-	-	-	Frozen	178	159	-	-	Frozen	200	Frozen	
3/11/2020	143	Frozen	-	-	172	204	343	Frozen	Frozen	205	165	432	41	Frozen	169	147	230	161	192	183	171	
6/10/2020	-	-	-	Packer	173	185	-	173	230	-	-	-	-	158	179	158	-	-	204	202	176	
9/14/2020	144	137	-	211	184	182	212	154	222	218	156	400	66	159	155	142	188	173	195	170	166	
12/14/2020	-	-	-	134	113	Frozen	-	Frozen	120	-	-	-	-	Frozen	108	150	-	-	197	183	169	
3/15/2021	187	133	-	208	Frozen	181	212	176	217	218	173	412	48	184	500	155	335	300	209	188	176	
6/15/2021	-	-	-	230	190	209	-	179	236	-	-	-	-	214	180	161	-	-	224	207	188	
9/21/2021	162	155	-	251	190	207	224	175	231	290	210	414	61	162	178	194	328	236	224	211	198	
12/15/2021	-	-	-	359	198	277	-	176	235	-	-	-	-	187	183	172	-	-	221	207	196	

TABLE 5B
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	GZ-35U	GZ-35L	GZ-35D	GZ-36U	GZ-37U	GZ-37L	GZ-37D	GZ-38U	GZ-39U	GZ-39L	GZ-39D	GZ-40U	GZ-40L	GZ-40M	GZ-40D	GZ-41U	GZ-42U	GZ-42L	GZ-43U
	Parameter: Specific Conductivity (µS/cm)																		
7/22/15	Well not installed at time of sampling rounds																		
9/15/15																			
11/10/15																			
12/9/15																			
1/6/16																			
2/11/16																			
2/19/16																			
3/8/16																			
4/11/16																			
5/12/16																			
6/23/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/5/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/18/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/15/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/4/16	-	-	-	-	-	-	-	551	368	187	-	IR	-	-	-	-	-	-	-
10/28/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/11/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/12/2017	-	-	-	-	dry	260	Frozen	-	-	-	-	-	-	-	-	-	-	-	-
1/13/2017	-	-	-	210	380	-	220	-	-	-	-	-	-	-	-	-	-	-	-
1/16/2017	IR	-	-	-	-	-	-	550	IR	IR	-	-	-	-	-	-	-	-	-
1/17/2017	386	215	164	-	-	-	-	490	410	110	-	170	160	-	-	180	-	-	-
1/23/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/25/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/21/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	153
2/23/2017	Frozen	Frozen	-	243	-	-	-	-	-	-	-	-	-	-	149	-	196	-	153
3/24/2017	-	-	-	-	-	-	240	-	-	-	-	Frozen	-	-	-	-	219	-	-
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	-	-	-	-	-	-	234	-	-	-	-	174	-	-	146	-	178	-	-
6/19/2017	-	-	-	-	325	268	237	-	-	-	-	175	-	-	-	-	-	-	-
7/27/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/25/2017	283	1,255	1,235	-	-	-	239	-	-	-	-	167	-	-	-	-	193	-	-
9/28/2017	282	197	169	197	319	264	235	548	356	160	184	156	-	-	145	240	178	-	dry
12/11/2017	-	-	-	-	Frozen	274	Frozen	-	-	-	184	160	-	-	Frozen	Frozen	Frozen	-	-
3/19/2018	279	179	186	208	371	295	262	640	334	174	202	176	-	-	Frozen	238	270	-	-
6/19/2018	264	186	167	187	313	275	234	-	-	-	186	161	-	-	146	259	196	-	-
9/10/2018	250	183	167	192	333	290	236	-	-	-	-	154	-	-	-	-	-	-	dry
12/14/2018	232	-	154	Frozen	313	260	235	-	-	-	170	154	-	-	132	222	162	-	-
3/18/2019	242	193	156	Frozen	301	360	230	619	314	301	170	150	-	-	Frozen	207	177	-	-
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	150.3	-	-	-	225	-
6/21/2019	194	152	136	160	288	254	233	-	-	-	155	133	-	-	120	205	150	-	-
9/12/2019	217	165	153	175	282	229	214	663	354	147	165	144	-	-	126	233	169	-	dry
12/13/2019	226	Frozen	155	Frozen	286	Frozen	Frozen	-	-	-	Frozen	154	-	-	Frozen	237	-	-	-
3/11/2020	208	143	Frozen	179	273	236	207	633	257	Frozen	Frozen	142	-	-	Frozen	217	284	-	-
6/10/2020	220	174.5	154	173	338	256	195	-	-	129	166	143	-	-	132	210	172	-	-
9/14/2020	188	165	134	155	312	213	268	556	329	127	151	130	-	-	120.0	197	156	-	-
12/14/2020	209	Frozen	Frozen	167	174	100	93	-	-	-	97	111	-	-	Frozen	148	120	Frozen	-
3/15/2021	227	Frozen	137	176	265	235	213	723	370	141	160	164	-	-	120	228	161	-	-
6/15/2021	237	191	156	187	292	256	220	-	-	-	175	208	-	-	140	258	175	-	-
9/21/2021	239	183	159	188	285	235	223	585	326	148	174	181	-	-	142	250	170	-	-
12/15/2021	220	Frozen	163	187	306	303	236	-	-	-	181	223	-	-	143	254	258	-	-

TABLE 5B
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	GZ-44	GZ-45	GZ-46	GZ-47	GZ-48	GZ-49	GZ-50	GZ-51	GZ-52	GZ-53	GZ-54U	GZ-54D	GZ-55
7/22/15													
9/15/15													
11/10/15													
12/9/15													
1/6/16													
2/11/16													
2/19/16													
3/8/16													
4/11/16													
5/12/16													
6/23/16													
7/19/16													
8/5/16													
8/18/16													
9/15/16													
9/19/16													
10/4/16													
10/28/2016													
11/29/2016													
12/2/2016													
12/28/2016													
1/10/2017													
1/11/2017													
1/12/2017													
1/13/2017													
1/16/2017													
1/17/2017													
1/23/2017													
1/25/2017													
2/21/2017													
2/23/2017													
3/24/2017													
4/24/2017													
5/17/2017													
6/19/2017													
7/27/2017													
8/25/2017													
9/28/2017													
12/11/2017													
3/19/2018													
6/19/2018													
9/10/2018													
12/14/2018													
3/18/2019													
4/26/2019	221	89.6	259	160.9	237	175.3	513	181.9	159				
6/21/2019	-	-	-	-	-	-	-	-	-	-	-	-	-
9/12/2019	-	-	-	-	-	-	-	-	-	-	-	-	-
12/13/2019	-	-	-	-	-	-	-	-	-	-	-	-	-
3/11/2020	-	-	-	-	-	-	-	-	-	-	-	-	-
6/10/2020	-	-	-	-	-	-	-	-	-	-	-	-	-
9/14/2020	-	-	-	-	-	-	-	-	-	-	-	-	-
12/14/2020	117	112	126	Frozen	136	110	325	115	201	114	Frozen	122	Frozen
3/15/2021	-	-	-	-	-	-	-	-	-	-	-	-	-
6/15/2021	-	-	-	-	-	-	-	-	-	-	-	-	-
9/21/2021	-	-	-	-	-	-	-	-	-	-	-	-	-
12/15/2021	-	-	-	-	-	-	-	-	-	-	-	-	-

Well not installed at time of sampling rounds

Well not installed at time of sampling rounds

TABLE 5B
FIELD SCREENING DATA - pH

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	Dug Well	Stream - 1	Stream - 1A	Stream-2	Stream-3	Stream-4	Stream-5	Stream-6	Stream-7	Stream-8	Stream-10	Stream-11
Parameter: Specific Conductivity (µS/cm)												
7/22/15	-	-	-	Location not included in network at time of round		-	-	-	-	-	-	-
9/15/15	-	-	-	Location not included in network at time of round		-	-	-	-	-	-	-
11/10/15	-	-	-	Location not included in network at time of round		-	-	-	-	-	-	-
12/9/15	-	-	-	149	107	-	-	-	-	-	-	-
1/6/16	-	-	-	184	182	-	-	-	-	-	-	-
2/11/16	-	-	-	-	-	-	-	-	-	-	-	-
2/19/16	-	-	-	-	-	-	-	-	-	-	-	-
3/8/16	82	87	-	133	87	-	-	-	-	-	-	-
4/11/16	76	75	-	-	-	-	-	-	-	-	-	-
5/12/16	76	78	-	154	90	-	-	-	-	-	-	-
6/23/16	83	80	-	-	-	-	-	-	-	-	-	-
7/19/16	85	79	-	195	131	-	-	-	-	-	-	-
8/5/16	dry	-	-	-	-	-	-	-	-	-	-	-
8/18/16	86	-	dry	240	140	-	-	-	-	-	-	-
9/15/16	92	dry	-	-	160	-	-	-	-	-	-	-
9/19/16	-	-	-	-	-	-	-	-	-	-	-	-
10/4/16	-	-	-	-	-	-	-	-	-	-	-	-
10/28/2016	-	-	-	-	-	-	-	-	-	-	149	-
11/29/2016	-	-	-	-	-	-	-	-	-	-	-	-
12/2/2016	-	-	-	-	-	-	-	-	-	-	-	-
12/28/2016	90	77	-	206	129	121	134	131	135	-	-	97
1/10/2017	-	-	-	-	-	-	-	-	-	-	-	-
1/11/2017	-	-	-	-	-	-	-	-	-	-	-	-
1/12/2017	-	-	-	-	-	-	-	-	-	-	-	-
1/13/2017	-	-	-	-	-	-	-	-	-	-	-	-
1/16/2017	-	-	-	-	-	-	-	-	-	-	-	-
1/17/2017	-	-	-	-	-	-	-	-	-	-	-	-
1/23/2017	92	85	-	206	131	171	131	128	136	-	-	96
1/25/2017	-	-	-	-	-	-	-	-	-	-	-	-
2/21/2017	-	-	-	-	-	-	-	-	-	-	-	-
2/23/2017	95	99	-	191	109	117	98	99	-	-	-	86
3/24/2017	102	117	-	119	120	114	122	136	-	-	-	118
4/24/2017	-	-	-	-	-	-	-	-	-	-	-	-
5/17/2017	95	-	-	135	81	90	86	-	-	-	-	-
6/19/2017	80	150	-	169	104	104	111	118	-	-	-	102
7/27/2017	-	-	-	-	-	-	-	-	-	-	-	-
8/25/2017	-	160	-	167	170	169	179	186	-	-	-	133
9/28/2017	-	169	-	200	202	210	201	210	-	-	-	148
12/11/2017	-	161	-	122	89	81	35	33	-	-	-	-
3/19/2018	-	176	-	185	120	119	120	133	-	-	-	96
6/19/2018	-	145	-	278	136	148	140	143	-	-	-	-
9/10/2018	-	142	-	188	189	186	195	183	-	-	-	142
12/14/2018	-	150	-	185	107	109	115	111	-	-	-	-
3/18/2019	-	153	-	179	134	152	142	117	-	-	-	72
4/26/2019	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	142	-	155	135	90	93	85	-	-	-	-
9/12/2019	-	159	-	301	173	171	174	146	-	-	-	125
12/13/2019	-	161	-	129	70	85	61	80	-	-	-	-
3/11/2020	-	136	118	90	73	78	74	74	-	-	-	59
6/10/2020	-	139	-	220	107	107	117	117	-	-	-	-
9/14/2020	-	dry	-	dry	148	157	dry	180	-	-	-	dry
12/14/2020	-	dry	-	94	15	113	34	25	-	-	-	-
3/15/2021	-	104	-	157	174	109	98	89	-	-	-	52
6/15/2021	-	150	-	223	120	130	135	138	-	-	-	-
9/21/2021	-	-	-	247	148	178	164	159	-	-	-	151
12/15/2021	-	165	-	169	98	108	140	109	-	-	-	-

TABLE 6A
DEPTH-TO-GROUNDWATER AND REFERENCE POINT DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	12/13/2019	3/9/2020	6/8/2020	9/14/2020	12/14/2020	3/11/2021	6/14/2021	9/21/2021	12/14/2021
GZ-1	1,083.6	1,086.73	11.92	11.56	dry	dry	dry	dry	dry	dry	11.83
GZ-2	1,077.9	1,081.91	14.03	13.83	14.85	dry	14.35	15.06	14.8	14.94	15.85
GZ-3	1,076.8	1,079.93	13	12.03	dry	dry	16.38	dry	16.58	dry	12.89
GZ-4	1,081.2	1,084.47	dry	dry	15.00	dry	dry	14.97	14.9	dry	14.9
GZ-5U	1,043.2	1,045.57	9.07	6.82	6.43	dry	15.1	dry	10.41	dry	10.25
GZ-5L	1,042.6	1,045.37	10.66	8.35	9.32	26.95	23	22.57	14.29	19.34	12.27
GZ-6	1,062.4	1,065.04	10.29	9	11.99	dry	dry	13.32	12.01	13.7	10.6
GZ-7U	1,061.5	1,064.44	24.27	20.04	21.90	dry	dry	27.4	26.43	dry	26.22
GZ-7L	1,061.8	1,064.71	24.22	19.52	21.71	33.23	34.26	32.89	29.59	33	26.11
GZ-8U	1,061.8	1,064.71	9.17	3.38	5.96	19.36	dry	12.71	6.73	8.62	6.92
GZ-8L	1,046.4	1,049.38	34.21	31.65	34.42	35.09	35.12	34.54	34.58	34.64	34.92
GZ-9U	1,009.1	1,011.31	7.32	5.45	7.51	dry	18.48	10.58	8.3	9.68	5.13
GZ-9L	1,008.1	1,010.33	25.57	23.82	25.54	42.85	43.13	39.77	34.41	36.3	34.47
GZ-9D	1,007.5	1,009.93	30.42	28.14	28.68	55.46	71.6	68.53	56.55	61.79	54.09
GZ-10U	999.6	1,002.09	8.57	8.2	dry	dry	8.8	9.71	dry	dry	8.72
GZ-10L	999.8	1,002.50	17.53	15.44	dry	dry	25.47	25.43	26.51	25.47	25.46
GZ-11U	985.3	987.97	3.52	3.62	7.37	dry	4.52	7.24	8.34	7.95	3.72
GZ-11L	985.6	988.34	Frozen	2.65	37.05	9.81	4.4	7.06	7.72	7.27	2.81
GZ-12L	1,080.6	1,083.29	dry	16.17	dry	dry	dry	dry	dry	dry	dry
GZ-13L	1,080.9	1,083.52	12.53	10.92	16.38	dry	-	17.17	11.14	17.13	12.79
GZ-14U	1,079.5	1,081.87	dry	9.25	dry	dry	dry	dry	dry	dry	dry
GZ-14L	1,079.7	1,082.06	13.21	12.01	dry	dry	18.09	dry	dry	dry	13.20
GZ-15L	1,085.2	1,087.65	12.18	11.21	15.52	19.73	15.17	15.58	15.62	15.63	13.11
GZ-16D	1,089.5	1,090.83	24.4	23.32	27.60	34.43	26.56	26.96	27.79	25.48	25.08
GZ-17L	968.9	971.40	9.54	7.88	9.01	27.57	50.77	50.45	40.64	44.54	36.71
GZ-18U	1,077.6	1,080.06	dry	11.55	dry	dry	dry	12.20	dry	dry	11.95
GZ-18L	1,077.7	1,080.67	12.69	12.48	dry	dry	17.47	23.38	20.47	21.68	12.49
GZ-19U	1,077.3	1,080.46	dry	12.30	dry	dry	dry	dry	dry	dry	dry
GZ-19L	1,077.1	1,080.03	22.10	14.96	dry	dry	dry	dry	dry	dry	22.16
GZ-20U	1,080.4	1,083.16	10.32	6.42	dry	dry	dry	dry	dry	dry	10.40
GZ-20L	1,080.4	1,083.52	11.12	9.31	15.33	dry	15.08	16.21	16.20	16.43	11.51
GZ-22U	1,079.2	1,078.66	-	4.75	7.63	dry	dry	7.61	7.58	5.75	4.69
GZ-23U	1,080.2	1,083.13	10.99	9.62	dry	dry	10.43	dry	dry	dry	10.95
GZ-24U	983.2	984.92	7.13	5.34	12.58	dry	dry	11.17	9.88	10.04	7.27
GZ-24L	982.9	984.75	14.65	14.22	15.99	24.26	22.60	15.82	15.19	15.34	13.96
GZ-24D	982.5	984.99	Frozen	-	16.15	3.83	1.75	5.76	10.38	11.50	18.46
GZ-25U	859.0	861.47	7.42	3.50	-	7.31	-	6.09	7.55	4.50	-
GZ-25L	858.0	860.25	Frozen	2.29	0.56	0.00	-	0.00	0.00	1.50	3.46
GZ-25D	858.6	861.17	18.46	-	10.38	11.54	16.15	13.84	13.84	13.84	23.07
GZ-26U	881.9	884.12	Seeping	Seeping	Seeping	0.25	1.65	0.00	Seeping	0.16	Seeping
GZ-27U	897.0	898.83	11.92	5.33	-	9.02	7.57	7.23	7.38	7.50	6.55
GZ-27L	897.1	899.13	1.42	7.67	4.16	1.00	8.07	6.92	1.33	0.50	1.50
GZ-27D	896.4	898.23	6.92	-	5.77	5.33	frozen	frozen	-	3.50	3.46
GZ-28U	906.0	907.91	5.25	5.01	7.13	10.66	7.61	5.85	8.79	5.10	3.94
GZ-28L	906.0	908.15	Frozen	4.58	4.33	1.17	1.00	9.23	3.00	3.00	1.50
GZ-28D	905.9	908.24	Frozen	-	11.54	1.67	2.16	15.00	3.58	3.16	4.61
GZ-29L	1,011.6	1,014.01	8.87	8.47	11.35	13.43	9.48	9.48	11.54	11.14	8.03
GZ-30U	1,081.3	1,083.65	6.79	6.03	8.58	10.82	8.61	7.79	8.80	9.08	7.43
GZ-30L	1,080.9	1,083.47	21.33	21.70	21.29	24.02	23.31	24.05	22.27	20.28	20.88
GZ-31L	1,084.1	1,086.72	21.94	19.82	25.88	33.23	25.37	24.22	26.29	26.04	22.46

**TABLE 6A
DEPTH-TO-GROUNDWATER AND REFERENCE POINT DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	12/13/2019	3/9/2020	6/8/2020	9/14/2020	12/14/2020	3/11/2021	6/14/2021	9/21/2021	12/14/2021
GZ-32U	834.4	836.09	Frozen	Frozen	FA	0.00	frozen	frozen	FA	FA	0.00
GZ-32L	834.3	836.78	Seeping	-	Seeping	0.76	0.00	0.00	Seeping	Seeping	0.92
GZ-32D	836.3	838.03	29.99	-	25.38	19.60	27.68	26.53	27.68	-	31.14
GZ-33U	847.6	849.32	5.26	5.01	6.95	13.85	9.82	7.28	7.59	8.24	5.42
GZ-33L	848.4	850.22	6.8	6.72	6.33	11.08	7.19	2.57	8.24	8.57	10.15
GZ-34U	891.8	894.44	-	-	-	8.63	3.87	3.72	5.34	3.56	2.68
GZ-34L	892.2	894.46	Frozen	-	4.61	3.46	12.00	13.84	27.68	15.00	16.15
GZ-34D	892.4	894.40	Frozen	-	8.00	2.50	5.76	6.92	6.92	8.07	2.33
GZ-35U	868.3	870.96	4.43	4.20	6.38	10.93	5.22	6.52	6.78	6.86	4.65
GZ-35L	867.5	869.56	Frozen	FA	0.66	5.03	-	7.55	FA	2.48	frozen
GZ-35D	867.8	868.75	Frozen	-	13.84	6.92	16.15	16.15	16.15	-	19.61
GZ-36U	823.0	825.06	Frozen	2.90	5.06	6.59	3.92	3.43	5.05	5.20	3.60
GZ-37U	896.2	898.02	6.91	7.27	6.65	11.79	2.93	2.67	4.37	3.60	2.87
GZ-37L	896.4	898.26	Frozen	-	3.50	1.70	1.75	0.08	1.66	0.66	2.16
GZ-37D	896.7	898.27	Frozen	-	0.17	7.63	0.00	0.00	FA	0.29	0.00
GZ-38U	891.0	892.94	2.52	2.29	5.00	15.49	6.01	3.94	5.20	6.07	2.87
GZ-39U	888.7	890.62	5.28	5.22	7.31	11.49	5.46	6.69	7.38	6.72	5.45
GZ-39L	889.4	891.31	Frozen	FA	0.92	3.33	1.22	2.45	2.74	2.76	0.00
GZ-39D	888.7	890.65	Frozen	5.00	4.17	0.50	1.08	2.75	3.83	3.50	4.00
GZ-40U	876.7	878.62	2.95	2.78	3.49	6.48	3.03	5.01	5.74	5.24	4.03
GZ-40M	876.5	878.79	1.16	FA	FA	0.63	-	6.87	6.89	7.06	3.76
GZ-40L	877.3	879.63	0.03	0.40	0.51	1.14	0.93	frozen	6.03	6.50	4.94
GZ-40D	875.9	877.87	Frozen	-	35.76	36.90	31.14	frozen	34.60	32.30	39.22
GZ-41U	876.8	878.82	5.52	6.70	5.92	8.00	5.41	6.01	7.00	6.20	5.96
GZ-42U	858.6	860.53	7.54	9.98	7.18	8.46	5.44	5.54	5.20	5.07	7.15
GZ-42L	859.4	861.7	Frozen	0.35	0.03	0.25	0.21	1.77	FA	0.28	frozen
GZ-43U	1,075.4	1,077.80	15.2	12.36	dry	dry	dry	dry	dry	dry	dry
GZ-44	852.6	854.9	3.25	5.28	2.22	2.24	4.84	4.78	5.46	2.20	5.24
GZ-45	856.5	858.8	Frozen	0.95	2.76	2.01	2.63	4.45	2.33	1.49	3.45
GZ-46	863.8	866.2	Frozen	Frozen	1.47	2.12	1.55	3.50	2.24	1.59	3.37
GZ-47	871.5	873.8	FA	FA	FA	0.00	frozen	frozen	FA	3.00	3.21
GZ-48	888.0	890.3	3.02	2.63	3.45	6.40	4.30	6.07	6.21	6.19	5.22
GZ-49	902.8	905.2	3.10	3.08	3.56	4.73	3.59	4.11	4.31	3.73	3.53
GZ-50	938.7	924.9	4.41	4.58	5.68	8.63	6.11	9.51	7.15	7.72	4.70
GZ-51	938.7	941.2	Frozen	2.83	1.75	-	24.82	24.90	15.04	18.86	12.42
GZ-52	942.2	945.2	15.00	-	6.92	2.72	23.17	23.48	15.42	18.45	12.89
GZ-53	871.8	874.1	Frozen	1.23	1.85	3.11	2.92	frozen	6.32	6.28	5.71
GZ-54U	872.8	875.1	Frozen	FA	0.04	0.50	0.40	frozen	3.20	2.39	2.33
GZ-54D	872.8	875.2	16.15	FA	FA	10.38	11.53	9.23	9.23	9.23	13.84
GZ-55	871.9	874.2	Frozen	FA	FA	8.07	12.22	9.23	6.92	6.92	13.84

TABLE 6A
DEPTH-TO-GROUNDWATER AND REFERENCE POINT DATA

Dartmouth College, Rennie Farm Site
 Hanover, New Hampshire
 NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	12/13/2019	3/9/2020	6/8/2020	9/14/2020	12/14/2020	3/11/2021	6/14/2021	9/21/2021	12/14/2021
Time from start											
GZ-PM-1U	1,075.43	1,077.43	31.2	27.53	31.45	dry	dry	dry	37.43	dry	31.88
GZ-PM-1L	1,075.41	1,077.24	50.18	47.2	dry	57.04	54.4	55.05	50.95	53.43	44.84
GZ-PM-2U	1,072.14	1,073.93	38.34	30.62	34.28	43.96	38.86	38.21	43.66	43.5	32.76
GZ-PM-2L	1,072.24	1,074.05	50.8	24.82	42.03	47.42	51.51	50.61	50.76	51.48	38.06
GZ-PM-3U	1,079.66	1,081.97	12.8	10.82	dry	dry	dry	17.22	17.18	17.79	11.53
GZ-PM-3L	1,079.44	1,081.61	21.39	21.1	dry	48.48	22.73	21.35	20.81	22.09	17.25
GZ-PM-4U	1,077.28	1,080.28	8.04	6.62	10.65	dry	11.83	11.83	11.06	12.81	7.98
GZ-PM-4L	1,077.96	1,080.36	7.36	6.05	10.1	23.09	17.23	11.22	10.31	12.32	7.2
GZ-PM-5U	1,072.39	1,074.38	dry	17.38	dry	dry	dry	dry	dry	dry	21.85
GZ-PM-5L	1,072.17	1,074.41	26.02	13.62	27.03	17.46	30.76	33.73	28.55	29.83	24.71
GZ-PM-6U	1,075.31	1,077.36	12.39	12.28	13.69	dry	dry	13.6	13.56	14.48	12.49
GZ-PM-7U	1,077.82	1,080.18	dry	dry	dry	dry	dry	23.03	dry	dry	dry
GZ-PM-8U	1,079.17	1,081.29	dry	dry	dry	dry	dry	dry	dry	dry	dry
GZ-PM-8L	1,079.31	1,081.48	29.49	26.04	32.15	dry	48.38	52.39	42.15	49.22	31.7
GZ-PM-9L	1,080.24	1,082.38	25.54	17.29	25.66	33.93	25.58	28.66	26.22	25.65	25.54
GZ-OPM-6A	869.35	869.07	-	-	-	-	-	-	-	-	1.19
GZ-OPM-6B	869.36	869.02	-	-	-	-	-	-	-	-	0.99
GZ-OPM-6C	869.18	868.92	-	-	-	-	-	-	-	-	1.45
GZ-OPM-6D	869.25	869.02	-	-	-	-	-	-	-	-	0.49
GZ-OPM-11A	869.37	869.17	-	-	-	-	-	-	-	-	1.73
GZ-OPM-11B	869.31	868.97	-	-	-	-	-	-	-	-	4.3
GZ-OPM-11C	869.00	868.71	-	-	-	-	-	-	-	-	1.74
GZ-OPM-11D	869.05	868.77	-	-	-	-	-	-	-	-	2.71
GZ-OPM-14A	867.51	867.21	-	-	-	-	-	-	-	-	1.75
GZ-OPM-14B	867.73	867.30	-	-	-	-	-	-	-	-	2.55
GZ-OPM-14C	867.48	867.21	-	-	-	-	-	-	-	-	2.58
GZ-OPM-14D	867.40	867.15	-	-	-	-	-	-	-	-	2.27

Notes:

1. Data are in feet.
2. "-" indicates no measurement taken.
3. "dry" indicates the well is dry, elevation shown is based on bottom of well.
4. "NI" indicates not installed.
5. 1 psi = 2.307 ft of water
6. "Frozen" Indicates the well was frozen and no measurement could be made.
7. "FA" indicates flowing artesian condition observed, measurement could not be made due to packer or instrument malfunction.
8. Shading indicates flowing artesian condition. Measurement represents calculated high of water column above reference point.

TABLE 6B
GROUNDWATER ELEVATION AND REFERENCE POINT DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	5/1/2017					5/2/2017		5/3/2017		5/8/2017	5/10/2017	5/17/2017	5/30/2017	6/19/2017
			10:00 (Pre-Startup)	11:00	11:40	13:00	15:00	9:00	14:00	8:30	12:00					
GZ-1	1,083.60	1,086.73	1,077.3	1,077.2	1,077.2	1,077.1	1,076.9	1,075.7	1,075.6	1,075.1	1,074.9	-	-	1,075.4	1,074.5	dry
GZ-2	1,077.90	1,081.91	1,073.5	1,073.5	1,073.5	1,073.6	1,073.5	1,073.7	1,073.7	1,073.2	1,073.1	-	-	1,068.5	1,068.0	1,067.3
GZ-3	1,076.80	1,079.93	1,073.9	1,073.7	1,073.4	1,072.9	1,072.6	1,072.3	1,072.3	1,071.6	1,071.5	-	-	1,067.8	1,066.3	1,064.9
GZ-4	1,081.20	1,084.47	1,075.7	1,075.6	1,075.4	1,074.5	1,073.8	1,071.9	1,071.5	1,070.7	1,069.5	-	-	dry	dry	dry
GZ-5U	1,043.20	1,045.57	1,043.6	-	-	-	1,043.6	1,043.7	1,043.7	1,043.5	1,043.5	-	-	1,043.3	1,043.0	1,041.1
GZ-5L	1,042.60	1,045.37	1,044.8	-	-	-	1,044.5	1,043.9	1,043.9	1,043.3	1,043.3	-	-	1,042.4	1,040.6	1,038.9
GZ-6	1,062.40	1,065.04	1,058.5	1,058.5	1,058.5	1,058.5	1,058.5	1,058.5	1,059.4	1,059.1	1,058.9	-	-	1,058.2	1,056.3	1,054.5
GZ-7U	1,061.50	1,064.44	1,054.8	1,054.8	1,054.8	1,054.7	1,054.3	1,053.1	1,053.0	1,052.6	1,052.6	-	-	1,050.3	1,048.1	1,046.1
GZ-7L	1,061.80	1,064.71	1,055.1	1,055.0	1,055.0	1,054.9	1,054.6	1,053.4	1,053.3	1,052.9	1,052.9	-	-	1,050.7	1,048.5	1,046.3
GZ-8U	1,061.80	1,064.71	1,060.9	-	-	-	1,060.8	1,061.2	-	1,061.0	1,061.2	-	-	1,061.2	1,060.7	1,060.0
GZ-8L	1,046.40	1,049.38	1,016.7	-	-	-	1,014.7	1,017.0	-	1,016.7	1,016.6	-	-	1,016.2	1,015.4	dry
GZ-9U	1,009.10	1,011.31	1,003.6	-	-	-	1,003.5	1,004.1	1,004.3	1,004.2	1,004.1	-	1,003.8	1,004.0	1,003.5	1,002.6
GZ-9L	1,008.10	1,010.33	990.3	-	-	-	990.3	987.2	984.8	985.3	985.1	-	-	982.1	981.6	980.7
GZ-9D	1,007.50	1,009.93	990.7	-	-	-	982.7	980.1	979.7	978.2	978.1	-	975.8	975.1	973.6	971.7
GZ-10U	999.60	1,002.09	994.6	-	-	-	994.6	994.6	994.7	994.4	994.4	-	-	998.7	993.6	dry
GZ-10L	999.80	1,002.50	991.1	-	-	-	990.9	988.4	988.1	986.4	986.2	-	-	982.7	981.1	979.1
GZ-11U	985.30	987.97	984.1	-	-	-	984.1	984.4	-	984.5	984.5	-	-	984.5	984.2	983.1
GZ-11L	985.60	988.34	985.3	-	-	-	985.2	985.7	-	986.0	986.0	-	-	986.2	985.6	983.9
GZ-12L	1,080.60	1,083.29	1,076.1	1,076.0	1,075.5	1,074.6	1,074.0	1,072.1	1,071.7	1,069.5	1,069.1	-	-	dry	dry	dry
GZ-13L	1,080.90	1,083.52	1,077.0	1,076.9	1,076.7	1,076.4	1,076.0	1,074.7	1,074.6	1,073.7	1,073.6	-	-	1,072.2	1,070.4	1,068.9
GZ-14U	1,079.50	1,081.87	1,076.0	1,076.0	1,076.0	1,076.0	1,075.9	1,076.0	1,076.0	1,074.9	1,074.7	-	-	1,073.0	dry	dry
GZ-14L	1,079.70	1,082.06	1,076.5	1,075.7	1,075.2	1,074.4	1,074.0	1,072.9	1,072.8	1,072.0	1,071.7	-	-	1,069.4	1,067.9	1,066.0
GZ-15L	1,085.20	1,087.65	1,080.3	-	-	-	1,080.3	1,080.8	-	1,081.0	1,080.9	-	-	1,081.2	1,078.5	1,075.4
GZ-16D	1,089.50	1,090.83	-	-	-	-	-	-	-	-	-	-	-	1,067.4	1,066.6	1,065.2
GZ-17L	968.90	971.40	966.7	-	-	-	966.6	965.7	-	963.6	963.6	-	963.2	962.8	961.8	960.3
GZ-18U	1,077.60	1,080.06	1,074.3	1,074.2	1,074.1	1,073.8	1,073.6	1,073.4	1,073.4	1,072.8	1,072.8	-	-	1,068.5	dry	dry
GZ-18L	1,077.70	1,080.67	1,075.8	1,074.1	1,073.1	1,072.1	1,071.7	1,070.9	1,070.8	1,070.2	1,070.0	-	-	1,067.8	1,066.5	1,064.6
GZ-19U	1,077.30	1,080.46	1,074.0	1,074.0	1,074.0	1,073.7	1,073.8	1,073.6	1,073.6	1,072.6	1,072.7	-	-	1,067.6	dry	dry
GZ-19L	1,077.10	1,080.03	1,075.7	1,075.6	1,075.1	1,074.0	1,072.9	1,071.0	1,070.6	1,068.7	1,068.3	-	-	1,058.1	1,058.0	1,057.7
GZ-20U	1,080.40	1,083.16	1,076.9	1,076.9	1,076.9	1,076.9	1,076.8	1,077.5	1,077.5	1,075.8	1,075.5	-	-	1,074.0	1,071.7	dry
GZ-20L	1,080.40	1,083.52	1,077.8	1,077.7	1,077.7	1,077.4	1,077.1	1,076.0	1,075.9	1,075.1	1,075.2	-	-	1,074.1	1,072.5	1,070.8
GZ-22U	1,079.20	1,078.66	1,075.8	1,075.8	1,075.8	1,075.8	1,075.8	1,076.0	1,075.9	1,075.2	1,075.0	-	-	1,071.5	1,067.2	-
GZ-23U	1,080.20	1,083.13	1,076.3	1,076.4	1,076.3	1,076.2	1,075.9	1,076.9	1,076.4	1,074.2	1,074.1	-	-	1,073.1	dry	dry
GZ-24U	983.20	984.92	-	-	-	-	-	-	-	-	-	-	-	980.8	-	974.6
GZ-24L	982.90	984.75	-	-	-	-	-	-	-	-	-	-	-	970.0	-	968.7
GZ-24D	982.50	984.99	-	-	-	-	-	-	-	-	-	-	-	998.9	-	987.7
GZ-25U	859.00	861.47	-	-	-	-	-	-	-	-	-	-	-	859.1	-	859.1
GZ-25L	858.00	860.25	-	-	-	-	-	-	-	-	-	-	-	858.2	-	859.5
GZ-25D	858.60	861.17	-	-	-	-	-	-	-	-	-	-	-	872.7	-	875.0
GZ-26U	881.90	884.12	-	-	-	-	-	-	-	-	-	-	-	884.2	-	883.6
GZ-27U	897.00	898.83	-	-	-	-	-	-	-	-	-	-	-	895.7	-	894.9

**TABLE 6B
GROUNDWATER ELEVATION AND REFERENCE POINT DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	7/31/2017	8/25/2017	10/3/2017	12/11/2017	1/25/2018	3/19/2018	6/19/2018	9/10/2018	12/13/2018	3/18/2019	6/20/2019	9/11/2019	12/13/2019	3/9/2020	6/8/2020	9/14/2020	12/14/2020	3/11/2021	6/14/2021	9/21/2021	12/14/2021
GZ-1	1,083.60	1,086.73	dry	-	dry	-	-	dry	dry	dry	dry	1,074.9	dry	dry	1,074.8	1,075.2	dry	dry	dry	dry	dry	dry	dry
GZ-2	1,077.90	1,081.91	dry	dry	dry	dry	-	1,067.3	1,067.0	1,067.1	1,069.4	1,066.8	1,068.4	1,067.0	1,067.9	1,068.1	1,067.1	dry	1,067.6	1,066.9	1,067.1	1,067.0	1,066.1
GZ-3	1,076.80	1,079.93	dry	dry	dry	-	-	1,065.7	dry	dry	1,068.1	1,063.9	1,067.5	dry	1,066.9	1,067.9	dry	dry	1,063.6	dry	1,063.4	dry	1,067.0
GZ-4	1,081.20	1,084.47	dry	dry	dry	-	-	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	1,069.5	dry	dry	1,069.6
GZ-5U	1,043.20	1,045.57	1,035.8	dry	dry	-	-	1,041.4	1,031.3	dry	1,041.7	1,035.6	1,043.6	dry	1,036.5	1,038.8	1,039.1	dry	1,030.5	dry	1,035.2	dry	1,035.3
GZ-5L	1,042.60	1,045.37	1,031.5	1,023.9	1,020.5	-	-	1,039.2	1,027.1	1,025.6	1,040.3	1,031.2	1,042.0	1,022.4	1,034.7	1,037.0	1,036.1	1,018.4	1,022.4	1,022.8	1,031.1	1,026.0	1,033.1
GZ-6	1,062.40	1,065.04	1,052.6	dry	dry	-	-	1,055.5	dry	dry	1,055.6	1,054.1	1,057.1	dry	1,054.8	1,056.0	1,053.1	dry	1,051.7	1,053.0	1,051.3	1,054.4	
GZ-7U	1,061.50	1,064.44	dry	dry	dry	-	-	1,046.2	dry	dry	1,048.7	dry	1,050.9	dry	1,040.2	1,044.4	1,042.5	dry	dry	1,037.0	1,038.0	dry	1,038.2
GZ-7L	1,061.80	1,064.71	1,035.4	1,031.7	1,031.6	-	-	1,046.7	1,031.7	1,031.7	1,049.3	1,036.0	1,051.3	1,031.7	1,040.5	1,045.2	1,043.0	1,031.5	1,030.5	1,031.8	1,035.1	1,031.7	1,038.6
GZ-8U	1,061.80	1,064.71	1,058.1	-	1,052.1	-	-	1,061.0	1,056.3	1,050.8	1,059.6	1,060.1	1,060.2	1,052.8	1,055.5	1,061.3	1,058.8	1,045.4	dry	1,052.0	1,058.0	1,056.1	1,057.8
GZ-8L	1,046.40	1,049.38	1,015.0	-	1,014.5	-	-	1,015.3	1,015.0	1,014.7	1,015.7	dry	1,014.0	dry	1,015.2	1,017.7	1,015.0	1,014.3	1,014.3	1,014.8	1,014.8	1,014.7	1,014.5
GZ-9U	1,009.10	1,011.31	1,001.6	-	992.4	-	-	-	dry	998.6	1,003.9	1,005.9	1,005.2	999.1	1,004.0	1,005.9	1,003.8	dry	992.8	1,000.7	1,003.0	1,001.6	1,006.2
GZ-9L	1,008.10	1,010.33	976.8	976.9	970.8	976.8	-	981.2	978.4	979.3	985.5	987.9	984.6	979.7	984.8	986.5	984.8	967.5	967.2	970.6	975.9	974.0	975.9
GZ-9D	1,007.50	1,009.93	968.3	968.1	960.5	968.2	-	972.4	970.2	971.4	978.3	980.2	980.3	973.1	979.5	981.8	981.3	954.5	938.3	941.4	953.4	948.1	955.8
GZ-10U	999.60	1,002.09	dry	-	dry	-	-	-	dry	992.5	992.7	994.3	993.7	dry	993.5	993.9	dry	dry	993.3	992.4	dry	dry	993.4
GZ-10L	999.80	1,002.50	976.8	976.8	975.7	-	-	980.6	977.0	978.7	985.0	987.5	988.1	977.7	985.0	987.1	dry	dry	977.0	977.1	976.0	977.0	977.0
GZ-11U	985.30	987.97	980.3	-	977.7	-	-	983.6	978.1	978.3	983.9	984.2	984.6	978.3	984.5	984.4	980.6	dry	983.5	980.7	979.6	980.0	984.3
GZ-11L	985.60	988.34	980.9	-	979.8	-	-	984.8	980.1	980.1	985.1	984.8	986.0	980.3	Frozen	985.7	951.3	978.5	983.9	981.3	980.6	981.1	985.5
GZ-12L	1,080.60	1,083.29	dry	dry	dry	-	-	-	dry	dry	1,067.0	dry	dry	dry	dry	1,067.1	dry	dry	dry	dry	dry	dry	dry
GZ-13L	1,080.90	1,083.52	1,067.1	dry	dry	-	-	-	dry	dry	1,070.9	1,070.1	1,070.1	dry	1,071.0	1,072.6	1,067.1	dry	-	1,066.4	1,072.4	1,066.4	1,070.7
GZ-14U	1,079.50	1,081.87	dry	-	dry	dry	-	-	dry	dry	dry	dry	dry	dry	dry	1,072.6	dry	dry	dry	dry	dry	dry	dry
GZ-14L	1,079.70	1,082.06	dry	-	dry	dry	-	1,067.8	dry	dry	1,069.5	1,066.4	1,068.2	dry	1,068.9	1,070.1	dry	dry	1,064.0	dry	dry	dry	1,068.9
GZ-15L	1,085.20	1,087.65	1,071.9	-	1,071.0	-	-	1,074.2	1,071.4	1,071.6	1,077.1	1,074.3	1,076.8	1,071.7	1,075.5	1,076.4	1,072.1	1,067.9	1,072.5	1,072.1	1,072.0	1,072.0	1,074.5
GZ-16D	1,089.50	1,090.83	1,063.3	-	1,060.9	-	-	1,065.8	1,061.6	1,062.6	1,066.4	1,065.9	1,065.4	1,062.0	1,066.4	1,067.5	1,063.2	1,056.4	1,064.3	1,063.9	1,063.0	1,065.4	1,065.8
GZ-17L	968.90	971.40	958.0	957.0	952.3	-	-	961.0	958.1	958.3	963.2	964.6	962.8	957.5	961.9	963.5	962.4	943.8	920.6	921.0	930.8	926.9	934.7
GZ-18U	1,077.60	1,080.06	dry	dry	dry	-	-	-	dry	dry	1,068.3	dry	1,068.2	dry	dry	1,068.5	dry	dry	dry	1,067.9	dry	dry	1,068.1
GZ-18L	1,077.70	1,080.67	1,058.9	dry	dry	-	-	1,066.8	dry	1,058.7	1,068.3	1,064.9	1,067.5	dry	1,068.0	1,068.2	dry	dry	1,063.2	1,057.3	1,060.2	1,059.0	1,068.2
GZ-19U	1,077.30	1,080.46	dry	-	dry	-	-	-	dry	dry	1,068.8	dry	dry	dry	dry	1,068.2	dry	dry	dry	dry	dry	dry	dry
GZ-19L	1,077.10	1,080.03	dry	dry	dry	-	-	1,057.8	dry	dry	1,066.8	dry	1,062.3	dry	1,057.9	1,065.1	dry	dry	dry	dry	dry	dry	1,057.9
GZ-20U	1,080.40	1,083.16	dry	dry	dry	-	-	-	dry	dry	1,072.2	1,074.4	dry	dry	1,072.8	1,076.7	dry	dry	dry	dry	dry	dry	1,072.8
GZ-20L	1,080.40	1,083.52	1,068.0	1,064.7	1,063.7	-	-	1,071.9	1,065.4	1,066.9	1,072.4	1,071.1	1,071.3	1,066.2	1,072.4	1,074.2	1,068.2	dry	1,068.4	1,067.3	1,067.3	1,067.1	1,072.0
GZ-22U	1,079.20	1,078.66	-	-	dry	-	-	-	-	-	-	-	-	-	-	1,073.9	1,071.0	dry	dry	1,071.1	1,071.1	1,072.9	1,074.0
GZ-23U	1,080.20	1,083.13	dry	dry	dry	-	-	-	dry	dry	dry	1,073.2	dry	dry	1,072.1	1,073.5	dry	dry	1,072.7	dry	dry	dry	1,072.2
GZ-24U	983.20	984.92	971.4	-	969.7	-	-	-	971.1	971.6	976.7	980.1	975.3	971.5	977.8	979.6	972.3	dry	dry	973.8	975.0	974.9	977.7
GZ-24L	982.90	984.75	967.7	-	966.3	967.2	-	-	968.5	968.2	969.4	969.6	969.7	968.1	970.1	970.5	968.8	960.5	962.2	968.9	969.6	969.4	970.8
GZ-24D	982.50	984.99	993.1	994.2	1,002.3	Frozen	-	-	996.5	997.7	Frozen	1,019.6	1,001.1	997.7	Frozen	-	1,001.1	988.8	986.7	990.8	995.4	996.5	1,003.5
GZ-25U	859.00	861.47	859.2	-	859.1	-	-	-	-	854.6	-	854.9	854.3	856.3	854.1	858.0	-	854.2	-	867.6	869.0	866.0	-
GZ-25L	858.00	860.25	858.3	860.3	860.2	-	-	857.9	858.3	859.1	858.0	856.8	858.6	859.6	Frozen	862.5	859.7	860.3	-	860.3	860.3	858.8	863.7
GZ-25D	858.60	861.17	872.7	882.0	886.6	-	-	-	870.4	873.9	877.3	872.7	872.7	871.6	879.6	-	871.6	872.7	877.3	875.0	875.0	875.0	884.2
GZ-26U	881.90	884.12	884.3	-	884.3	-	-	-	886.1	885.8	Frozen	Frozen	Seeping	Seeping	Seeping	Seeping	Seeping	Seeping	884.4	882.5	884.1	Seeping	884.0
GZ-27U	897.00	898.83	889.6	-	893.6	895.1	-	-	891.9	892.5	885.7	888.6	887.0	886.5	886.9	904.2	-	889.8	891.3	891.6	891.5	891.3	892.3

TABLE 6B
GROUNDWATER ELEVATION AND REFERENCE POINT DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	5/1/2017					5/2/2017		5/3/2017		5/8/2017	5/10/2017	5/17/2017	5/30/2017	6/19/2017
			10:00 (Pre-Startup)	11:00	11:40	13:00	15:00	9:00	14:00	8:30	12:00					
GZ-27L	897.10	899.13	-	-	-	-	-	-	-	-	-	-	-	900.0	-	899.4
GZ-27D	896.40	898.23	-	-	-	-	-	-	-	-	-	-	-	899.9	-	899.9
GZ-28U	906.00	907.91	-	-	-	-	-	-	-	-	-	-	-	905.2	-	-
GZ-28L	906.00	908.15	-	-	-	-	-	-	-	-	-	-	-	908.0	-	-
GZ-28D	905.90	908.24	-	-	-	-	-	-	-	-	-	-	-	911.7	-	-
GZ-29L	1,011.60	1,014.01	-	-	-	-	-	-	-	-	-	-	-	1,004.7	-	1,003.8
GZ-30U	1,081.30	1,083.65	1,076.6	-	-	-	1,076.7	1,076.9	-	1,077.0	1,077.0	-	-	1,077.5	-	1,075.9
GZ-30L	1,080.90	1,083.47	1,062.5	-	-	-	1,062.5	1,062.8	-	1,061.8	1,062.7	-	-	1,063.2	-	1,063.2
GZ-31L	1,084.10	1,086.72	-	-	-	-	-	-	-	-	-	-	-	1,066.9	1,065.1	1,062.8
GZ-32U	834.40	836.09	-	-	-	-	-	-	-	-	-	-	-	835.5	-	836.2
GZ-32L	834.30	836.78	-	-	-	-	-	-	-	-	-	-	-	837.4	-	837.0
GZ-32D	836.30	838.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-33U	847.60	849.32	-	-	-	-	-	-	-	-	-	-	-	845.2	-	841.7
GZ-33L	848.40	850.22	-	-	-	-	-	-	-	-	-	-	-	846.8	-	844.9
GZ-34U	891.80	894.44	-	-	-	-	-	-	-	-	-	-	-	891.4	-	891.4
GZ-34L	892.20	894.46	-	-	-	-	-	-	-	-	-	-	-	911.8	-	910.6
GZ-34D	892.40	894.40	-	-	-	-	-	-	-	-	-	-	-	924.4	-	905.9
GZ-35U	868.30	870.96	-	-	-	-	-	-	-	-	-	-	-	-	-	865.8
GZ-35L	867.50	869.56	-	-	-	-	-	-	-	-	-	-	-	869.8	-	869.6
GZ-35D	867.80	868.75	-	-	-	-	-	-	-	-	-	-	-	896.5	-	896.5
GZ-36U	823.00	825.06	-	-	-	-	-	-	-	-	-	-	-	821.6	-	818.0
GZ-37U	896.20	898.02	-	-	-	-	-	-	-	-	-	-	-	895.2	-	894.4
GZ-37L	896.40	898.26	-	-	-	-	-	-	-	-	-	-	-	898.5	-	902.8
GZ-37D	896.70	898.27	-	-	-	-	-	-	-	-	-	-	-	903.9	903.4	903.3
GZ-38U	891.00	892.94	-	-	-	-	-	-	-	-	-	-	-	889.2	-	889.6
GZ-39U	888.70	890.62	-	-	-	-	-	-	-	-	-	-	-	886.1	-	887.6
GZ-39L	889.40	891.31	-	-	-	-	-	-	-	-	-	-	-	890.1	-	888.6
GZ-39D	888.70	890.65	-	-	-	-	-	-	-	-	-	-	-	911.4	911.4	890.8
GZ-40U	876.70	878.62	-	-	-	-	-	-	-	-	-	-	-	875.7	-	875.3
GZ-40M	876.46	878.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-40L	877.30	879.63	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-40D	875.90	877.87	-	-	-	-	-	-	-	-	-	-	-	921.8	924.0	919.4
GZ-41U	876.80	878.82	-	-	-	-	-	-	-	-	-	-	-	874.4	-	874.3
GZ-42U	858.60	860.53	-	-	-	-	-	-	-	-	-	-	-	855.2	-	853.9
GZ-42L	859.39	861.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-43U	1,075.40	1,077.80	1,068.4	1,068.4	1,068.4	1,068.3	1,068.1	1,070.6	1,070.5	1,069.8	1,069.7	-	-	1,065.7	1,063.7	dry
GZ-44	852.57	854.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-45	856.48	858.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-46	863.83	866.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-47	871.50	873.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-48	887.96	890.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-49	902.82	905.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-50	938.70	924.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-51	938.66	941.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-52	942.22	945.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-53	871.76	874.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-54U	872.76	875.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-54D	872.82	875.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-55	871.88	874.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GZ-PM-1U	1,075.43	1,077.43	1,064.0	1,064.0	1,064.0	1,063.6	1,062.7	1,060.1	1,059.9	1,059.4	1,059.3	1,058.3	1,058.6	1,056.9	1,054.3	1,051.6
GZ-PM-1L	1,075.41	1,077.24	1,062.7	1,062.8	1,061.0	1,050.2	1,037.5	1,029.1	1,029.2	1,029.3	1,029.3	1,029.3	1,029.6	1,029.5	1,028.5	1,027.8
GZ-PM-2U	1,072.14	1,073.93	1,069.9	1,064.8	1,054.2	1,045.1	1,037.9	1,033.6	1,034.9	1,034.0	1,033.7	1,033.8	1,031.2	1,029.3	1,026.7	1,027.8
GZ-PM-2L	1,072.24	1,074.05	1,070.0	1,064.3	1,054.2	1,044.6	1,036.5	1,035.7	1,033.6	1,032.7	1,032.4	1,032.6	1,029.7	1,027.1	1,020.5	1,019.9
GZ-PM-3U	1,079.66	1,081.97	1,075.7	1,075.6	1,074.6	1,072.6	1,071.9	1,070.8	1,071.0	1,070.5	1,070.3	1,069.4	1,069.1	1,068.7	1,067.2	1,066.2
GZ-PM-3L	1,079.44	1,081.61	1,074.7	1,073.7	1,071.5	1,064.4	1,061.1	1,058.4	1,058.2	1,057.2	1,056.8	1,052.9	1,052.4	1,050.1	1,046.2	1,040.6

**TABLE 6B
GROUNDWATER ELEVATION AND REFERENCE POINT DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	Date																				
			7/31/2017	8/25/2017	10/3/2017	12/11/2017	1/25/2018	3/19/2018	6/19/2018	9/10/2018	12/13/2018	3/18/2019	6/20/2019	9/11/2019	12/13/2019	3/9/2020	6/8/2020	9/14/2020	12/14/2020	3/11/2021	6/14/2021	9/21/2021	12/14/2021
GZ-27L	897.10	899.13	901.8	-	901.5	908.4	-	-	905.1	904.0	910.7	903.8	902.9	900.5	900.6	906.8	903.3	900.1	907.2	906.1	900.5	899.6	900.6
GZ-27D	896.40	898.23	910.9	-	910.9	909.8	-	-	906.6	dry	921.3	907.5	908.6	904.0	905.2	-	904.0	903.6	frozen	frozen	-	901.7	901.7
GZ-28U	906.00	907.91	-	-	898.2	-	-	-	902.5	902.4	902.6	901.2	901.1	902.7	902.9	900.8	897.3	900.3	902.1	899.1	902.8	904.0	904.0
GZ-28L	906.00	908.15	-	-	907.5	907.5	-	-	909.0	910.3	920.8	912.3	912.8	911.7	Frozen	912.7	912.5	909.3	909.2	917.4	911.2	911.2	909.7
GZ-28D	905.90	908.24	-	-	910.7	918.6	-	-	912.1	912.7	914.0	914.1	913.6	913.1	Frozen	-	919.8	909.9	910.4	923.2	911.8	911.4	912.9
GZ-29L	1,011.60	1,014.01	1,001.4	-	1,000.1	-	-	1,003.8	1,000.4	1,000.9	1,004.4	1,004.7	1,004.5	1,002.4	1,005.1	1,005.5	1,002.7	1,000.6	1,004.5	1,004.5	1,002.5	1,002.9	1,006.0
GZ-30U	1,081.30	1,083.65	1,074.9	-	1,073.2	-	-	1,075.6	1,074.1	1,074.0	1,076.3	1,076.9	1,075.8	1,073.9	1,076.9	1,077.6	1,075.1	1,072.8	1,075.0	1,075.9	1,074.9	1,074.6	1,076.2
GZ-30L	1,080.90	1,083.47	1,062.9	-	1,061.1	-	-	1,061.9	1,060.7	1,060.8	1,063.5	1,060.7	1,062.2	1,060.5	1,062.1	1,061.8	1,062.2	1,059.5	1,060.2	1,059.4	1,061.2	1,063.2	1,062.6
GZ-31L	1,084.10	1,086.72	1,060.9	-	1,058.0	-	-	1,063.2	1,059.0	1,059.9	1,063.6	1,064.3	1,064.1	1,059.2	1,064.8	1,066.9	1,060.8	1,053.5	1,061.4	1,062.5	1,060.4	1,060.7	1,064.3
GZ-32U	834.40	836.09	836.3	836.2	836.2	Frozen	-	-	836.2	836.1	Frozen	Frozen	836.0	836.1	Frozen	Frozen	FA	836.1	frozen	frozen	FA	FA	836.1
GZ-32L	834.30	836.78	dry	838.0	836.9	Frozen	-	-	-	836.4	836.8	Seeping	Seeping	837.0	Seeping	Seeping	Seeping	836.0	836.8	836.8	Seeping	Seeping	835.9
GZ-32D	836.30	838.03	-	-	-	-	-	-	860.0	861.1	877.3	866.9	863.4	861.1	868.0	-	863.4	857.6	865.7	864.6	865.7	-	869.2
GZ-33U	847.60	849.32	842.0	-	839.8	-	-	843.2	-	842.2	843.8	843.8	843.0	841.3	844.1	844.3	842.4	835.5	839.5	842.0	841.7	841.1	843.9
GZ-33L	848.40	850.22	843.6	-	843.6	-	-	-	843.4	841.8	842.5	843.2	843.4	843.4	843.5	856.6	839.1	843.0	847.7	842.0	841.7	840.1	840.1
GZ-34U	891.80	894.44	890.6	-	891.4	891.8	-	-	-	-	-	-	-	-	-	-	885.8	890.6	890.7	889.1	890.9	891.8	891.8
GZ-34L	892.20	894.46	903.7	910.6	910.6	Frozen	-	-	897.9	900.2	922.1	904.9	904.8	901.4	Frozen	-	899.1	897.9	906.5	908.3	922.1	909.5	910.6
GZ-34D	892.40	894.40	903.6	-	903.6	Frozen	-	-	899.0	899.3	Frozen	Frozen	899.0	901.6	Frozen	-	902.4	896.9	900.2	901.3	901.3	902.5	896.7
GZ-35U	868.30	870.96	870.2	863.9	863.5	Frozen	-	866.1	863.9	864.6	865.6	866.8	864.4	864.8	866.5	866.8	864.6	860.0	865.7	864.4	864.2	866.3	866.3
GZ-35L	867.50	869.56	869.6	869.6	870.2	Frozen	-	-	871.1	871.4	-	871.7	873.6	871.7	Frozen	Flowing	870.2	864.5	-	862.0	FA	867.1	frozen
GZ-35D	867.80	868.75	897.6	896.5	894.2	Frozen	-	-	884.9	882.6	898.7	893.0	889.5	884.9	Frozen	-	882.6	875.7	884.9	884.9	884.9	-	888.4
GZ-36U	823.00	825.06	818.4	-	818.1	Frozen	-	822.1	820.0	820.0	Frozen	823.0	821.5	821.1	Frozen	822.2	820.0	818.5	821.1	821.6	820.0	819.9	821.5
GZ-37U	896.20	898.02	892.9	-	892.2	894.8	-	-	890.9	889.1	890.7	890.7	890.9	891.3	891.1	890.8	891.4	886.2	895.1	895.4	893.7	894.4	895.2
GZ-37L	896.40	898.26	902.4	-	900.6	900.9	-	-	901.6	902.5	909.8	903.1	902.6	899.9	Frozen	-	901.8	896.6	900.0	898.3	899.9	898.9	900.4
GZ-37D	896.70	898.27	902.3	901.9	901.3	Frozen	-	-	900.9	898.8	-	899.3	898.8	-	Frozen	-	898.4	890.6	898.3	898.3	FA	898.6	898.3
GZ-38U	891.00	892.94	887.2	-	884.1	-	-	890.0	886.3	886.8	889.6	890.6	889.2	886.3	890.4	890.7	887.9	877.5	886.9	889.0	887.7	889.6	890.1
GZ-39U	888.70	890.62	884.1	-	881.3	-	-	884.9	881.8	882.5	884.4	885.6	884.5	883.1	885.3	885.4	883.3	879.1	885.2	883.9	883.2	883.9	885.2
GZ-39L	889.40	891.31	888.8	-	889.0	-	-	890.1	887.9	888.3	Frozen	890.2	891.3	889.7	Frozen	FA	890.4	888.0	890.1	888.9	888.6	888.6	891.3
GZ-39D	888.70	890.65	892.2	-	892.8	894.9	-	-	894.0	894.8	904.5	894.7	895.8	894.2	Frozen	895.7	894.8	891.2	891.7	893.4	894.5	884.2	894.7
GZ-40U	876.70	878.62	874.4	874.8	874.8	875.0	-	875.4	874.3	874.5	875.2	875.8	875.2	874.8	875.7	875.8	875.1	872.1	875.6	873.6	872.9	873.4	874.6
GZ-40M	876.46	878.79	-	-	-	-	-	-	-	-	-	-	FA	880.0	880.0	FA	FA	878.2	-	871.9	871.9	871.7	875.0
GZ-40L	877.30	879.63	-	-	-	-	-	-	-	-	-	-	FA	879.1	879.6	879.2	879.1	878.5	878.7	frozen	873.6	873.1	874.7
GZ-40D	875.90	877.87	920.6	-	919.5	Frozen	-	-	907.9	913.6	929.8	Frozen	913.6	912.5	Frozen	-	913.6	914.8	909.0	frozen	912.5	910.2	917.1
GZ-41U	876.80	878.82	873.6	-	873.8	874.3	-	-	872.5	873.7	873.8	872.5	872.1	873.0	873.3	872.1	872.9	870.8	873.4	872.8	871.8	872.6	872.9
GZ-42U	858.60	860.53	855.4	855.3	854.1	855.5	-	-	850.7	850.9	851.1	853.8	853.7	853.4	853.0	850.6	853.4	852.1	855.1	855.0	855.3	855.5	853.4
GZ-42L	859.39	861.7	-	-	-	-	-	-	-	-	-	-	FA	862.4	Frozen	861.4	861.7	861.5	861.5	862.5	863.5	864.5	865.5
GZ-43U	1,075.40	1,077.80	dry	-	dry	-	-	-	dry	-	1,067.1	1,062.9	1,064.5	dry	1,062.6	1,065.4	dry	dry	dry	dry	dry	dry	dry
GZ-44	852.57	854.9	-	-	-	-	-	-	-	-	-	-	853.1	854.6	851.7	849.6	852.7	852.7	850.1	849.4	852.7	849.7	849.7
GZ-45	856.48	858.8	-	-	-	-	-	-	-	-	-	-	858.7	858.2	Frozen	857.9	856.1	856.8	856.2	854.4	856.5	857.3	855.4
GZ-46	863.83	866.2	-	-	-	-	-	-	-	-	-	-	FA	866.8	Frozen	Frozen	864.7	864.0	862.7	863.9	864.6	862.8	862.8
GZ-47	871.50	873.8	-	-	-	-	-	-	-	-	-	-	FA	FA	FA	FA	FA	873.8	frozen	frozen	FA	870.8	870.6
GZ-48	887.96	890.3	-	-	-	-	-	-	-	-	-	-	887.4	887.2	887.3	887.7	886.8	883.9	886.0	884.2	884.1	884.1	885.1
GZ-49	902.82	905.2	-	-	-	-	-	-	-	-	-	-	902.0	901.9	902.1	902.1	901.6	900.4	901.6	901.0	900.8	901.4	901.6
GZ-50	938.70	924.9	-	-	-	-	-	-	-	-	-	-	919.9	919.6	920.5	920.3	919.2	916.2	918.8	915.4	917.7	917.2	920.2
GZ-51	938.66	941.2	-	-	-	-	-	-	-	-	-	-	943.5	-	-	944.0	942.9	-	916.3	916.3	926.1	922.3	928.7
GZ-52	942.22	945.2	-	-	-	-	-	-	-	-	-	-	948.3	-	960.2	-	952.1	942.5	922.0	921.7	929.8	926.7	932.3
GZ-53	871.76	874.1	-	-	-	-	-	-	-	-	-	-	872.6	871.9	Frozen	872.9	872.2	871.0	871.2	frozen	867.8	867.8	868.4
GZ-54U	872.76	875.1	-	-	-	-	-	-	-	-	-	-	FA	875.1	Frozen	-	875.1	874.6	874.7	frozen	871.9	872.7	872.8
GZ-54D	872.82	875.2	-	-	-	-	-	-	-	-	-	-	FA	885.5	891.3	FA	FA	885.5	886.7	884.4	884.4	884.4	889.0
GZ-55	871.88	874.2	-	-	-	-	-	-	-	-	-	-	FA	875.0	Frozen	FA	FA	882.3	886.4	883.4	881.1	881.1	888.1
GZ-PM-1U	1,075.43	1,077.43	1,040.3	dry	dry	-	1,050.1	1,077.4	dry	dry	1,052.2	1,042.8	1,056.9	dry	1,046.2	1,049.9	1,046.0	dry	dry	dry	1,040.0	dry	1,045.6
GZ-PM-1L	1,075.41	1,077.24	1,023.5	1,020.2	1,018.9	-	1,031.7	-	1,021.9	1,021.3	1,029.1	1,025.0	1,031.8	1,020.5	1,027.1	1,030.0	dry	1,020.2	1,022.8	1,022.2	1,026.3	1,023.8	1,032.4
GZ-PM-2U	1,072.14	1,073.93	1,029.5	1,029.4	1,029.5	-	1,030.0	-	1,029.7	1,029.7	1,029.7	1,026.1	1,037.7	1,029.5	1,035.6	1,043.3	1,039.7	1,030.0	1,035.1	1,035.7	1,030.3	1,030.4	1,041.2
GZ-PM-2L	1,072.24	1,074.05	1,018.3	1,016.8	1,015.1	-	1,023.8	-	1,018.5	1,020.9	1,027.0	1,021.6	1,035.2	1,020.4	1,023.3	1,049.2	1,032.0	1,026.6	1,022.5	1,023.4	1,023.3	1,022.6	1,036.0
GZ-PM-3U	1,079.66	1,081.97	1,064.8	-	dry	-	1,068.9	-	dry	dry	1,067.5	1,067.3	1,068.2	dry	1,069.2	1,071.2	dry	dry	dry	1,064.8	1,064.8	1,064.2	1,070.4
GZ-PM-3L	1,079.44</																						

**TABLE 6B
GROUNDWATER ELEVATION AND REFERENCE POINT DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	5/1/2017				5/2/2017		5/3/2017		5/8/2017	5/10/2017	5/17/2017	5/30/2017	6/19/2017	
			10:00 (Pre-Startup)	11:00	11:40	13:00	15:00	9:00	14:00	8:30	12:00					
GZ-PM-4U	1,077.28	1,080.28	1,075.0	1,074.9	1,074.9	1,074.8	1,074.6	1,074.7	1,074.8	1,074.4	1,074.3	1,074.1	1,073.7	1,073.5	1,072.2	1,071.1
GZ-PM-4L	1,077.96	1,080.36	1,075.7	1,075.7	1,075.7	1,075.5	1,075.3	1,075.5	1,075.6	1,075.2	1,075.2	1,075.1	1,074.6	1,074.5	1,073.4	1,072.2
GZ-PM-5U	1,072.39	1,074.38	1,066.0	1,066.0	1,066.0	1,066.0	1,066.0	1,065.9	1,066.0	1,066.0	1,065.9	1,065.0	1,064.8	1,064.0	1,055.0	dry
GZ-PM-5L	1,072.17	1,074.41	1,072.0	1,071.8	1,071.4	1,070.2	1,068.5	1,066.6	1,066.4	1,065.0	1,064.8	1,058.8	1,059.4	1,053.6	1,050.0	1,047.1
GZ-PM-6U	1,075.31	1,077.36	1,065.6	1,065.6	1,065.6	1,065.6	1,065.5	1,065.6	1,065.7	1,065.8	1,065.8	1,065.4	1,065.4	1,065.1	1,064.8	1,064.4
GZ-PM-7U	1,077.82	1,080.18	1,067.0	1,067.0	1,067.0	1,066.9	1,066.7	1,065.7	1,065.6	1,065.1	1,065.0	1,063.9	1,063.9	1,062.2	1,058.6	1,057.5
GZ-PM-8U	1,079.17	1,081.29	1,068.6	1,068.6	1,068.6	1,068.6	1,067.4	1,067.3	1,067.1	1,066.6	1,066.5	1,065.3	1,065.6	1,064.8	dry	dry
GZ-PM-8L	1,079.31	1,081.48	1,066.5	1,066.6	1,066.6	1,066.3	1,065.7	1,064.0	1,063.9	1,063.4	1,063.4	1,062.7	1,063.2	1,062.1	1,059.7	1,057.0
GZ-PM-9L	1,080.24	1,082.38	1,075.8	1,075.6	1,075.3	1,074.1	1,073.2	1,071.2	1,070.9	1,068.8	1,068.4	1,060.7	1,061.6	1,057.5	1,056.6	1,057.0
GZ-OPM-6A	869.35	869.07	-							-	-	-	-	-	-	-
GZ-OPM-6B	869.36	869.02	-							-	-	-	-	-	-	-
GZ-OPM-6C	869.18	868.92	-							-	-	-	-	-	-	-
GZ-OPM-6D	869.25	869.02	-							-	-	-	-	-	-	-
GZ-OPM-11A	869.37	869.17	-							-	-	-	-	-	-	-
GZ-OPM-11B	869.31	868.97	-							-	-	-	-	-	-	-
GZ-OPM-11C	869.00	868.71	-							-	-	-	-	-	-	-
GZ-OPM-11D	869.05	868.77	-							-	-	-	-	-	-	-
GZ-OPM-14A	867.51	867.21	-							-	-	-	-	-	-	-
GZ-OPM-14B	867.73	867.30	-							-	-	-	-	-	-	-
GZ-OPM-14C	867.48	867.21	-							-	-	-	-	-	-	-
GZ-OPM-14D	867.40	867.15	-							-	-	-	-	-	-	-

Notes:

1. Data are in feet.
2. "-" indicates no measurement taken.
3. "dry" indicates the well is dry, elevation shown is based on bottom of well.
4. "NI" indicates not installed.
5. 1 psi = 2.307 ft of water
6. "Frozen" Indicates the well was frozen and no measurement could be made.
7. "FA" indicates flowing artesian condition observed, measurement could not be made due to packer or instrument malfunction.

**TABLE 6B
GROUNDWATER ELEVATION AND REFERENCE POINT DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Well ID	Ground Surface Elevation	PVC Reference Point Elevation	7/31/2017	8/25/2017	10/3/2017	12/11/2017	1/25/2018	3/19/2018	6/19/2018	9/10/2018	12/13/2018	3/18/2019	6/20/2019	9/11/2019	12/13/2019	3/9/2020	6/8/2020	9/14/2020	12/14/2020	3/11/2021	6/14/2021	9/21/2021	12/14/2021
GZ-PM-4U	1,077.28	1,080.28	1,069.2	-	dry	-	1,072.7	-	1,067.2	1,066.4	1,071.7	1,070.7	1,072.4	1,063.8	1,072.2	1,073.7	1,069.6	dry	dry	1,068.5	1,069.2	1,067.5	1,072.3
GZ-PM-4L	1,077.96	1,080.36	1,070.1	-	1,062.5	-	1,073.8	-	1,067.5	1,066.5	1,072.5	1,072.0	1,073.0	1,063.8	1,073.0	1,074.3	1,070.3	1,057.3	1,063.1	1,069.1	1,070.1	1,068.0	1,073.2
GZ-PM-5U	1,072.39	1,074.38	dry	-	dry	-	1,061.4	-	dry	dry	1,060.5	dry	1,063.2	dry	dry	dry	dry	dry	dry	dry	dry	dry	1,052.5
GZ-PM-5L	1,072.17	1,074.41	1,042.8	-	1,039.5	-	1,052.0	-	1,041.3	1,043.1	1,048.5	1,046.6	1,061.6	1,043.9	1,048.4	1,060.8	1,047.4	1,057.0	1,043.7	1,040.7	1,045.9	1,044.6	1,049.7
GZ-PM-6U	1,075.31	1,077.36	1,063.7	-	1,061.3	-	1,065.1	-	1,062.9	1,060.5	1,064.8	1,064.7	1,064.4	1,061.6	1,065.0	1,065.1	1,063.7	dry	dry	1,063.8	1,063.8	1,062.9	1,064.9
GZ-PM-7U	1,077.82	1,080.18	dry	-	dry	-	dry	-	dry	dry	1,058.0	dry	1,060.9	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
GZ-PM-8U	1,079.17	1,081.29	dry	-	dry	-	dry	-	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
GZ-PM-8L	1,079.31	1,081.48	1,040.4	-	1,029.3	-	1,058.4	-	1,033.1	1,032.4	1,057.7	1,045.6	1,061.5	1,029.3	1,052.0	1,055.4	1,049.3	dry	1,033.1	1,029.1	1,039.3	1,032.3	1,049.8
GZ-PM-9L	1,080.24	1,082.38	1,056.1	-	1,055.1	-	1,056.9	-	1,053.9	1,056.1	1,056.8	1,056.8	1,062.3	1,056.8	1,056.8	1,065.1	1,056.7	1,048.5	1,056.8	1,053.7	1,056.2	1,056.7	1,056.8
GZ-OPM-6A	869.35	869.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	867.9
GZ-OPM-6B	869.36	869.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	868.0
GZ-OPM-6C	869.18	868.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	867.5
GZ-OPM-6D	869.25	869.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	868.5
GZ-OPM-11A	869.37	869.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	867.4
GZ-OPM-11B	869.31	868.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	864.7
GZ-OPM-11C	869.00	868.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	867.0
GZ-OPM-11D	869.05	868.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	866.1
GZ-OPM-14A	867.51	867.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	865.5
GZ-OPM-14B	867.73	867.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	864.8
GZ-OPM-14C	867.48	867.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	864.6
GZ-OPM-14D	867.40	867.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	864.9

Notes:

1. Data are in feet.
2. "-" indicates no measurement taken.
3. "dry" indicates the well is dry, elevation shown is based on bottom of
4. "NI" indicates not installed.
5. 1 psi = 2.307 ft of water
6. "Frozen" Indicates the well was frozen and no measurement could be
7. "FA" indicates flowing artesian condition observed, measurement could malfunction.

**TABLE 7
GROUNDWATER EXTRACTION WELL CONSTRUCTION SUMMARY**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire

Well Location	Groundwater Extraction Well	Screened Hydrogeologic Unit	Ground Surface Elevation (feet)	Reference Point Elevation (TOC) (feet)	Screened Interval Depth (feet)	Screened/Open Borehole Interval Elevation (feet)	Well Depth (feet)	Bottom of Well Elevation (feet)	ID of PVC/Borehole Diameter (Inches)	Pump Intake Depth (feet)	Approximate Pump Intake Elevation (feet)
ONSITE	RW-1	Overburden	1,078.2	1,079.9	6.4-16.4	1,071.8-1,061.8	16.4	1,061.8	6	10.4	1,070
	RW-2	Bedrock	1,078.9	1,078.6		1,058 - 1,010	69.5	1,010	6	64.0	1,015
	RW-3	Overburden	1,077.5	1,077.2	9.8-19.8	1,067.7 - 1,057.7	19.8	1,057.7	6	14.0	1,063
	RW-4	Overburden	1,076.2	1,075.6	10.6-20.6	1,065.6 - 1,055.6	20.6	1,055.6	6	15.0	1,061
	RW-5	Bedrock	1,075.7	1,077.1		1,050 - 986	90.2	985.5	6	65.0	1,012
	RW-6	Overburden	1,077.0	1,076.8	8.4-18.4	1,068.6 - 1,058.6	18.4	1,058.6	6	14.7	1,062
	RW-7	Bedrock	1,028.1	1,029.1		1,000 - 944	75	944	6	80.0	949
	RW-8	Bedrock	1,077.2	1,078.1		1,055 - 984	93	984	6	65.0	1,013
	RW-9	Overburden	1,077.2	1,076.5	7.5-17.5	1,069.7 - 1,059.7	17.5	1,059.7	6	11.5	1,065
	RW-10	Overburden	1,078.2	1,078.3	6.8-16.8	1,071.4 - 1,061.4	16.8	1,061.4	6	11.3	1,067
	RW-11	Overburden	1,079.4	1,080.8	8.5-18.5	1,070.9 - 1,060.9	18.5	1,060.9	6	13.0	1,068
	RW-12	Bedrock	1,079.1	1,078.4		1,055 - 1,009	70	1,009	6	65.0	1,013
MOD-2	RW-13	Bedrock	967.1	967.7		928 - 847	120	847	6	48.7	919
	RW-14	Bedrock	966.1	968.2		927 - 856	110	856	6	49.4	919
MOD-1	ORW-01	Overburden	877.4	879.1	7-27	872.1 - 852.1	30	847.4	11	24.5	853
	ORW-02	Overburden	879.3	880.7	8-38	872.7 - 842.7	38	841.3	11	32.5	847
	ORW-03	Overburden	879.0	880.4	8-38	872.4 - 842.4	38	841.0	12	32.5	847
	ORW-04	Overburden	876.0	877.9	5-30	872.9 - 847.9	30	846.0	12	24.5	851
	ORW-05	Overburden	874.5	876.4	6-31	870.4 - 845.4	31	843.5	12	25.5	849
	ORW-06	Overburden	873.9	875.3	5.3-30.3	870.0 - 845.0	30.3	843.6	12	24.8	849
	ORW-07	Overburden	873.8	875.2	9-29	866.2 - 846.2	29.5	844.3	12	24.0	850
	ORW-08	Overburden	874.0	875.4	4.5-29.5	870.9 - 845.9	29.5	844.5	12	24.0	850
	ORW-09	Overburden	873.9	876.3	30-40	846.3 - 836.3	41	832.9	6	35.7	838
	ORW-10	Overburden	873.0	874.6	5.5-30.5	869.1 - 844.1	30.5	842.5	12	25.0	848
	ORW-11	Overburden	872.9	874.2	6-33	868.2 - 841.2	33	839.9	12	27.5	845
	ORW-12	Overburden	873.1	874.3	4.5-34.5	869.8 - 839.8	34.5	838.6	12	29.0	844
	ORW-13	Overburden	872.7	873.9	8-33	865.9 - 840.9	33	839.7	12	27.5	845
	ORW-14	Overburden	871.5	873.1	8.5-38.5	864.6 - 834.6	30	841.5	12	24.5	847
	ORW-15	Overburden	870.6	871.7	8-34	863.7 - 837.7	34	836.6	12	28.5	842

Notes:

1. Units are feet or inches as shown.
2. TOC indicates top of casing.
3. Bedrock wells are open hole.

TABLE 8A
TREATMENT SYSTEM INFLUENT DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	Parameters (µg/L)																					
	Diethyl Ether	Acetone	2-Butanone	Tetrahydrofuran	1,4-Dioxane	Arsenic	Chromium	Copper	Barium	Iron	Lead	Nickel	Zinc	Manganese	Dissolved Manganese	Mercury	Selenium	Bromide	Chloride	Total Cyanide	Ammonia-N	Suspended Solids
2/1/2017	20	100	130	370	45	<1	<1	-	7	5,300	<1	-	-	380	-	<0.1	<1	-	-	-	-	-
2/3/2017	-	-	-	-	-	<1	<1	-	9	4,400	<1	-	-	240	-	<0.1	<1	-	-	-	-	-
2/6/2017	42	10	<10	30	50/75	<1	<1	-	8	5,300	<1	-	-	300	-	<0.1	<1	-	-	-	-	-
2/8/2017	-	-	-	-	-	-	<1	-	-	-	<1	-	-	-	-	-	-	200	3,000	-	-	-
2/9/2017	-	-	-	-	-	<1	<1	-	10	4,000	<1	-	-	360	-	<0.1	<1	-	-	-	-	-
2/14/2017	42	<10	10	40	60/53	<1	<1	-	8	4,300	<1	-	-	380	-	<0.1	-	-	-	-	-	-
2/21/2017	79	<10	<10	30	100/91	<1	<1	-	9	4,000	<1	-	-	390	-	<0.1	<1	-	-	-	-	-
2/27/2017	33	<10	<10	20	48	<1	<1	-	8	2,800	<1	-	-	370	-	<0.1	<1	-	-	-	-	-
3/6/2017	62	<10	<10	30	38	<1	<1	-	7	2,600	<1	-	-	1,500	-	<0.1	<1	-	-	-	-	-
3/13/2017	36	<10	<10	<10	22	<1	<1	-	6	1,200	<1	-	-	330	-	<0.1	<1	-	-	-	-	-
3/20/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	270	270	-	-	-	-	-	-	-
3/31/2017	-	<10	<10	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	3,000	<10/6	-	-
4/3/2017	31	<10	<10	<10	24	<1	<1	-	5	970	<1	-	-	330	-	<0.1	<1	-	-	-	-	-
5/1/2017	-	78.4	50	-	18	<1	1	4.6	-	4,400	0.7	4.5	8	-	-	<0.1	<1	-	5,000	<5	110	46,000
5/3/2017	-	<10	<10	-	57	<1	<1	0.5	-	1,800	<0.1	2.8	<1	-	-	<0.1	<1	-	4,000	<5	60	<5,000
5/8/2017	-	<10	<10	-	60	<1	<1	0.4	-	1,500	0.1	2.5	<1	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
5/15/2017	-	<10	<10	-	80	<1	<1	0.3	-	1,800	<0.1	1.8	<1	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
5/22/2017	-	<10	<10	-	42	<1	<1	0.4	-	1,600	<0.1	2.1	<1	-	-	<0.1	<1	-	4,000	6	<50	<5,000
5/30/2017	-	<10	<10	-	37	<1	<1	0.4	-	1,500	<0.1	2.5	2	-	-	<0.1	<1	-	4,000	<5	<50	6,000
6/7/2017	-	-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/12/2017	-	<10	<10	-	34	<1	<1	0.5	-	1,400	<0.1	2.2	3	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
6/14/2017	-	-	-	-	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/29/2017	-	-	-	-	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/6/2017	-	<10	<10	-	37	<1	<1	0.4	-	1,900	<0.1	2.0	<1	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
7/13/2017	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/26/2017	-	-	-	-	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/8/2017	-	<10	<10	-	35	<1	<1	0.5	-	1,500	<0.1	1.1	<2	-	-	<0.1	<1	-	4,000	7	<50	<5,000
8/15/2017	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/22/2017	-	<10	<10	-	17	<1	<1	1.0	-	1,600	<0.1	2.8	<2	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
9/8/2017	-	<10	<10	-	27	<1	<1	0.4	-	1,400	<0.1	1.7	<2	-	-	<0.1	<1	-	2,000	<5	<50	<5,000
9/12/2017	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/13/2017	-	<10	<10	-	26	<1	<1	0.8	-	1,700	<0.1	0.5	<2	-	-	<0.1	<1	-	2,000	<5	<50	5,000
10/18/2017	-	-	-	-	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/9/2017	-	<10	<10	-	19	<1	<1	0.8	-	940	<0.1	1.2	0.2	-	-	<0.1	<1	-	6,000	<5	<50	<5,000
11/13/2017	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/27/2017	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/8/2018	-	<10	<10	-	23	<1	<1	0.6	-	1,300	<0.1	1.5	<5	-	-	<0.1	<1	-	3,000	<5	<50	<5,000
2/5/2018	-	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/9/2018	-	<10	<10	-	22	<10	<1	0.7	-	1,300	<0.1	2.1	2	-	-	<0.1	<1	-	4,000	8	<50	<5,000
3/15/2018	-	<10	<10	-	20	<10	<1	1.0	-	1,200	<0.1	1.8	3	-	-	<0.1	<1	-	5,400	7.1	<50	<5,000
3/19/2018	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/2/2018	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/12/2018	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/17/2018	-	<10	<10	-	17	<1	<1	0.9	-	1,200	<0.1	3.4	2	-	-	<0.1	<1	-	5,800	<5	<50	<5,000
4/25/2018	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/7/2018	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/18/2018	-	<10	<10	-	16	<1	<1	1.1	-	1,100	<0.1	1.9	2	-	-	<0.1	<1	-	6,800	<5	<50	<5,000
5/22/2018	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**TABLE 8A
TREATMENT SYSTEM INFLUENT DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	Parameters (µg/L)																					
	Diethyl Ether	Acetone	2-Butanone	Tetrahydrofuran	1,4-Dioxane	Arsenic	Chromium	Copper	Barium	Iron	Lead	Nickel	Zinc	Manganese	Dissolved Manganese	Mercury	Selenium	Bromide	Chloride	Total Cyanide	Ammonia-N	Suspended Solids
6/12/2018	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2018	-	<10	<10	-	20	<1	<1	0.7	-	1,700	<0.1	1.1	2	-	-	<0.1	<1	-	3,600	<5	<50	<5,000
7/16/2018	-	<10	<10	-	17	<1	<1	0.6	-	1,500	<0.1	0.7	1	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
8/16/2018	-	<10	<10	-	14	<1	<1	0.9	-	1,300	<0.1	0.8	1.6	-	-	<0.1	<1	-	3,600	<5	<50	9,000
9/17/2018	-	<10	<10	-	19	<1	<1	0.7	-	2,400	<0.1	0.6	1.1	-	-	<0.1	<1	-	3,600	<5	<50	5,500
10/15/2018	-	<10	<10	-	21	<1	<1	0.6	-	1,000	0.1	1.0	1.6	-	-	<0.1	<1	-	4,800	<5	<50	<5,000
11/14/2018	-	<10	<10	-	17	<1	<1	2.2	-	510	<0.1	5.4	3.0	-	-	<0.1	<1	-	5,600	<5	<50	<5,000
12/17/2018	-	18 ⁷	<10	-	11	<1	<1	2.1	-	390	0.3	2.9	2.6	-	-	<0.1	<1	-	8,500	<5	<50	<5,000
1/14/2019	-	<10	<10	-	18	<1	<1	1.1	-	1,900	<0.1	2.6	5.4	-	-	<0.1	<1	-	9,700	5.8	<50	<5,000
2/12/2019	-	<10	<10	-	15	<1	<1	1.2	-	1,300	<0.1	1.9	2.2	-	-	<0.1	<1	-	13,000	<5	<50	<5,000
3/14/2019	-	<10	<10	-	20	<1	<1	1.0	-	2,400	<0.1	1.4	2.0	-	-	<0.1	<1	-	12,000	<5	<50	<5,000
4/24/2019	-	<10	<10	-	11	<1	<1	1.4	-	1,400	<0.1	2.2	1.7	-	-	<0.1	<1	-	14,000	6.8	<50	<5,000
5/20/2019	-	<10	<10	-	10	<1	<1	0.7	-	1,100	<0.1	2.8	1.8	-	-	<0.1	<1	-	11,000	<5	<50	<5,000
6/17/2019	-	<10	<10	-	12	<1	<1	0.4	-	2,900	<0.1	2.1	1.5	-	-	<0.1	<1	-	12,000	<5	<50	<5,000
7/11/2019	-	<10	<10	-	15	<1	<1	0.2	-	3,100	<0.1	2.0	1.3	-	-	<0.1	<1	-	10,000	<5	<50	<5,000
8/15/2019	-	<10	<10	-	18	<1	<1	0.39	-	2,300	<0.1	1.1	1.1	-	-	<0.1	<1	-	9,300	6.9	<50	<5,000
8/23/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
9/3/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
9/9/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
9/16/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
9/19/2019	-	<10	<10	-	14	<1	<1	0.39	-	1,900	<0.1	1.0	1.3	-	-	<0.1	<1	-	7,000	11	<50	<5,000
9/23/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5	-	-
9/27/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
9/30/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
10/17/2019	-	<10	<10	-	14	<1	<1	0.6	-	2,000	<0.1	0.8	1.1	-	-	<0.1	<1	-	6,200	<5	<50	<5,000
11/14/2019	-	<10	<10	-	16	<1	<1	1.1	-	2,000	<0.1	1.7	5.6	-	-	<0.1	<1	-	6,800	<5	<50	<5,000
12/19/2019	-	<10	<10	-	11	<1	<1	1.0	-	1,700	<0.1	2.0	<1	-	-	<0.1	<1	-	9,100	11	<50	<5,000
12/31/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-
1/13/2020	-	<10	<10	-	11	<1	<1	0.65	-	3,600	<0.1	2.5	1.1	-	-	<0.1	<1	-	6,800	<5	<50	5,500
2/10/2020	-	<10	<10	-	11	<1	<1	1.2	-	6,400	<0.1	2.8	1.0	-	-	<0.1	<1	-	7,700	<5	<50	8,500
3/9/2020	-	<10	<10	-	13	<1	<1	0.97	-	2,500	<0.1	2.5	1	-	-	<0.1	<1	-	6,000	9.2	<50	<5,000
4/8/2020	-	<10	<10	-	12	<1	<1	1.0	-	2,500	<0.1	2.7	7.6	-	-	<0.1	<1	-	6,700	9.5	81	<5,000
5/11/2020	-	<10	<10	-	-	<1	<1	0.72	-	2,500	<0.1	2.4	<1	-	-	<0.1	<1	-	7,300	10	<50	<5,000
5/19/2020	-	-	-	-	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/11/2020	-	<10	<10	-	10	<1	<1	0.59	-	3,300	<0.1	1.7	1.6	-	-	<0.1	<1	-	5,500	<5	<50	<5,000
6/19/2020	-	-	-	-	-	<1	<1	1.7	-	1,900	<0.1	1.5	1.8	-	-	<0.1	<1	-	-	-	-	-
7/13/2020	-	<10	<10	-	11	<1	<1	0.39	-	120	<0.1	0.9	1.9	-	-	<0.1	<1	-	3,100	23	<50	<5,000
7/27/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
8/11/2020	-	<10	<10	-	6.3	<1	<1	1.0	-	<50	<0.1	2.5	4.7	-	-	<0.1	<1	-	3,500	<5	<50	<5,000
9/14/2020	-	<10	<10	-	6.7	<1	<1	1.3	-	<50	<0.1	2.5	7.9	-	-	<0.1	<1	-	3,500	<5	<50	<5,000
10/19/2020	-	<10	<10	-	4.5	<1	<1	2.0	-	<50	<0.1	1.5	3.6	-	-	<0.1	<1	-	3,600	<5	<50	<5,000
11/12/2020	-	<10	<10	-	4.5	<1	<1	2.2	-	<50	<0.1	1.7	3.9	-	-	<0.1	<1	-	3,100	<5	170	<5,000
12/14/2020	-	<10	<10	-	9.8	<1	<1	1.2	-	500	<0.1	1.2	2.7	-	-	<0.1	<1	-	3,100	<5	<50	<5,000
1/13/2021	-	<10	<10	-	8.3	<0.5	<0.5	1.1	-	770	<0.1	1.0	2.1	-	-	<0.1	<0.5	-	3,100	<5	<50	<5,000
2/10/2021	-	<10	<10	-	12	<0.5	<0.5	1.0	-	610	<0.1	0.84	1.8	-	-	<0.1	<0.5	-	2,400	<5	<5	<5,000
3/11/2021	-	<10	<10	-	18	<0.5	<0.5	1.1	-	730	<0.1	0.61	1.8	-	-	<0.1	<0.5	-	2,600	<5	<5	<5,000
4/13/2021	-	<10	<10	-	20	<0.5	<0.5	1.2	-	1400	<0.1	1.1	2.2	-	-	<0.1	<0.5	-	3,500	7.6	<5	<5,000
5/10/2021	-	<10	<10	-	20	0.51	<0.5	0.78	-	860	<0.1	1.1	1.1	-	-	<0.1	<0.5	-	5,700	<5	<5	<5,000
6/10/2021	-	<10	<10	-	16	<0.5	<0.5	0.97	-	540	<0.1	0.74	7.1	-	-	<0.1	<0.5	-	2,900	<5	<5	<5,000
7/12/2021	-	<10	<10	-	5.9	<0.5	<0.5	1.1	-	<0.1	<0.1	0.74	1.5	-	-	<0.1	<0.5	-	2,400	<5	<50	<5,000
8/16/2021	-	<10	<10	-	5.5	<0.5	<0.5	1.0	-	550	<0.1	0.77	1.6	-	-	<0.1	<0.5	-	3,100	<5	<5	<5,000
9/16/2021	-	<10	<10	-	21	<0.5	0.55	1.4	-	590	<0.1	0.77	3.4	-	-	<0.1	<0.5	-	2,000	<5	<5	<5,000
10/11/2021	-	<10	<10	-	27	<0.5	<0.5	1.4	-	460	<0.1	0.56	1.5	-	-	<0.1	<0.5	-	1,900	<5	<5	<5,000
11/18/2021	-	<10	<10	-	19	<0.5	<0.5	1.2	-	510	<0.1	0.74	1.6	-	-	<0.1	<0.5	-	2,500	<5	<5	<5,000
12/13/2021	-	<10	<10	-	22	<0.5	<0.5	1.2	-	570	<0.1	0.74	1.4	-	-	<0.1	<0.5	-	2,200	<5	<5	<5,000

Notes:

- 1. "µg/L" indicates micrograms per liter; "mg/L" indicates milligrams per liter.
- 2. "NT" indicates that the analyte was not tested for.
- 3. "NS" indicates that the sample was not sampled.
- 4. "-" indicates not detected above the analytical laboratory reporting limit shown.
- 5. "-" indicates not analyzed for referenced parameter.
- 6. "50/75" indicates two methods used.
- 7. Conflicting results. EAI reports 18 ug/L using Method 624.1, Pace shows <10.0 ug/L using EPA 1624B.
- 8. Methyl-t-butyl ether(MTBE) reported at 12ppm in System Influent sample, 1/14/19
- 9. Silver was detected at a concentration of 0.14 ug/L during the 6/19/2020 sampling event.

TABLE 8B
TREATMENT SYSTEM EFFLUENT DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	Parameters (µg/L)																					
	Diethyl Ether	Acetone	2-Butanone	Tetrahydrofuran	1,4-Dioxane	Arsenic	Chromium	Copper	Barium	Iron	Lead	Nickel	Zinc	Manganese	Dissolved Manganese	Mercury	Selenium	Bromide	Chloride	Total Cyanide	Ammonia-N	Suspended Solids
Effluent Limitations	-	7,970	-	-	-	10	323	9.8	-	5,000	3.43	1,450	54.8	-	-	0.739	235.8	-	-	5.2	-	30,000
2/1/2017	<5	<10	<10	<10	<0.25	14	<1	-	51	110	<1	-	-	<0.005	-	<0.1	30	-	-	-	-	-
2/3/2017	-	-	-	-	-	7	<1	-	510	<50	<1	-	-	11	-	0.2	<1	-	-	-	-	-
2/6/2017	<5	<10	<10	<10	<0.25	9	<1	-	42	<50	<1	-	-	15	-	0.2	<1	-	-	-	-	-
2/8/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100	3,000	-	-	-
2/9/2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2/14/2017	<5	<10	<10	<10	<0.25	4	<1	NA	450	<50	<1	-	-	99	-	<0.1	<1	-	-	-	-	-
2/21/2017	<5	<10	<10	<10	<0.25	2	<1	NT	320	<50	<1	-	-	400	-	<0.1	<1	-	-	-	-	-
2/27/2017	<5	<10	<10	<10	<0.25	1	<1	NT	400	<50	<1	-	-	490	-	<0.1	<1	-	-	-	-	-
3/6/2017	<5	<10	<10	<10	<0.25	2	<1	NT	740	<50	<1	-	-	1,600	-	<0.1	<1	-	-	-	-	-
3/13/2017	<5	<10	<10	<10	<0.25	3	<1	NT	280	<50	<1	-	-	1,300	-	<0.1	<1	-	-	-	-	-
3/20/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	1,000	970	-	-	-	-	-	-	-
3/31/2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4/3/2017	<5	<10	<10	<10	<0.25	<1	<1	-	200	<50	<1	-	-	790	-	<0.1	<1	-	-	-	-	-
5/1/2017	-	<10	<10	-	<0.25	<1	<1	0.1	-	60	<0.1	3.2	6	-	-	<0.1	<1	-	7,000	<5	<50	10,000
5/3/2017	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	2.5	2	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
5/8/2017	-	<10	<10	-	<0.25	<1	<1	0.4	-	<50	<1	3.1	<1	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
5/15/2017	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	2.4	1	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
5/22/2017	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	2.7	<1	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
5/30/2017	-	<10	<10	-	<0.25	<1	<1	0.2	-	<50	<0.1	3.3	2	-	-	<0.1	<1	-	4,000	5	<50	6,000
6/12/2017	-	<10	<10	-	<0.25	<1	<1	2.9	-	<50	<0.1	2.7	3	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
7/6/2017	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	2.2	2	-	-	<0.1	<1	-	3,000	<5	<50	<5,000
8/8/2017	-	<10	<10	-	<0.25	<1	<1	0.1	-	<50	<0.1	1.1	<2	-	-	<0.1	<1	-	4,000	6	<50	<5,000
8/22/2017	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.7	<2	-	-	<0.1	<1	-	3,000	<5	<50	<5,000
9/8/2017	-	<10	<10	-	<0.25	<1	<1	<0.1	-	250	<0.1	0.7	<2	-	-	<0.1	<1	-	2,000	<5	<50	<5,000
10/13/2017	-	<10	<10	-	<0.25	<1	<1	<0.1	-	90	<0.1	0.4	<2	-	-	<0.1	<1	-	2,000	<5	<50	<5,000
11/9/2017	-	<10	<10	-	<0.25	<1	<1	1.5	-	<50	<0.1	0.9	0.1	-	-	<0.1	<1	-	6,000	<5	<50	<5,000
1/8/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.9	<5	-	-	<0.1	<1	-	3,000	<5	<50	<5,000
2/9/2018	-	<10	<10	-	<0.25	<1	<1	0.1	-	<50	<0.1	0.9	<5	-	-	<0.1	<1	-	4,000	<5	<50	<5,000
3/15/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	1	<5	-	-	<0.1	<1	-	5,900	<5	<50	<5,000
4/17/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	1.9	<5	-	-	<0.1	<1	-	5,900	<5	<50	<5,000
5/18/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	1.4	<5	-	-	<0.1	<1	-	7,100	<5	<50	<5,000
6/21/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.3	<5	-	-	<0.1	<1	-	3,200	<5	<50	<5,000
7/16/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.2	2	-	-	<0.1	<1	-	4,400	<5	<50	<5,000
8/16/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.4	4.7	-	-	<0.1	<1	-	3,700	<5	<50	<5,000
9/17/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.1	<1	-	-	<0.1	<1	-	3,100	<5	<50	<5,000
10/15/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.4	1.3	-	-	<0.1	<1	-	4,300	<5	<50	<5,000
11/14/2018	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	0.5	2.0	-	-	<0.1	<1	-	5,400	<5	<50	<5,000
12/17/2018	-	<10	<10	-	<0.25	<1	<1	0.2	-	<50	0.4	1.1	<1	-	-	<0.1	<1	-	8,200	<5	<50	<5,000
1/14/2019	-	<10	<10	-	<0.25	<1	<1	<0.1	-	<50	<0.1	2.2	2.2	-	-	<0.1	<1	-	9,500	<5	<50	<5,000
2/12/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	1.8	4.0	-	-	<0.1	<1	-	13,000	<5	<50	<5,000
3/14/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	1.0	1.4	-	-	<0.1	<1	-	12,000	<5	<50	<5,000
4/24/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	1.0	1.6	-	-	<0.1	<1	-	14,000	<5	<50	<5,000
5/20/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.9	1.2	-	-	<0.1	<1	-	12,000	<5	<50	<5,000
6/17/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.9	1.5	-	-	<0.1	<1	-	12,000	<5	<50	<5,000
7/11/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	1.0	2.0	-	-	<0.1	<1	-	10,000	<5	<50	<5,000
8/15/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.29	<1	-	-	<0.1	<1	-	9,200	5.9	<50	<5,000
8/23/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
9/19/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.26	2.0	-	-	<0.1	<1	-	7,000	6.4	<50	<5,000
9/27/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
9/30/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
10/17/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.2	<1	-	-	<0.1	<1	-	6,200	<5	<50	<5,000
11/14/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.36	1.3	-	-	<0.1	<1	-	7,000	<5	<50	<5,000
12/19/2019	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	1.0	<1	-	-	<0.1	<1	-	9,200	8.5	<50	<5,000
12/31/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
1/13/2020	-	<10	<10	-	<0.2	<1	<1	0.19	-	<50	<0.1	0.57	<1	-	-	<0.1	<1	-	6,700	<5	<50	<5,000
2/10/2020	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.61	<1	-	-	<0.1	<1	-	8,000	<5	<50	<5,000
3/9/2020	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.63	<1	-	-	<0.1	<1	-	5,800	<5	<50	<5,000
4/8/2020	-	<10	<10	-	<0.2	<1	1.6	0.14	-	82	0.93	1.2	-	-	-	<0.1	<1	-	6,900	<5	<50	<5,000
5/11/2020	-	<10	<10	-	-	<1	<1	<0.1	-	<50	<0.1	0.76	<1	-	-	<0.1	<1	-	7,100	<5	78	<5,000
5/19/2020	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 8B
TREATMENT SYSTEM EFFLUENT DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	Parameters (µg/L)																					
	Diethyl Ether	Acetone	2-Butanone	Tetrahydrofuran	1,4-Dioxane	Arsenic	Chromium	Copper	Barium	Iron	Lead	Nickel	Zinc	Manganese	Dissolved Manganese	Mercury	Selenium	Bromide	Chloride	Total Cyanide	Ammonia-N	Suspended Solids
Effluent Limitations	-	7,970	-	-	0.32	10	323	9.8	-	5,000	3.43	1,450	54.8	-	-	0.739	235.8	-	-	5.2	-	30,000
6/11/2020	-	<10	<10	-	<0.2	17	1.1	<0.1	-	<50	<0.1	0.85	3.4	-	-	0.16	<1	-	5,600	<5	51	<5,000
6/19/2020	-	-	-	-	-	4.5	<1	0.13	-	<50	<0.1	0.31	<1	-	-	<0.1	<1	-	-	-	-	-
7/13/2020	-	<10	<10	-	0.57	1.1	<1	<0.1	-	<50	<0.1	0.53	2.0	-	-	<0.1	<1	-	3,100	5.9	<50	<5,000
7/27/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
8/11/2020	-	<10	<10	-	<0.2	0.95	<1	<0.1	-	<50	<0.1	0.78	1.7	-	-	<0.1	<1	-	3,400	<5	<50	<5,000
9/14/2020	-	<10	<10	-	<0.2	<1	<1	3.6	-	<50	<0.1	0.71	1.1	-	-	<0.1	<1	-	3,500	<5	<50	<5,000
10/19/2020	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.61	3.2	-	-	<0.1	<1	-	2,600	<5	<50	<5,000
11/12/2020	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.85	1.8	-	-	<0.1	<1	-	2,600	<5	67	<5,000
12/14/2020	-	<10	<10	-	<0.2	<1	<1	<0.1	-	<50	<0.1	0.79	1.6	-	-	<0.1	<1	-	2,800	<5	120	<5,000
1/13/2021	-	<10	<10	-	<0.2	<0.5	<0.5	<0.1	-	<50	<0.1	0.98	2.8	-	-	<0.1	<0.5	-	2,900	<5	<5	<5,000
2/10/2021	-	<10	<10	-	<0.2	<0.5	<0.5	<0.1	-	<50	<0.1	0.79	1.2	-	-	<0.1	<0.5	-	2,300	<5	<5	<5,000
3/11/2021	-	<10	<10	-	<0.2	<0.5	<0.5	<0.1	-	<50	<0.1	0.46	1.4	-	-	<0.1	<0.5	-	2,200	<5	<5	<5,000
4/13/2021	-	<10	<10	-	<0.2	<0.5	<0.5	0.17	-	<50	<0.1	0.56	0.15	-	-	<0.1	<0.5	-	3,600	<5	<5	<5,000
5/10/2021	-	<10	<10	-	<0.2	<0.5	<0.5	0.16	-	<50	<0.1	0.57	1.7	-	-	<0.1	<0.5	-	5,500	<5	<5	<5,000
6/10/2021	-	<10	<10	-	<0.2	<0.5	<0.5	<0.1	-	<50	<0.1	0.29	2.5	-	-	<0.1	<0.5	-	2,800	<5	<5	<5,000
7/12/2021	-	<10	<10	-	0.21	<0.5	<0.5	<0.1	-	<50	<0.1	0.24	1.9	-	-	<0.1	<0.5	-	2,500	<5	<5	<5,000
8/16/2021	-	<10	<10	-	<0.2	<0.5	<0.5	0.14	-	<50	<0.1	0.29	2.6	-	-	<0.1	<0.5	-	3,300	<5	<5	<5,000
9/16/2021	-	<10	<10	-	<0.2	<0.5	<0.5	0.12	-	<50	<0.1	0.22	1.7	-	-	<0.1	<0.5	-	2,000	<5	<5	<5,000
10/11/2021	-	<10	<10	-	<0.2	<0.6	0.5	0.11	-	<50	<0.1	0.18	1.8	-	-	<0.1	<0.5	-	2,000	<5	<5	<5,000
11/18/2021	-	<10	<10	-	<0.2	<0.5	<0.5	<0.1	-	<50	<0.1	0.25	2.2	-	-	<0.1	<0.5	-	2,400	<5	<5	<5,000
12/13/2021	-	<10	<10	-	<0.2	<0.5	0.5	<0.1	-	<50	<0.1	0.30	1.5	-	-	<0.1	<0.5	-	2,700	<5	<5	<5,000

Notes:

1. "µg/L" indicates micrograms per liter; "mg/L" indicates milligrams per liter.
2. "NT" indicates that the analyte was not tested for.
3. "NS" indicates that the sample was not sampled.
4. "<" indicates not detected above the analytical laboratory reporting limit shown.
5. "-" indicates not analyzed for referenced parameter.
6. "Value/Value*" indicates that there was a detection for both analysis for 1,4-dioxane performed using EPA Method 8260B and 8260B SIM, respectively.
7. Antimony was detected at a concentration of 4.1 ug/L and 2.7 in the 6/11/2020 and 6/19/20 effluent samples, respectively.
8. Antimony was detected at a concentration of 0.73 ug/L in the 7/13/2020 effluent sample

**TABLE 9A
REMEDIAL SYSTEM SUPPLEMENTAL GROUNDWATER PERFORMANCE DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

GZ-PM-1U		GZ-PM-1L		GZ-PM-2U		GZ-PM-2L		GZ-PM-3U		GZ-PM-3L		GZ-PM-4U		GZ-PM-4L		GZ-PM-5U	
Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.
Bedrock		Bedrock		Bedrock		Bedrock		Overburden		Bedrock		Overburden		Bedrock		Overburden	
12/29/2016	2.2	12/29/2016	2.7	12/28/2016	47	12/28/2016	110	1/26/2017	0.27	1/26/2017	18	1/25/2017	3.8	1/25/2017	4.0	1/25/2017	12
7/27/2017	<0.25	7/27/2017	16	1/26/2017	29	1/26/2017	160	9/29/2017	dry	9/29/2017	54	9/29/2017	dry	9/29/2017	1.2	9/29/2017	dry
9/29/2017	dry	8/25/2017	22	7/27/2017	23	7/27/2017	59	1/25/2018	<0.25	1/25/2018	19	1/25/2018	0.98	1/25/2018	1.3	1/25/2018	2.8
1/25/2018	<0.25	9/29/2017	18	9/29/2017	25	8/25/2017	60	12/20/2018	<0.2	9/18/2018	24	12/20/2018	0.9	9/18/2018	0.79	12/26/2018	0.36
12/26/2018	<0.2	1/25/2018	7.7	1/25/2018	22	9/29/2017	200	12/18/2019	<0.2	12/20/2018	13	12/18/2019	1.7	12/20/2018	0.66		
12/18/2019	<0.2	12/26/2018	13	12/26/2018	33	1/25/2018	82	6/17/2021	<0.2	12/18/2019	9.4	3/17/2021	1.2	12/18/2019	0.95		
6/17/2021	<0.2	12/18/2019	6.6	12/18/2019	21	9/12/2018	67	9/27/2021	<0.2	6/16/2020	4.3	6/17/2021	1.4	12/18/2020	8.0		
		6/16/2020	5.5	6/16/2020	13	12/26/2018	25			12/18/2020	2.4	9/27/2021	1.3	3/17/2021	1.3		
		12/22/2020	3.8	12/22/2020	25	12/18/2019	59			3/17/2021	1.4			6/17/2021	0.84		
		6/17/2021	6.3	3/17/2021	21	6/16/2020	65			6/17/2021	1.1			9/27/2021	0.69		
		9/27/2021	3.9	6/17/2021	30	12/22/2020	36			9/27/2021	0.96						
				9/27/2021	19	3/17/2021	50										
						6/17/2021	64										
						9/27/2021	29										

GZ-PM-5L		GZ-PM-6U		GZ-PM-7U		GZ-PM-8U		GZ-PM-8L		GZ-PM-9L	
Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.
Bedrock		Overburden		Overburden		Overburden		Bedrock		Bedrock	
1/25/2017	21	1/26/2017	53	1/26/2017	dry	1/26/2017	dry	1/25/2017	<0.25	1/26/2017	0.71
9/29/2017	5.5	9/29/2017	32	9/29/2017	dry	9/29/2017	dry	9/29/2017	dry	9/29/2017	<0.25
1/25/2018	16	1/25/2018	7.5	1/25/2018	dry	1/25/2018	dry	1/25/2018	<0.25	1/25/2018	<0.25
9/18/2018	4.4	12/20/2018	5.1					12/26/2018	<0.2	9/18/2018	<0.2
12/26/2018	5.3	12/18/2019	12					12/18/2019	<0.2	12/26/2018	<0.2
12/18/2019	4.0	6/16/2020	4.0					12/18/2020	<0.2	12/18/2019	<0.2
6/16/2020	3.5	3/17/2021	5.5					6/17/2021	<0.2	12/18/2020	<0.2
12/18/2020	1.4	6/17/2021	6.3					9/27/2021	<0.2	6/17/2021	0.22
3/17/2021	3.4	9/27/2021	8.1							9/27/2021	<0.2
6/17/2021	3.7										
9/27/2021	1.8										

GZ-OPM-6A		GZ-OPM-6B		GZ-OPM-6C		GZ-OPM-6D		GZ-OPM-11A		GZ-OPM-11B		GZ-OPM-11C		GZ-OPM-11D	
Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.
Overburden		Overburden		Overburden		Overburden		Overburden		Overburden		Overburden		Overburden	
11/3/2021	62	11/3/2021	96	11/3/2021	59	11/3/2021	110	11/3/2021	69	11/3/2021	81	11/3/2021	99	11/3/2021	430

GZ-OPM-14A		GZ-OPM-14B		GZ-OPM-14C		GZ-OPM-14D	
Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.	Sample Date	1,4-Dioxane Conc.
Overburden		Overburden		Overburden		Overburden	
11/3/2021	250	11/3/2021	280	11/3/2021	120	11/3/2021	400

- Notes:
1. Data indicate concentrations of 1,4-dioxane in micrograms per liter.
 2. "<" indicates that 1,4-dioxane was not detected above the associated reporting limit.
 3. "dry" indicates no water in monitoring well at the time of the respective sampling round.

**TABLE 9A
REMEDIAL SYSTEM SUPPLEMENTAL GROUNDWATER PERFORMANCE DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

	ORW-1	ORW-2	ORW-3	ORW-4	ORW-5	ORW-6	ORW-7	ORW-8	ORW-9	ORW-10	ORW-11	ORW-12	ORW-13	ORW-14	ORW-15
Sample Date	1,4-Dioxane Concentration														
	Overburden														
1/18/2021	-	140	-	56	-	-	-	-	-	-	-	260	-	170	-
1/21/2021	-	-	44	-	-	-	-	-	-	330	-	-	-	-	-
1/25/2021	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/23/2021	21	49	41	41	59	110	140	280	340	340	640	170	200	200	55
9/23/2021	19	38	29	29	46	100	110	190	230	280	490	190	180	170	47

	RW-13	RW-14
Sample Date	1,4-Dioxane Conc.	
	Bedrock	
2/23/2021	2.2	8.1
9/23/2021	1.6	5.9
12/17/2021	1.3	5.6

	MOD-1	MOD-2
Sample Date	1,4-Dioxane Conc.	
	System	
1/28/2021	88	14
2/23/2021	140	4.7

Notes:

1. Data indicate concentrations of 1,4-dioxane in micrograms per liter.
2. "<" indicates that 1,4-dioxane was not detected above the associated reporting limit.
3. "dry" indicates no water in monitoring well at the time of the respective sampling round.

TABLE 10
SUPPLEMENTAL TREATMENT SYSTEM DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
2/1/2017	45	-	<0.25	-	-	-	<0.25
2/6/2017	75	-	<0.25	-	-	-	<0.25
2/14/2017	53	-	<0.25	-	-	-	<0.25
2/21/2017	91	-	<0.25	-	-	-	<0.25
2/27/2017	48	-	<0.25	-	-	-	<0.25
5/22/2017	42	19	<0.25	-	-	-	<0.25
5/24/2017		-	-	440	<0.25	<0.25	-
5/30/2017	37	58	<0.25	-	-	-	<0.25
6/2/2017		-	-	2,900	<0.25	<0.25	-
6/7/2017	40	73	<0.25	-	-	-	<0.25
6/9/2017		-	-	1,400	<0.25	<0.25	-
6/12/2017	34	-	-	-	-	-	<0.25
6/14/2017	31	36	<0.25	2,700	0.46	<0.25	-
6/29/2017	29	39	<0.25	1,600	9.9	<0.25	-
7/6/2017	37	-	-	-	-	-	<0.25
7/13/2017	28	27	<0.25	2,400	29	<0.25	-
7/26/2017	34	37	<0.25	2,400	<0.25	<0.25	-
8/8/2017	35	-	-	-	-	-	<0.25
8/15/2017	25	31	<0.25	2,700	<0.25	<0.25	-
8/22/2017	17	-	-	-	-	-	<0.25
9/8/2017	27	-	-	-	-	-	<0.25
9/12/2017	45	46	<0.25	1,800	<0.25	<0.25	-
10/13/2017	26	-	-	-	-	-	<0.25
10/18/2017	29	-	<0.25	2,900	<0.25	<0.25	-
11/9/2017	19	-	-	-	-	-	<0.25
11/13/2017	35	-	<0.25	2,100	<0.25	<0.25	-
11/27/2017	42	-	<0.25	1,800	0.59	<0.25	-
12/8/2017	22	-	-	-	-	-	<0.25
1/2/2018	31	-	<0.25	2,200	21	<0.25	-
1/8/2018	23	-	-	-	-	-	<0.25
1/22/2018	24	-	<0.25	1,400	<0.25	<0.25	-
2/5/2018	27	-	<0.25	1,800	<0.25	<0.25	-
2/9/2018	22	-	-	-	-	-	<0.25
2/21/2018	31	-	<0.25	1,400	<0.25	<0.25	-
3/6/2018	21	-	<0.25	-	-	-	-
3/15/2018	20	-	-	600	3.8	<0.25	<0.25
3/19/2018	19	-	<0.25	1,500	30	<0.25	-
4/2/2018	23	-	<0.25	1,400	<0.25	0.42	-
4/12/2018	23	-	<0.25	13,000	1.5	<0.25	-
4/17/2018	17	-	-	-	-	-	<0.25

TABLE 10
SUPPLEMENTAL TREATMENT SYSTEM DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
4/25/2018	18	-	<0.25	1,800	<0.25	<0.25	-
5/7/2018	17	-	<0.25	1,200	<0.25	<0.25	-
5/18/2018	16	-	-	-	-	-	<0.25
5/22/2018	17	-	<0.25	1,200	<0.25	<0.25	-
6/12/2018	23	-	<0.25	1,100	4.1	<0.25	-
6/21/2018	20	-	-	-	-	-	<0.25
7/16/2018	17	-	-	-	-	-	<0.25
7/18/2018		-	<0.25	40	<0.25	-	-
7/26/2018		1.0	<0.25	-	-	-	-
8/16/2018	14	-	-	-	-	-	<0.25
9/6/2018		8.2	<0.25	230	<0.25	-	-
9/17/2018	19	15	-	-	-	-	<0.25
10/15/2018	21	-	-	-	-	-	<0.25
10/18/2018		19	<0.2	860	<0.2	-	-
11/14/2018	17	-	-	-	-	-	<0.25
11/19/2018		18	<0.2	1,100	0.24	-	-
12/13/2018		18	<0.2	1,400	<0.2	-	-
12/17/2018	11	-	-	-	-	-	<0.25
1/2/2019	11	-	<0.2	1,200	<0.2	-	-
1/14/2019	18	-	-	-	-	-	<0.25
1/23/2019	19	-	<0.2	1,200	0.34	-	-
2/6/2019	17	-	<0.2	1,100	4.2	-	-
2/12/2019	15	-	-	-	-	-	<0.25
2/25/2019	20	-	<0.2	1,700	<0.2	-	-
3/14/2019	20	-	-	-	-	-	<0.25
3/20/2019	18	-	<0.2	970	<0.2	-	-
4/8/2019	11	-	<0.2	1,700	2.4	-	-
4/22/2019	16	-	<0.2	1,700	27	-	-
4/24/2019	11	-	-	-	-	-	<0.2
5/14/2019	14	-	<0.2	1,100	<0.2	-	-
5/20/2019	10	-	-	-	-	-	<0.2
6/10/2019	14	-	-	-	-	-	<0.2
6/17/2019	12	-	-	-	-	-	<0.2
7/2/2019	15	-	<0.2	920	0.28	-	-
7/11/2019	15	-	-	-	-	-	<0.2
7/21/2019	15	0.56	<0.2	680	<0.2	-	-
8/15/2019	18	-	-	-	-	-	<0.2
8/21/2019	18	-	<0.2	44	0.22	-	-
9/19/2019	14	-	-	-	-	-	<0.2
10/14/2019	22	-	<0.2	130	0.89	-	-

TABLE 10
SUPPLEMENTAL TREATMENT SYSTEM DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
10/17/2019	14	-	-	-	-	-	<0.20
11/14/2019	16	-	-	-	-	-	<0.20
11/18/2019	27	-	<0.2	910	1.6	-	-
12/16/2019	19	-	<0.2	1,500	5.0	-	-
12/19/2019	11	-	-	-	-	-	<0.20
1/7/2020	22	-	<0.2	3,100	3.0	-	-
1/13/2020	11	-	-	-	-	-	<0.20
2/3/2020	15	-	<0.2	1,400	0.41	0.80	-
2/10/2020	11	-	-	-	-	-	<0.20
3/4/2020	15	-	<0.2	1,200	0.61	-	-
3/9/2020	13	-	-	-	-	-	<0.20
3/25/2020	13	-	<0.2	1,400	0.52	3.9	-
4/8/2020	-	-	-	-	-	-	<0.20
4/9/2020	12	-	-	-	-	-	-
4/15/2020	9.8	-	0.39	920	<0.2	2.7	-
5/6/2020	8.4	-	<0.2	-	-	-	<0.20
5/8/2020	-	-	-	1,000	0.54	1.3	-
6/1/2020	14	-	<0.2	1000	1.0	<0.2	-
6/11/2020	10	-	-	-	-	-	<0.2
7/13/2020	11	-	-	-	-	-	0.57
8/3/2020	12	-	<0.2	300	<0.2	<0.2	-
8/11/2020	6.3	-	-	-	-	-	<0.2
9/14/2020	6.7	-	-	-	-	-	<0.2
10/14/2020	3.9	-	<0.2	300	<0.2	<0.2	-
10/19/2020	4.5	-	-	-	-	-	<0.2
11/12/2020	4.5	-	-	-	-	-	<0.2
11/24/2020	3.7	-	<0.2	270	2.2	<0.2	-
12/14/2020	9.8	-	-	-	-	-	<0.20
12/29/2020	14	-	<0.2	490	19	<0.2	-
1/13/2021	8.3	-	-	-	-	-	<0.2
1/19/2021	8.5	-	<0.2	1,000	<0.2	0.33	-
2/3/2021	17	-	<0.2	910	<0.2	<0.2	-
2/10/2021	12	-	-	-	-	-	<0.2
2/17/2021	20	-	<0.2	740	<0.2	0.23	-
3/8/2021	35	-	<0.2	1,500	0.69	0.23	-
3/11/2021	18	-	-	-	-	-	<0.2
3/23/2021	29	-	<0.2	2,100	<0.2	1.2	-
4/5/2021	7.7	-	<0.2	1,900	2.3	0.82	-
4/13/2021	20	-	-	-	-	-	<0.2
4/14/2021	15	-	<0.2	1,100	280	0.70	-
4/28/2021	36	-	<0.2	1,800	0.59	1.10	-
5/10/2021	20	-	-	-	-	-	<0.2
5/11/2021	21	-	<0.2	1,400	0.60	0.62	-
5/24/2021	21	-	<0.2	1,400	0.61	0.43	-
6/7/2021	26	-	<0.2	670	11	0.44	-
6/10/2021	16	-	-	-	-	-	<0.2
6/22/2021	23	-	<0.2	2,000	98	0.95	-

TABLE 10
SUPPLEMENTAL TREATMENT SYSTEM DATA

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Date	System Inf.	Post Carbon	System Mid.	LGAC			System Eff.
				Inf.	Mid.	Eff.	
7/12/2021	5.9	-	-	-	-	-	0.21
7/14/2021	7.1	-	<0.2	1,700	570	0.83	-
7/26/2021	-	-	<0.2	-	-	-	<0.2
7/29/2021	6.3	-	<0.2	960	1500	5.3	-
8/10/2021	18	-	<0.2	1,000	77	0.52	-
8/16/2021	5.5	-	-	-	-	-	<0.2
8/23/2021	28	-	<0.2	1,500	500	0.24	-
9/7/2021	24	-	<0.2	2400	740	<0.2	-
9/16/2021	21	-	-	-	-	-	<0.2
9/28/2021	25	-	<0.2	3,000	1.9	1.6	-
10/11/2021	27	-	-	-	-	-	<0.2
10/18/2021	27	-	<0.2	3,500	1.1	0.81	-
11/8/2021	25	-	<0.2	3,300	1.4	0.62	-
11/18/2021	19	-	-	-	-	-	<0.2
11/22/2021	19	-	<0.2	2,200	5.5	0.29	-
12/7/2021	19	-	<0.2	2,600	36	<0.2	-
12/13/2021	22	-	-	-	-	-	<0.2
12/20/2021	21	-	<0.2	2,100	0.25	7.4	-

Notes:

1. Data indicate concentrations of 1,4-dioxane in micrograms per liter.
2. Empty cell indicates sampling location not included in respective sampling round.
3. "<" indicates 1,4-dioxane was not detected above the reporting limit shown.

TABLE 11
SUMMARY OF 1,4-DIOXANE CONCENTRATION CHANGE

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

Area/Monitoring Well Type	Well	Collection Date of Pre-system Startup Sample	Pre-system Startup Concentration of 1,4-dioxane (µg/L)	Collection Date of Most Recent Sample (through 2021)	Most Recent Detected Concentration of 1,4-dioxane (µg/L)	Change in Concentration (µg/L)	Calculated Percent Change in Concentration
Source	GZ-2	1/24/17	37	12/16/21	1.4	35.6	96%
	GZ-14L	1/24/17	81	12/16/21	17	64	79%
	GZ-20L	1/24/17	10	9/22/21	10	0	0%
Down Gradient	GZ-5L	1/24/17	6.8	9/22/21	0.88	5.92	87%
	GZ-7L	1/24/17	2.9	9/22/21	1.5	1.4	48%
	GZ-9L	1/24/17	88	12/15/21	0.46	87.54	99%
	GZ-9D	1/24/17	86	12/15/21	64	22	26%
	GZ-10L	1/24/17	2.1	9/22/21	0.37	1.73	82%
	GZ-17L	1/24/17	2.5	9/22/21	3.4	0.9	36%
Performance Monitoring	GZ-PM-1U	12/29/16	2.2	6/17/21	<0.20	2.2	100%
	GZ-PM-1L	12/29/16	2.7	9/27/21	3.9	1.2	44%
	GZ-PM-2U	12/28/16	47	9/27/21	19	28	60%
	GZ-PM-2L	12/28/16	110	9/27/21	29	81	74%
	GZ-PM-3U	1/26/17	0.27	9/27/21	<0.2	0.27	100%
	GZ-PM-3L	1/26/17	18	9/27/21	0.96	17.04	95%
	GZ-PM-4U	1/25/17	3.8	9/27/21	1.3	2.5	66%
	GZ-PM-4L	1/25/17	4.0	9/27/21	0.7	3.31	83%
	GZ-PM-5U	1/25/17	12	12/26/18	0.36	11.64	97%
	GZ-PM-5L	1/25/17	21	9/27/21	1.8	19.2	91%
	GZ-PM-6U	1/26/17	53	9/27/21	8.1	44.9	85%
GZ-PM-9L	1/26/17	0.71	9/27/21	<0.2	0.71	100%	

Notes:

1. "<" indicates 1,4-dioxane not detected above the laboratory reporting limit shown.
2. Shading indicate relative increase in concentration.
3. "µg/L" indicates micrograms per liter.

**TABLE 12
CYANIDE CONCENTRATION DATA**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
NHDES Site No. 201111109, DES Project No. 277737

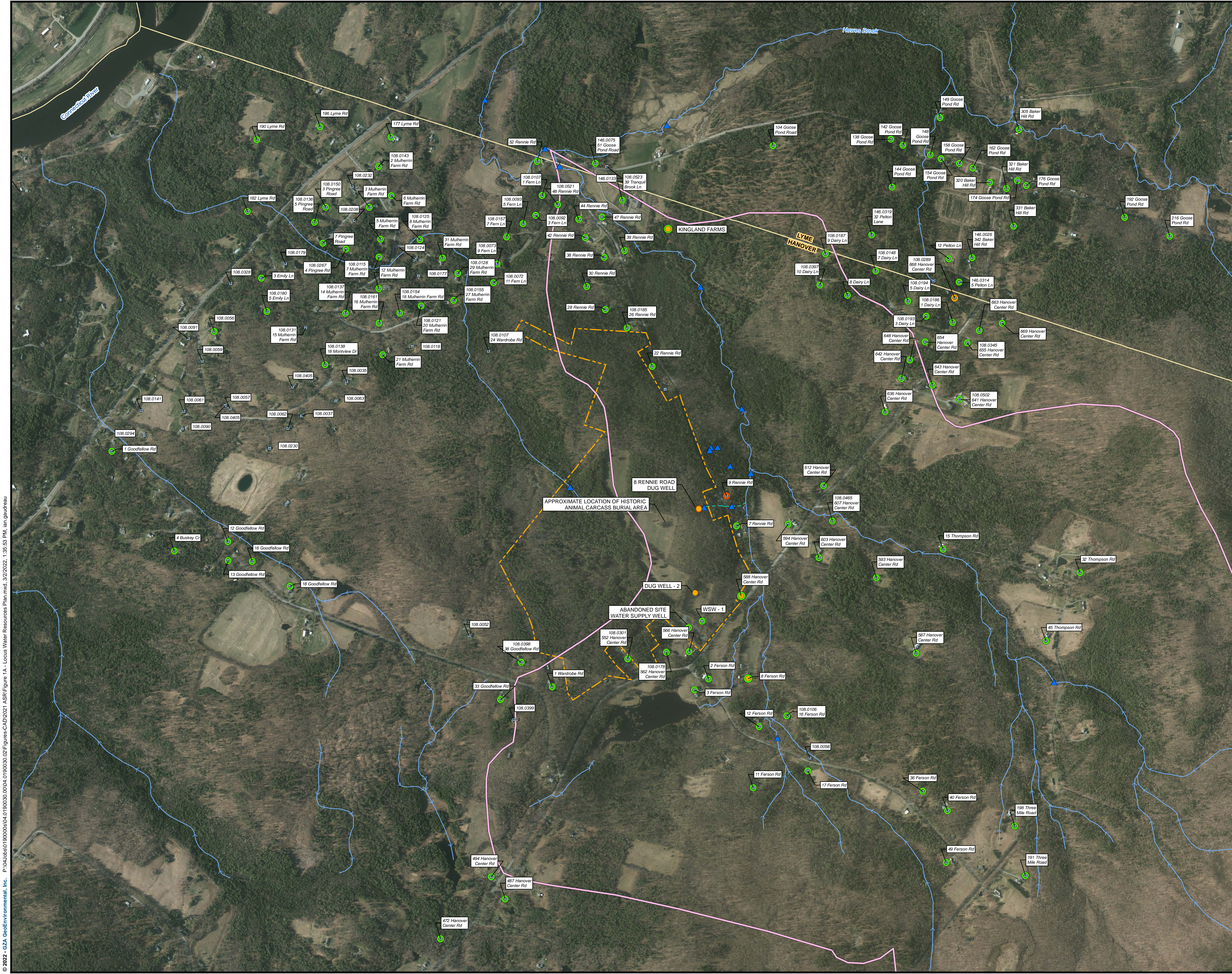
Date	Analysis	Sampling Location								EAI ID No.	
		Bedrock Groundwater Extraction Well					Treatment System		Offsite RW		
		RW-2	RW-5	RW-7	RW-8	RW-12	Influent	Effluent	RW-02		
8/15/2019	Total	-	-	-	-	-	0.0069	0.0059	-	199214	
8/23/2019		0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	199511	
9/3/2019		<0.005	0.016	<0.005	<0.005	<0.005	<0.005	-	-	199871	
9/9/2019		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	200146	
9/16/2019		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	200441	
9/19/2019		-	-	-	-	-	0.011	0.0064	-	200570	
9/23/2019		0.012	0.0094	0.0085	<0.005	0.0050	0.0085	-	-	200671	
9/27/2019		-	-	-	-	-	<0.005	<0.005	-	200872	
9/30/2019		0.0067	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	200966, 200992	
10/17/2019		-	-	-	-	-	<0.005	<0.005	-	201991	
11/14/2019		-	-	-	-	-	<0.005	<0.005	-	203394	
12/19/2021		-	-	-	-	-	0.011	0.0085	-	204948	
12/30/2019		-	-	-	-	-	-	<0.005	-	205115	
12/31/2019		-	-	-	-	-	0.0055	<0.005	-	205140	
1/2/2020		0.012	0.0053	<0.005	<0.005	<0.005	<0.005	-	-	205192	
1/13/2020		-	-	-	-	-	<0.005	<0.005	-	205624	
1/17/2020		0.013	<0.005	<0.005	-	<0.005	0.011	<0.005	-	205865	
1/17/2020		Free	<0.005	<0.005	<0.005	-	<0.005	<0.005	-	205865	
2/10/2020		Total	-	-	-	-	-	<0.005	<0.005	-	206616
2/11/2020			-	-	-	-	-	-	-	0.0051	206617
3/9/2020	-		-	-	-	-	0.0092	<0.005	-	207646	
4/8/2020	-		-	-	-	-	0.0095	<0.005	-	208829	
4/8/2020	Free	-	-	-	-	-	<0.005	<0.005	-	208829	
5/11/2020	Total	-	-	-	-	-	0.010	<0.005	-	210106	
6/11/2020		-	-	-	-	-	<0.005	<0.005	-	211550	
6/15/2020	Free	-	-	-	-	-	<0.005	<0.005	-	211759	
7/13/2020	Total	-	-	-	-	-	0.023	0.0059	-	212804	
7/27/2020		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	213479	
7/27/2020		Free	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	213479	
8/11/2020	Total	-	-	-	-	-	<0.005	<0.005	-	214291	
8/11/2020	Free	-	-	-	-	-	<0.005	<0.005	-	214291	
8/14/2020	Total	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	214456	
8/14/2020	Free	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	214456	
9/14/2020	Total	-	-	-	-	-	<0.005	<0.005	-	215699	
9/14/2020	Free	-	-	-	-	-	<0.005	<0.005	-	215699	
10/19/2020	Total	-	-	-	-	-	<0.005	<0.005	-	217327	
10/19/2020	Free	-	-	-	-	-	<0.005	<0.005	-	217327	
11/12/2020	Total	-	-	-	-	-	<0.005	<0.005	-	218736	
11/12/2020	Free	-	-	-	-	-	<0.005	<0.005	-	218736	
12/14/2020	Total	-	-	-	-	-	<0.005	<0.005	-	220039	
12/14/2020	Free	-	-	-	-	-	<0.005	<0.005	-	220039	
1/13/2021	Total	-	-	-	-	-	<0.005	<0.005	-	221158	
1/13/2021	Free	-	-	-	-	-	<0.005	<0.005	-	221158	
2/10/2021	Total	-	-	-	-	-	<0.005	<0.005	-	222172	
2/10/2021	Free	-	-	-	-	-	<0.005	<0.005	-	222172	
3/11/2021	Total	-	-	-	-	-	<0.005	<0.005	-	223237	
3/11/2021	Free	-	-	-	-	-	<0.005	<0.005	-	223237	
4/13/2021	Total	-	-	-	-	-	0.076	<0.005	-	224593	
4/13/2021	Free	-	-	-	-	-	<0.005	<0.005	-	224593	
5/10/2021	Total	-	-	-	-	-	<0.005	<0.005	-	225980	
5/10/2021	Free	-	-	-	-	-	<0.005	<0.005	-	225980	
6/10/2021	Total	-	-	-	-	-	<0.005	<0.005	-	227526	
6/10/2021	Free	-	-	-	-	-	<0.005	<0.005	-	227526	
7/12/2021	Total	-	-	-	-	-	<0.005	<0.005	-	228909	
7/12/2021	Free	-	-	-	-	-	<0.005	<0.005	-	228909	
8/16/2021	Total	-	-	-	-	-	<0.005	<0.005	-	230704	
8/16/2021	Free	-	-	-	-	-	<0.005	<0.005	-	230704	
9/16/2021	Total	-	-	-	-	-	<0.005	<0.005	-	232227	
9/16/2021	Free	-	-	-	-	-	<0.005	<0.005	-	232227	
10/11/2021	Total	-	-	-	-	-	<0.005	<0.005	-	233431	
10/11/2021	Free	-	-	-	-	-	<0.005	<0.005	-	233431	
11/18/2021	Total	-	-	-	-	-	<0.005	<0.005	-	235560	
11/18/2021	Free	-	-	-	-	-	<0.005	<0.005	-	235560	
12/13/2021	Total	-	-	-	-	-	<0.005	<0.005	-	236597	
12/13/2021	Free	-	-	-	-	-	<0.005	<0.005	-	236597	

Notes:

1. Data are in milligrams per liter (mg/L).
2. The Remediation General Permit Effluent Limitation for the site is 0.0052 mg/L. The New Hampshire Ambient Groundwater Quality Standard is 0.200 mg/L.
3. "<" indicates less than laboratory reporting limit shown.
4. "-" indicates no sample collected from referenced location on the referenced date.
5. "Total" indicates analysis for total cyanide; "Free" indicates analysis for free cyanide.
6. EAI ID No. indicates Easter Analytical, Inc. report identification number. Refer to Appendix C for reports related to samples collected during 2021.



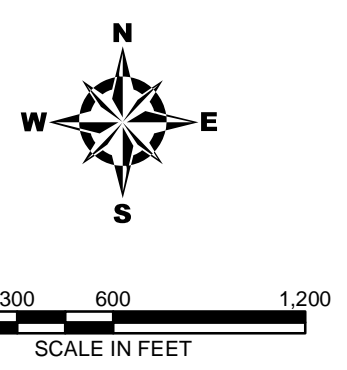
Figures



LEGEND:

- INTERMITTENT STREAM
- TOWN AND/OR STATE BOUNDARY
- INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
- WELL BOARD WATER SUPPLY WELL IDENTIFICATION NUMBER
- DUG WELL NOT SAMPLED
- WATER SUPPLY WELL NOT SAMPLED
- WATER SUPPLY WELL SAMPLED: 1,4-DIOXANE NOT DETECTED
- WATER SUPPLY WELL SAMPLED: 1,4-DIOXANE DETECTED ABOVE GROUNDWATER STANDARD
- WATER SUPPLY WELL SAMPLED: 1,4 DIOXANE DETECTED BELOW GROUNDWATER STANDARD
- DUG WELL SAMPLED: 1,4-DIOXANE NOT DETECTED
- EXISTING SURFACE WATER QUALITY MONITORING LOCATION
- APPROXIMATE WATERSHED BOUNDARY OF UNNAMED TRIBUTARY TO HEWES BROOK BASED ON TOPOGRAPHY AND SURFACE WATER FEATURES SHOWN ON USGS QUADRANGLE MAPS INCLUDING ENFIELD AND LYME
- SITE BOUNDARY / TAX MAP BOUNDARY

RESULTS OF SAMPLING THROUGH OF 12/31/2021



- GENERAL NOTES:**
- 2010-2011 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - LOCATIONS OF ON SITE DUG WELL AND PORTION OF ONSITE INTERMITTENT STREAM BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE ON OCTOBER 14, 2014 AND JUNE 1, 2015.
 - SUPPLY WELLS SHOWN HEREON WERE ADAPTED FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES ONESTOP PROGRAM WEB GIS WATER WELL INVENTORY LAYER IN JANUARY 2016, OR BASED ON OBSERVATION BY GZA.

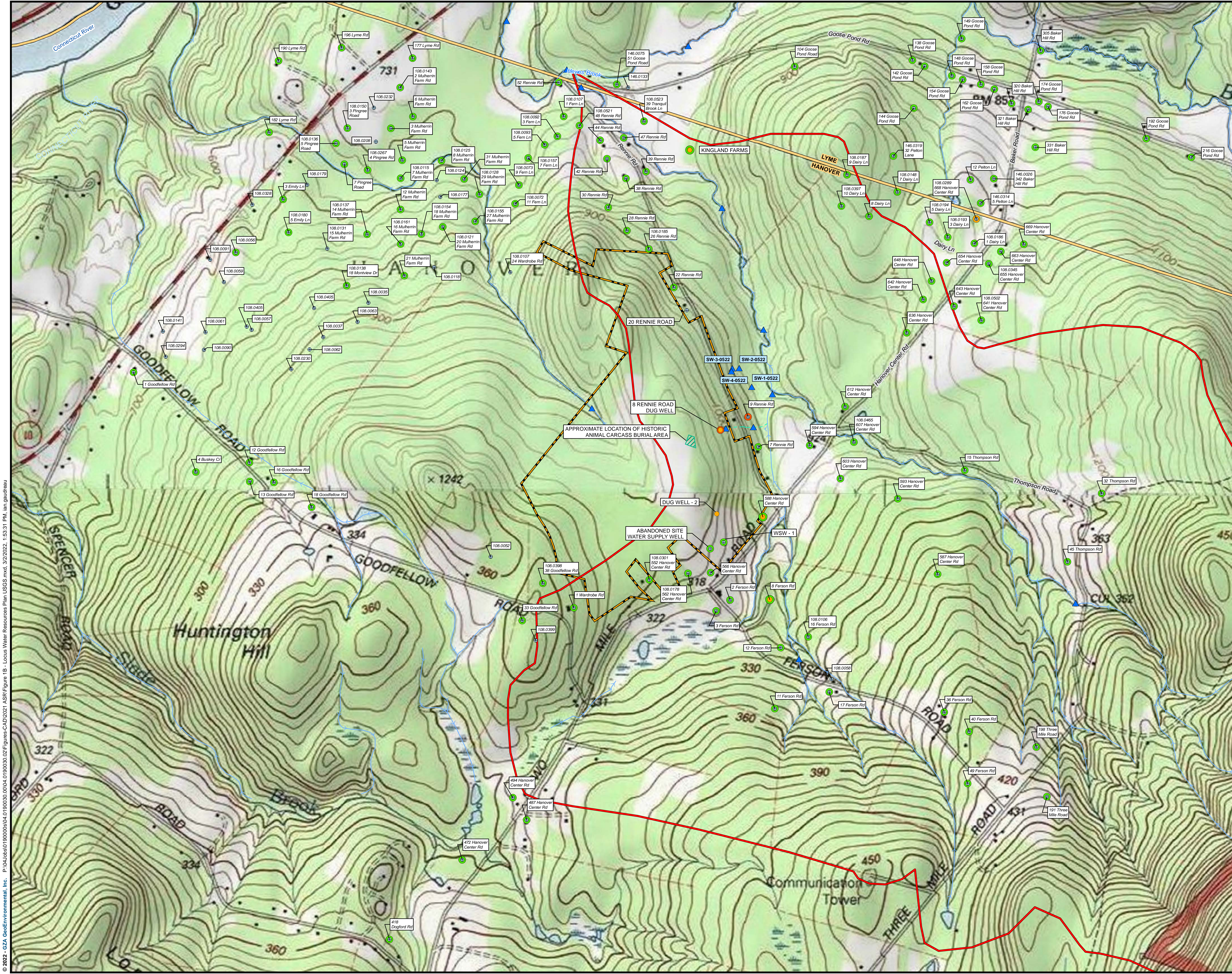
NO.	ISSUE / DESCRIPTION	BY	DATE

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**YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 201111109, PROJECT NO. 277737**

**LOCUS PLAN / WATER RESOURCES PLAN
(AERIAL PHOTOGRAPH BASED)**

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: DARTMOUTH COLLEGE
PROJ MGR: JMW DESIGNED BY: JMW DATE: 03-02-2022	REVIEWED BY: SRL DRAWN BY: IPG PROJECT NO: 04.0190030.02
CHECKED BY: JMW SCALE: 1 inch = 600 feet	REVISION NO.
FIGURE 1A	



LEGEND:

- INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
- INTERMITTENT STREAM
- TOWN AND/OR STATE BOUNDARY
- WELL BOARD WATER SUPPLY WELL IDENTIFICATION NUMBER
- DUG WELL NOT SAMPLED
- WATER SUPPLY WELL NOT SAMPLED
- WATER SUPPLY WELL SAMPLED: 1,4-DIOXANE NOT DETECTED
- WATER SUPPLY WELL SAMPLED: 1,4-DIOXANE DETECTED ABOVE GROUNDWATER STANDARD
- WATER SUPPLY WELL SAMPLED: 1,4 DIOXANE DETECTED BELOW GROUNDWATER STANDARD
- DUG WELL: 1,4-DIOXANE NOT DETECTED
- EXISTING SURFACE WATER QUALITY MONITORING LOCATION
- APPROXIMATE WATERSHED BOUNDARY OF UNNAMED TRIBUTARY TO HEVES BROOK BASED ON TOPOGRAPHY AND SURFACE WATER FEATURES SHOWN ON USGS QUADRANGLE MAPS INCLUDING ENFIELD AND LYME
- SITE BOUNDARY / TAX MAP BOUNDARY

GENERAL NOTES:

- BASEMAP CONTAINS ENFIELD AND LYME USGS 7.5 MINUTE QUADRANGLES.
- LOCATIONS OF ON SITE DUG WELL AND PORTION OF ONSITE INTERMITTENT STREAM BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE ON OCTOBER 14, 2014 AND JUNE 1, 2015.
- SUPPLY WELLS SHOWN HEREON WERE ADAPTED FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES ONESTOP PROGRAM WEB GIS WATER WELL INVENTORY LAYER IN JANUARY 2016, OR BASED ON OBSERVATION BY GZA.

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 THE 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.

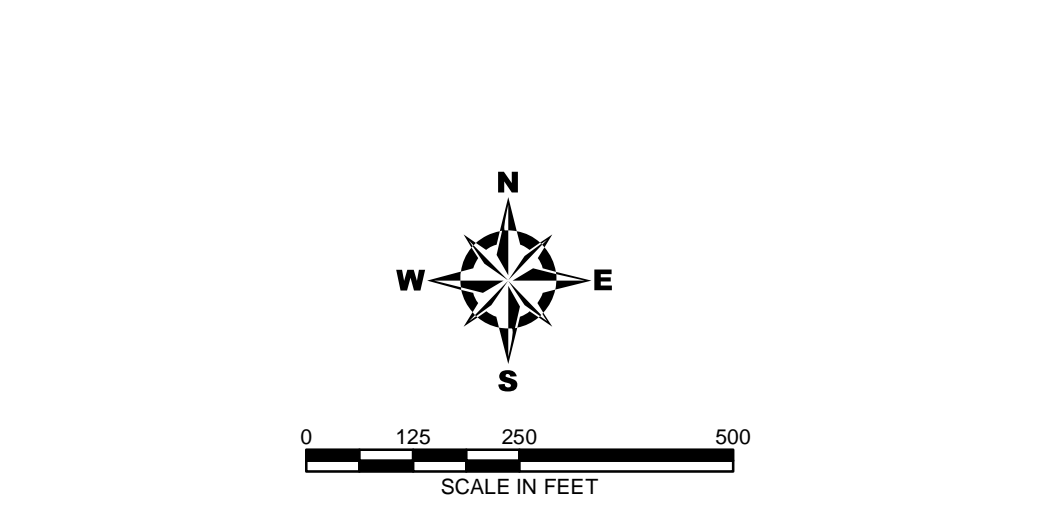
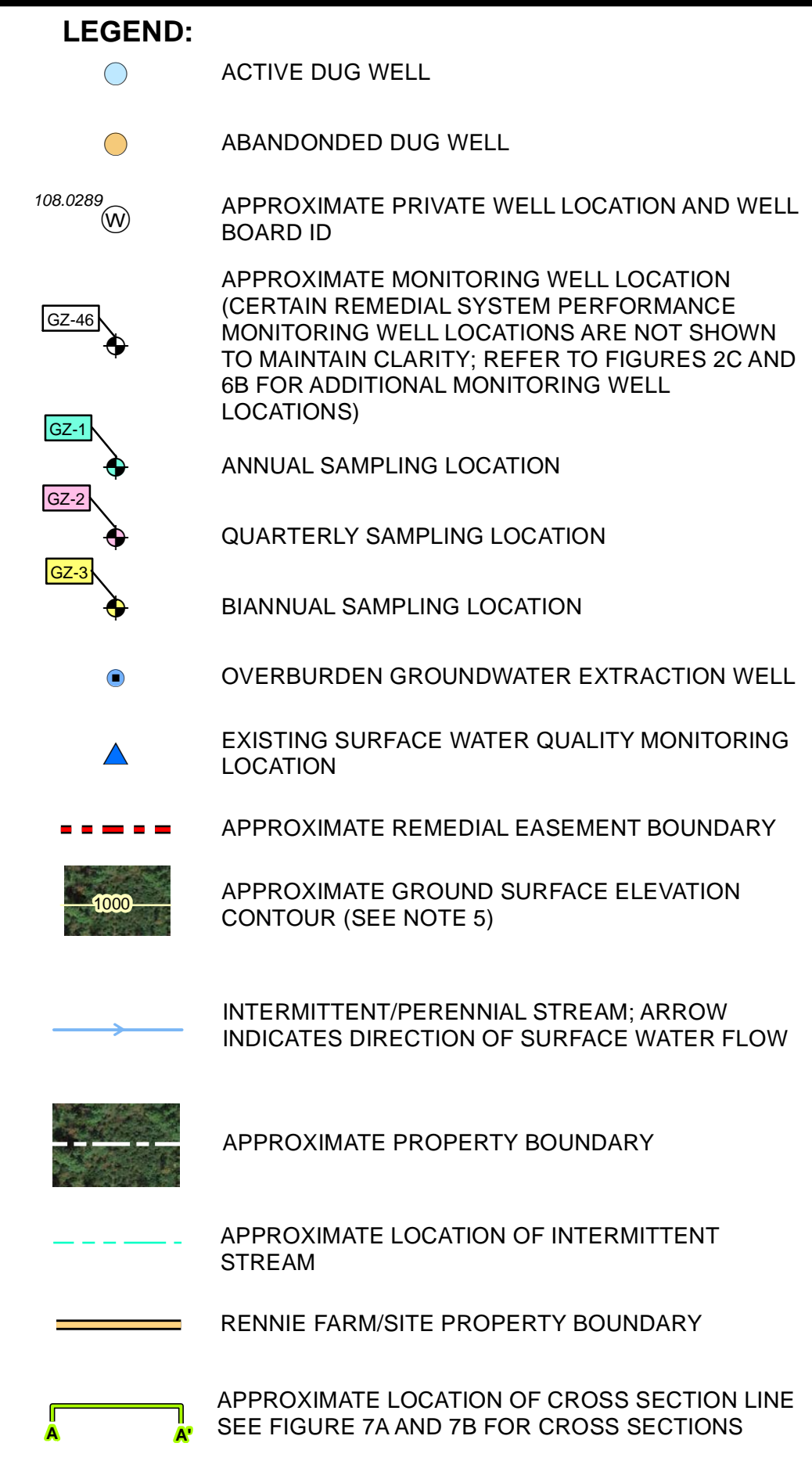
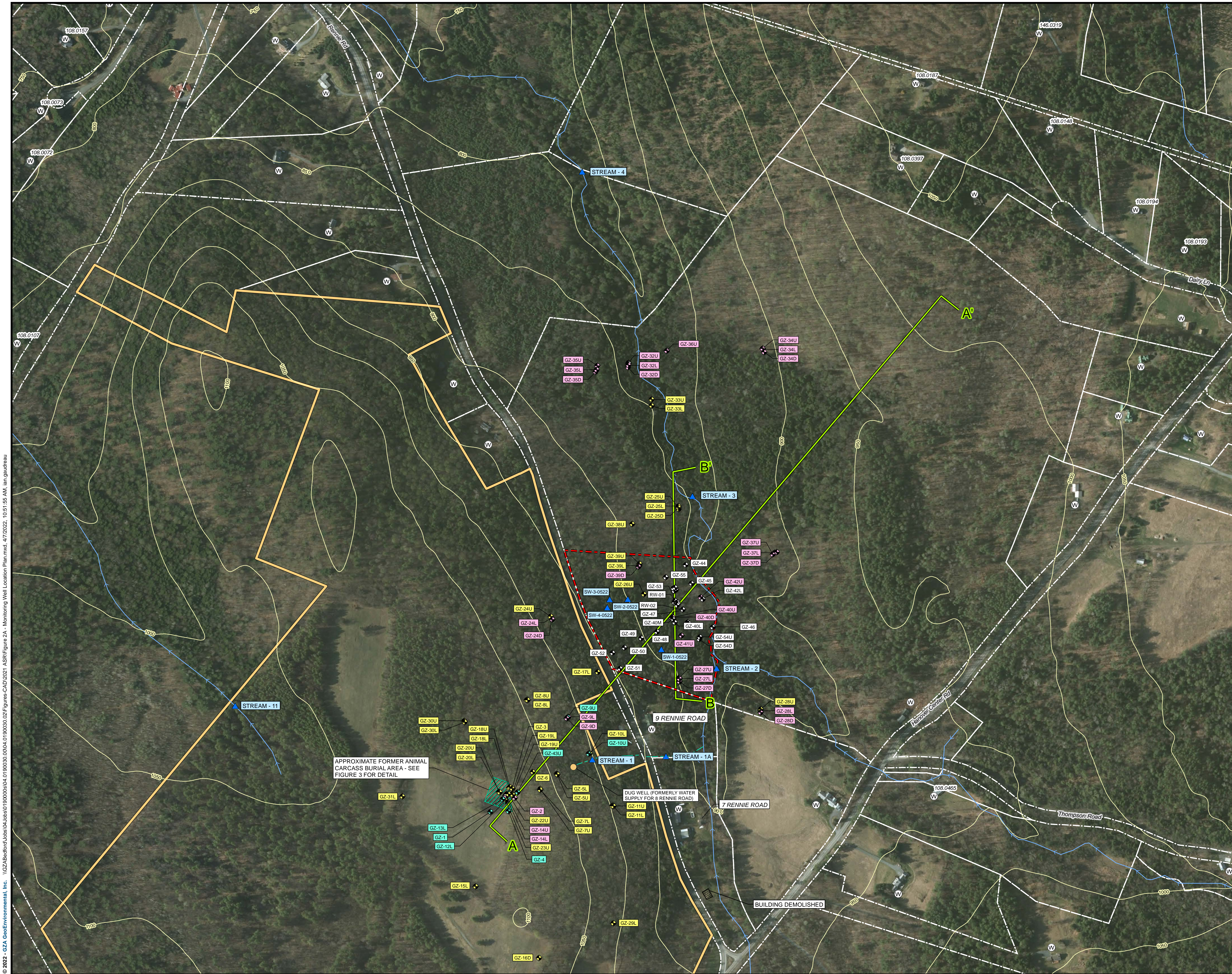
NO.	ISSUE / DESCRIPTION	BY	DATE

YEAR 2021 ANNUAL SUMMARY REPORT
 DARTMOUTH COLLEGE, RENNIE FARM SITE
 HANOVER, NEW HAMPSHIRE
 NHDES SITE NO. 201111109, PROJECT NO. 277737

LOCUS PLAN / WATER RESOURCES PLAN
 (USGS QUADRANGLE BASED)

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: DARTMOUTH COLLEGE
PROJ MGR: JMW DESIGNED BY: JMW DATE: 03-02-2022	REVIEWED BY: SRL DRAWN BY: IPG PROJECT NO. 04.0190030.02
CHECKED BY: JMW SCALE: 1 inch = 600 feet	FIGURE 1B

© 2022 - GZA GeoEnvironmental, Inc. P:\04Jobs\0190030\0004\0190030\02\Figures\CAD\2021_ASR\Figure_1B - Locus Water Resources Plan USGS.mxd, 3/2/2022, 1:53:31 PM, Ian Gaudreau



- ### GENERAL NOTES:
- 2015-2016 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - APPROXIMATE PROPERTY BOUNDARIES OBTAINED FROM THE NEW HAMPSHIRE PARCEL MOSAIC DATASET, AVAILABLE FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - LOCATIONS OF MONITORING WELLS, DUG WELL (FORMERLY WATER SUPPLY WELL FOR 8 RENNIE ROAD), ON-SITE PORTION OF INTERMITTENT STREAM, AND CERTAIN OTHER SITE FEATURES BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016, JANUARY 4 AND 8, 2017, OR ARE BASED ON GPS SURVEYS BY GZA ON VARIOUS DATES. MONITORING WELL LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
 - SUPPLY WELLS SHOWN HEREON WERE ADAPTED FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES ONESTOP PROGRAM WEB GIS WATER WELL INVENTORY LAYER IN JANUARY 2016, OR BASED ON OBSERVATION BY GZA.
 - APPROXIMATE GROUND SURFACE ELEVATION CONTOURS SHOWN HEREON WERE DERIVED FROM THE CONNECTICUT RIVER WATERSHED (2015) BARE EARTH DIGITAL ELEVATION MODEL, OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - INTERMITTENT/PERENNIAL STREAMS SHOWN HEREON WERE DERIVED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.

NO.	ISSUE / DESCRIPTION	BY	DATE

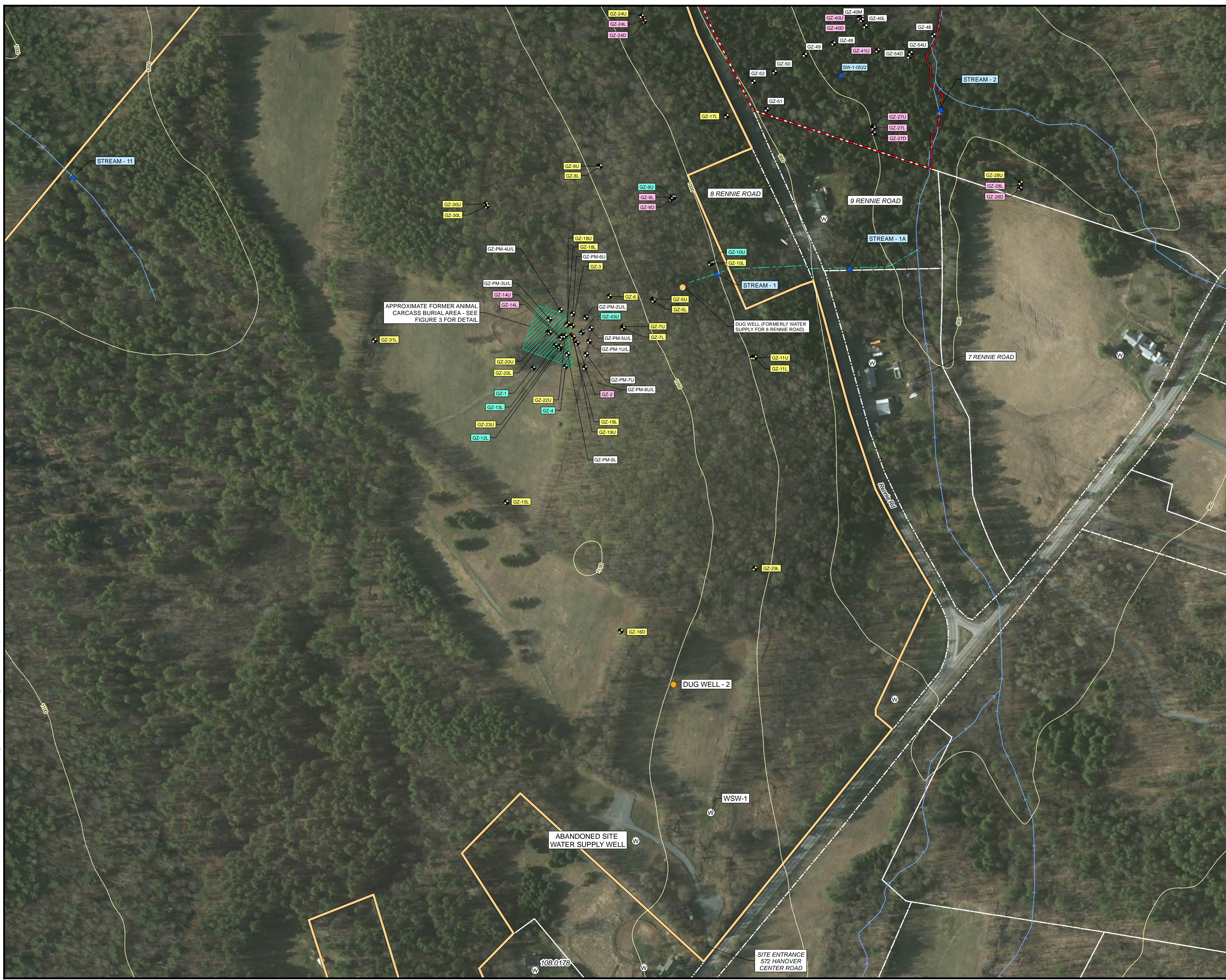
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YEAR 2021 ANNUAL SUMMARY REPORT
 DARTMOUTH COLLEGE, RENNIE FARM SITE
 HANOVER, NEW HAMPSHIRE
 NHDES SITE NO. 201111109, PROJECT NO. 277737

MONITORING WELL LOCATION PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: DARTMOUTH COLLEGE
PROJ. MGR: JMW DESIGNED BY: JMW DATE: 04-07-2022	REVIEWED BY: SRL DRAWN BY: IPG PROJECT NO. 04.0190030.02
CHECKED BY: JMW SCALE: 1 inch = 225 feet REVISION NO.	FIGURE 2A

© 2022 - GZA GeoEnvironmental, Inc. P:\04Jobs\01900030\01900030_0004_01900030_02\Figures\CAD\2021 ASR\Figure 2B - Site Plan.mxd, 3/22/2022, 3:10:01 PM, Ian.Gaudreau



LEGEND:

- ACTIVE DUG WELL
- ABANDONED DUG WELL
- GZ-46 APPROXIMATE MONITORING WELL LOCATION (CERTAIN REMEDIAL SYSTEM PERFORMANCE MONITORING WELL LOCATIONS ARE NOT SHOWN TO MAINTAIN CLARITY; REFER TO FIGURES 2C AND 6B FOR ADDITIONAL MONITORING WELL LOCATIONS)
- GZ-1 ANNUAL SAMPLING LOCATION
- GZ-2 QUARTERLY SAMPLING LOCATION
- GZ-3 BIENNIAL SAMPLING LOCATION
- ▲ EXISTING SURFACE WATER QUALITY MONITORING LOCATION
- 108.0289 APPROXIMATE PRIVATE WELL LOCATION AND WELL BOARD ID
- APPROXIMATE REMEDIAL EASEMENT BOUNDARY
- APPROXIMATE GROUND SURFACE ELEVATION CONTOUR (SEE NOTE 4)
- INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE LOCATION OF INTERMITTENT STREAM
- RENNIE FARM/SITE PROPERTY BOUNDARY

SCALE IN FEET

- GENERAL NOTES:**
- 1) 2015-2016 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 2) APPROXIMATE PROPERTY BOUNDARIES OBTAINED FROM THE NEW HAMPSHIRE PARCEL MOSAIC DATASET, AVAILABLE FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 3) LOCATIONS OF MONITORING WELLS, WATER SUPPLY WELL WSW-1, DUG WELL (FORMERLY WATER SUPPLY WELL FOR 8 RENNIE ROAD), ONSITE PORTION OF INTERMITTENT STREAM, AND CERTAIN OTHER SITE FEATURES BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016.
 - 4) APPROXIMATE GROUND SURFACE ELEVATION CONTOURS SHOWN HEREON WERE DERIVED FROM THE CONNECTICUT RIVER WATERSHED (2015) BARE EARTH DIGITAL ELEVATION MODEL, OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 5) INTERMITTENT/PERENNIAL STREAMS SHOWN HEREON WERE DERIVED FROM THE NEW HAMPSHIRE HYDROGRAPHY DATASET OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.

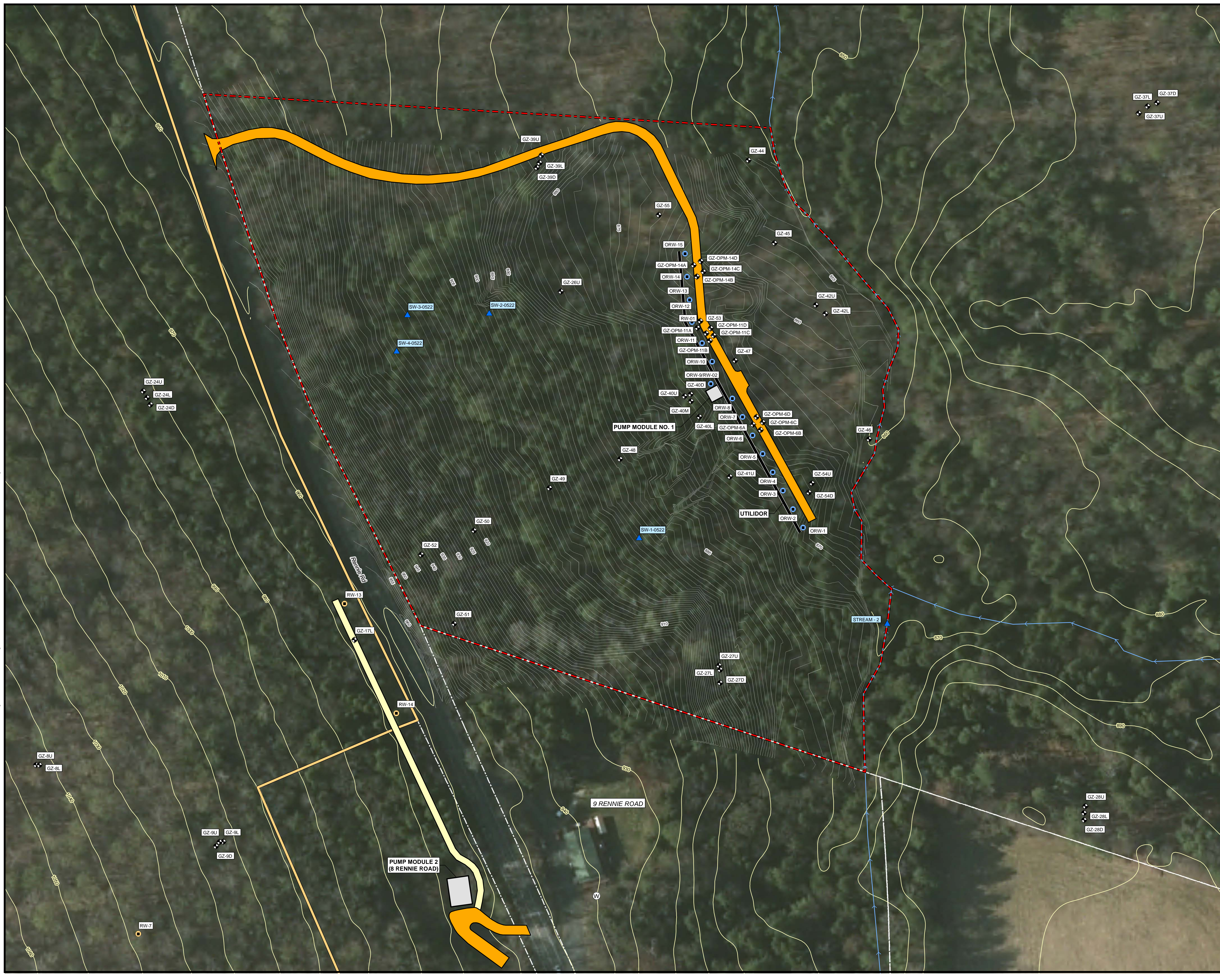
NO.	ISSUE / DESCRIPTION	BY	DATE

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**YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 20111109, PROJECT NO. 277737**

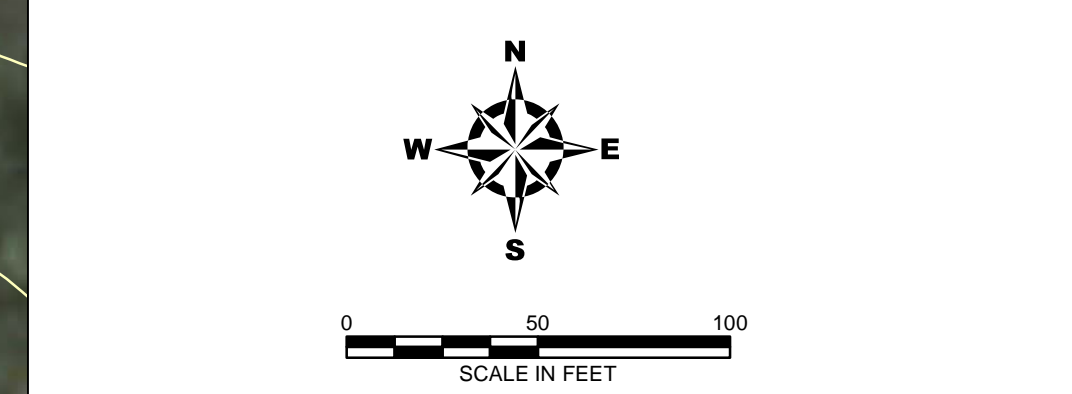
SITE PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: DARTMOUTH COLLEGE	
PROJ. MGR: JMW	REVIEWED BY: SRL	CHECKED BY: JMW	FIGURE 2B
DESIGNED BY: JMW	DRAWN BY: IPG	SCALE: 1 inch = 125 feet	
DATE: 03-02-2022	PROJECT NO: 04.0190030.02	REVISION NO:	



LEGEND:

- BEDROCK GROUNDWATER EXTRACTION WELL
- OVERBURDEN GROUNDWATER EXTRACTION WELL
- EXISTING SURFACE WATER QUALITY MONITORING LOCATION
- APPROXIMATE MONITORING WELL LOCATION
- APPROXIMATE PRIVATE WELL LOCATION AND WELL BOARD ID
- ABANDONED DUG WELL
- ACTIVE DUG WELL
- APPROXIMATE EASEMENT BOUNDARY
- APPROXIMATE STREAM CHANNEL LOCATION
- VEHICLE ACCESS WAY
- ATV ACCESS WAY
- APPROXIMATE EXISTING BUILDING FOOTPRINT
- APPROXIMATE 10-FT GROUND SURFACE ELEVATION CONTOUR (SEE NOTE 4)
- APPROXIMATE 1-FT GROUND SURFACE ELEVATION CONTOUR PROVIDED BY WSP (SEE NOTE 6)
- INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE LOCATION OF INTERMITTENT STREAM
- RENNIE FARM/SITE PROPERTY BOUNDARY



- GENERAL NOTES:**
- 1) 2015-2016 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 2) APPROXIMATE PROPERTY BOUNDARIES OBTAINED FROM THE NEW HAMPSHIRE PARCEL MOSAIC DATASET, AVAILABLE FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 3) LOCATIONS OF MONITORING WELLS, WATER SUPPLY WELL WSW-1, DUG WELL (FORMERLY WATER SUPPLY WELL FOR 8 RENNIE ROAD), ONSITE PORTION OF INTERMITTENT STREAM, AND CERTAIN OTHER SITE FEATURES BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016. WELLS INSTALLED AS PART OF REMEDIAL DESIGN INVESTIGATION WERE LOCATED BY GZA USING GPS SURVEY METHODS. REFERENCE POINT ELEVATIONS WERE ESTABLISHED USING OPTICAL SURVEY METHODS.
 - 4) APPROXIMATE GROUND SURFACE ELEVATION CONTOURS SHOWN HEREON WERE DERIVED FROM THE TWO FOOT TOPOGRAPHIC CONTOURS - MINK BROOK-CONNECTICUT RIVER (0108010404) FILTERED GIS DATASET OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 5) INTERMITTENT/PERENNIAL STREAMS SHOWN HEREON WERE DERIVED FROM THE NEW HAMPSHIRE HYDROGRAPHIC DATASET OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 6) APPROXIMATE 1-FOOT GROUND SURFACE ELEVATION CONTOURS WERE SURVEYED BY WSP TRANSPORTATION AND INFRASTRUCTURE OF NASHUA, NH DURING JANUARY 2017. THE VERTICAL DATUM REFERENCED IS NAVD 88.

NO.	ISSUE / DESCRIPTION	BY	DATE

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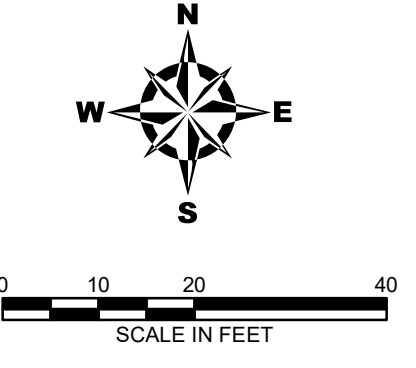
**YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 201111109, PROJECT NO. 277737**

OFFSITE REMEDIATION AREA PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: DARTMOUTH COLLEGE
PROJ. MGR: JMW DESIGNED BY: EBD DATE: 04-07-2022	REVIEWED BY: SRL DRAWN BY: IPG PROJECT NO.: 04.0190030.02
CHECKED BY: JMW SCALE: 1 inch = 50 feet REVISION NO.	FIGURE 2C



- LEGEND:**
- ◆ SOIL BORING
 - BEDROCK GROUNDWATER EXTRACTION WELL
 - OVERBURDEN GROUNDWATER EXTRACTION
 - APPROXIMATE MONITORING WELL LOCATION
 - ANNUAL SAMPLING LOCATION
 - QUARTERLY SAMPLING LOCATION
 - BIENNIAL SAMPLING LOCATION
 - ○ ○ ○ ○ STONE WALL
 - - - - - APPROXIMATE FORMER LOCATION OF FENCE
 - GROUND SURFACE TOPOGRAPHIC CONTOURS (SEE NOTE 2)
 - LIMITS OF GPR SURVEY (SEE NOTE 4)
 - 40 APPROXIMATE LOCATION OF LABORATORY WASTE BURIAL PIT AND NUMBER (SEE NOTE 5)
 - AREA OF GPR AND EM ANOMALIES AND NUMBER (SEE NOTES 3 AND 4)



- GENERAL NOTES:**
- 1) 2010-2011 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 2) LOCATIONS OF CERTAIN MONITORING WELLS, GROUND SURFACE TOPOGRAPHY WITHIN CERTAIN AREAS OF THE SITE, AND CERTAIN OTHER SITE FEATURES BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016.
 - 3) GPR INDICATES GROUND PENETRATING RADAR; EM INDICATES ELECTROMAGNETIC INDUCTION (GEONICS EM61 AND EM31 INSTRUMENTS).
 - 4) THE AREAS OF GPR AND EM ANOMALIES SHOWN HEREON ARE BASED ON SURFICIAL GEOPHYSICAL SURVEYS PERFORMED BY HAGER-RICHTER GEOSCIENCE, INC. OF SALEM, NEW HAMPSHIRE. GPR SURVEYS WERE PERFORMED ON MAY 5 AND MAY 9, 2016 AND THE EM SURVEY WAS PERFORMED ON MAY 27, 2016.
 - 5) THE APPROXIMATE LOCATIONS OF LABORATORY WASTE BURIAL PITS ARE BASED ON A SKETCH TITLED "RADIOACTIVE BURIAL AREA AT RENNIE FARM" AND THE SURVEYED LOCATIONS OF FEATURES ILLUSTRATED ON THE SKETCH INCLUDING A FENCE POST IDENTIFIED AS THE SOUTHWESTERN CORNER OF THE BURIAL AREA FENCE, A FENCE POST ALLOCATED ALONG THE SOUTHERN FENCE LINE, THE HUMAN BURIAL AREA, AND SECTIONS OF STONE WALLS. THE LOCATIONS OF THESE FEATURES ARE BASED ON A SURVEYS BY WSP (SEE NOTE 2).
 - 6) LOCATIONS OF GEOPHYSICAL ANOMALY TEST PITS ARE BASED ON LOCATIONS OF ANOMALIES MARKED BY HAGER-RICHTER GEOSCIENCE, INC. OF SALEM, NEW HAMPSHIRE AND AS LOCATED IN THE FIELD BY WSP AND MEASUREMENTS TO SITE FEATRES BY GZA.
 - 7) LIMITS OF AUGUST 22-34, 2016 SEXCAVATION AREA BASED ON TAPED MEASUREMENTS MADE BY GZA ON AUGUST 24, 2016 TO SITE FEATURES INCLUDED IN WSP TRANSPORTATION AND INFRASTRUCTURE SURVEY ON MAY 31, 2016.

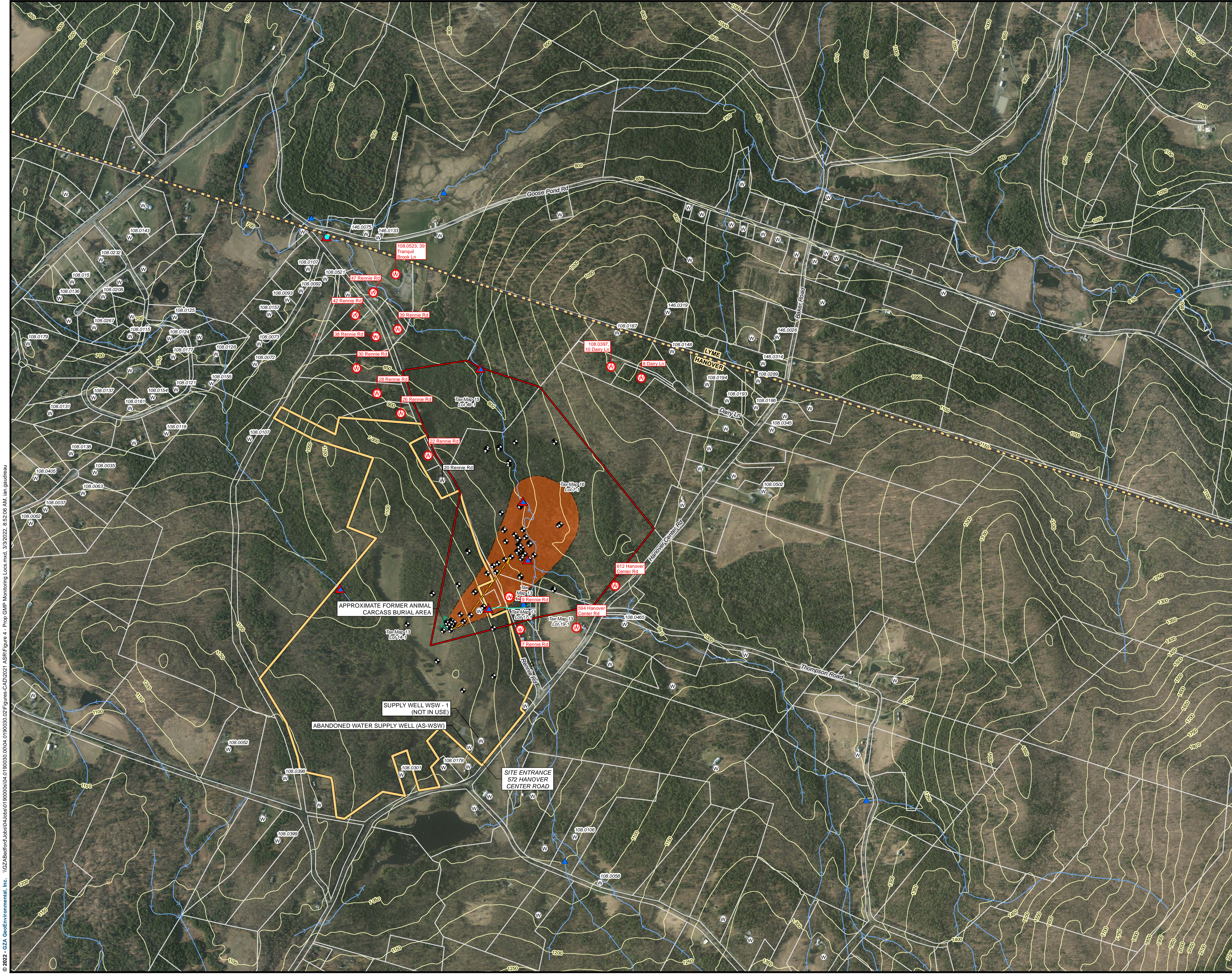
NO.	ISSUE / DESCRIPTION	BY	DATE

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**YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 201111109, PROJECT NO. 277737**

FORMER BURIAL AREA PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: DARTMOUTH COLLEGE	
PROJ MGR: JMW	REVIEWED BY: SRL	CHECKED BY: JMW	FIGURE
DESIGNED BY: JMW	DRAWN BY: IPG	SCALE: 1 inch = 20 feet	3
DATE: 03-02-2022	PROJECT NO: 04.0190030.02	REVISION NO:	



LEGEND:

- GROUNDWATER MONITORING WELL (SEE FIGURES 2A, 2B, AND 2C FOR WELL NUMBERS)
- SURFACE WATER SAMPLING LOCATION
- SURFACE WATER SAMPLING LOCATION INCLUDED IN GROUNDWATER MANAGEMENT PERMIT MONITORING PROGRAM
- INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
- INTERMITTENT STREAM
- APPROXIMATE PRIVATE WELL LOCATION
- PRIVATE WATER SUPPLY WELL INCLUDED IN GROUNDWATER MANAGEMENT PERMIT MONITORING PROGRAM
- GMZ BOUNDARY
- TOWN AND/OR STATE
- INFERRED AXIS OF 1,4 - DIOXANE
- RENNIE FARM PROPERTY BOUNDARY
- PARCEL BOUNDARY
- APPROXIMATE GROUND SURFACE ELEVATION CONTOUR (SEE NOTE 4)
- INFERRED LIMITS OF 1,4-DIOXANE AT CONCENTRATIONS EXCEEDING 0.32 MICROGRAMS PER LITER

0 300 600 1200
 SCALE IN FEET

- GENERAL NOTES:**
- 1) 2015-2016 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 2) APPROXIMATE PROPERTY BOUNDARIES OBTAINED FROM THE NEW HAMPSHIRE PARCEL MOSAIC DATASET, AVAILABLE FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 3) LOCATIONS OF MONITORING WELLS, WATER SUPPLY WELL WSW-1, DUG WELL (FORMERLY WATER SUPPLY WELL FOR 8 RENNIE ROAD), AND ONSITE PORTION OF INTERMITTENT STREAM BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016.
 - 4) APPROXIMATE GROUND SURFACE ELEVATION CONTOURS SHOWN HEREON WERE DERIVED FROM THE CONNECTICUT RIVER WATERSHED (2015) BARE EARTH DIGITAL ELEVATION MODEL, OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 5) INTERMITTENT/PERENNIAL STREAMS SHOWN HEREON WERE DERIVED FROM THE NEW HAMPSHIRE HYDROGRAPHY DATASET OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 6) LOCATIONS OF WATER SUPPLY WELLS BASED ON OBSERVATIONS BY GZA PERSONNEL OR BASED ON PRESENCE OF STRUCTURE ON THE AERIAL PHOTO REFERENCED UNDER NOTE 1. WATER SUPPLY WELL LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.

NO.	ISSUE / DESCRIPTION	BY	DATE

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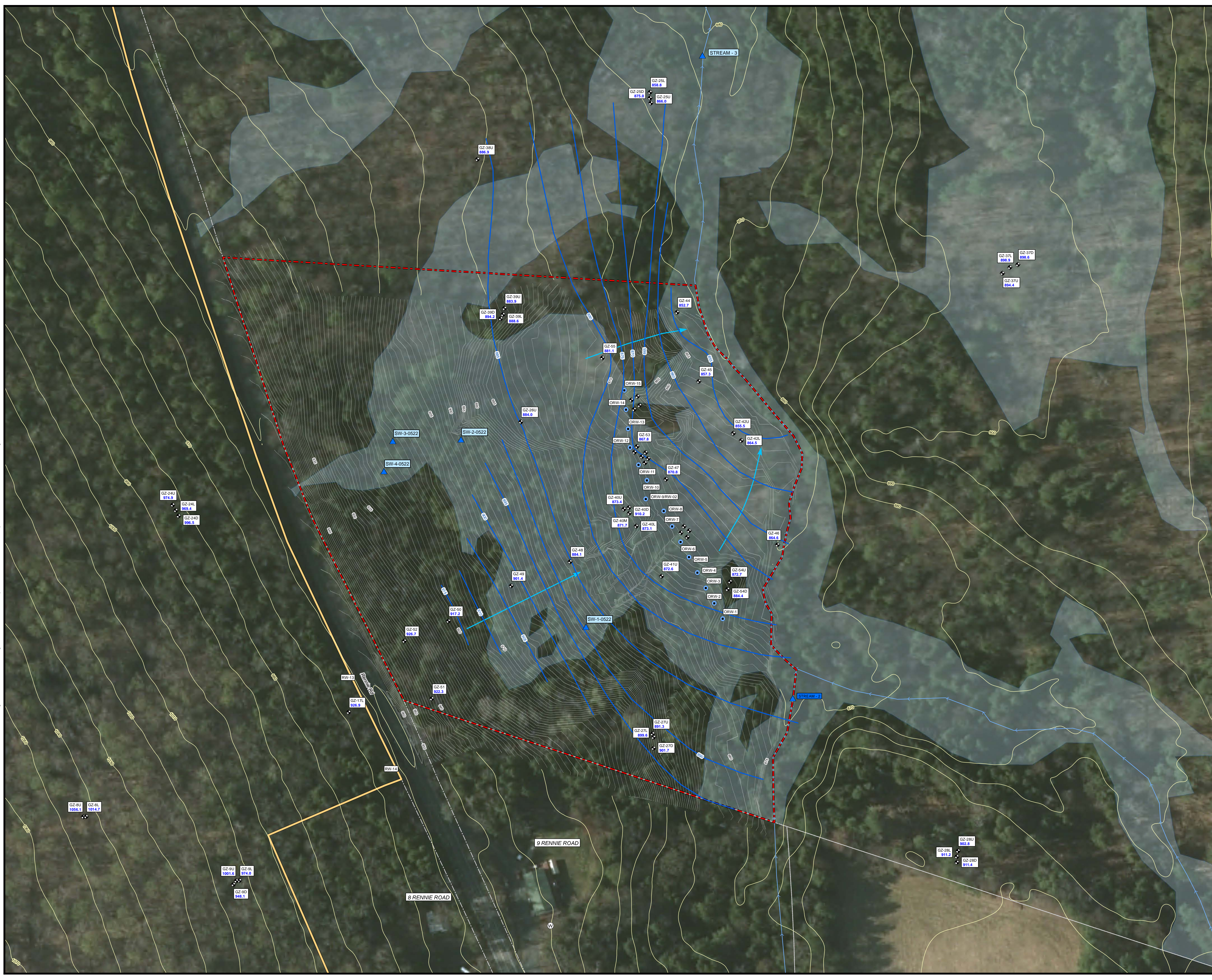
YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 201111109, PROJECT NO. 277737
GROUNDWATER MANAGEMENT PERMIT WATER
SUPPLY WELL AND SURFACE
WATER MONITORING LOCATION PLAN

PREPARED BY: **GZA GeoEnvironmental, Inc.**
 Engineers and Scientists
 www.gza.com

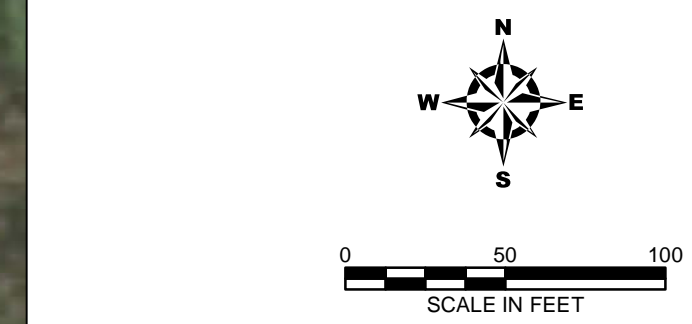
PREPARED FOR:
DARTMOUTH COLLEGE

PROJ. MGR: JMW	DESIGNED BY: JMW	DATE: 03-03-2022	REVIEWED BY: SRL	DRAWN BY: IPG	PROJECT NO. 04.0190030.02	CHECKED BY: JMW	SCALE: 1 inch = 550 feet	REVISION NO.	FIGURE 4
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© 2022 - GZA GeoEnvironmental, Inc. \\GZA\Bldg05\Jobs\04\0190030\04\0190030_0004_0190030_02\Figures\CAD\2021_ASR\Figure 5B - Overburden Hydraulic Head Data Summary.mxd, 4/7/2022, 11:45:47 AM, iam.gaudreau



- LEGEND:**
- MONITORING WELL LOCATION
 - EXISTING SURFACE WATER QUALITY MONITORING LOCATION
 - ESTIMATED OVERBURDEN GROUNDWATER SURFACE ELEVATION CONTOUR (SEE NOTE 7 AND 8)
 - CALCULATED HYDRAULIC HEAD BASED ON MEASUREMENTS MADE BY GZA ON SEPTEMBER 21, 2021 - REFER TO TABLE 6B FOR ADDITIONAL INFORMATION (HYDRAULIC HEAD DATA REFERENCED TO NAVD88)
 - APPROXIMATE PRIVATE WELL LOCATION AND WELL BOARD ID
 - ABANDONED DUG WELL
 - ACTIVE DUG WELL
 - OFF-SITE SYSTEM OVERBURDEN GROUNDWATER EXTRACTION WELL
 - EASEMENT BOUNDARY
 - STREAM CHANNEL LOCATION
 - INTERMITTENT STREAM
 - INFERRED DIRECTION OF SHALLOW OVERBURDEN GROUNDWATER FLOW
 - APPROXIMATE 10-FT GROUND SURFACE ELEVATION CONTOUR (SEE NOTE 4)
 - APPROXIMATE 1-FT GROUND SURFACE ELEVATION CONTOUR PROVIDED BY WSP (SEE NOTE 6)
 - APPROXIMATE WETLANDS LOCATION
 - RENNIE FARM PROPERTY BOUNDARY
 - PARCEL BOUNDARY



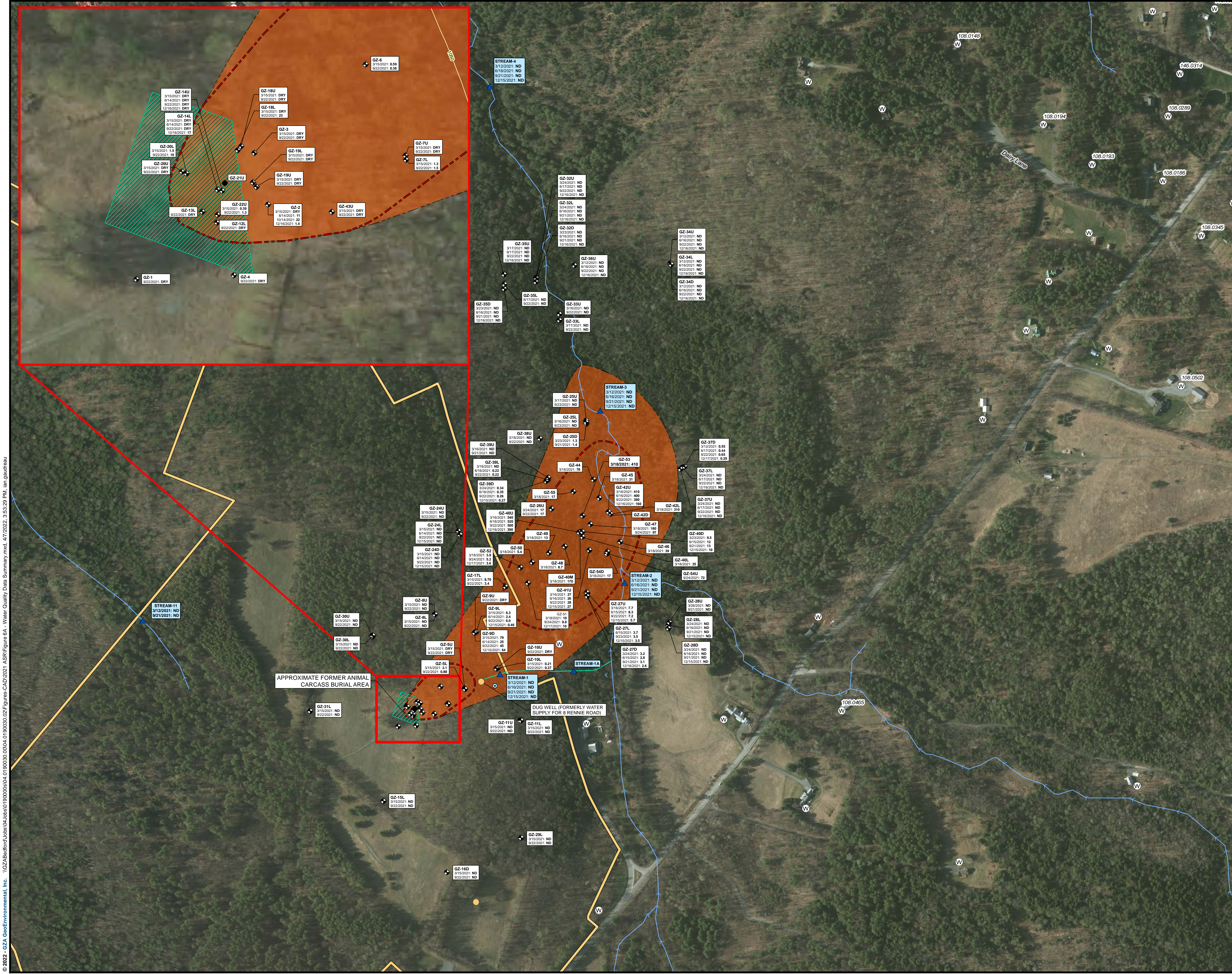
- GENERAL NOTES**
- 1) 2015-2016 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 2) APPROXIMATE PROPERTY BOUNDARIES OBTAINED FROM THE NEW HAMPSHIRE PARCEL MOSAIC DATASET, AVAILABLE FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 3) LOCATIONS OF MONITORING WELLS, WATER SUPPLY WELL WSW-1, DUG WELL (FORMERLY WATER SUPPLY WELL FOR 8 RENNIE ROAD), ONSITE PORTION OF INTERMITTENT STREAM, AND CERTAIN OTHER SITE FEATURES BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016. WELLS INSTALLED AS PART OF REMEDIAL DESIGN INVESTIGATION WERE LOCATED BY GZA USING GPS SURVEY METHODS. REFERENCE POINT ELEVATIONS WERE ESTABLISHED USING OPTICAL SURVEY METHODS.
 - 4) APPROXIMATE GROUND SURFACE ELEVATION CONTOURS SHOWN HEREON WERE DERIVED FROM THE TWO FOOT TOPOGRAPHIC CONTOURS - MINK BROOK-CONNECTICUT RIVER (0108010404) FILTERED GIS DATASET OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 5) INTERMITTENT PERENNIAL STREAMS SHOWN HEREON WERE DERIVED FROM THE NEW HAMPSHIRE HYDROGRAPHY DATASET OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 6) ESTIMATED GROUND SURFACE ELEVATION CONTOURS WITHIN REMEDIAL EASEMENT AREA ARE BASED ON A GROUND SURFACE TOPOGRAPHIC SURVEY BY WSP TRANSPORTATION AND INFRASTRUCTURE, OF NASHUA, NH DURING JANUARY 2017. THE VERTICAL DATUM REFERENCED IS NAVD 88.
 - 7) ESTIMATED OVERBURDEN GROUNDWATER ELEVATION CONTOURS SHOWN HEREON ASSUME ISOTROPIC HOMOGENOUS CONDITIONS. VARIATIONS IN GROUNDWATER FLOW ARE ANTICIPATED BASED ON OUR UNDERSTANDING OF LOCAL HYDROGEOLOGY. REFER TOTEXT FOR ADDITIONAL INFORMATION.
 - 8) CALCULATED HYDRAULIC HEAD, ESTIMATED SHALLOW OVERBURDEN GROUNDWATER HYDRAULIC HEAD CONTOURS, AND THE INFERRED BULK DIRECTION OF GROUNDWATER FLOW ARE BASED ON DEPTH-TO-WATER LEVEL AND PRESSURE MEASUREMENTS MADE ON SEPTEMBER 21, 2021.

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YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
 NHDES SITE NO. 201111109, PROJECT NO. 277737

OVERBURDEN GROUNDWATER HYDRAULIC HEAD DATA SUMMARY - SEPTEMBER 2021

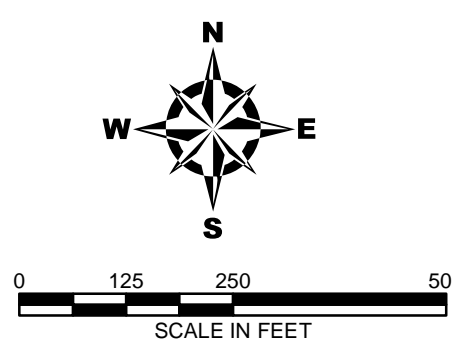
PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		DARTMOUTH COLLEGE	
PROJ. MGR: JMW	REVIEWED BY: SRL	CHECKED BY: JMW	FIGURE 5B
DESIGNED BY: EBD	DRAWN BY: IPG	SCALE: 1 inch = 60 feet	
DATE: 04-07-2022	PROJECT NO: 04.0190030.02	REVISION NO:	



LEGEND:

- GROUNDWATER MONITORING WELL
- WELL ID
SAMPLE DATE: 1,4-DIOXANE CONCENTRATION
- SOIL BORING
- APPROXIMATE PRIVATE WELL LOCATION AND WELL BOARD ID
- SPRING
- ABANDONED DUG WELL
- ACTIVE DUG WELL
- INFERRED LIMITS OF 1,4-DIOXANE AT CONCENTRATIONS EXCEEDING 0.32 MICROGRAMS PER LITER IN FRACTURED BEDROCK GROUNDWATER
- INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
- INTERMITTENT STREAM
- INFERRED LIMITS OF 1,4-DIOXANE AT CONCENTRATIONS EXCEEDING 0.32 MICROGRAMS PER LITER IN OVERBURDEN GROUNDWATER
- RENNIE PROPERTY BOUNDARY
- EXISTING SURFACE WATER QUALITY MONITORING LOCATION
- SURFACE WATER ID
SAMPLE DATE: 1,4-DIOXANE CONCENTRATION

*ND INDICATES NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT (0.25 µg/L) 1,4-DIOXANE DATA IN MICROGRAMS PER LITER



- GENERAL NOTES:**
- 2010-2011 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - APPROXIMATE PROPERTY BOUNDARIES OBTAINED FROM THE NEW HAMPSHIRE PARCEL MOSAIC DATASET, AVAILABLE FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - LOCATIONS OF MONITORING WELLS, DUG WELL (FORMERLY WATER SUPPLY WELL FOR 8 RENNIE ROAD), ONSITE PORTION OF INTERMITTENT STREAM, AND CERTAIN OTHER SITE FEATURES BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DUR ING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016. WELLS INSTALLED AS PART OF REMEDIAL DESIGN INVESTIGATION WERE LOCATED BY GZA USING GPS SURVEY METHODS. REFERENCE POINT ELEVATIONS WERE ESTABLISHED USING OPTICAL SURVEY METHODS.
 - INTERMITTENT/PERENNIAL STREAMS SHOWN HEREON WERE DERIVED FROM THE NEW HAMPSHIRE HYDROGRAPHY DATASET OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - WATER QUALITY DATA SUMMARIZED HEREON REPRESENT THE RESULTS OF THE ANALYSIS OF SAMPLES COLLECTED DURING THE 2021 PERMIT SAMPLING ROUNDS (MARCH, JUNE, SEPTEMBER, AND DECEMBER). CERTAIN MONITORING WELL LOCATIONS WERE DRY OR FROZEN AT THE TIME OF THE SAMPLING ROUNDS. ADDITIONAL ATTEMPTS TO COLLECT SAMPLES MAY HAVE BEEN MADE AND WERE NOT INCLUDED HEREON. REFER TO TABLE 3A AND TABLE 3B FOR ADDITIONAL INFORMATION. CERTAIN WATER SUPPLY WELLS COULD NOT BE RE-SAMPLED DUE TO ACCESS OR PHYSICAL RESTRICTIONS.

NO.	ISSUE / DESCRIPTION	BY	DATE

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**YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 20111109, PROJECT NO. 277737**

1,4-DIOXANE CONCENTRATION DATA SUMMARY

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: DARTMOUTH COLLEGE
PROJ. MGR: JMW DESIGNED BY: JMW DATE: 04-07-2022	REVIEWED BY: SRL DRAWN BY: IPG PROJECT NO. 04.0190030.02
CHECKED BY: JMW SCALE: 1 inch = 225 feet REVISION NO.	FIGURE 6A



LEGEND:

- GROUNDWATER MONITORING WELL
 - WELL ID
 - CALCULATED HYDRAULIC HEAD
 - SAMPLE DATE: 1,4-DIOXANE CONCENTRATION
 - *ND = INDICATES NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT OF 0.20 µg/L
 - *LADOXANE DATA IN MICROGRAMS PER LITER
 - *HYDRAULIC HEAD DATA REFERENCED TO NAVD83
 - *- INDICATES THAT THE WELL WAS DRY AND THE GROUNDWATER ELEVATION IS LESS THAN THE ELEVATION OF THE BOTTOM OF THE WELL SHOWN.
- BEDROCK GROUNDWATER EXTRACTION WELL
- OVERBURDEN GROUNDWATER EXTRACTION WELL
- INFERRED GROUNDWATER CAPTURE ZONE
- ESTIMATED BEDROCK GROUNDWATER HYDRAULIC HEAD CONTOUR
- INFERRED BULK DIRECTION OF GROUNDWATER FLOW
- APPROXIMATE LOCATION OF LABORATORY WASTE BURIAL PIT AND NUMBER (SEE NOTE 5)
- EXTRACTION WELL ID AND APPROXIMATE PUMP INTAKE ELEVATION IN FEET
- APPROXIMATE 1 FT GROUND SURFACE ELEVATION CONTOURS SURVEYED BY WSP

GENERAL NOTES:

- 2015-2016 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
- LOCATIONS OF MONITORING WELLS BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, AND MAY 31, 2016.
- APPROXIMATE 1-FT GROUND SURFACE ELEVATION CONTOURS SHOWN HEREON WERE SURVEYED BY WSP ON MAY 31, 2016.
- CALCULATED HYDRAULIC HEAD VALUES, ESTIMATED BEDROCK GROUNDWATER HYDRAULIC HEAD CONTOURS AND INFERRED BULK DIRECTION OF GROUNDWATER FLOW SHOWN ARE DERIVED FROM THE SEPTEMBER 2021 MONITORING ROUND.
- THE APPROXIMATE LOCATIONS OF LABORATORY WASTE BURIAL PITS ARE BASED ON A SKETCH TITLED "RADIOACTIVE BURIAL AREA AT RENNIE FARM" AND THE SURVEYED LOCATIONS OF FEATURES ILLUSTRATED ON THE SKETCH INCLUDING A FENCE POST IDENTIFIED AS THE SOUTHWESTERN CORNER OF THE BURIAL AREA FENCE, A FENCE POST ALLOCATED ALONG THE SOUTHERN FENCE LINE, THE HUMAN BURIAL AREA, AND SECTIONS OF STONE WALLS. THE LOCATIONS OF THE LISTED FEATURES IS BASED ON A SURVEYS BY WSP (SEE NOTE 2).
- ESTIMATED GROUNDWATER HYDRAULIC HEAD CONTOURS AND INFERRED DIRECTIONS OF GROUNDWATER FLOW SHOWN ASSUME ISOTROPIC HOMOGENOUS CONDITIONS. THESE ASSUMPTIONS ARE NOT VALID AT SMALLER SPATIAL SCALES, AND LOCAL VARIATIONS IN GROUNDWATER FLOW ARE ANTICIPATED. BASED ON OUR UNDERSTANDING OF LOCAL HYDROGEOLOGY, THE ASSUMPTIONS OF ISOTROPIC HOMOGENOUS CONDITIONS AT THE SPATIAL SCALE ILLUSTRATED HEREON ARE CONSIDERED VALID BY GZA.
- WATER QUALITY DATA SUMMARIZED HEREON REPRESENT THE RESULTS OF THE ANALYSIS OF SAMPLES COLLECTED DURING MARCH, JUNE, SEPTEMBER, AND DECEMBER 2021. REFER TO TABLE 9 FOR ADDITIONAL INFORMATION.

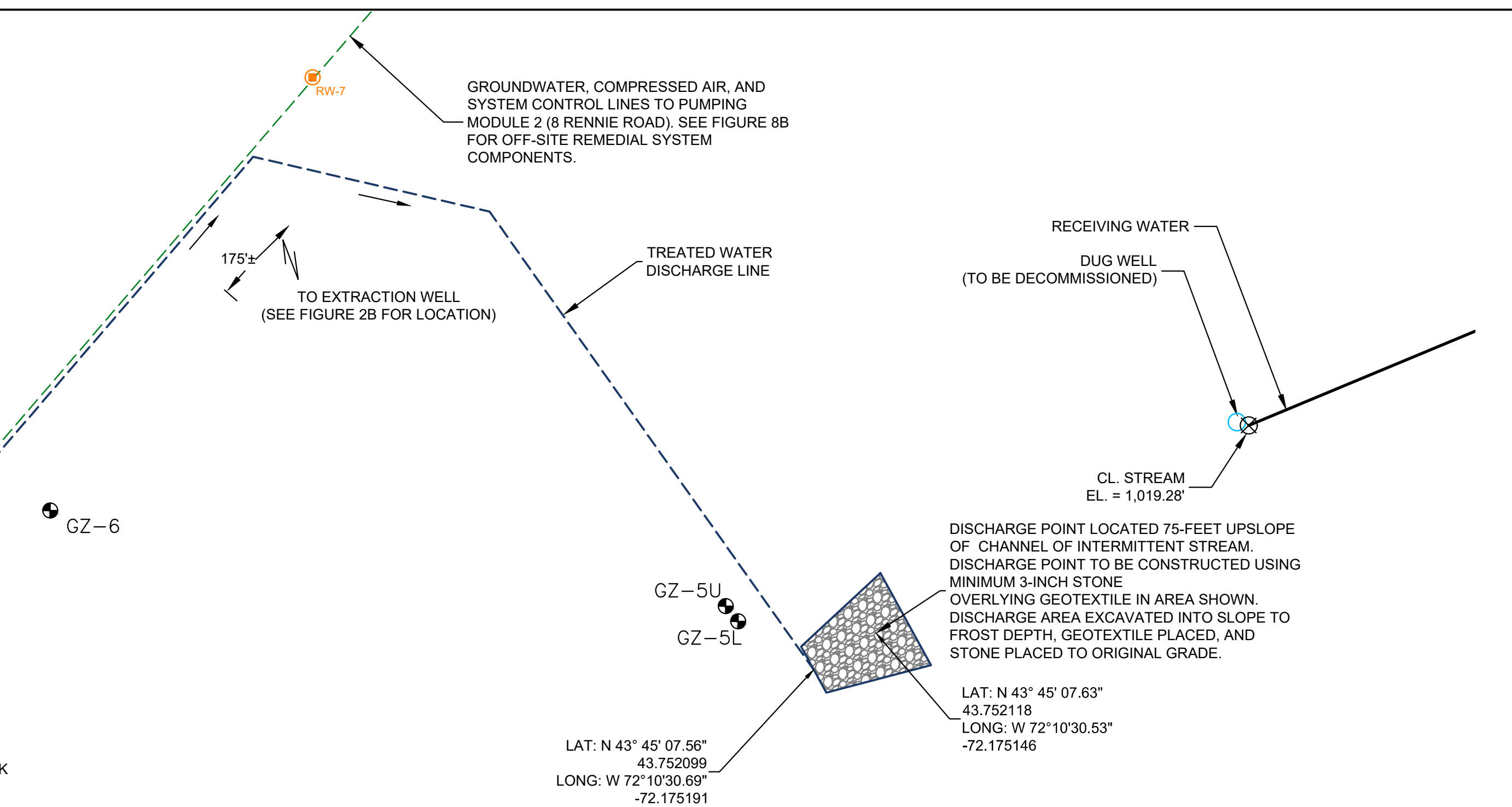
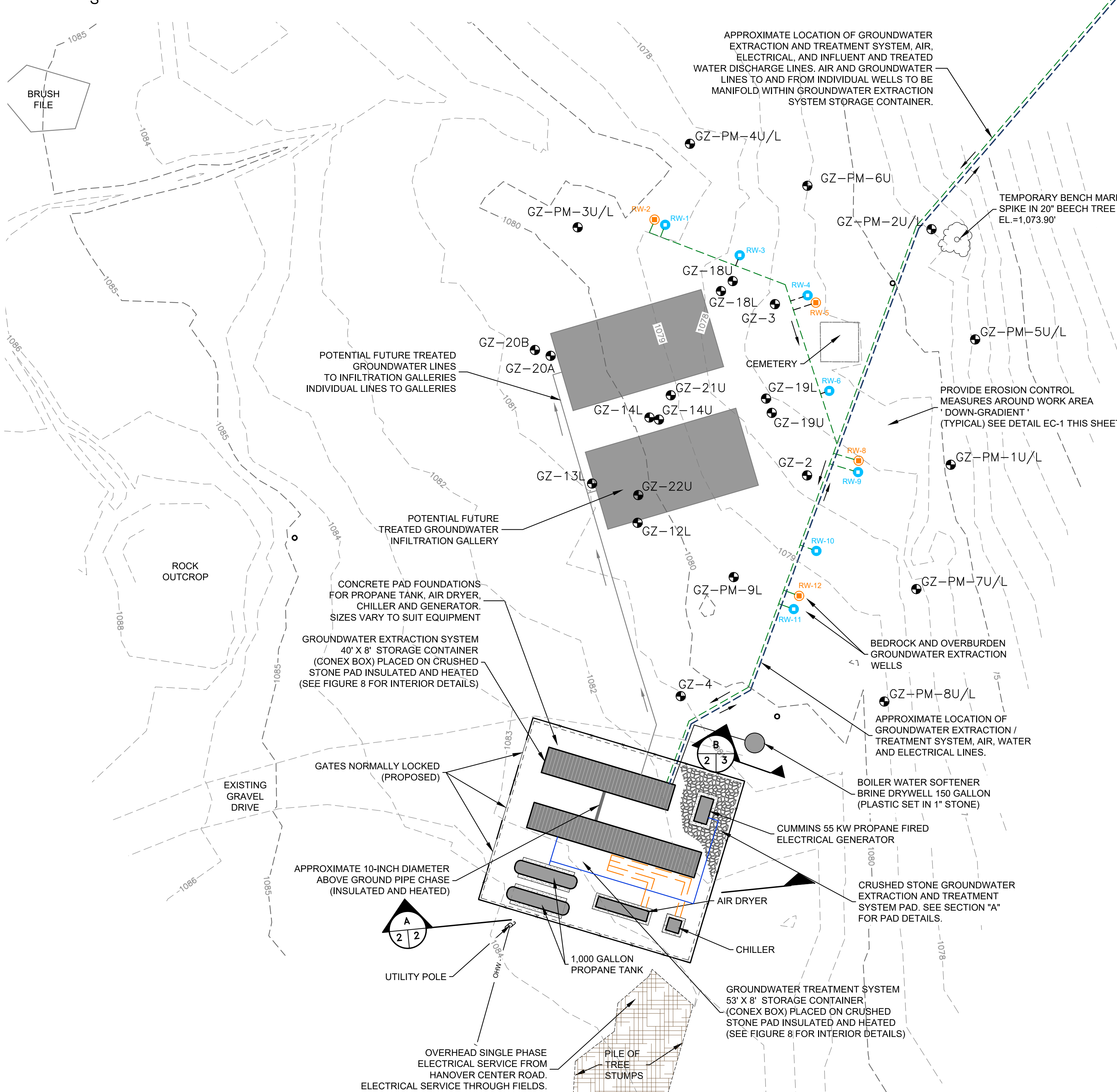
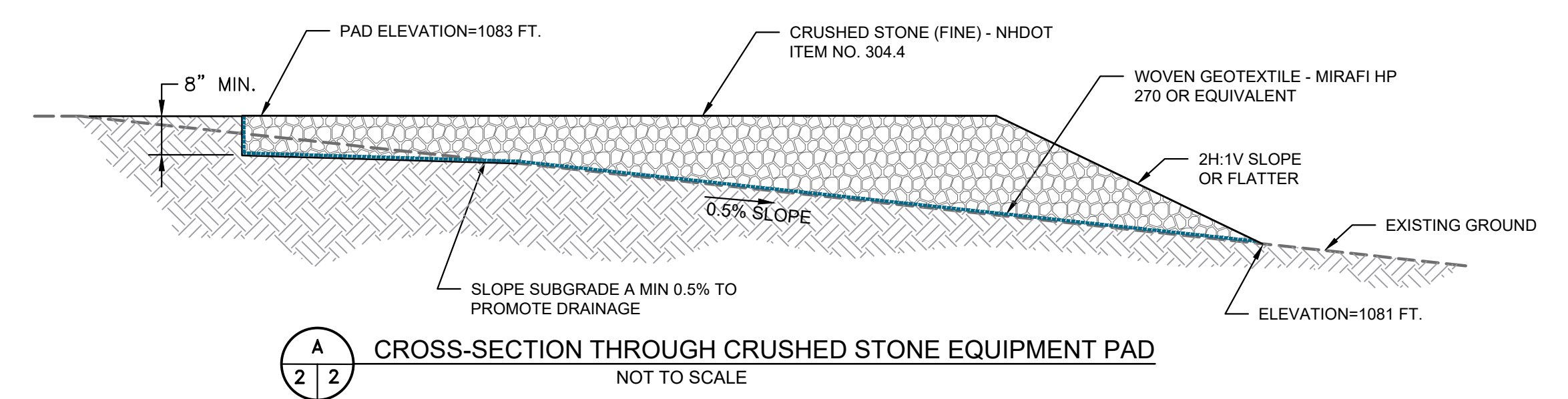
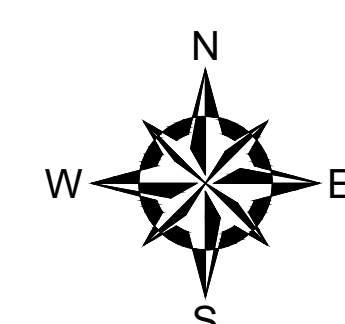
NO.	ISSUE / DESCRIPTION	BY	DATE

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**YEAR 2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 201111109, PROJECT NO. 277737**

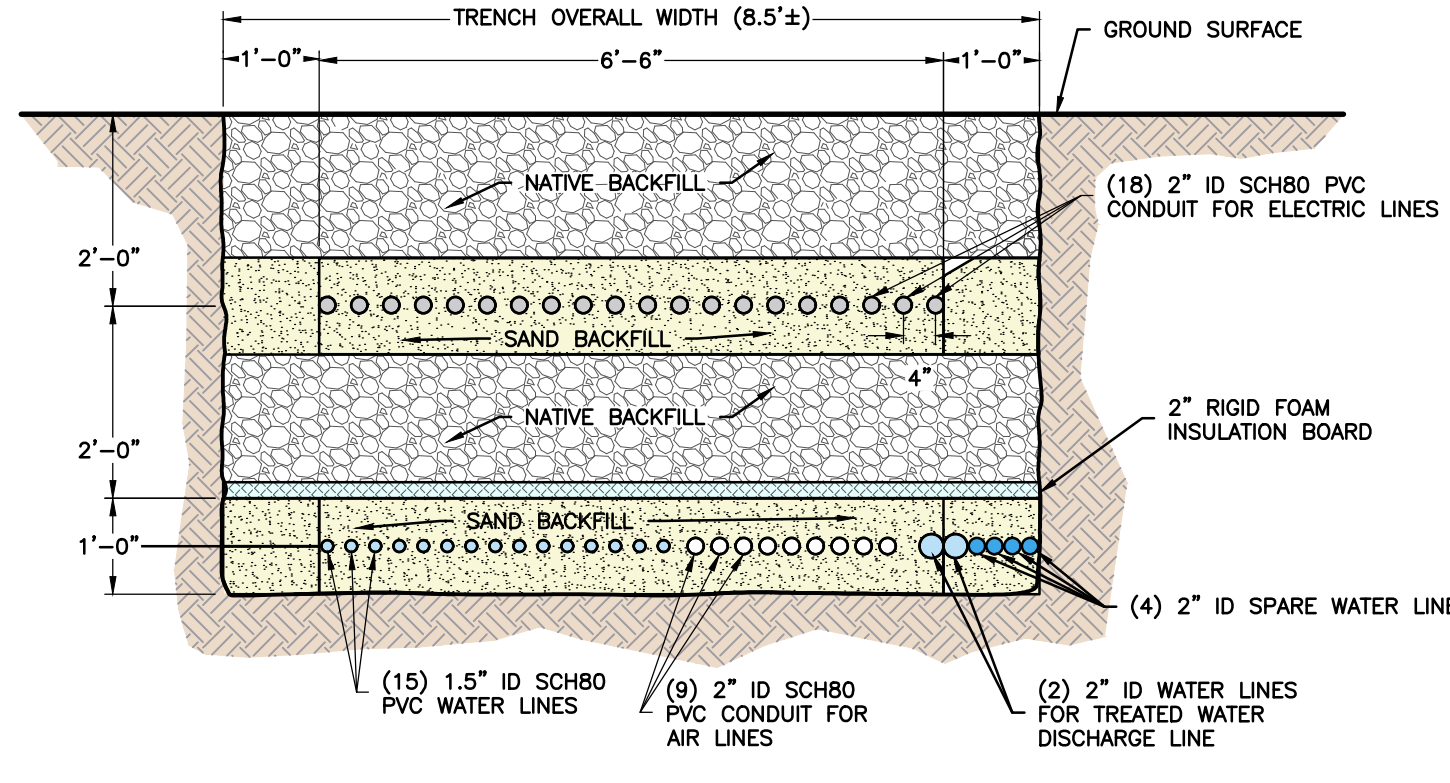
**ON-SITE PERFORMANCE MONITORING
GROUNDWATER DATA SUMMARY**

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: DARTMOUTH COLLEGE
PROJ. MGR: JMW DESIGNED BY: JMW DATE: 04-07-2022	REVIEWED BY: SRL DRAWN BY: IPG PROJECT NO. 04.0190030.02
CHECKED BY: JMW SCALE: 1 inch = 16 feet REVISION NO.	FIGURE 6B

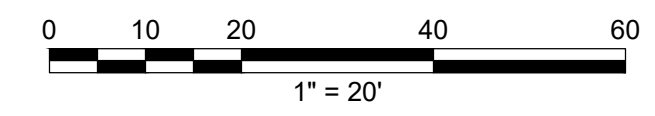


- LEGEND:**
- GZ-3 EXISTING MONITORING WELL
 - TEMPORARY BENCH MARK
 - RW-2 BEDROCK GROUNDWATER EXTRACTION WELL
 - RW-1 OVERBURDEN GROUNDWATER EXTRACTION WELL
 - GZ-PM-1U/L EXISTING REMEDIATION DESIGN / PERFORMANCE MONITORING BEDROCK WELL COUPLET
 - DIRECTION OF FLOW
 - ABOVE GROUND PROPANE LINE
 - ABOVE GROUND REGENERATION WATER FLOW LINE

- NOTES:**
1. BASE PLAN DEVELOPED FROM ELECTRONIC DRAWING FILE 188289A_REV3.DWG OF PLAN TITLED MONITORING WELL SURVEY PREPARED BY WSP GROUP (DATED 11-05-2015, LAST REVISED 06-26-2016)
 2. SITE FEATURES EXCLUDING REMEDIATION SYSTEM COMPONENTS ARE AN ACTUAL ON THE GROUND FIELD SURVEY PERFORMED BY WSP ON SEVERAL DATES MOST RECENT BEING MAY 27, 2016.
 3. THE HORIZONTAL DATUM SHOWN HEREON REFERENCES THE NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM. THE HORIZONTAL POSITION WAS ESTABLISHED BY MEANS OF STATIC GPS SOLUTION AND AN OBSERVED MAGNETIC BEARING WITH A DECLINATION APPLIED FROM TRAVERSE POINT 2 TO TRAVERSE POINT 1.
 4. THE VERTICAL DATUM SHOWN REFERENCES NAVD 88.



B
2 | 3
TYPICAL TRENCH DETAIL
SCALE: 1/2"=1'-0"



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2021 ANNUAL SUMMARY REPORT
DARTMOUTH COLLEGE, RENNIE FARM SITE
HANOVER, NEW HAMPSHIRE
NHDES SITE NO. 201111109, NH6910071

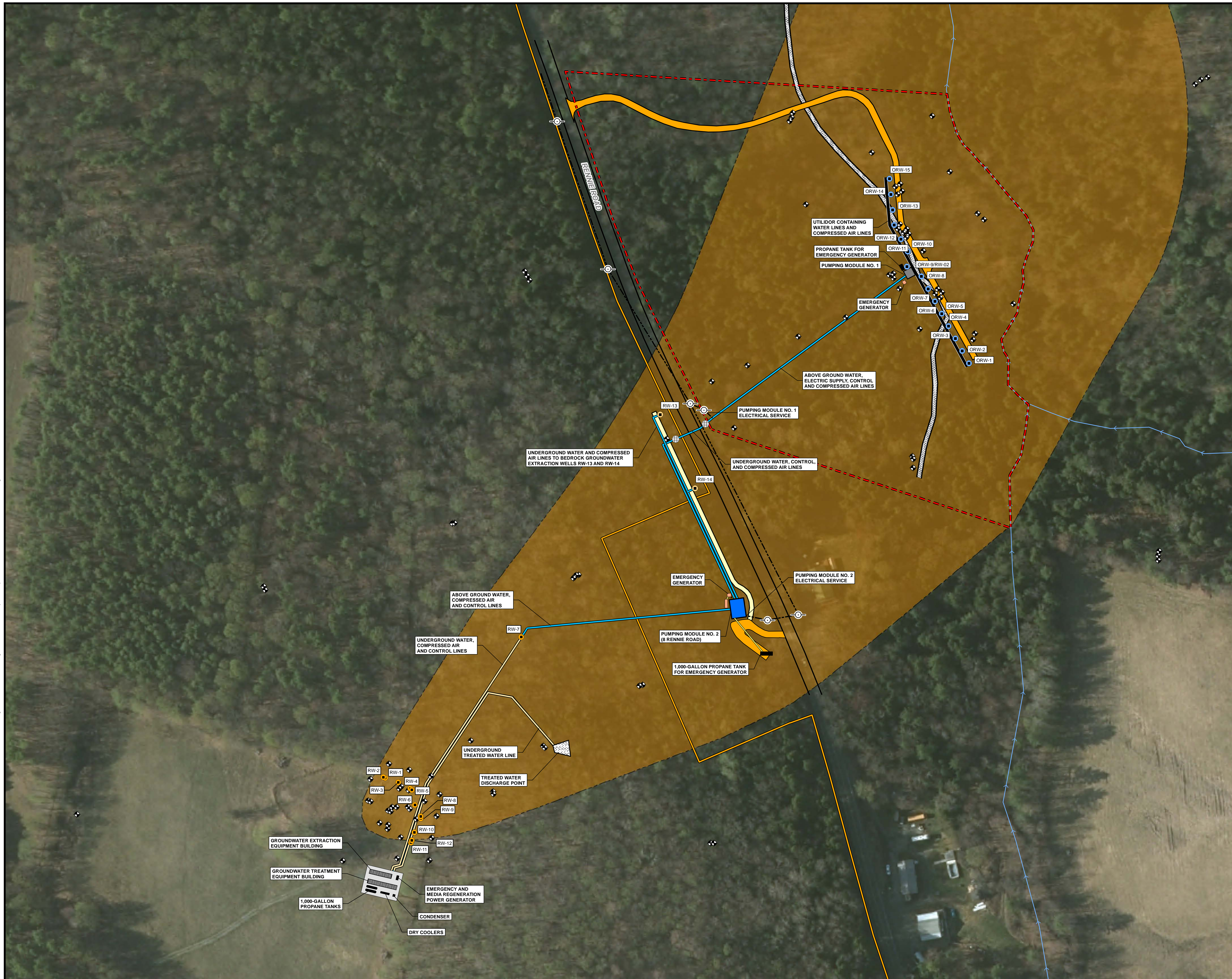
ON-SITE REMEDIATION SYSTEM LAYOUT

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com
PREPARED FOR: DARTMOUTH COLLEGE HANOVER, NEW HAMPSHIRE

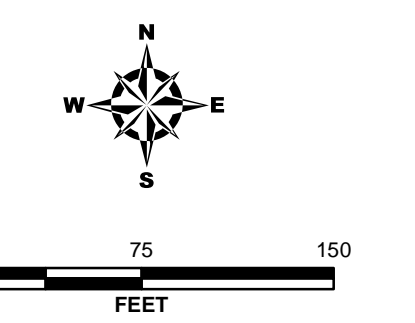
PROJ MGR: JMW	DESIGNED BY: JMW	REVIEWED BY: JMW	CHECKED BY: SRL	SHEET 8A SHEET NO.
DATE: MARCH 2022	DRAWN BY: AJP	PROJECT NO.: 04-0190030.02	REVISION NO.: 0	
SCALE: AS NOTED				

© 2022 - GZA GeoEnvironmental, Inc. GZA-1\gsdredfor\libs\shape\0190030\CA-01 188289A\Figure 8A - Remediation System Layout.dwg [Figure 8A] March 08, 2022 - 3:45pm alexander.gonzalez

© 2022 - GZA GeoEnvironmental, Inc. \\GZA\Bedford\Jobs\04190030\04.0190030.0004.0190030.02\Figures\CAD\2021_ASR\Figure 8B - Remedial System Layout Plan.mxd, 4/7/2022, 12:02:55 PM, iam.gaudreau



- LEGEND:**
- GROUNDWATER MONITORING WELL
 - ON-SITE SYSTEM GROUNDWATER EXTRACTION WELL
 - OFF-SITE SYSTEM BEDROCK GROUNDWATER EXTRACTION WELL
 - UTILITY POLE
 - MANHOLE
 - INFERRED LIMITS OF 1,4-DIOXANE AT CONCENTRATIONS EXCEEDING 0.32 MICROGRAMS PER LITER
 - APPROXIMATE REMEDIATION EASEMENT BOUNDARY
 - APPROXIMATE BUILDING FOOTPRINT
 - VEHICLE ACCESS ROAD
 - UTV ACCESS PATH
 - EDGE OF PAVED ROADWAY
 - APPROXIMATE STREAM CHANNEL LOCATION
 - LOGGING ROAD
 - OVERHEAD WIRE
 - APPROXIMATE RENNIE FARM PROPERTY BOUNDARY



- GENERAL NOTES**
- 1) BASE PLAN FROM PLAN BY WSP TRANSPORTATION AND INFRASTRUCTURE, TITLED "MONITORING WELL SURVEY, RENNIE ROAD ETNA, NEW HAMPSHIRE, PREPARED FOR GZA," REVISION 7, DATED JANUARY 8, 2017 AND 188289A_REV3.DWG OF PLAN TITLED MONITORING WELL SURVEY PREPARED BY WSP GROUP (DATED 11-05-2015, LAST REVISED 06-26-2016)
 - 2) BASEMAP IMAGERY SHOWN HEREON IS DERIVED FROM THE 2015 1-FT COLOR AERIAL PHOTOS DATASET PROVIDED BY NH GRANIT.
 - 3) APPROXIMATE PROPERTY BOUNDARIES, INCLUDING RENNIE FARM PROPERTY BOUNDARY, BASED ON REVIEW OF TOWN OF HANOVER, NEW HAMPSHIRE TAX MAP 13, 15, AND 16, DATED APRIL 1, 2015.
 - 4) LOCATIONS OF EXISTING MONITORING WELLS, GROUND SURFACE TOPOGRAPHY, AND CERTAIN OTHER SITE FEATURES BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE DURING OCTOBER 2014, JUNE 2015, JANUARY 2016, MAY 31, 2016, AUGUST 2016, OCTOBER 2016, AND JANUARY 2017. WELLS INSTALLED AS PART OF REMEDIAL DESIGN INVESTIGATION WERE LOCATED BY GZA USING GPS SURVEY METHODS. REFERENCE POINT ELEVATIONS WERE ESTABLISHED USING OPTICAL SURVEY METHODS.
 - 5) APPROXIMATE LOCATIONS OF WETLANDS BASED ON SURVEYS BY GZA.
 - 6) LOCATIONS OF FEATURES SHOWN ARE APPROXIMATE.
 - 7) LOCATIONS OF OFF-SITE REMEDIAL PERFORMANCE MONITORING WELLS (I.E., WELLS DESIGNATED GZ-OPM) ARE BASED ON OBSERVATIONS BY GZA AND ARE APPROXIMATE.

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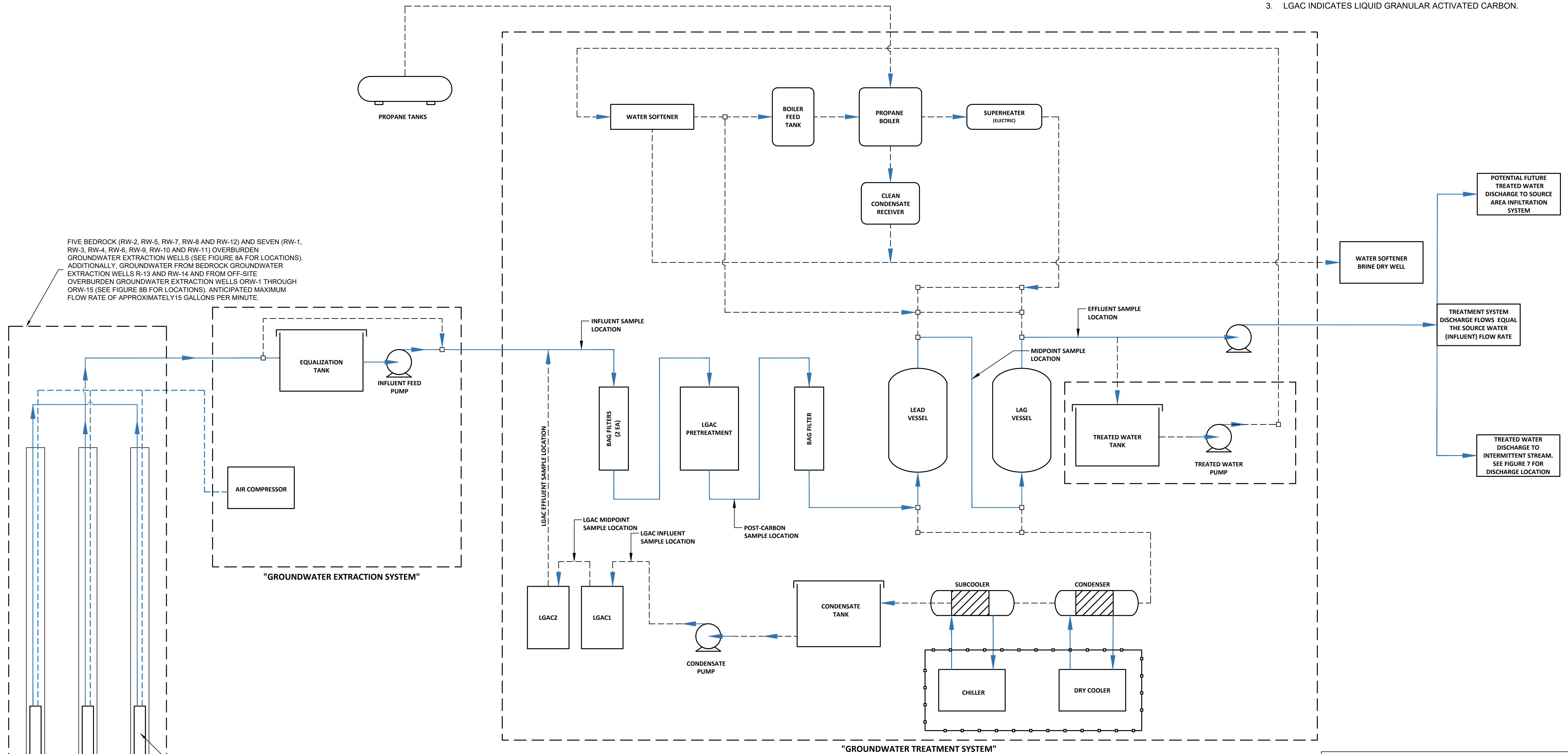
YEAR 2021 ANNUAL SUMMARY REPORT
 DARTMOUTH COLLEGE, RENNIE FARM SITE
 HANOVER, NEW HAMPSHIRE
 NHDES SITE NO. 20111109, PROJECT NO. 277737

REMEDIATION SYSTEM LAYOUT,
 ON-SITE AND OFF-SITE FEATURES

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: DARTMOUTH COLLEGE	
PROJ. MGR: JMW	REVIEWED BY: SRL	CHECKED BY: JMW	FIGURE 8B
DESIGNED BY: JMW	DRAWN BY: IPG	SCALE: 1 inch = 75 feet	
DATE: 04-07-2022	PROJECT NO: 04.0190030.02	REVISION NO:	

NOTES:

1. BASE PROCESS FLOW DIAGRAM DEVELOPED FROM AN ELECTRONIC PDF FIGURE BY ECT, TITLED "PROCESS FLOW DIAGRAM" DATED 10/10/16, LAST REVISED 10/27/16.
2. GROUNDWATER EXTRACTION WELL FIELD INCLUDES (7) OVERBURDEN AND (5) BEDROCK GROUNDWATER EXTRACTION WELLS. REFER TO FIGURE 7 FOR ADDITIONAL INFORMATION.
3. LGAC INDICATES LIQUID GRANULAR ACTIVATED CARBON.



FIVE BEDROCK (RW-2, RW-5, RW-7, RW-8 AND RW-12) AND SEVEN (RW-1, RW-3, RW-4, RW-6, RW-9, RW-10 AND RW-11) OVERBURDEN GROUNDWATER EXTRACTION WELLS (SEE FIGURE 8A FOR LOCATIONS). ADDITIONALLY, GROUNDWATER FROM BEDROCK GROUNDWATER EXTRACTION WELLS R-13 AND RW-14 AND FROM OFF-SITE OVERBURDEN GROUNDWATER EXTRACTION WELLS ORW-1 THROUGH ORW-15 (SEE FIGURE 8B FOR LOCATIONS). ANTICIPATED MAXIMUM FLOW RATE OF APPROXIMATELY 15 GALLONS PER MINUTE.

PNEUMATIC LEVEL MAINTAINING GROUNDWATER EXTRACTION WELL PUMP

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2021 ANNUAL SUMMARY REPORT
 DARTMOUTH COLLEGE, RENNIE FARM SITE
 HANOVER, NEW HAMPSHIRE
 NHDES SITE NO. 201111109, NH6910071

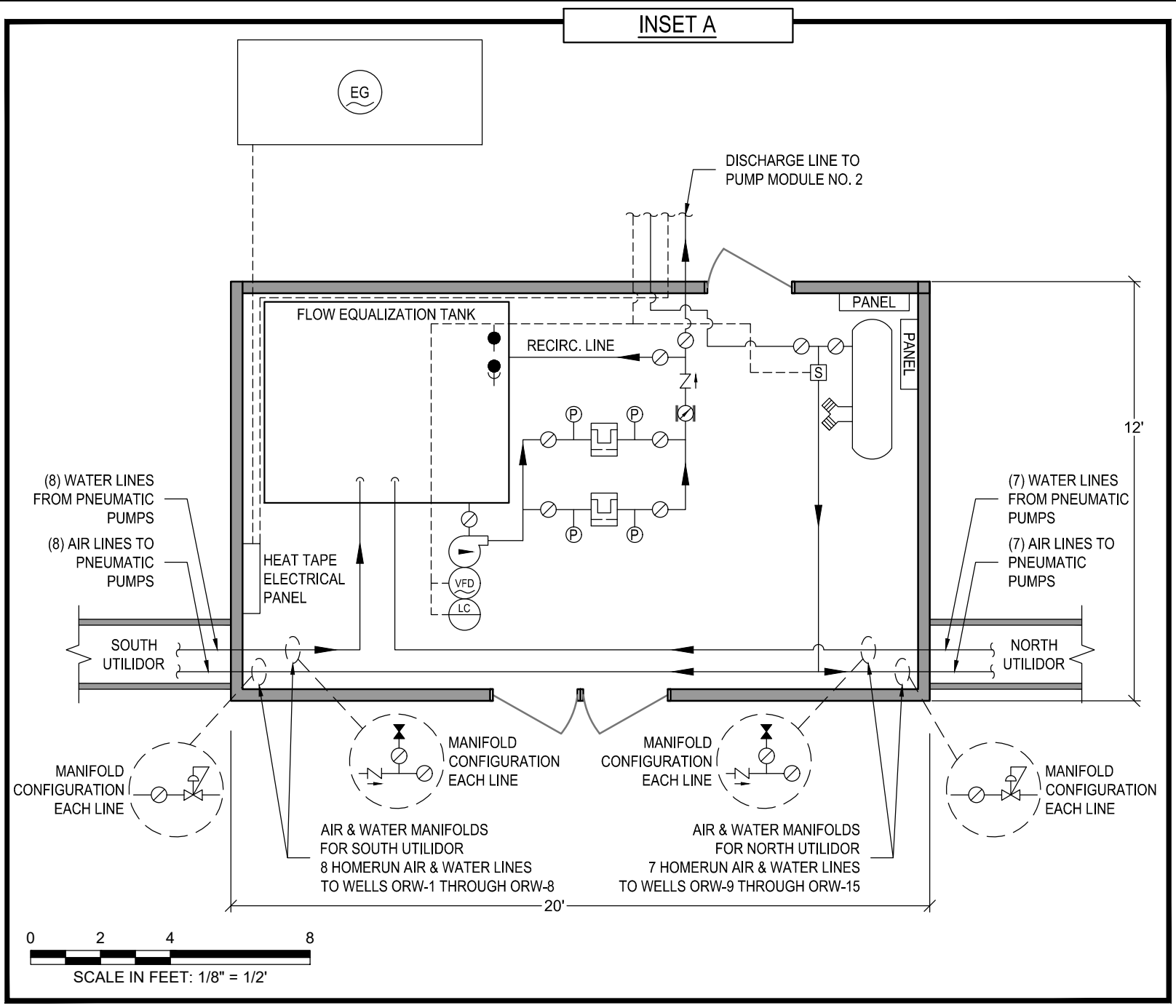
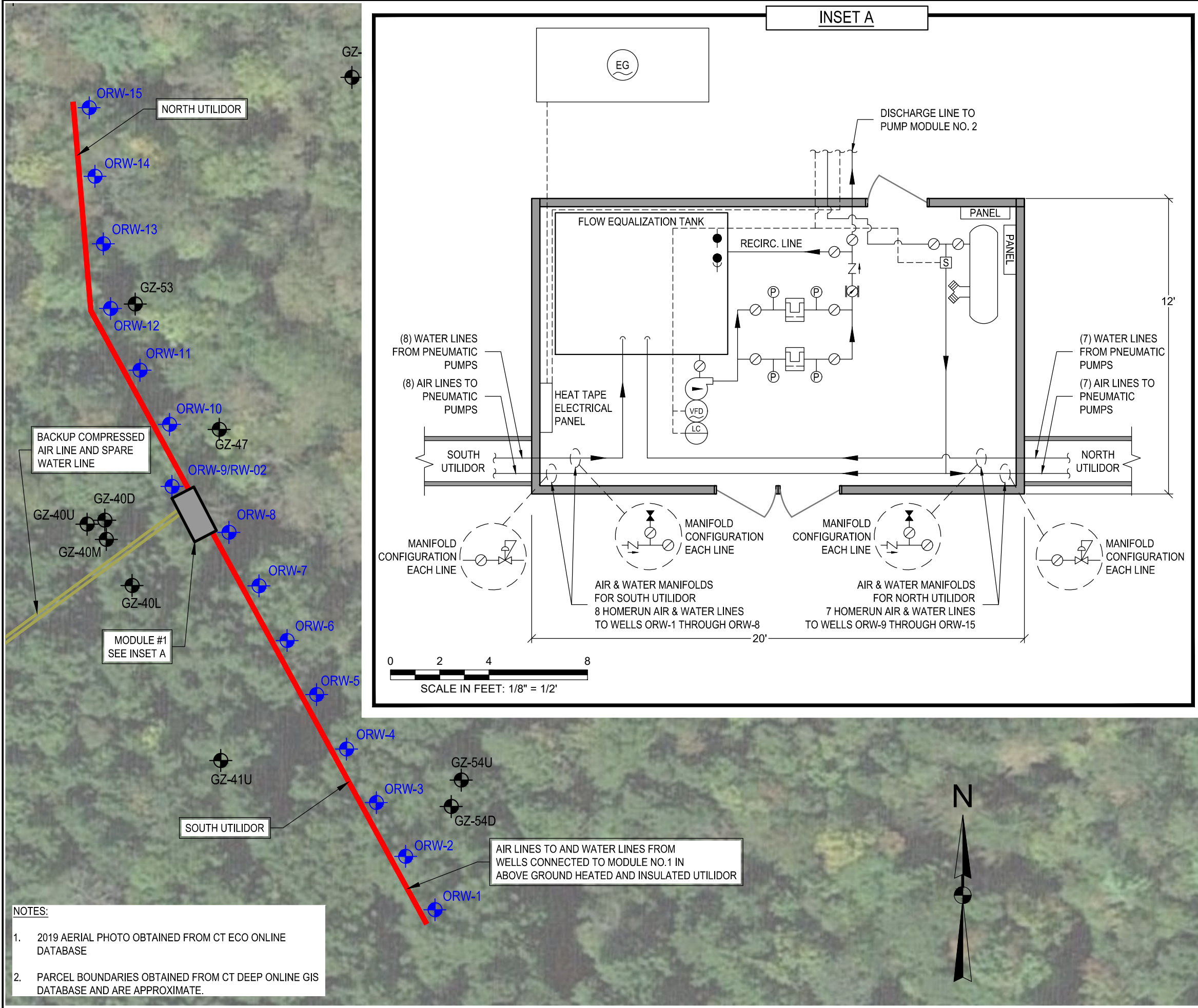
**ON-SITE REMEDIATION SYSTEM
 PROCESS DIAGRAM**

PREPARED BY: **GZA** GeoEnvironmental, Inc. Engineers and Scientists
 www.gza.com
 PREPARED FOR: DARTMOUTH COLLEGE
 HANOVER, NEW HAMPSHIRE

PROJ MGR: JMW REVIEWED BY: JMW CHECKED BY: SRL
 DESIGNED BY: JMW DRAWN BY: AJP SCALE: N.T.S.
 DATE: MARCH 2022 PROJECT NO. 04-0190030.02 REVISION NO. 0

SHEET
10
 SHEET NO.

GZA - GZA GeoEnvironmental, Inc. © 2022 - GZA GeoEnvironmental, Inc. GZA-\\GZABED\FORD\JOBS\04\JOBS\01900005\04.0190030.00\REPORT\2021 ASR\FIGURES\P&IDs\FIGURE 11 & 12 - P&ID.DWG F11 MODULE#1 11X17 JUNE 9, 2021 ALEXANDER PEREZ



LEGEND

- UTILIDOR
- ABOVEGROUND WATER, AIR, ELECTRICAL, COMPRESSED AIR, AND COMMUNICATION LINES
- EXISTING GROUNDWATER MONITORING WELL
- OVERBURDEN GROUNDWATER EXTRACTION WELL

SYMBOL KEY

- PROCESS AND FLOW DIRECTION (AIR AND WATER)
- ELECTRICAL LINE
- EMERGENCY GENERATOR
- STORAGE TANK
- COMPRESSOR
- DISCHARGE PUMP
- VARIABLE SPEED DRIVE
- LEVEL CONTROLLER
- SAMPLE PORT
- CHECK VALVE
- BALL VALVE
- FLOW METER
- CARTRIDGE FILTER
- PRESSURE GAUGE
- PRESSURE REGULATOR
- SOLENOID VALVE
- ELECTRICAL SERVICE PANEL
- SHUT OFF FLOAT
- HIGH-HIGH SHUT OFF FLOAT

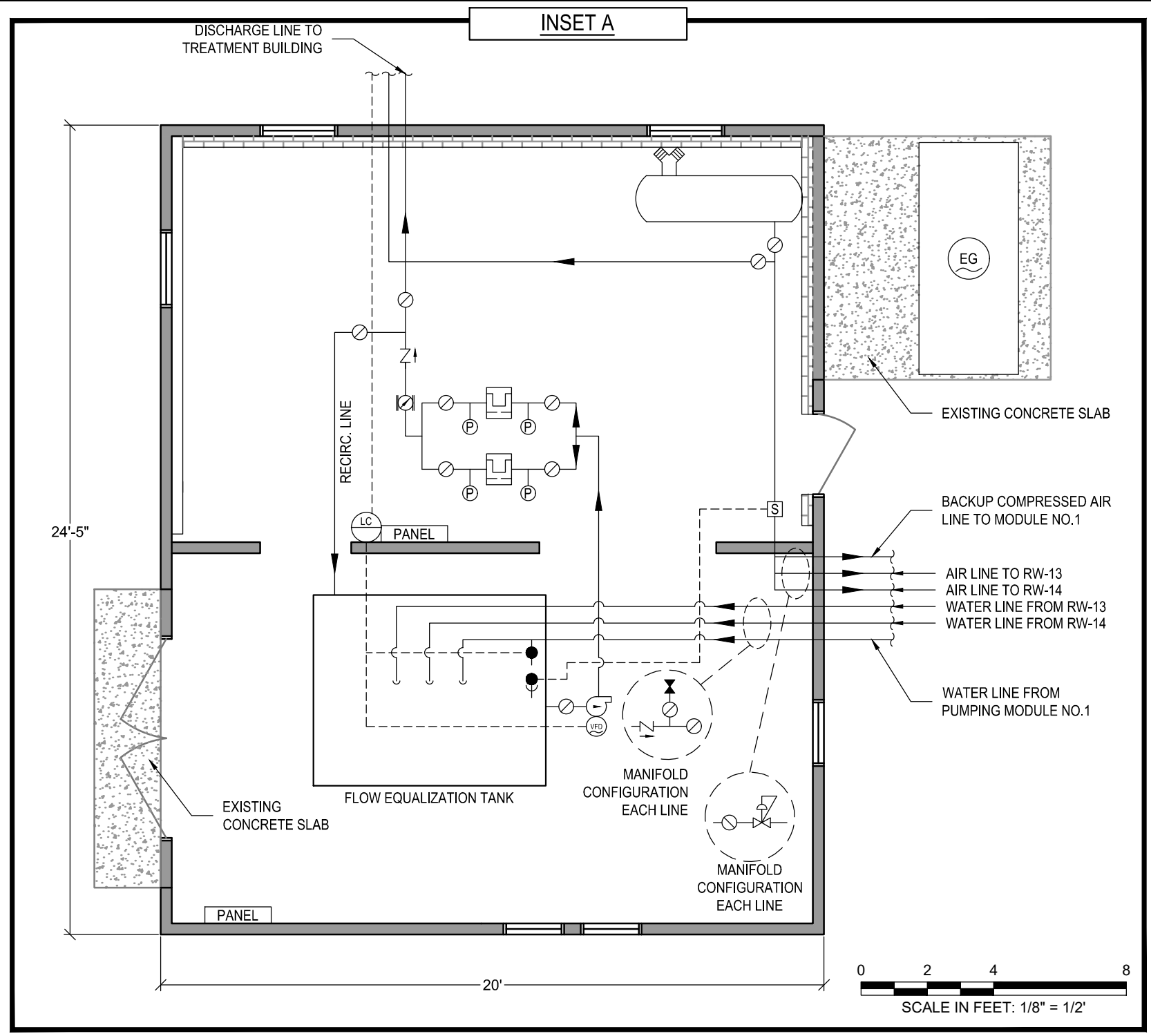
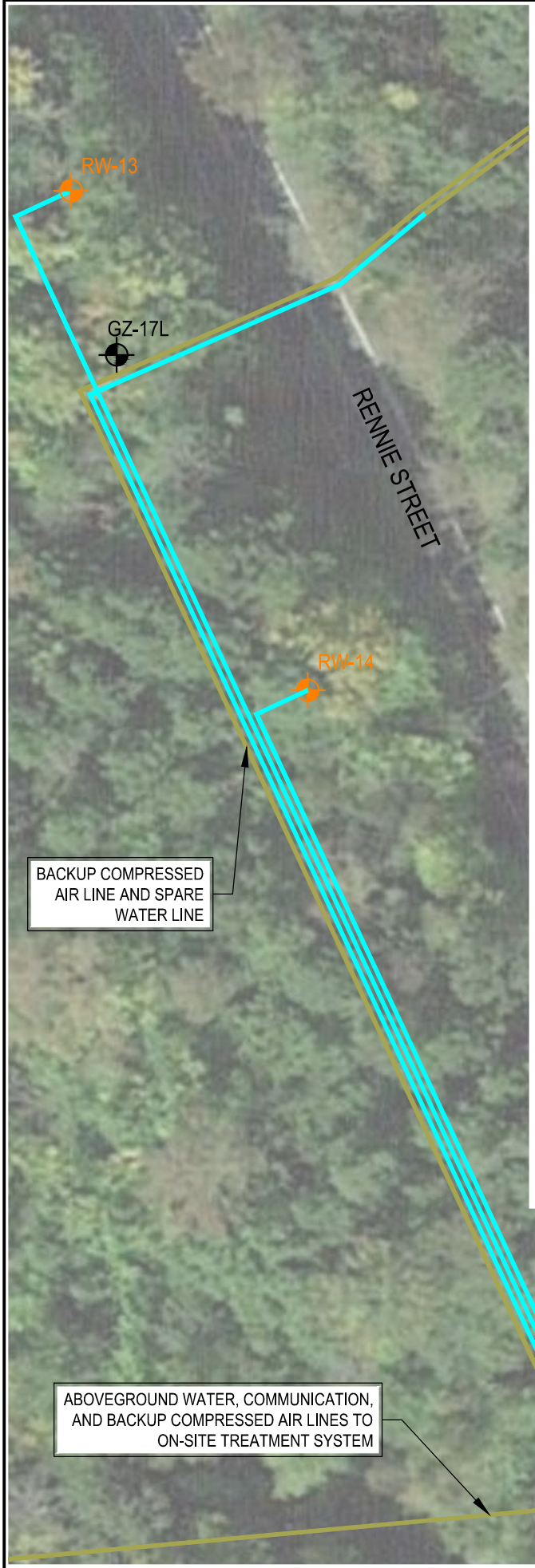
0 20 40 80
SCALE IN FEET 1" = 40'

- NOTES:**
- 2019 AERIAL PHOTO OBTAINED FROM CT ECO ONLINE DATABASE
 - PARCEL BOUNDARIES OBTAINED FROM CT DEEP ONLINE GIS DATABASE AND ARE APPROXIMATE.

NO.	ISSUE/DESCRIPTION	BY	DATE
<small>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.</small>			
YEAR 2021 ANNUAL SUMMARY REPORT DARTMOUTH COLLEGE, RENNIE FARM SITE, HANOVER, NH NHDES SITE NO. 201111109, PROJECT NO. 277737			
PUMPING MODULE NO.1 SYSTEM LAYOUT / PROCESS AND INSTRUMENTATION DIAGRAM			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: DARTMOUTH COLLEGE	
PROJ MGR: JMW DESIGNED BY: JMW DATE: MARCH 2022	REVIEWED BY: SRL DRAWN BY: AJP PROJECT NO. 04.0190030.02	CHECKED BY: JMW SCALE: AS SHOWN REVISION NO.	FIGURE 11 SHEET NO. 1 OF 1



GZA - GZA GeoEnvironmental, Inc. © 2022 - GZA GeoEnvironmental, Inc. GZA-\\GZABEDFORD\JOBS\04\JOBS\01900005\04.0190030.02\REPORT\2021 ASR\FIGURES\P&IDs\FIGURE 11 & 12 - P&ID.DWG F12 MODULE#2 11X17 JUNE 9, 2021 ALEXANDER PEREZ



LEGEND

- ABOVEGROUND WATER, AIR, ELECTRICAL, COMPRESSED AIR, AND COMMUNICATION LINES
- UNDERGROUND WATER, AIR, ELECTRICAL, COMPRESSED AIR, AND COMMUNICATION LINES
- GROUNDWATER MONITORING WELL
- BEDROCK GROUNDWATER EXTRACTION WELL

SYMBOL KEY

- PROCESS AND FLOW DIRECTION (AIR AND WATER)
- ELECTRICAL LINE
- EMERGENCY GENERATOR
- STORAGE TANK
- COMPRESSOR
- DISCHARGE PUMP
- VARIABLE SPEED DRIVE
- LEVEL CONTROLLER
- SAMPLE PORT
- CHECK VALVE
- BALL VALVE
- FLOW METER
- CARTRIDGE FILTER
- PRESSURE GAUGE
- PRESSURE REGULATOR
- SOLENOID VALVE
- ELECTRICAL SERVICE PANEL
- SHUT OFF FLOAT
- HIGH-HIGH SHUT OFF FLOAT

SCALE IN FEET 1" = 40'

NO.	ISSUE/DESCRIPTION	BY	DATE

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YEAR 2021 ANNUAL SUMMARY REPORT
 DARTMOUTH COLLEGE, RENNIE FARM SITE, HANOVER, NH
 NHDES SITE NO. 201111109, PROJECT NO. 277737

**PUMPING MODULE NO.2
 SYSTEM LAYOUT /
 PROCESS AND INSTRUMENTATION DIAGRAM**

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: DARTMOUTH COLLEGE	
PROJ MGR: JMW DESIGNED BY: JMW DATE: MARCH 2022	REVIEWED BY: SRL DRAWN BY: AJP PROJECT NO.: 04.0190030.02	CHECKED BY: JMW SCALE: AS SHOWN REVISION NO.	FIGURE 12 SHEET NO. 1 OF 1

- NOTES:**
1. 2019 AERIAL PHOTO OBTAINED FROM CT ECO ONLINE DATABASE
 2. PARCEL BOUNDARIES OBTAINED FROM CT DEEP ONLINE GIS DATABASE AND ARE APPROXIMATE.





Appendix A – 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.



Appendix B – Conceptual Site Model



1.0 CONCEPTUAL SITE MODEL

The CSM is described in this section and is based on the results of the investigation activities summarized in the reports listed in **Table 1**. The CSM was originally included in GZA's May 6, 2016 report and was updated in GZA's September 1, 2016 Remedial Action Plan (RAP), and July 14, 2017 report.

1.1 SITE LOCATION USE AND PHYSIOGRAPHY

The site consists of an approximate 223-acre parcel (Town of Hanover Tax Map 13, Block 14, Lot 1), with a street address of 572 Hanover Center Road, Hanover, New Hampshire. The limits of the site are illustrated on **Figure 1A**. In addition to Hanover Center Road, the site abuts Rennie, Visiting, and Wardrobe Roads in Hanover. The site is located within a Rural Residential zone and is abutted by residential and undeveloped lots. The majority of the site is wooded. Five large fields comprising approximately 20 acres of the site are maintained by Dartmouth by periodic mowing.

Prior to the 1960s the site is believed to have been used for agricultural purposes. The site is currently owned by Dartmouth College which acquired the site during the 1960s. During the period from approximately 1966 to 1978, Dartmouth Medical School used a less-than-0.5-acre portion of the site for the disposal of animal carcasses that had been used in experiments involving radiological materials. An approximately 100-square-foot area adjacent to the burial area was also used by Dartmouth Medical School for the burial of human remains used in gross anatomy instruction. The approximate locations of the animal carcass and human remains burial areas are depicted on **Figure 3**.

Structures formerly located on the site include a barn located near the entrance to the site off Hanover Center Road demolished during 2018 near the former location of a residence at the site that was demolished during 2011. Other historical site features are depicted on **Figure 2B** and include:

- An abandoned overburden water supply well (Dug Well);
- An abandoned overburden water supply (Dug Well-2) located adjacent to a field within the south-central portion of the site. This well was recently identified at the site by GZA and has not been sampled due to dry conditions when inspected;
- An abandoned drilled bedrock water supply well located approximately 100 feet north of the barn. This well was sampled by GZA on September 20, 2016 as described in Section 2.5.4 of GZA's July 14, 2017 report;
- Stone and concrete foundations (barn and possible grain silo) located to the north of the site entrance; and
- An approximately 10-foot by 10-foot area marked by a post and chain fence used for the burial of human remains used in gross anatomy instruction by the Dartmouth Medical School proximate to the burial area.

The groundwater extraction system components constructed on site are depicted on **Figure 8A**. The remainder of the description of the site included in this section is focused on the area within the vicinity of the former animal carcass burial area.



The topography of the site and surrounding area are illustrated on **Figure 1A**. Ground surface elevation¹ within the burial area is approximately 1,080 feet, and slopes gradually downward to the east. Beginning approximately 100 feet east of the burial area, the ground surface slopes more rapidly downward to the east and the southern branch of an unnamed tributary of Hewes Brook at approximately elevation 890 feet.

1.2 SURFACE WATER

The southern branch of an unnamed tributary of Hewes Brook is the nearest persistent surface water feature to the site. The stream is located approximately 1,050 feet east of the former burial area. A small intermittent tributary to the southern branch of the unnamed tributary originates on the site at the location of the on-site Dug Well and receives flow from springs located downslope of Dug Well. The small tributary flows east to the southern branch of the unnamed tributary, crossing 8 Rennie Road (Tax Map 13 Lot 18-1), flowing under Rennie Road, and along the property boundary between 7 and 9 Rennie Road (Tax Map 13 Lot 17-1 and Tax Map 13 Lot 81-1, respectively).

The confluence of the south branch and north branch of the unnamed tributary is located approximately 1,400 feet northeast of the former burial area. The confluence of the unnamed tributary and Hewes Brook is located approximately one mile north-northwest of the burial area. Hewes Brook discharges to the Connecticut River at a point approximately 2.8 miles northwest of the burial area.

An unnamed tributary of the Connecticut River originates in the western portion of the site and flows northwest to the Connecticut River. Surface water sampling location Stream-11 was established on the stream to monitor water quality. The locations of surface water bodies within the vicinity of the site are illustrated on **Figure 1A** and **Figure 1B**.

1.3 PREVIOUS SITE INVESTIGATION AND REMEDIATION

Prior to 2012, investigation and remedial work at the site was related to the identification and removal of animal carcasses used by the Dartmouth Medical School in experiments involving the use of radionuclides and removal of soils proximate to animal carcasses that were potentially contaminated with radionuclides. The animal carcasses and surrounding soil were excavated during late 2011 and subsequently removed from the site. Clym and GZA performed the previous removal activities for Dartmouth College, under the authorization of the Radiological Health Section (RHS) of the New Hampshire Department of Health and Human Services (DHHS). Radionuclide-related work at the site has been completed and the site was released from radiological controls by RHS.

Animal carcasses were buried over time within a series of shallow excavations ‘pits’. The approximate locations of the burial pits are illustrated on **Figure 3**. During the excavation of the animal carcasses, laboratory waste was also encountered within the pits, and evidence of chemical waste was encountered in a portion of the burial area including pits 34 through 43. Laboratory waste identified included syringes and various containers. Prior to the observation of laboratory waste in the excavation area, there was no information that laboratory wastes were disposed of at the site. The presence of laboratory waste in the excavation was not expected. Soils exhibiting the presence of VOCs, based on field screening for total VOCs, chemical odors, or ‘purple staining’ were observed within pits 34 through 43. Confirmatory composite soil sampling of the sidewalls and bottom of these pits was performed by Clym, and the samples submitted for analytical laboratory analyses including VOCs and semi-VOCs.

¹ Referenced to NAVD 88.



A list of the analytical parameters and results of the analyses are included in GZA's April 23, 2012 letter report.² Table 2 of GZA's April 23, 2012 letter report provides a summary of the results of the analyses of the soil samples and is included in Appendix J of GZA's July 14, 2017 report. A limited number of organic compounds were detected; however, none of the compounds were detected at concentrations approaching or exceeding Soil Remediation Standards (SRs) or New Hampshire Department of Environmental Services (NHDES) Hw 400 Identification and Listing of Hazardous Waste toxicity characteristic standards. VOCs were only detected in the soil sample from pit number 41, and include toluene, naphthalene, and tetrachloroethylene (TCE).

Groundwater quality monitoring following the completion of the 2011 excavation is described in reports by GZA submitted to the NHDES including reports dated December 9, 2011,³ January 17, 2012,⁴ April 23, 2012, and June 14, 2012.⁵ The VOC 1,4-dioxane was first detected in a sample collected from well GZ-2 on April 19, 2012 at a concentration of 150 micrograms per liter (μL). NHDES was notified of the detection of 1,4-dioxane in groundwater at a concentration exceeding the NH AGQS in GZA's letter dated June 14, 2012. The ongoing investigation activities are related to the detection of 1,4-dioxane in groundwater quality samples initially collected during the post excavation groundwater sampling at the site.

Recent investigation activities related to 1,4-dioxane have been focused on the delineation of 1,4-dioxane in groundwater and evaluation of the source of the 1,4-dioxane and have included installation of 105 monitoring wells (GZ-12L through GZ-55 and GZ-PM-1U through GZ-PM-9L); geologic mapping and surficial geophysics; and collection of water supply well and surface water samples. Previous reports by GZA describing these activities are listed in **Table 1**. Additional letters describing groundwater quality monitoring during 2012 and 2013 were submitted to NHDES. 1,4-dioxane data included in these letters are included in **Table 3A** and **Table 3B**.

Groundwater remediation has included extraction and treatment of groundwater on site to limit the transport of 1,4-dioxane from the source area. The source area groundwater extraction and treatment system was largely constructed in 2016 and has been in operation since February 2017. The groundwater extraction system was expanded in 2020 and 2021 to include two additional wells in fractured bedrock along the downgradient site boundary and 15 wells screened in overburden off-site. The primary components of the groundwater extraction and treatment system are described in **Section 4.0** of this report and reports listed in **Table 1**.

1.4 HYDROGEOLOGY

1.4.1 Geology

Site geology includes laterally discontinuous deposits of glacial till overlying fractured bedrock. The thickness of the glacial till deposits, where borings and/test pit excavations have been performed on the site, is up to approximately 25 feet (GZ-7L). Probable outcroppings of bedrock have been observed on site. The arithmetic average overburden thickness is approximately 13 feet based on 46 locations where borings have been drilled to the probable bedrock surface on the site. Within the source area the depth to bedrock ranges from approximately 4 feet to 12 feet based on borings and a ground penetrating radar (GPR) survey completed during 2016.

² Report by GZA titled "Dartmouth College Rennie Farm site, Chemical Waste Management/Groundwater Monitoring Program, Etna, New Hampshire."

³ Report by GZA titled "Dartmouth College Rennie Farm site, Discovery and Management of Chemical Wastes, Etna, New Hampshire."

⁴ Report by GZA titled "Dartmouth College Rennie Farm site, Chemical Waste Management/Groundwater Monitoring Program, Etna, New Hampshire."

⁵ Report by GZA titled "Dartmouth College Rennie Farm site, Groundwater Monitoring Results/Notice of AGQS Exceedance, Etna, New Hampshire."



Samples of glacial till collected from borings drilled at the site vary in grain size, but generally range from silty clay with variable amounts of fine sand and gravel, to fine to medium sand and silt and little clay. Probable boulders have been encountered while drilling borings, and probable large boulders have been observed at the ground surface.

The thickness of glacial till increases with distance toward the east and off-site with a maximum measured thickness of just over 100 feet within the approximate center of the valley east of the site (GZ-28D). Descriptions of glacial till encountered while drilling at off-site monitoring well locations are consistent with the descriptions of glacial till encountered on site. Additional description of offsite overburden is included in GZA's report⁶ dated March 23, 2020, which summarizes an offsite remedial design investigation completed during 2019.

Bedrock cored at the site and to the east of the site has been generally described by GZA as a medium hard to hard, highly to moderately weathered, fine to coarse grained, gray, schist and phyllite. Potential slate and thick quartz veins have also been cored. Steeply dipping to near vertical fractures have been observed in bedrock cores. Bedrock geologic maps depicting the site vicinity,⁷ indicate bedrock beneath the site consists of Orfordville Formation middle metamorphic grade black to dark-gray mica-quartz schist, mica schist, garnet schist and quartzite. However, more recent published bedrock geologic maps⁸ identify bedrock beneath the site as part of the Partridge Formation, which is described as a black, rusty-weathering sulfidic-graphitic slate or schist and abundant metagraywacke. Both of these descriptions are inclusive of the lithology observed at bedrock outcrops at the site and within the vicinity of the site, and of the bedrock core samples collected from the site.

The bedrock geologic maps referenced above indicate the predominance of bedding features trending toward the northeast and generally dipping steeply toward the southeast and northwest in the vicinity of the site, as well as northeasterly trending vertical foliations and schistosity. Inspection of bedrock outcrops within the vicinity of the site indicate that the bedrock fracture system is dominated by fractures striking to the northeast. The northeast striking fractures dip steeply toward the northwest with some fractures nearly vertically dipping. A limited number of more northerly striking steeply dipping fractures are also likely present. Additionally, a limited number of low angle apparently randomly oriented fractures are also likely present beneath and within the vicinity of the site. Bedrock geologic information summarized from review of geologic maps and bedrock mapping are summarized on the attached copy of Figure 4 of GZA's May 6, 2016 report. GZA's estimates of the bedrock surface topography within the off-site area are depicted on the attached copy of Figure 9 from GZA's March 23, 2020 report.

The locations of ten Possible Fracture Zones (PFZ) have been identified based on the bedrock structural mapping, and the very low frequency (VLF) radio and electric resistivity imaging (ERI) surveys. In general, it is assumed that the PFZs have a higher concentration of bedrock fractures that are consistent with the dominant trends in the area leading to anticipated zones of preferential groundwater flow. The locations of the PFZs are illustrated along with selected contoured VLF data provided by Hager-Richter on the attached copy of Figure 5 of GZA's May 6, 2016 report. The average strike of PFZs 3 through 8 is N44E and is consistent with the range of strikes (N30E -- N45E) estimated by Hager-Richter based on the bedrock outcrop mapping. The strike of PFZ 9 was

⁶ Report by GZA titled "Remedial Design Plans and Construction Specifications Report, Groundwater Extraction System Expansion, Dartmouth College, Rennie Farm Site, Hanover, New Hampshire, NHDES Site No. 201111109, DES Project No. 277737, Groundwater Management Permit No. GWP-201111109-H-001."

⁷ Including the Geologic Map and Structure Sections of the Mascoma Quadrangle, New Hampshire published 1938 and the Geologic Map and Structure Sections of the Mt. Cube Quadrangle, New Hampshire published 1938.

⁸ Lyons et al. (1991), "A New Bedrock Geologic Map of New Hampshire," revised and automated at the Complex Systems Research Center of the University of New Hampshire, Durham, New Hampshire.



estimated by Hager-Richter (H-R) as N8E. Only PFZ 9 transects the area immediately downgradient of the burial area through which 1,4-dioxane is transported.

As part of the source investigation associated with the water supply well at 668 Hanover Center Road, (H-R) performed borehole logging of the water supply well at 668 Hanover Center Road. Bedrock fracture orientations and statistics are plotted and reported on the bedrock fracture statistics plots included in H-R's report. Based on the optical televiwer (OTV) and acoustical televiwer (ATV) data, 182 bedrock fractures were detected in the logged borehole. The most prominent orientation of the bedrock fractures in the borehole is a dip azimuth to the northwest of 285°- 315° and a steep dip angle of 60°- 80° from horizontal. The orientation of the fractures is consistent with the measurements made on bedrock outcrops in the area and the results of surficial geophysics described in Section 2.1.1 (Bedrock Outcrop Mapping) and Section 2.2 (Surficial Geophysical Surveys) of GZA's May 6, 2016 report.

Photo-lineaments identified by GZA and H-R are described in GZA's May 6, 2016 report. While numerous photo-lineaments have been identified within the vicinity and crossing portions of the site, none of the identified photo-lineaments transect the former animal carcass burial area. Several photo-lineaments transect the area downgradient of the site within the identified area of 1,4-dioxane transport in groundwater (see the attached copy of Figure 4 of GZA's May 6, 2016 report.

1.4.2 Groundwater Occurrence and Flow

Saturated overburden is discontinuous and may be perched on the bedrock surface within certain areas on site, with the presence and direction of groundwater flow locally controlled by the topography of the bedrock surface and presence of fractures. Consequently, the overall lateral direction of groundwater flow within overburden downgradient of the burial area is anticipated to be generally toward the east-northeast consistent with the ground and bedrock surface topography.

Within fractured bedrock, groundwater flow is controlled by the orientation of interconnected open fractures. Hydraulic head data based on measurements of depth-to-groundwater made during September 2021 are depicted on **Figure 5A** and **Figure 5B** along with estimated hydraulic head contours based on hydraulic head data for groundwater monitoring wells screened within shallow fractured bedrock and overburden, respectively. Since hydraulic head measurements within a bedrock borehole are dependent upon the fractures intersecting the borehole, the interpretation of hydraulic head data should be considered an overall bulk lateral hydraulic gradient. Excluding the effects of the operation of the groundwater extraction remedial system at the site, the data presented in **Table 6B** and illustrated on **Figure 5A** indicates an overall lateral hydraulic gradient toward the east beneath the site. Based on the prevalence of northeasterly striking fractures and detected distribution of 1,4-dioxane downgradient of the source area, the anticipated lateral component of groundwater flow is primarily toward the northeast. Groundwater flow within fractures oriented toward the east or series of fractures that create an interconnected pathway toward the east may result in a component of groundwater flow toward the east; however, transport toward the east is limited, based on groundwater quality data from the water supply well at 7 Rennie Road and groundwater monitoring well triplet GZ-28U/L/D.

Groundwater flow toward the north-northeast may also be possible along the limited number of fractures oriented toward the north/north-northeast, notably within PFZ 9 which transects the area immediately downgradient of the burial area. Monitoring well triplet GZ-24U/L/D was constructed to further evaluate the potential for groundwater flow and 1,4-dioxane transport toward the north. 1,4-dioxane was detected at a concentration of 0.39 µg/L in the initial sample collected from bedrock well GZ-24D on October 27, 2016 but was



not detected in confirmatory samples collected on November 11, 2016 and March 29, 2017 or during monitoring of this location through 2021.

Due to the fracture-controlled nature of bedrock groundwater flow within the site vicinity, calculation of overall rates of groundwater flow based on hydraulic head and hydraulic conductivity is not possible. Seepage velocities for the horizontal and vertical components of groundwater flow within overburden were calculated, based on the average of the calculated hydraulic conductivity (3.5×10^{-7} cm/sec) and calculated horizontal (0.03 to 0.12) and vertical (0.11 to 0.25) hydraulic head gradients within the off-site area. The calculated estimates of lateral and vertical groundwater seepage velocities are 1.3 cm/year (0.04 ft/year) to 5.3 cm/year (0.2 ft/year), and to 4.9 cm/year (0.2 ft/year) to 11 cm/year (0.4 ft/year), respectively. The calculation of geometric mean hydraulic conductivity assumed horizontal flow to the monitoring wells. Vertical hydraulic conductivity can be lower than horizontal hydraulic conductivity (typically by an order of magnitude). Therefore, the calculated estimate of the range of vertical seepage velocity may overestimate the range relative to the calculated estimates of horizontal seepage velocities. Collectively, the calculated groundwater seepage velocities appear low relative to the detected transport within overburden off site and may underestimate lateral hydraulic conductivity.

In general, the vertical component of hydraulic head within the upland area closer to the burial area is downward, and then becomes upward with distance down slope (e.g., GZ-11U/L and GZ-17L). However, within the burial area a limited upward vertical component of hydraulic head has been intermittently measured at well couplets GZ-14U/L, GZ-18U/L, and GZ-19U/L prior to the startup of the groundwater extraction system. The upward gradient within the well couplets was likely related to recharge events within the surrounding upland area and was intermittent.

Similar to the lateral component of hydraulic head, the vertical hydraulic head gradients within bedrock are a function of fracture connectivity. Measurements of hydraulic head between pairs of bedrock wells installed at multi-well monitoring locations (GZ-9L/D, GZ-30U/L, GZ-34L/D, GZ-37L/D, GZ-PM-1U/L, and GZ-PM2U/L) are generally consistent with the relationship between bedrock and overburden described above, where the vertical component of hydraulic head is downward within upland areas and upward within the valley areas. Exceptions to this relationship include downward gradients between GZ-34L and GZ-34D and between GZ-37L and GZ-37D. Based on ground surface elevation, GZ-34U/L/D would be anticipated to have an upward hydraulic gradient. While there is an upward gradient between wells GZ-34L and GZ-34U, there is a downward gradient between wells GZ-34L and GZ-34D. The hydraulic head relationships at this location are likely due to the relative degree of fracture connectivity between GZ-34D and downgradient areas and/or GZ-34L to upgradient areas.

Beneath and within the vicinity of the source area at the site, the vertical component of the hydraulic head gradient is downward with groundwater flow and 1,4-dioxane transport vertically downward through overburden into the fractured bedrock. Lateral and vertical 1,4-dioxane concentration gradients indicate that the vertical axis of the plume, downgradient of the capture zone of the groundwater extraction system, transitions from fractured bedrock to overburden at approximately elevation 850 feet to elevation 860 feet at a location east of Rennie Road. 1,4-dioxane is transported laterally vertically upward relative to the ground surface, discharging through the thick sequence of glacial till, eventually flowing to the unnamed tributary to Hewes Brook where it is diluted within the flow of surface water to concentrations below $0.20 \mu\text{g/L}$ within the flow of surface water under non-drought conditions.

The upward vertical gradient and flow of groundwater within the valley is due to convergent lateral hydraulic gradients toward the northeast and west associated with the upland areas on either side of the valley. Glacial till deposits with a thickness up to approximately 100 feet have been measured within the valley. The thickness and



relative low hydraulic conductivity of the glacial till, and hydraulic head associated with the upland areas result in a strong upward hydraulic head gradient within the valley. **Figure 7A** and **Figure 7B** depict stratigraphy, hydraulic head, and 1,4-dioxane concentrations along cross sections A-A' and B-B' (see **Figure 2A** for the locations of cross sections A-A' and B-B'). Cross-section line A-A' is oriented along the approximate dominant strike of bedrock fractures measured within the vicinity of the site.

Limited underflow of the stream in the valley area occurs, as indicated by the detection of low concentrations of 1,4-dioxane in samples collected from bedrock groundwater monitoring well GZ-37D. The underflow is estimated to be limited to the areas surrounding the stream by the convergent groundwater flow to the west associated with the upland area to the east of the stream.

1.5 CONTAMINANT SOURCE

1.5.1 1,4-dioxane

Based on the results of the soil and groundwater quality data from the source area and downgradient wells, 1,4-dioxane is the only identified VOC detected at concentrations exceeding regulatory standards, and is the only VOC that has been detected in samples of groundwater collected downgradient of the area immediately surrounding the source area. Important properties of 1,4-dioxane include:

- Miscibility in water;
- Limited tendency to become sorbed to soil particles (low octanol-water coefficient of $-0.27 \log K_{ow}$); and
- Low volatility making it difficult to volatilize (low Henry's Law Constant of 4.80×10^{-6} atmosphere-cubic meters per mole).

1,4-dioxane has a low K_{oc} (soil adsorption coefficient for soil organic matter) and a high solubility and therefore has limited sorption to soils. Because of these characteristics, 1,4-dioxane is dominantly found in groundwater.⁹ These properties result in 1,4-dioxane being advectively transported in groundwater more readily compared to most contaminants, and make it difficult to remove from groundwater. Based on the properties of 1,4-dioxane and our understanding of conditions and activities at the site as described in the following subsections, the remaining source of 1,4-dioxane at the site is likely dissolved in overburden and shallow weathered bedrock groundwater beneath the portion of the former animal carcass burial area that includes burial pits 34 through 43.

1.5.2 Source Area Soil Quality Data

1.5.2.1 1,4-Dioxane

Based on our understanding of the use of 1,4-dioxane in radiological analyses and the presence of laboratory waste materials encountered while excavating animal carcasses at the site during late 2011, the likely source of the 1,4-dioxane is the burial of laboratory waste containing scintillation fluids, which can contain 1,4-dioxane. The results of the analyses of overburden groundwater samples collected within the former burial area during May 2016 indicate the presence of an approximately 30-foot by 50-foot area with concentrations of 1,4-dioxane above 500 µg/L, with a center near GZG-17 (see Figure 6 from GZA's RAP in Appendix J of GZA's July 14, 2017 report). This area containing relatively higher concentrations of dissolved 1,4-dioxane in

⁹ Mohr, Thomas K.G., 2016. *Environmental Investigation and Remediation: 1,4-dioxane and Other Solvent Stabilizers*, CRC Press.



groundwater is anticipated to be the source of the 1,4-dioxane detected in samples collected downgradient of the burial area.

A total of 181¹⁰ soil samples have been collected for analysis of 1,4-dioxane from the borings and excavations recently completed within the burial area. Collectively, these data do not indicate the presence of a significant discrete source(s) of 1,4-dioxane in soil, and are thereby consistent with the source of 1,4-dioxane being dissolved in groundwater.

The soil data indicate the presence of apparently random spatially discontinuous low concentrations of 1,4-dioxane within the source area described above. The arithmetic average of the 1,4-dioxane data assuming a soil concentration of half the reporting limit (0.05 milligrams per kilogram [mg/kg]) for samples from which 1,4-dioxane was not detected above the reporting limit is 0.062 mg/kg. Calculation of the potential leaching based concentration of 1,4-dioxane in groundwater resulting from the concentrations of 1,4-dioxane detected in soil using the calculated arithmetic average soil concentration (0.062 mg/kg) results in a groundwater concentration of 5 µg/L. While slightly exceeding NH AGQS, this concentration is less than 1 percent of the maximum concentration of 1,4-dioxane detected within samples of groundwater collected within the source area. Using the maximum detected soil concentration for 1,4-dioxane (0.3 mg/kg) results in a groundwater concentration of 23 µg/L. However, this concentration was detected in only 1 of the 181 soil samples analyzed for 1,4-dioxane.

Collectively, the 1,4-dioxane groundwater and soil data collected indicate the general lack of a chemical product (free product or residual) source area in the overburden soils and are consistent with the remaining source of the 1,4-dioxane being dissolved in groundwater in overburden and shallow weathered/highly fractured bedrock in the vicinity of burial pits 34 through 43.

1.5.2.2 Other VOCs

VOCs other than 1,4-dioxane were detected in 9 of the 19 samples recently submitted for VOC analysis using EPA Method 8260B (Waste Management List). VOCs detected included: diethyl ether, toluene, xylene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, and naphthalene. The detected concentrations were below their respective SRS, with the exception of the concentration of naphthalene detected in soil sample SS-19B; 5 feet - 6 feet (64 mg/kg) which exceeds the SRS for naphthalene (5 mg/kg). While naphthalene was detected in groundwater samples collected from wells GZ-1 through GZ-4 during one round in November 2011, the detected concentrations are below the NH AGQS. In addition, more recent sampling within the source area during May 2016 and of downgradient wells GZ-9L and GZ-10L during September 2015 did not detect naphthalene (refer to Sections 3.2 and 3.5.2 of GZA's RAP for additional information). The detection of naphthalene during only one round and detection of naphthalene in the sample collected from background well GZ-1 during that round indicate that the detection of naphthalene in the samples collected during November 2011 are not representative of site groundwater quality.

During 2011, toluene, naphthalene, and trichloroethylene were detected in a composite soil sample collected from animal carcass burial pit number 41.

¹⁰ Includes duplicate samples; see **Table 1**.



1.5.2.3 Radionuclides

Carbon-14 was detected in 2 of 19 soil samples recently collected at depths within the former animal carcass burial area for radiological analyses. The detected concentrations of Carbon-14 are 6.05 picocuries per gram (pCi/g) (SS-19B; 5 feet – 6 feet) and 1.88 pCi/g (SS-47B; 7.5 feet – 8.5 feet); both results are less than the approved release criteria of 12 pCi/g. No other radionuclides were detected in the samples collected by GZA and Clym. Please refer to Appendix E of GZA's July 14, 2017 report for the radiological laboratory data (EAI IDs 159748_R_1, 162014_R#2_1, 162069_R_1, and 162121_R#2_1).

The results of the analysis of shallow soil samples collected beyond the area impacted by 1,4-dioxane and the former animal carcass burial provide evidence of background levels of Cesium-137 and Lead-210. Refer to Appendix E of GZA's July 14, 2017 report for the results of the radionuclides analyses (EAI IDs 163780_R_1 and 165128).

1.5.3 Source Area Groundwater Quality Data

Refer to **Section 3.0** (Water Quality Monitoring)

1.5.4 Other VOCs

Other than 1,4-dioxane, toluene, ethylbenzene, xylenes, naphthalene and diethyl ether, no other volatile organic compounds (VOCs) or semi-VOCs have been detected in groundwater samples collected on or downgradient of the site. The following subsections summarize the groundwater quality data for these VOCs.

1.5.4.1 November 20, 2009 through December 19, 2013

In addition to 1,4-dioxane, analysis of groundwater samples collected from wells GZ-1, GZ-2, GZ-3, and GZ-4 for VOCs using EPA Method 8260B during the period from November 20, 2009 through December 19, 2013 detected naphthalene and diethyl ether in certain samples including:

- Naphthalene in a sample collected from well GZ-1 (October 12, 2010 2.2 µg/L);
- Diethyl ether in samples collected from well GZ-2 (May 23, 2012, 9 µg/L; March 12, 2013, 9 µg/L; June 20, 2013, 6 µg/L; July 31, 2013, 13 µg/L; and September 23, 2013, 5 µg/L); and
- Diethyl ether in samples collected from well GZ-3 (September 25, 2013, 17 µg/L; and December 19, 2013, 23 µg/L).

The NH AGQS for diethyl ether and naphthalene are 1,400 µg/L and 20 µg/L, respectively.

Certain groundwater samples were also collected for analysis of semi-VOCs by EPA Method 8270D. Naphthalene was detected in one or more sample collected from GZ-1, GZ-2, GZ-3, and GZ-4 at concentrations ranging from 0.1 µg/L to 0.4 µg/L. The results of previous groundwater sampling and analysis for parameters other than



1,4-dioxane are summarized on Table 1 from GZA's January 15, 2013 letter¹¹ and August 5, 2016 work plan¹² (see Appendix J of GZA's July 14, 2017 report).

1.5.4.2 Groundwater sampling for VOC after 2013

Groundwater sampling within the source area for VOCs other than 1,4-dioxane is described in Section 3.2 of the RAP, and detected toluene, ethylbenzene, xylenes, and diethyl ether in certain samples collected for analysis of VOCs by EPA Method 8260B. The detected concentrations of these VOCs are well below the NH AGQS.

1.5.4.3 Radionuclides

Groundwater quality samples were collected from wells GZ-2, GZ-9L, and GZ-11L on June 27, 2016, as described in Section 3.5.2 of the RAP. No radionuclides were detected with the exception of Lead-210 which was detected at a concentration of 5.23 pCi/L in the sample collected from well GZ-9L. The laboratory reporting limit for Lead-210 for the analyses of each of the samples is 5 pCi/L. In consideration of the reported uncertainty with the analysis of the samples, GZA and Clym concluded that these results are consistent with anticipated background levels.

1.6 CONTAMINANT DISTRIBUTION, TRANSPORT, AND FATE

The following subsections summarize the distribution and anticipated transport of 1,4-dioxane within and downgradient of the source area. Refer to **Section 3.1** for additional summary of recent contaminant distribution data including 1,4-dioxane concentration trends. 1,4-dioxane concentration data are summarized in **Table 3**, and recent 1,4-dioxane concentration data are illustrated on **Figure 6A** and **Figure 6B**. Due to the properties of 1,4-dioxane, it is anticipated to be transported within groundwater by advection, with hydrodynamic dispersion attenuating the concentration of 1,4-dioxane over time. No significant sorption or transformation are anticipated.

Prior to the excavation of animal carcasses during late 2011, it was not known that 1,4-dioxane was present within the source area. The timing of the release is also not known. Animal carcasses were buried at the site during the period from approximately 1966 to 1978, and 1,4-dioxane was first discovered in groundwater samples collected from monitoring well GZ-2 during April 2012.

1,4-dioxane concentration data for groundwater samples collected from wells GZ-2 and GZ-3 collectively suggest that 1,4-dioxane concentrations in groundwater may have increased during the excavation of animal carcasses. This conclusion is supported by the following:

- The 1,4-dioxane concentration trend for samples collected from well GZ-2 (located immediately downgradient of the source area) illustrated on **Chart 1** suggests an increasing concentration trend from April 19, 2012 to July 25, 2012 and an overall decreasing concentration trend from July 25, 2012 to the present. GZA notes that 1,4-dioxane was included as a target VOC in the pre-excavation sampling round performed on November 29, 2011 and that the analytical method used was EPA Method 8260B (50 µg/L reporting limit). However, the concentration of 1,4-dioxane detected in groundwater samples collected from GZ-2 during the following nine sampling rounds (April 19, 2011 through December 19, 2013) were greater than 50 µg/L, suggesting that it

¹¹ Letter by GZA titled "Groundwater Monitoring Results for July and November Sampling Events, Dartmouth College Rennie Farm site, Etna, New Hampshire."

¹² Letter by GZA titled "**Revised** License No. 276R Amendment Request, Rennie Farm Decommissioning, Laboratory Waste Test Pit Excavation Work Plan, Dartmouth College, Rennie Farm site, Hanover, New Hampshire, DES site No. 201111109, Project No. 27737."



would have been detected if present at the time of the November 29, 2011 sampling round. The concentration depicted on **Chart 1** is assumed at included at half of the reporting limit (*i.e.*, 25 µg/L).

- 1,4-dioxane was only detected in samples collected from well GZ-4 during three sampling events at concentrations including 0.37 µg/L (July 31, 2013), 0.59 µg/L (June 20, 2013), and 1.4 µg/L (March 13, 2013). 1,4-dioxane was not detected above a reporting limit of 0.25 µg/L in samples collected from GZ-4 during five subsequent sampling rounds (most recently July 2015). Well GZ-4 has been dry during recent sampling rounds due to the operation of the groundwater extraction system. The short period and timing of low concentration detections of 1,4-dioxane in samples from GZ-4 are consistent with an expanding and subsequently retracting plume moving along an axis between GZ-3 and GZ-4 following the excavation of animal carcasses during late 2011.
- Although only detected at low concentrations in groundwater, diethyl ether was not detected in samples collected from well GZ-2 prior to May 23, 2012 and was not detected in samples collected from well GZ-3 until September 25, 2013. Diethyl ether was included in multiple pre-excavation sampling rounds with RLs of 2 µg/L to 5 µg/L and was not detected.

The following subsections describe the distribution of 1,4-dioxane in groundwater.

1.6.1 Source Area

1,4-dioxane has been detected in groundwater monitoring wells within and immediately downgradient of the source area including overburden wells GZ-2, GZ-3, GZ-4, GZ-14U, GZ-18U, and GZ-19U and shallow bedrock wells GZ-12L, GZ-13L, GZ-14L, GZ-18L, GZ-19L, GZ-20U, and GZ-20L. Wells GZ-12L, GZ-13L, GZ-14U, GZ-14L, GZ-18U, GZ-18L, GZ-19U, GZ-19L, GZ-20U, GZ-20L, GZ-22U, and GZ-23U are located within or proximate to the area including burial pits 34 through 43. Concentration data for these wells are summarized in **Table 3A.1** and described in **Section 3.1.1** and **Section 4.3.5**.

The concentrations of 1,4-dioxane detected in groundwater samples collected from well GZ-2 have historically been greater than the concentrations detected in samples collected from wells GZ-3 and GZ-4 and indicate that GZ-2 is likely close to the axis of the plume within overburden immediately east of the source area. However, the concentrations of 1,4-dioxane detected in groundwater samples collected from well couplet GZ-18U/L suggest transport also occurs to the northeast. The estimated bedrock surface illustrated on Figure 5 of the RAP suggest that both routes may be controlled in part by the elevation of the bedrock surface.

Hydraulic head and 1,4-dioxane concentration data from well couplets GZ-5U/L and GZ-7U/L indicate that downgradient of the source area, 1,4-dioxane is transported with groundwater from overburden into bedrock. Further downgradient at well triplet GZ-9U/L/D and well couplet GZ-10U/L, 1,4-dioxane has not been detected in samples collected from the wells screened within overburden (GZ-9U and GZ-10U), suggesting that prior to reaching these wells the groundwater containing 1,4-dioxane has entered into the fractured bedrock groundwater system.

Based on the general vertically downward component of the hydraulic head gradient measured at GZ-5U/L, GZ-10U/L, and GZ-9U/L/D, a historic flowing artesian condition at the Dug Well is anticipated to be due to a change in topography that occurs at the location of the well, and groundwater discharge from the overburden groundwater system to the stream. The presence of 1,4-dioxane in water quality samples collected from the Dug



Well is anticipated to be due to the presence of 1,4-dioxane in overburden groundwater, consistent with the detection of 1,4-dioxane in samples collected from overburden well GZ-5U.

Laterally, the 1,4-dioxane plume within shallow fractured bedrock is bounded on the site to the north and south by well couplets GZ-8U/L and GZ-11U/L. The concentrations of 1,4-dioxane detected in samples collected from well GZ-9L and GZ-9D suggest that well triplet GZ-9U/L/D is located along the axis of the 1,4-dioxane plume moving from the source area to the northeast. A northeast direction of 1,4-dioxane transport is consistent with orientation of the primary fracture set within the vicinity of the site. 1,4-dioxane concentration data for samples collected from wells GZ-9L and GZ-9D are summarized on **Chart 3** and described in **Section 3.1.1**.

The presence of 1,4-dioxane in samples collected from well GZ-9D and downward component of the pre-groundwater extraction vertical hydraulic head gradient between GZ-9L and GZ-9D indicates downward transport of 1,4-dioxane to below elevation 915 feet.

The relatively low concentrations of 1,4-dioxane detected in groundwater samples collected from well GZ-10L are consistent with transport within fractured bedrock primarily toward the northeast due to the predominance of northeast striking fractures.

The source area and downgradient plume area within the fractured bedrock groundwater system are not coincident with northeast trending PFZs identified by H-R. However, the PFZs are anticipated to be indicative of the overall northeasterly striking fracture set, with many similarly striking fractures anticipated to be located between the PFZs. 1,4-dioxane transport is likely occurring along these fractures between the northeast striking PFZs. Significantly, PFZ 9 which strikes north-northeast transects the plume to the east of the source area. Monitoring well triplet GZ-24U/L/D was constructed to evaluate the potential for groundwater flow and 1,4-dioxane transport toward the north coincident with PFZ 9. 1,4-dioxane was detected in the sample of groundwater collected from bedrock well GZ-24D on October 27, 2016 but has not been detected in subsequently collected samples (through December 2021). Collectively, the 1,4-dioxane concentration data collected to date do not indicate the presence of preferential transport toward the north-northeast along PFZ-9.

Closer to the midpoint of the valley to the east of the source area occupied by the unnamed tributary of Hewes Brook, the vertical component of hydraulic head is anticipated to become upward, as a result of the hydraulic head associated with the upland area to further to the east. The hydraulic head associated with the upland area to the east is anticipated to create a boundary to groundwater flow toward the east and northeast resulting in groundwater discharge within the valley and may result in groundwater flow toward the north. The detection of 1,4-dioxane in samples collected under low stream flow conditions at surface water sampling locations Steam-3, Stream-4, and Stream-5 is consistent with this model and the anticipated direction of 1,4-dioxane transport. Hydraulic head and 1,4-dioxane concentration data from the off-site monitoring wells installed to the northeast of the site are also consistent with model. Additional information regarding 1,4-dioxane distribution and transport are summarized in GZA's March 23, 2020 report.



In summary, beneath and within the vicinity of the source area at the site, the vertical component of the hydraulic head gradient and 1,4-dioxane transport is downward through overburden into the fractured bedrock. As groundwater reaches the valley to the northeast of the source area, the flow and 1,4-dioxane transport are vertically upward, with the majority anticipated to discharge through the thick sequence of glacial till, eventually reaching the unnamed tributary to Hewes Brook where it is diluted within the flow of surface water. Under average, non-drought, stream flow conditions, the concentration of 1,4-dioxane is diluted to below 0.20 µg/L. The relatively lower concentrations of 1,4-dioxane detected in samples collected from bedrock wells GZ-39D and GZ-40D suggest that the axis of the plume transitions from bedrock to overburden at a point west of these wells as described in **Section 1.4.2** of this appendix. The lateral hydraulic gradient toward the west associated with the upland areas on the eastern side of the valley limits transport of 1,4-dioxane toward the east and northeast. However, limited 1,4-dioxane transport northward in the valley is possible in overburden and bedrock fractures. 1,4-dioxane data from further monitoring are needed to evaluate if further northward transport of 1,4-dioxane will expand the area in which 1,4-dioxane can be detected and is above the NH AGQS; however, the current data do not indicate expansion of the plume.

The inferred length of the plume at concentrations exceeding NH AGQS is approximately 2,300 feet¹³ (see **Figure 6A**). 1,4-dioxane has been detected at concentrations just above the NH AGQS (0.32 µg/L.) in samples collected from off-site wells GZ-25D and GZ-37D.

The combined bedrock fracture and overburden transport pathway and uncertainty regarding the timing of the release of 1,4-dioxane limit accurate calculation of transport velocity and evaluation of the condition of the plume relative to steady state conditions. Continued monitoring is needed to evaluate if further northward transport of 1,4-dioxane will expand the area in which 1,4-dioxane can be detected and is above the NH AGQS. These data may eventually enable estimation of the transport velocity and timing of the release.

1.7 IDENTIFIED AND POTENTIAL RECEPTORS

Identified potential exposure pathways to 1,4-dioxane from the site include exposure to 1,4-dioxane in groundwater and surface water containing groundwater. Human exposure to groundwater would be primarily through ingestion of groundwater from a private water supply well.

More than 140 water supplies have been sampled within an approximate 2-mile radius of the site. Other than the water supply well at 9 Rennie Road, 1,4-dioxane attributed to the site has not been detected in water quality samples collected from any of these active water supply wells.

The water supply well at 9 Rennie Road is the only identified known receptor of 1,4-dioxane from the site. Bottled water was supplied to the residence at 9 Rennie Road immediately following the detection of 1,4-dioxane in water samples collected from the well on September 18, 2015, and a POE treatment system installed on November 2, 2015. The POE treatment system consists of two parallel trains of granular activated carbon (GAC) vessels, with each train including two 2-cubic-foot GAC vessels. The POE treatment system is further described in GZA's November 11, 2015 letter report. With the exception of the detection of 1,4-dioxane at a concentration of 0.33 µg/L in the midpoint sample collected on October 21, 2016, results of the analysis of samples collected from the midpoint and final treated water for the POE treatment system at 9 Rennie Road have not detected 1,4-dioxane above the RL and indicate that the POE treatment system has been removing 1,4-dioxane. Following the detection of 1,4-dioxane in the midpoint sample, in November 2016, the POE treatment system carbon was

¹³ The estimated plume length increased relative to 2017 due to a reduction in the NH AGQS from 3.0 µg/L to 0.32 µg/L.



replaced by Secondwind Water Systems Inc. of Manchester, New Hampshire on November 14, 2016. Carbon was proactively replaced annually during 2017 and 2018. The residence at 9 Rennie Road has been vacant since November 2019 and is currently owned by Dartmouth College.

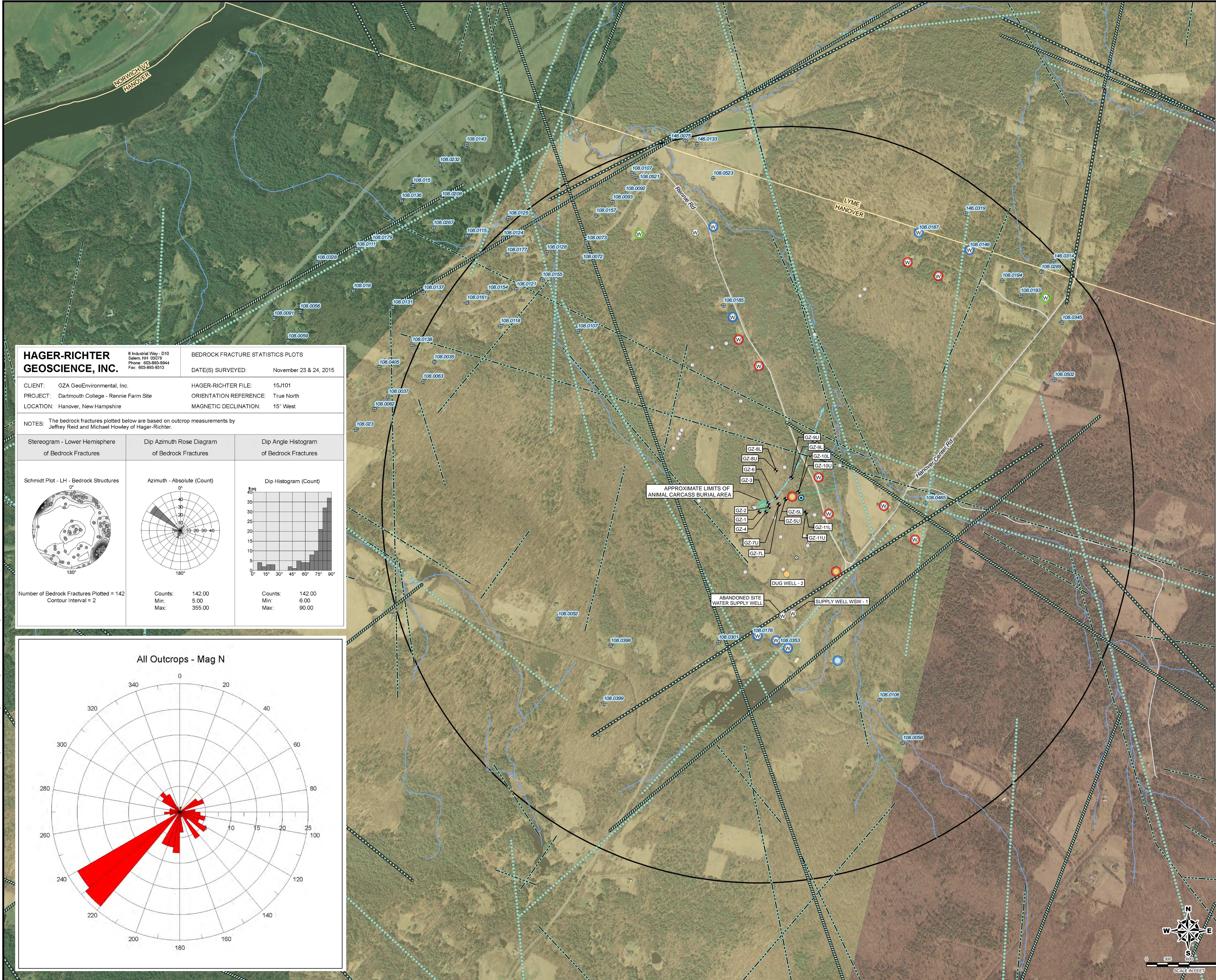
1,4-dioxane has been detected at concentrations below NH AGQS within surface water samples collected on site from the stream that originates at the Dug Well downgradient of the source area (Stream-1). Sampling of the south branch of the unnamed stream to which flow from the on-site stream contributes (Stream-2) has not detected 1,4-dioxane. 1,4-dioxane has been detected at concentrations between 0.21 µg/L (Stream- 4; September 10, 2018) to 2.8 µg/L (Stream-3; September 2020) in surface water samples collected from Stream-3 to the confluence of the unnamed tributary with Hewes Brook under low stream flow conditions (sample locations Stream-3, Stream-4, and Stream-5). The detection of 1,4-dioxane in surface water samples collected from locations Stream-3 through Stream-5 is well correlated with seasonal periods of low stream flow and has been detected during periods of low stream flow in late summer and early fall through 2020. 1,4-dioxane was not detected in surface water samples collected during 2021.

The detection of 1,4-dioxane in the surface water samples collected at and downstream of Stream-3 and the consistent lack of detection of 1,4-dioxane in the sample collected at location Steam-2 (upstream of Stream-3), suggests discharge of groundwater containing 1,4-dioxane is occurring along the tributary at or upstream of Stream-3, and is consistent with the anticipated direction of 1,4-dioxane transport and discharge of groundwater to the stream.

The reach of the stream from the Dug Well to the south branch of the unnamed stream may be a pathway for environmental receptors. Under low stream flow the reach of the stream near Stream-3 to the confluence with Hewes Brook may also be a potential pathway for environmental receptors.



Figures

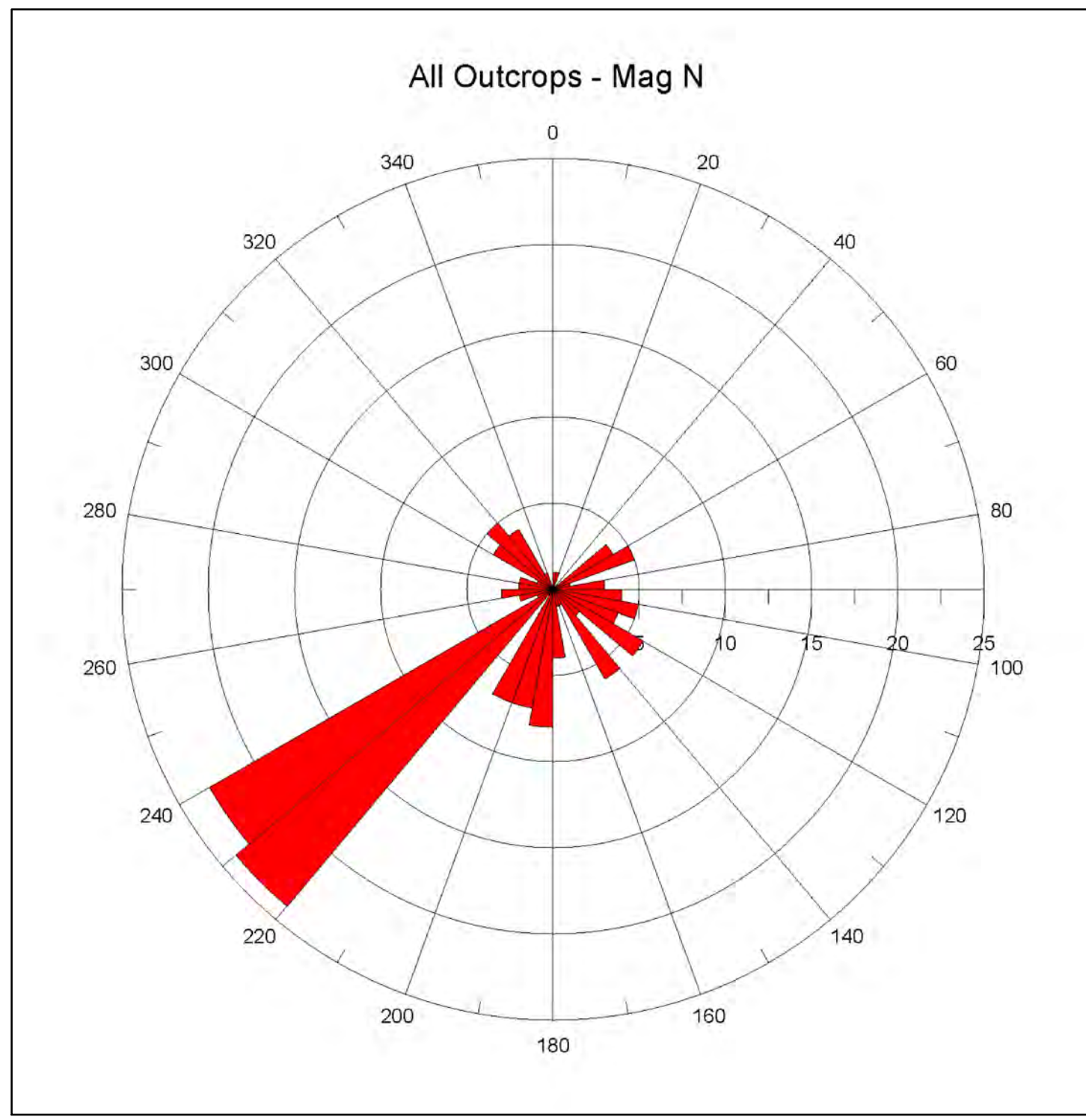
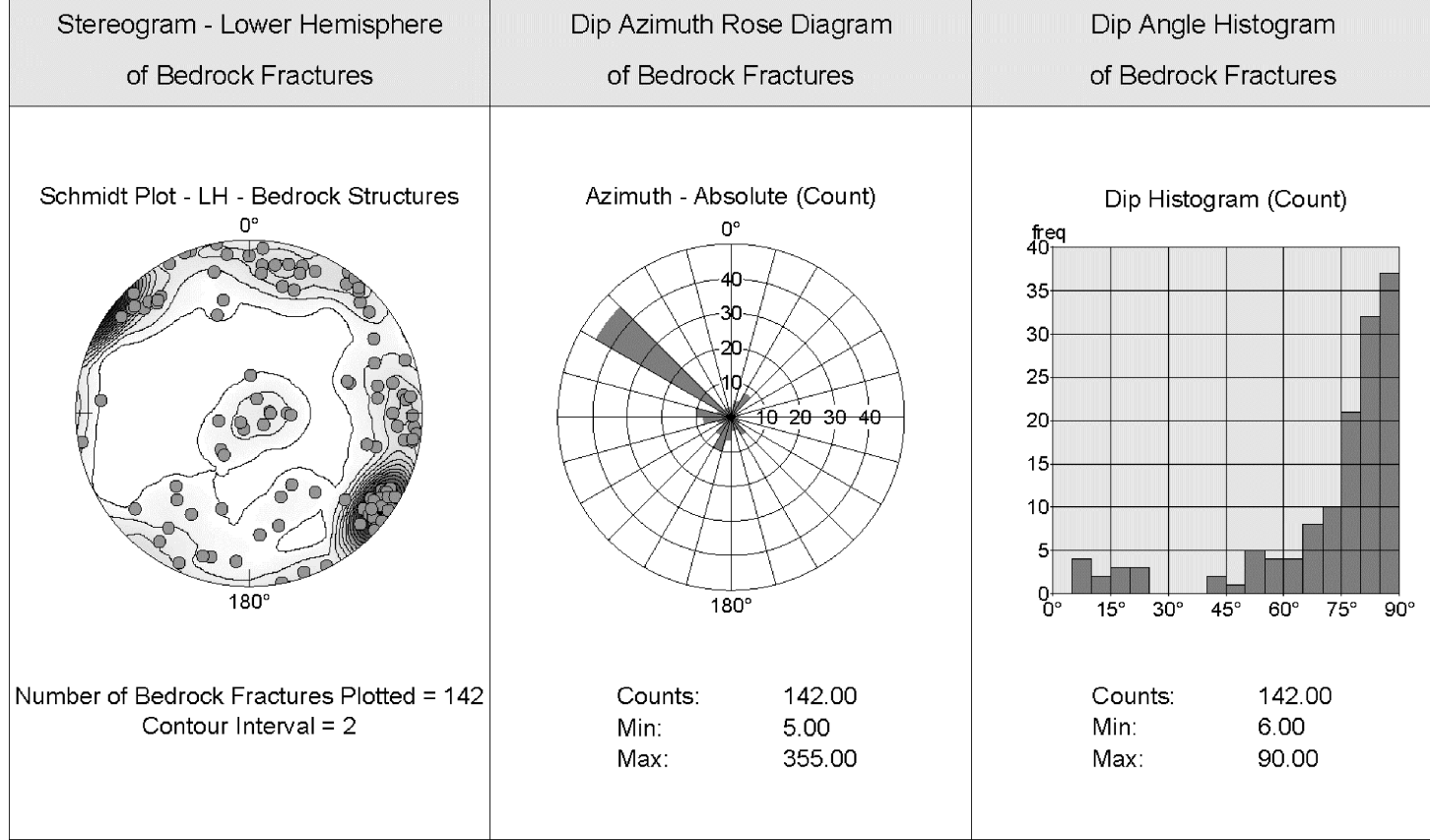


- LEGEND:**
- ACTIVE DUG WELL
 - ABANDONED DUG WELL
 - ⊕ WATER SUPPLY WELL
 - ⊕ GZ-1 GROUNDWATER MONITORING WELL
 - ⊕ SUPPLY WELL
 - ⊕ SPRING
 - INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
 - INFERRED DIRECTION OF GROUNDWATER FLOW BASED ON 1, 4 - DIOXANE DISTRIBUTION IN GROUNDWATER
 - LOCATION OF INTERMITTENT STREAM
 - TOWN AND/OR STATE BOUNDARY
 - ⊕ GZA MAPPED BEDROCK OUTCROPS
 - ⊕ BEDROCK OUTCROPS
 - LINEAMENT OBSERVED BY THE USE OF LOW-ALTITUDE AERIAL PHOTOGRAPHY HAVING AN APPROXIMATE SCALE OF 1:20,000. LOCATION +/- 80 FEET.
 - LINEAMENT OBSERVED BY THE USE OF HIGH-ALTITUDE AERIAL PHOTOGRAPHY HAVING AN APPROXIMATE SCALE OF 1:80,000. LOCATION +/- 80 FEET.
 - LINEAMENT OBSERVED BY THE USE OF SIDE-LOOKING AIRBORNE RADAR MOSAIC (FAR RANGE), GLEN FALLS, NY, VT, AND NH.: US GEOLOGICAL SURVEY, 1:250,000. LOCATION +/- 200 FEET.
 - LINEAMENT OBSERVED BY THE USE OF 1:250,000-SCALE LANDSAT IMAGERY, BAND 7, IMAGES NUMBERS 10057-004 AND 10054-109, OBTAINED DECEMBER 20, 1990. LOCATION +/- 150 FEET.

HAGER-RICHTER GEOSCIENCE, INC.
 8 Industrial Way - D10
 Salem, NH 03079
 Phone: 603-893-9444
 Fax: 603-893-9313

BEDROCK FRACTURE STATISTICS PLOTS
 DATE(S) SURVEYED: November 23 & 24, 2015
 HAGER-RICHTER FILE: 15J101
 ORIENTATION REFERENCE: True North
 MAGNETIC DECLINATION: 15° West

NOTES: The bedrock fractures plotted below are based on outcrop measurements by Jeffrey Reid and Michael Howley of Hager-Richter.



- BEDROCK GEOLOGY**
- LITTLETON FORMATION
 - PARTRIDGE FORMATION/ORFORDVILLE FORMATION
 - AMMONOOSUC VOLCANICS/ORFORDVILLE FORMATION - POST POND VOLCANIC
- GENERAL NOTES:**
- 2010-2011 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - APPROXIMATE PROPERTY BOUNDARIES BASED ON REVIEW OF TOWN OF HANOVER, NEW HAMPSHIRE TAX MAP 13, 15, AND 16, DATED APRIL 1, 2015.
 - LOCATIONS OF ON SITE DUG WELL AND ONSITE INTERMITTENT STREAM BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE ON OCTOBER 14, 2014 AND JUNE 1, 2015.
 - GZA UNDERSTANDS THAT 20 RENNIE ROAD IS CURRENTLY NOT OCCUPIED; ACCESS FOR COLLECTION OF A WATER SUPPLY SAMPLE COULD NOT BE OBTAINED.
 - LINEAMENTS SHOWN HEREON WERE GEOREFERENCED FROM THE EXISTING FIGURE TITLED "LINEAMENT MAP OF AREA 10 OF THE NEW HAMPSHIRE BEDROCK AQUIFER ASSESSMENT, NORTHWEST-NORTHCENTRAL NEW HAMPSHIRE" BY ERIC W. FERGUSON, STEWART F. CLARK, JR., HEATHER A. SHORT, GARRICK J. MARCOUX, AND RICHARD BRIDGE MOORE, 1999.
 - BEDROCK GEOLOGY SHOWN HEREON WAS GEOREFERENCED FROM THE EXISTING FIGURE TITLED "GEOLOGIC MAP AND STRUCTURE SECTIONS OF THE MASCOMA QUADRANGLE, NEW HAMPSHIRE" BY CARLETON A. CHAPMAN ET. AL., 1938.
 - SUPPLY WELLS SHOWN HEREON WERE ADAPTED FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES ONESTOP PROGRAM WEB GIS WATER WELL INVENTORY LAYER.

NO.	ISSUE / DESCRIPTION	BY	DATE

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 THE 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.

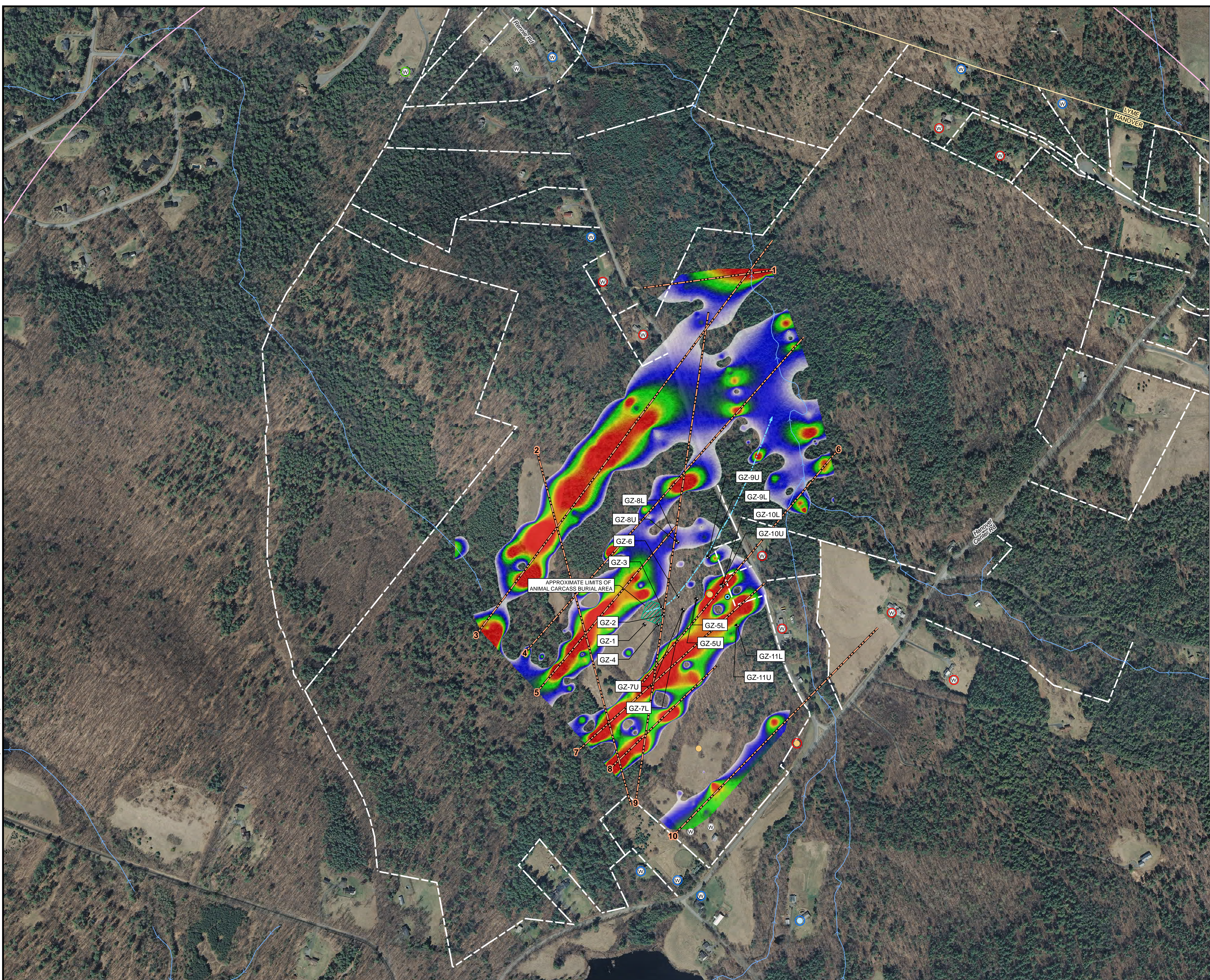
**SUPPLEMENTAL HYDROGEOLOGIC INVESTIGATION
 DARTMOUTH COLLEGE, RENNIE FARM SITE
 HANOVER, NEW HAMPSHIRE
 NHDES SITE NO. 201111109, PROJECT NO. 277737**

BEDROCK GEOLOGIC MAPPING SUMMARY

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: DARTMOUTH COLLEGE
PROJ. MGR: JMW DESIGNED BY: JMW DATE: 05-05-2016	REVIEWED BY: TWK DRAWN BY: MJD PROJECT NO.: 04.0190030.02
CHECKED BY: RAB SCALE: 1 inch = 600 feet	FIG: 4

© 2016 - GZA GeoEnvironmental, Inc. P:\04\Jobs\0190006\04.0190030\04.0190030_02\Figures\CAD\April Figures\MXD\Figure 4 - Bedrock Geologic Mapping Summary.mxd, 5/5/2016, 11:53:42 AM, matthew.denne

© 2016 - GZA GeoEnvironmental, Inc. P:\Jobs\0190006\04.0190030\004.0190030_02\Figures\CAD\April Figures\MXD\Figure 5 - VLF Survey Summary Plan.mxd, 5/5/2016, 1:42:21 PM, matthew.deane



LEGEND:

- ACTIVE DUG WELL
- ABANDONED DUG WELL
- Ⓜ WATER SUPPLY WELL
- Ⓜ GZ-1 GROUNDWATER MONITORING WELL
- ⊙ SPRING
- INTERMITTENT/PERENNIAL STREAM; ARROW INDICATES DIRECTION OF SURFACE WATER FLOW
- APPROXIMATE PROPERTY BOUNDARY
- INFERRED DIRECTION OF GROUNDWATER FLOW BASED ON 1, 4 - DIOXANE DISTRIBUTION IN GROUNDWATER
- LOCATION OF INTERMITTENT STREAM
- TOWN AND/OR STATE BOUNDARY
- POSSIBLE FRACTURE ZONES IDENTIFIED BY HAGER-RICHTER

○ RED CIRCLE INDICATES WELL SAMPLED DURING INITIAL AND/OR CONFIRMATORY OFF SITE WATER QUALITY SAMPLING ROUND
○ BLUE CIRCLE INDICATES PROPERTY OWNER HAS REQUESTED SAMPLING OF WELL, SAMPLING PLANNED
○ GREEN CIRCLE INDICATES PROPERTY OWNER HAS SAMPLED THEIR OWN WELL

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RELATIVE RESPONSE - REAL COMPONENT OF THE VLF FIELD

N
W E
S

0 150 300 600
SCALE IN FEET

- GENERAL NOTES:**
- 1) 2010-2011 1-FT COLOR AERIAL PHOTOS FOR THE TOWN OF HANOVER WERE OBTAINED FROM THE NH GRANIT NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE.
 - 2) APPROXIMATE PROPERTY BOUNDARIES BASED ON REVIEW OF TOWN OF HANOVER, NEW HAMPSHIRE TAX MAP 13, 15, AND 16, DATED APRIL 1, 2015.
 - 3) LOCATIONS OF ON SITE DUG WELL AND ONSITE INTERMITTENT STREAM BASED ON SURVEYS BY WSP TRANSPORTATION AND INFRASTRUCTURE ON OCTOBER 14, 2014 AND JUNE 1, 2015.
 - 4) GZA UNDERSTANDS THAT 20 RENNIE ROAD IS CURRENTLY NOT OCCUPIED; ACCESS FOR COLLECTION OF A WATER SUPPLY SAMPLE COULD NOT BE OBTAINED.
 - 5) VLF DATA ACQUIRED USING A GSM-19 WALKING MAG-VLF SYNCED WITH DGPS. RELATIVE REAL COMPONENT RESPONSE SHOWN.

NO.	ISSUE / DESCRIPTION	BY	DATE
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 THE 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.			
SUPPLEMENTAL HYDROGEOLOGIC INVESTIGATION DARTMOUTH COLLEGE, RENNIE FARM SITE HANOVER, NEW HAMPSHIRE NHDES SITE NO. 201111109, PROJECT NO. 277737			
VLF SURVEY SUMMARY			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: DARTMOUTH COLLEGE	
PROJ. MGR: JMW	REVIEWED BY: TWK	CHECKED BY: RAB	FIG
DESIGNED BY: JMW	DRAWN BY: MJD	SCALE: 1 inch = 300 feet	5
DATE: 05-05-2016	PROJECT NO: 04.0190030.02	REVISION NO:	



Appendix C – Analytical Laboratory Reports



December 2021 GMP Monitoring and Selected Residential Samples



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 226553
Client Identification: Rennie Farm | 04.0190030.02, Task No: 9
Date Received: 5/20/2021

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

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

5.26.21
Date

5
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 226553

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02, Task No: 9**

Temperature upon receipt (°C): 3.9

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
226553.01	9-Rennie Rd	5/20/21	5/20/21 13:00	aqueous		Adheres to Sample Acceptance Policy
226553.02	7-Rennie Rd	5/20/21	5/20/21 13:10	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#: 226553

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02, Task No: 9

Client Sample ID: 9-Rennie Rd
Lab Sample ID: 226553.01
Matrix: aqueous
Date Sampled: 5/20/21
Date Received: 5/20/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	12	0.2	1	ug/L	5/21/21 21:25	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	5/21/21 21:25	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/21/21 21:25	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 226553

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02, Task No: 9**

Client Sample ID: 7-Rennie Rd
 Lab Sample ID: 226553.02
 Matrix: aqueous
 Date Sampled: 5/20/21
 Date Received: 5/20/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	5/21/21	21:56	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	5/21/21	21:56	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/21/21	21:56	8260B SIM	AM



QC REPORT

EAI ID#: 226553

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637572-08759/A052121DIOX1

Client Designation: Rennie Farm | 04.0190030.02, Task No: 9

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.1 (82 %R)	4.4 (89 %R) (7 RPD)	5/21/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	99 %R	99 %R	99 %R	5/21/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	100 %R	99 %R	5/21/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 228720
Client Identification: Rennie Farm | 04.0190030.02 Task No: 9
Date Received: 7/8/2021

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.

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- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
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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

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.

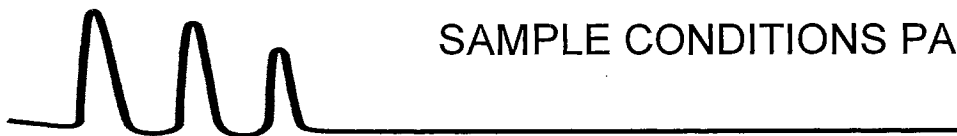
We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,


Lorraine Olashaw, Lab Director

7.14.21
Date

4
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 228720

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 9**

Temperature upon receipt (°C): 2.7

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
228720.01	669 Hanover Center Rd.	7/8/21	7/7/21 11:25	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#: 228720

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No: 9

Client Sample ID: 669 Hanover Center Rd.

Lab Sample ID: 228720.01

Matrix: aqueous

Date Sampled: 7/7/21

Date Received: 7/8/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	7/12/21	15:25	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	7/12/21	15:25	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	7/12/21	15:25	8260B SIM	AM



QC REPORT

EAI ID#: **228720**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637617-67910/A071221DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 9**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.1 (102 %R)	5.1 (102 %R) (0 RPD)	7/12/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	101 %R	98 %R	103 %R	7/12/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	102 %R	99 %R	103 %R	7/12/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 231286
Client Identification: Rennie Farm | 04.0190030.02 Task: 22 ST: 1
Date Received: 8/27/2021

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.

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

Certifications:

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References:

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- 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

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
Lorraine Olashaw, Lab Director

9-2-21
Date

4
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 231286

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task: 22 ST: 1**

Temperature upon receipt (°C): 1.3

Acceptable temperature range (°C): 0-6

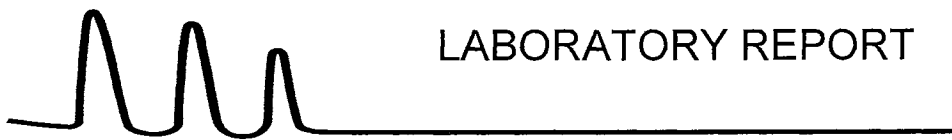
Received on ice or cold packs (Yes/No): Y

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
231286.01	7 Rennie Rd	8/27/21	8/27/21 09:45	aqueous		Adheres to Sample Acceptance Policy

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

Unless otherwise noted:

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- 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#: 231286

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task: 22 ST: 1

Client Sample ID: 7 Rennie Rd

Lab Sample ID: 231286.01

Matrix: aqueous

Date Sampled: 8/27/21

Date Received: 8/27/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	8/30/21 18:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	8/30/21 18:54	8260B SIM	AM
Toluene-d8 (surr)	105 %R			%	8/30/21 18:54	8260B SIM	AM



QC REPORT

EAI ID#: 231286

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637659-40365/A083021DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task: 22 ST: 1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.7 (113 %R)	5.6 (112 %R) (1 RPD)	8/30/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	106 %R	104 %R	8/30/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	105 %R	105 %R	105 %R	8/30/2021	% 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.

CHAIN-OF-CUSTODY RECORD

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

231286

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC		SVOC		TCLP	INORGANICS						MICRO	METALS	OTHER		NOTES MEOH VIAL #														
				1524.2 1524.2 MTBE ONLY	18260 1,1,4 DIOXANE LOW LEVEL	8015 GRO MAVPH	8270 625 PAH EDB DBCP		8015 DRO MAEPH	PEST 608 PCB 608	PEST 8081 PCB 8082	OIL & GREASE 1664 TPH 1664	TCLP 1311 ABN METALS VOG PEST HERB	BOD			CBOD	TSS		TDS	Br Cl F SO ₄ NO ₂ NO ₃ NH ₃ TN	I. PHOS. I. RES. CHLORINE SPEC. CON. I. ALK.	PHOS. O. PHOS.	COD	PHENOLS TOC DOC	TOTAL CYANIDE TOTAL SULFIDE	REACTIVE CHLORIDE FLASHPOINT IGNITABILITY	E. COLI	TOTAL COLIFORM FECAL COLIFORM ENTEROCOCCI	HETEROLOGIC PLATE COUNT	DISSOLVED METALS (LIST BELOW)	TOTAL METALS (LIST BELOW)	# OF CONTAINERS
7 Rennie Rd	8/27/21 0945	GW	GS	X																													2

MATRIX: A-AIR; S-SOIL; **GW-GROUND WATER**; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER
 PRESERVATIVE: H-HCL; N-HNO₃; S-H₂SO₄; Na-NAOH; M-MEOH

PROJECT MANAGER: Jim Wieck
COMPANY: GZA Bedford
ADDRESS: 5 Commerce Park N Suite 201
CITY: Bedford **STATE:** NH **ZIP:** 03110
PHONE: 603-493-2874 **EXT.:** _____
E-MAIL: james.wieck@gza.com
SITE NAME: Rennie Farm
PROJECT #: 04.0190030.02 Task:22 ST:1
STATE: NH MA ME VT **OTHER:** _____
REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR
 GWP, OIL FUND, BROWNFIELD OR OTHER: _____
QUOTE #: _____ **PO #:** 26228

QA/QC REPORTING

A B C
 MA MCP

TEMP. 1.3 °C
 ICE? Yes No

REPORTING OPTIONS
 PRELIMS: YES OR NO

ELECTRONIC OPTIONS
 PDF EXCEL
 EQUIS
 OTHER _____

TURN AROUND TIME
 24hr* 48hr*
 3-4 Days*
 5 Day 7 Day
 10 Day
 *Pre-approval Required

METALS: 8 RCRA 13 PP Fe, Mn Pb, Cu
 OTHER METALS: _____
SAMPLES FIELD FILTERED? YES NO
 NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)

SAMPLER(S): Greg Sersen
[Signature] 8/27/21 1430 EAI Fridge
RELINQUISHED BY: DATE: TIME: RECEIVED BY:
[Signature] 8/27/21 1435 [Signature]
RELINQUISHED BY: DATE: TIME: RECEIVED BY:
RELINQUISHED BY: DATE: TIME: RECEIVED BY:

SITE HISTORY: _____
SUSPECTED CONTAMINATION: _____
FIELD READINGS: _____

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 233690
Client Identification: Rennie Farm | 04.0190030.02 Task: 9
Date Received: 10/14/2021

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.

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- Hach Water Analysis Handbook, 4th edition, 1992

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

10.26.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 233690

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task: 9

Temperature upon receipt (°C): 10.9

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

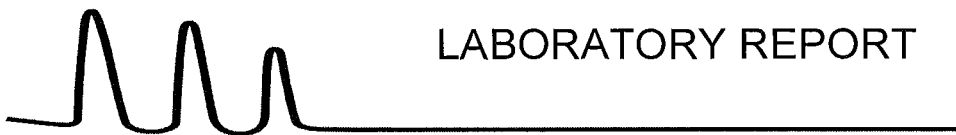
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
233690.01	7-Rennie Rd	10/14/21	10/13/21 14:00	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#: 233690

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task: 9**

Client Sample ID: 7-Rennie Rd
Lab Sample ID: 233690.01
Matrix: aqueous
Date Sampled: 10/13/21
Date Received: 10/14/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	10/20/21 22:16	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	10/20/21 22:16	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/20/21 22:16	8260B SIM	AM



QC REPORT

EAI ID#: 233690

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637704-04712/A102021DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task: 9

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	3.8 (76 %R)	4.6 (92 %R) (19 RPD)	10/20/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	92 %R	102 %R	102 %R	10/20/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	102 %R	100 %R	10/20/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 235892
Client Identification: Rennie Farm | 04.0190030.02 T: 22 ST:1
Date Received: 11/24/2021

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.

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

Sincerely,


Lorraine Olashaw, Lab Director

12.2.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 235892

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 T: 22 ST:1

Temperature upon receipt (°C): 2.7

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
235892.01	7 Rennie Rd	11/24/21	11/24/21 12:00	aqueous		Adheres to Sample Acceptance Policy
235892.02	9 Rennie Rd	11/24/21	11/24/21 12:15	aqueous		Adheres to Sample Acceptance Policy

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- 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#: **235892**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 T: 22 ST:1**

Client Sample ID: 7 Rennie Rd
Lab Sample ID: 235892.01
Matrix: aqueous
Date Sampled: 11/24/21
Date Received: 11/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	11/29/21 18:26	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	11/29/21 18:26	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	11/29/21 18:26	8260B SIM	AM

Client Sample ID: 9 Rennie Rd
Lab Sample ID: 235892.02
Matrix: aqueous
Date Sampled: 11/24/21
Date Received: 11/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	11	0.2	1	ug/L	11/29/21 18:57	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	11/29/21 18:57	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	11/29/21 18:57	8260B SIM	AM



QC REPORT

EAI ID#: 235892

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637738-67773/A112921DIOX1

Client Designation: Rennie Farm | 04.0190030.02 T: 22 ST:1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.9 (97 %R)	4.6 (91 %R) (7 RPD)	11/29/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	97 %R	97 %R	98 %R	11/29/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	98 %R	98 %R	99 %R	11/29/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 236845
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 12/16/2021

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.

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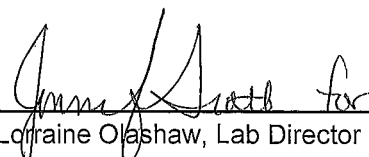
References:

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- Hach Water Analysis Handbook, 4th edition, 1992

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

Sincerely,


Lorraine Oleshaw, Lab Director

12.28.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 0

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)
236845.01	10 Dairy Ln	12/16/21	12/14/21 08:05	aqueous		Adheres to Sample Acceptance Policy
236845.02	39 Tranquil Br	12/16/21	12/14/21 09:50	aqueous		Adheres to Sample Acceptance Policy
236845.03	42 Rennie Rd	12/16/21	12/14/21 09:00	aqueous		Adheres to Sample Acceptance Policy
236845.04	30 Rennie Rd	12/16/21	12/14/21 10:50	aqueous		Adheres to Sample Acceptance Policy
236845.05	8 Dairy Ln	12/16/21	12/14/21 11:45	aqueous		Adheres to Sample Acceptance Policy
236845.06	38 Rennie Rd	12/16/21	12/14/21 11:00	aqueous		Adheres to Sample Acceptance Policy
236845.07	594 Hanover Center Rd	12/16/21	12/14/21 13:30	aqueous		Adheres to Sample Acceptance Policy
236845.08	39 Rennie Rd	12/16/21	12/16/21 08:20	aqueous		Adheres to Sample Acceptance Policy
236845.09	26 Rennie Rd	12/16/21	12/16/21 10:15	aqueous		Adheres to Sample Acceptance Policy
236845.1	47 Rennie Rd	12/16/21	12/16/21 10:30	aqueous		Adheres to Sample Acceptance Policy
236845.11	7 Rennie Rd	12/16/21	12/16/21 12:25	aqueous		Adheres to Sample Acceptance Policy
236845.12	9 Rennie Rd	12/16/21	12/16/21 12:05	aqueous		Adheres to Sample Acceptance Policy
236845.13	Trip Blank	12/16/21	12/16/21 00:00	aqueous		Adheres to Sample Acceptance Policy

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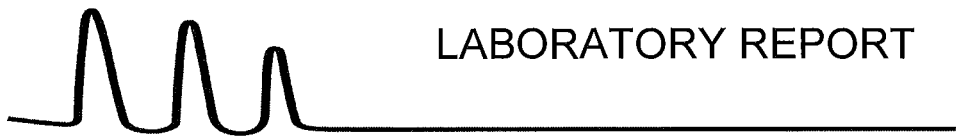
LABORATORY REPORT

EAI ID#: **236845**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 10 Dairy Ln
Lab Sample ID: 236845.01
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 15:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/20/21 15:50	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/20/21 15:50	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 39 Tranquil Br
Lab Sample ID: 236845.02
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 16:22	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	12/20/21 16:22	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/20/21 16:22	8260B SIM	AM



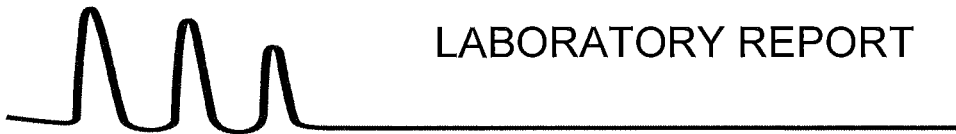
LABORATORY REPORT

EAI ID#: **236845**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 42 Rennie Rd
Lab Sample ID: 236845.03
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 16:53	8260B SIM	AM
4-Bromofluorobenzene (surr)	90 %R			%	12/20/21 16:53	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	12/20/21 16:53	8260B SIM	AM



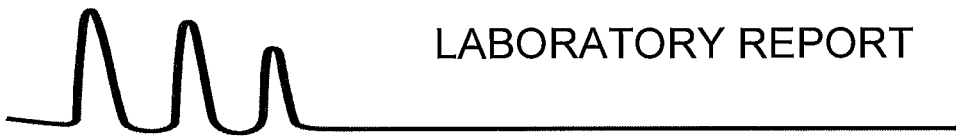
LABORATORY REPORT

EAI ID#: **236845**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 30 Rennie Rd
Lab Sample ID: 236845.04
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 17:24	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	12/20/21 17:24	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	12/20/21 17:24	8260B SIM	AM



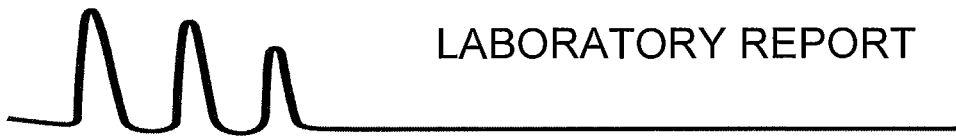
LABORATORY REPORT

EAI ID#: **236845**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 8 Dairy Ln
Lab Sample ID: 236845.05
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 17:55	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	12/20/21 17:55	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/20/21 17:55	8260B SIM	AM



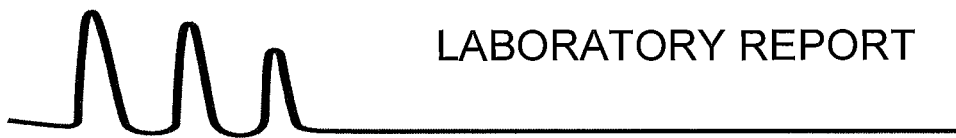
LABORATORY REPORT

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 38 Rennie Rd
Lab Sample ID: 236845.06
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 18:27	8260B SIM	AM
4-Bromofluorobenzene (surr)	92 %R			%	12/20/21 18:27	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/20/21 18:27	8260B SIM	AM



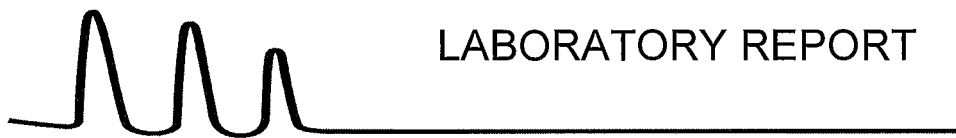
LABORATORY REPORT

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 594 Hanover Center Rd
Lab Sample ID: 236845.07
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21	18:58	8260B SIM	AM
4-Bromofluorobenzene (surr)	91 %R			%	12/20/21	18:58	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	12/20/21	18:58	8260B SIM	AM



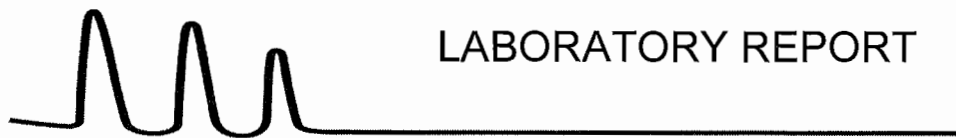
LABORATORY REPORT

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 39 Rennie Rd
Lab Sample ID: 236845.08
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21	19:30	8260B SIM	AM
4-Bromofluorobenzene (surr)	91 %R			%	12/20/21	19:30	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/20/21	19:30	8260B SIM	AM



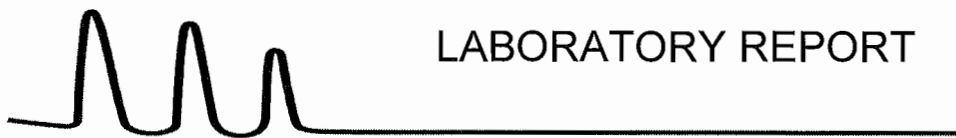
LABORATORY REPORT

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 26 Rennie Rd
Lab Sample ID: 236845.09
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 20:01	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	12/20/21 20:01	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/20/21 20:01	8260B SIM	AM



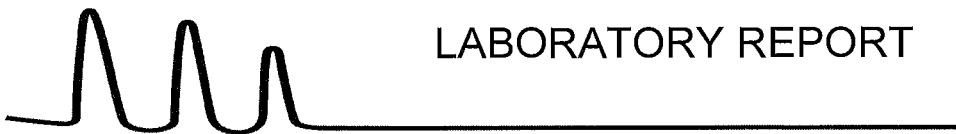
LABORATORY REPORT

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 47 Rennie Rd
Lab Sample ID: 236845.1
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 20:33	8260B SIM	AM
4-Bromofluorobenzene (surr)	93 %R			%	12/20/21 20:33	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/20/21 20:33	8260B SIM	AM



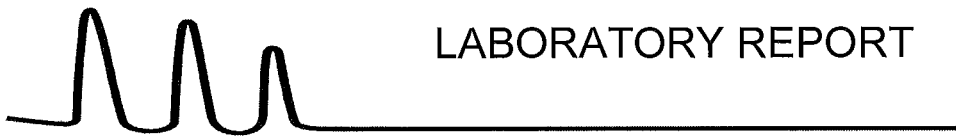
LABORATORY REPORT

EAI ID#: 236845

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 7 Rennie Rd
Lab Sample ID: 236845.11
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 21:05	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	12/20/21 21:05	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/20/21 21:05	8260B SIM	AM



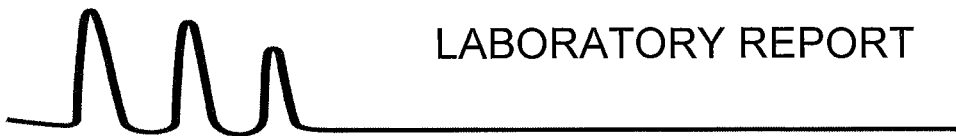
LABORATORY REPORT

EAI ID#: **236845**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: 9 Rennie Rd
Lab Sample ID: 236845.12
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	8.6	0.2	1	ug/L	12/20/21 21:36	8260B SIM	AM
4-Bromofluorobenzene (surr)	94 %R			%	12/20/21 21:36	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/20/21 21:36	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **236845**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: Trip Blank
 Lab Sample ID: 236845.13
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21	22:08	8260B SIM	AM
4-Bromofluorobenzene (surr)	94 %R			%	12/20/21	22:08	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	12/20/21	22:08	8260B SIM	AM



QC REPORT

EAI ID#: 236845

Client: GZA GeoEnvironmental, Inc. (NH)

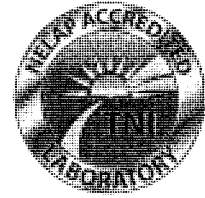
Batch ID: 637756-11574/A122021DIOX1

Client Designation: Rennie Farm | 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.6 (91 %R)	4.6 (93 %R) (2 RPD)	12/20/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	93 %R	98 %R	98 %R	12/20/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	97 %R	98 %R	98 %R	12/20/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 236846
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 12/16/2021

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.

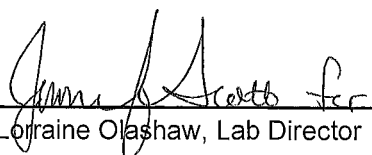
References:

- 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

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 O'Leary, Lab Director

12.28.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: **236846**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 0

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
236846.01	GZ-2	12/16/21	12/16/21 10:35	aqueous		Adheres to Sample Acceptance Policy
236846.02	GZ-9L	12/16/21	12/15/21 10:00	aqueous		Adheres to Sample Acceptance Policy
236846.03	GZ-9D	12/16/21	12/15/21 09:30	aqueous		Adheres to Sample Acceptance Policy
236846.04	GZ-14L	12/16/21	12/15/21 13:15	aqueous		Adheres to Sample Acceptance Policy
236846.05	GZ-24L	12/16/21	12/15/21 13:45	aqueous		Adheres to Sample Acceptance Policy
236846.06	GZ-24D	12/16/21	12/15/21 13:30	aqueous		Adheres to Sample Acceptance Policy
236846.07	GZ-27U	12/16/21	12/15/21 13:25	aqueous		Adheres to Sample Acceptance Policy
236846.08	GZ-27L	12/16/21	12/15/21 13:35	aqueous		Adheres to Sample Acceptance Policy
236846.09	GZ-27D	12/16/21	12/16/21 09:20	aqueous		Adheres to Sample Acceptance Policy
236846.1	GZ-28L	12/16/21	12/15/21 14:30	aqueous		Adheres to Sample Acceptance Policy
236846.11	GZ-28D	12/16/21	12/15/21 14:20	aqueous		Adheres to Sample Acceptance Policy
236846.12	GZ-32U	12/16/21	12/16/21 12:50	aqueous		Adheres to Sample Acceptance Policy
236846.13	GZ-32L	12/16/21	12/16/21 10:00	aqueous		Adheres to Sample Acceptance Policy
236846.14	GZ-32D	12/16/21	12/16/21 12:45	aqueous		Adheres to Sample Acceptance Policy
236846.15	GZ-34U	12/16/21	12/16/21 12:00	aqueous		Adheres to Sample Acceptance Policy
236846.16	GZ-34L	12/16/21	12/16/21 11:50	aqueous		Adheres to Sample Acceptance Policy
236846.17	GZ-34D	12/16/21	12/16/21 11:45	aqueous		Adheres to Sample Acceptance Policy
236846.18	GZ-35U	12/16/21	12/16/21 13:00	aqueous		Adheres to Sample Acceptance Policy
236846.19	GZ-35D	12/16/21	12/16/21 13:05	aqueous		Adheres to Sample Acceptance Policy
236846.2	GZ-36U	12/16/21	12/16/21 12:15	aqueous		Adheres to Sample Acceptance Policy
236846.21	GZ-37U	12/16/21	12/16/21 09:50	aqueous		Adheres to Sample Acceptance Policy
236846.22	GZ-37L	12/16/21	12/16/21 09:40	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#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 0

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
236846.23	GZ-39D	12/16/21	12/15/21 14:55	aqueous		Adheres to Sample Acceptance Policy
236846.24	GZ-40U	12/16/21	12/16/21 09:35	aqueous		Adheres to Sample Acceptance Policy
236846.25	GZ-40D	12/16/21	12/15/21 14:40	aqueous		Adheres to Sample Acceptance Policy
236846.26	GZ-41U	12/16/21	12/15/21 13:50	aqueous		Adheres to Sample Acceptance Policy
236846.27	GZ-42U	12/16/21	12/16/21 09:45	aqueous		Adheres to Sample Acceptance Policy
236846.28	SW-1	12/16/21	12/15/21 14:00	aqueous		Adheres to Sample Acceptance Policy
236846.29	SW-2	12/16/21	12/15/21 10:00	aqueous		Adheres to Sample Acceptance Policy
236846.3	SW-3	12/16/21	12/16/21 11:30	aqueous		Adheres to Sample Acceptance Policy
236846.31	SW-4	12/16/21	12/14/21 14:40	aqueous		Adheres to Sample Acceptance Policy
236846.32	SW-5	12/16/21	12/14/21 14:10	aqueous		Adheres to Sample Acceptance Policy
236846.33	SW-6	12/16/21	12/14/21 14:20	aqueous		Adheres to Sample Acceptance Policy
236846.34	Trip Blank	12/16/21	12/14/21 00:00	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#: **236846**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-2
Lab Sample ID: 236846.01
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.4	0.2	1	ug/L	12/20/21 23:11	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	12/20/21 23:11	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/20/21 23:11	8260B SIM	AM

Client Sample ID: GZ-9L
Lab Sample ID: 236846.02
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.46	0.2	1	ug/L	12/17/21 22:04	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	12/17/21 22:04	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	12/17/21 22:04	8260B SIM	AM

Client Sample ID: GZ-9D
Lab Sample ID: 236846.03
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	64	2	10	ug/L	12/17/21 23:38	8260B SIM	AM
4-Bromofluorobenzene (surr)	95 %R			%	12/17/21 23:38	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 23:38	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **236846**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-14L
Lab Sample ID: 236846.04
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	17	2	10	ug/L	12/18/21 0:09	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/18/21 0:09	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/18/21 0:09	8260B SIM	AM

Client Sample ID: GZ-24L
Lab Sample ID: 236846.05
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 16:17	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	12/17/21 16:17	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 16:17	8260B SIM	AM

Client Sample ID: GZ-24D
Lab Sample ID: 236846.06
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 16:49	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/17/21 16:49	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 16:49	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-27U
Lab Sample ID: 236846.07
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	5.7	0.2	1	ug/L	12/17/21 22:35	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/17/21 22:35	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/17/21 22:35	8260B SIM	AM

Client Sample ID: GZ-27L
Lab Sample ID: 236846.08
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3.5	0.2	1	ug/L	12/17/21 17:20	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/17/21 17:20	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 17:20	8260B SIM	AM

Client Sample ID: GZ-27D
Lab Sample ID: 236846.09
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2.6	0.2	1	ug/L	12/17/21 17:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	93 %R			%	12/17/21 17:52	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 17:52	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-28L
Lab Sample ID: 236846.1
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 18:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	90 %R			%	12/17/21 18:23	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	12/17/21 18:23	8260B SIM	AM

Client Sample ID: GZ-28D
Lab Sample ID: 236846.11
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 18:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/17/21 18:54	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 18:54	8260B SIM	AM

Client Sample ID: GZ-32U
Lab Sample ID: 236846.12
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 19:26	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/17/21 19:26	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 19:26	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-32L
 Lab Sample ID: 236846.13
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

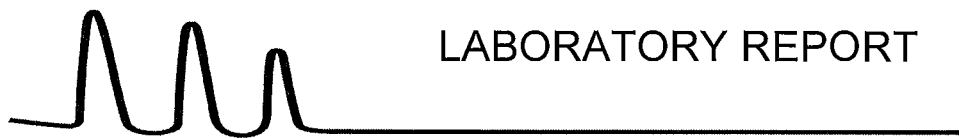
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 19:58	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/17/21 19:58	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 19:58	8260B SIM	AM

Client Sample ID: GZ-32D
 Lab Sample ID: 236846.14
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 20:29	8260B SIM	AM
4-Bromofluorobenzene (surr)	94 %R			%	12/17/21 20:29	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/17/21 20:29	8260B SIM	AM

Client Sample ID: GZ-34U
 Lab Sample ID: 236846.15
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 21:01	8260B SIM	AM
4-Bromofluorobenzene (surr)	92 %R			%	12/17/21 21:01	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	12/17/21 21:01	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-34L
Lab Sample ID: 236846.16
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/17/21 21:32	8260B SIM	AM
4-Bromofluorobenzene (surr)	91 %R			%	12/17/21 21:32	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	12/17/21 21:32	8260B SIM	AM

Client Sample ID: GZ-34D
Lab Sample ID: 236846.17
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 23:43	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/20/21 23:43	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/20/21 23:43	8260B SIM	AM

Client Sample ID: GZ-35U
Lab Sample ID: 236846.18
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 0:14	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	12/21/21 0:14	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/21/21 0:14	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-35D
 Lab Sample ID: 236846.19
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 14:49	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/21/21 14:49	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/21/21 14:49	8260B SIM	AM

Client Sample ID: GZ-36U
 Lab Sample ID: 236846.2
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 15:21	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	12/21/21 15:21	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/21/21 15:21	8260B SIM	AM

Client Sample ID: GZ-37U
 Lab Sample ID: 236846.21
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 15:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	93 %R			%	12/21/21 15:52	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/21/21 15:52	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-37L
Lab Sample ID: 236846.22
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 16:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/21/21 16:23	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/21/21 16:23	8260B SIM	AM

Client Sample ID: GZ-39D
Lab Sample ID: 236846.23
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.27	0.2	1	ug/L	12/21/21 16:55	8260B SIM	AM
4-Bromofluorobenzene (surr)	91 %R			%	12/21/21 16:55	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/21/21 16:55	8260B SIM	AM

Client Sample ID: GZ-40U
Lab Sample ID: 236846.24
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	390	100	500	ug/L	12/21/21 21:38	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/21/21 21:38	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/21/21 21:38	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-40D
Lab Sample ID: 236846.25
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	10	0.2	1	ug/L	12/21/21 22:10	8260B SIM	AM
4-Bromofluorobenzene (surr)	90 %R			%	12/21/21 22:10	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	12/21/21 22:10	8260B SIM	AM

Client Sample ID: GZ-41U
Lab Sample ID: 236846.26
Matrix: aqueous
Date Sampled: 12/15/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	27	4	20	ug/L	12/21/21 20:35	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	12/21/21 20:35	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/21/21 20:35	8260B SIM	AM

Client Sample ID: GZ-42U
Lab Sample ID: 236846.27
Matrix: aqueous
Date Sampled: 12/16/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	160	20	100	ug/L	12/21/21 21:07	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	12/21/21 21:07	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/21/21 21:07	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: SW-1
 Lab Sample ID: 236846.28
 Matrix: aqueous
 Date Sampled: 12/15/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 17:27	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	12/21/21 17:27	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/21/21 17:27	8260B SIM	AM

Client Sample ID: SW-2
 Lab Sample ID: 236846.29
 Matrix: aqueous
 Date Sampled: 12/15/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 17:58	8260B SIM	AM
4-Bromofluorobenzene (surr)	95 %R			%	12/21/21 17:58	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/21/21 17:58	8260B SIM	AM

Client Sample ID: SW-3
 Lab Sample ID: 236846.3
 Matrix: aqueous
 Date Sampled: 12/16/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 18:30	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/21/21 18:30	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/21/21 18:30	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: SW-4
 Lab Sample ID: 236846.31
 Matrix: aqueous
 Date Sampled: 12/14/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 19:01	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/21/21 19:01	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/21/21 19:01	8260B SIM	AM

Client Sample ID: SW-5
 Lab Sample ID: 236846.32
 Matrix: aqueous
 Date Sampled: 12/14/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 19:32	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/21/21 19:32	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/21/21 19:32	8260B SIM	AM

Client Sample ID: SW-6
 Lab Sample ID: 236846.33
 Matrix: aqueous
 Date Sampled: 12/14/21
 Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/21/21 20:04	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/21/21 20:04	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/21/21 20:04	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236846

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: Trip Blank
Lab Sample ID: 236846.34
Matrix: aqueous
Date Sampled: 12/14/21
Date Received: 12/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/20/21 22:40	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/20/21 22:40	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/20/21 22:40	8260B SIM	AM



QC REPORT

EAI ID#: 236846

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637753-53847/A121721DIOX1

Client Designation: Rennie Farm | 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.5 (91 %R)	4.3 (86 %R) (6 RPD)	12/17/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	99 %R	94 %R	12/17/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	99 %R	99 %R	12/17/2021	% 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#: 236846

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637756-11574/A122021DIOX1

Client Designation: Rennie Farm | 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.6 (91 %R)	4.6 (93 %R) (2 RPD)	12/20/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	93 %R	98 %R	98 %R	12/20/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	97 %R	98 %R	98 %R	12/20/2021	% 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#: **236846**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637756-97834/A122121DIOX1

Client Designation: **Rennie Farm | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.2 (85 %R)	4.2 (84 %R) (1 RPD)	12/21/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	92 %R	93 %R	91 %R	12/21/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	97 %R	97 %R	12/21/2021	% 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.

CHAIN-OF-CUSTODY RECORD

236846

Page 19 of 22

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE / TIME <small>*IF COMPOSITE, INDICATE BOTH START & FINISH DATE / TIME</small>	MATRIX (SEE BELOW)		VOC		SVOC		TCLP	INORGANICS					MICRO	METALS	OTHER		# OF CONTAINERS	NOTES MeOH Vial #		
		GRAB	*COMPOSITE	524.2	524.2 MTBE ONLY	624	VTICS	8015	8015 GRO	MAIPH	8015	8015 GRO	MAIPH	8015	8015 GRO	MAIPH	8015			8015 GRO	MAIPH
GZ-2	12/16/21 / 1035	GW	G	X															2		
GZ-9L	12/15/21 / 1000	GW	G	X																2	
GZ-9D	12/15/21 / 0930	GW	G	X																2	
GZ-140 km																					
GZ-14L	12/15/21 / 1315	GW	G	X																	2
GZ-24L	12/15/21 / 1345	GW	G	X																	2
GZ-24D	12/15/21 / 1330	GW	G	X																	2
GZ-270	12/15/21 / 1325	GW	G	X																	2
GZ-27L	12/15/21 / 1335	GW	G	X																	2
GZ-27D	12/16/21 / 0920	GW	G	X																	2

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER
PRESERVATIVE: H-HCL; N-HNO₃; S-H₂SO₄; Na-NAOH; M-MEON

PROJECT MANAGER: Jim Wiecek
 COMPANY: GZA Geo Environmental
 ADDRESS: 5 Commerce Park N,
 CITY: Bedford STATE: NH ZIP: 03103
 PHONE: 603-232-8732 EXT.: _____
 E-MAIL: james.wiecek@gza.com
 SITE NAME: Rennie Farm
 PROJECT #: 09.0190030.02
 STATE: NH MA ME VT OTHER: _____
 REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR
 GWP, OIL FUND, BROWNFIELD OR OTHER: _____
 QUOTE #: _____ PO #: _____

QA/QC REPORTING

A B C
MA MCP

TEMP. 0 °C
 ICE? YES NO

REPORTING OPTIONS

PRELIMS: YES OR NO

ELECTRONIC OPTIONS

PDF EXCEL
EQUIS
OTHER _____

TURN AROUND TIME

24hr* 48hr*
3-4 Days*
5 Day 7 Day
10 Day

*Pre-approval Required

METALS: 8 RCRA 13 PP FE, MN PB, CU

OTHER METALS: _____

SAMPLES FIELD FILTERED? YES NO

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

SAMPLER(S): E. Dymess, B. Lehrs, K. Marsh

Kevin Smith 12/16/21 10:05 Chris Johnson
 RELINQUISHED BY: DATE: TIME: RECEIVED BY:

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

SITE HISTORY: _____

SUSPECTED CONTAMINATION: _____

FIELD READINGS: _____

CHAIN-OF-CUSTODY RECORD

236846

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE/TIME *If COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW) GRAB/# COMPOSITE	VOC			SVOC			TCMP	INORGANICS				MICRO		METALS		OTHER		# OF CONTAINERS	NOTES MeOH Vial #	
			524.2	524.2 MTBE ONLY	024 14 Dioxane	8021	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO	8015 GRO			8015 GRO
GZ-28L	12/15/21 / 1430	GW G	X																	2		
GZ-28D	12/15/21 / 1420	GW G	X																		2	
GZ-32U	12/16/21 / 1250	GW G	X																		2	
GZ-32 L	12/16/21 / 1000	GW G	X																		2	
GZ-32D	12/16/21 / 1245	GW G	X																		2	
GZ-34U	12/16/21 / 1200	GW G	X																		2	
GZ-34 L	12/16/21 / 1150	GW G	X																		2	
GZ-34D	12/16/21 / 1145	GW G	X																		2	
GZ-35U	12/16/21 / 1300	GW G	X																		2	
GZ-35D	12/16/21 / 1305	GW G	X																		2	

MATRIX: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste Water
PRESERVATIVE: H-HCL; N-HNO₃; S-H₂SO₄; Na-NaOH; M-MEOH

PROJECT MANAGER: Jim Wiedk
 COMPANY: GZA Geo Environmental
 ADDRESS: 5 Commerce Park N.
 CITY: Bedford STATE: NH ZIP: 03103
 PHONE: 603-232-8732 EXT: _____
 E-MAIL: james.wiedk@gza.com
 SITE NAME: Rennie Farm
 PROJECT #: 09.0190030.02
 STATE: NH MA ME VT OTHER: _____
 REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR
 GWP, OIL FUND, BROWNFIELD OR OTHER: _____
 QUOTE #: _____ PO #: _____

QA/QC REPORTING A B C MA MCP TEMP. <u>0</u> °C ICE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	REPORTING OPTIONS PRELIMS: YES OR NO ELECTRONIC OPTIONS PDF EXCEL EQUIS OTHER _____	TURN AROUND TIME 24hr* 48hr* 3-4 Days* 5 Day 7 Day 10 Day *Pre-approval Required
SAMPLER(S): <u>E. Dymess, B. Whors, K. Marsh</u> <u>Kara and</u> 12/16/21 1605 <u>Chapman</u>		
RELINQUISHED BY: _____	DATE: _____	TIME: _____ RECEIVED BY: _____
RELINQUISHED BY: _____	DATE: _____	TIME: _____ RECEIVED BY: _____
RELINQUISHED BY: _____	DATE: _____	TIME: _____ RECEIVED BY: _____

METALS: 8 RCRA 13 PP Fe, Mn Pb, Cu
 OTHER METALS: _____
 SAMPLES FIELD FILTERED? YES NO
 NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)
 SITE HISTORY: _____
 SUSPECTED CONTAMINATION: _____
 FIELD READINGS: _____



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 236937
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 12/17/2021

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.

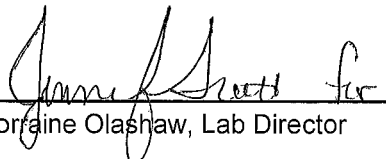
References:

- 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

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

12.29.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 236937

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 5.3

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
236937.01	GZ-37D	12/17/21	12/17/21 09:05	aqueous		Adheres to Sample Acceptance Policy
236937.02	GZ-51	12/17/21	12/17/21 13:15	aqueous		Adheres to Sample Acceptance Policy
236937.03	GZ-52	12/17/21	12/17/21 13:20	aqueous		Adheres to Sample Acceptance Policy
236937.04	RW-13	12/17/21	12/17/21 13:45	aqueous		Adheres to Sample Acceptance Policy
236937.05	RW-14	12/17/21	12/17/21 13:50	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#: **236937**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-37D
Lab Sample ID: 236937.01
Matrix: aqueous
Date Sampled: 12/17/21
Date Received: 12/17/21

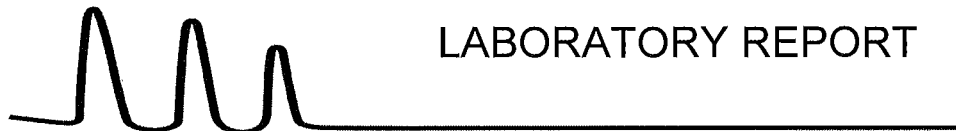
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.29	0.2	1	ug/L	12/23/21 13:16	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	12/23/21 13:16	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 13:16	8260B SIM	AM

Client Sample ID: GZ-51
Lab Sample ID: 236937.02
Matrix: aqueous
Date Sampled: 12/17/21
Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	10	0.2	1	ug/L	12/23/21 21:41	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	12/23/21 21:41	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 21:41	8260B SIM	AM

Client Sample ID: GZ-52
Lab Sample ID: 236937.03
Matrix: aqueous
Date Sampled: 12/17/21
Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3.6	0.2	1	ug/L	12/23/21 13:47	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	12/23/21 13:47	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	12/23/21 13:47	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **236937**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: RW-13
Lab Sample ID: 236937.04
Matrix: aqueous
Date Sampled: 12/17/21
Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.3	0.2	1	ug/L	12/23/21 14:19	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	12/23/21 14:19	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 14:19	8260B SIM	AM

Client Sample ID: RW-14
Lab Sample ID: 236937.05
Matrix: aqueous
Date Sampled: 12/17/21
Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	5.6	0.2	1	ug/L	12/23/21 14:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	12/23/21 14:50	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 14:50	8260B SIM	AM



QC REPORT

EAI ID#: **236937**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637758-64484/A122321DIOX1

Client Designation: **Rennie Farm | 04.0190030.02**

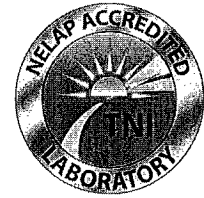
Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.9 (98 %R)	5.1 (101 %R) (3 RPD)	12/23/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	100 %R	102 %R	12/23/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	101 %R	100 %R	12/23/2021	% Rec	70 - 130	50	8260B

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



Non-GMP Related Groundwater Monitoring Data

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 234897
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 11/5/2021

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

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

11.18.21

Date



SAMPLE CONDITIONS PAGE

EAI ID#: 234897

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 0.1

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
234897.01	OPM-6A	11/5/21	11/3/21 09:55	aqueous		Adheres to Sample Acceptance Policy
234897.02	OPM-6B	11/5/21	11/3/21 12:10	aqueous		Adheres to Sample Acceptance Policy
234897.03	OPM-6C	11/5/21	11/3/21 10:15	aqueous		Adheres to Sample Acceptance Policy
234897.04	OPM-6D	11/5/21	11/3/21 12:15	aqueous		Adheres to Sample Acceptance Policy
234897.05	OPM-11A	11/5/21	11/3/21 10:45	aqueous		Adheres to Sample Acceptance Policy
234897.06	OPM-11B	11/5/21	11/3/21 12:35	aqueous		Adheres to Sample Acceptance Policy
234897.07	OPM-11C	11/5/21	11/3/21 12:45	aqueous		Adheres to Sample Acceptance Policy
234897.08	OPM-11D	11/5/21	11/3/21 12:55	aqueous		Adheres to Sample Acceptance Policy
234897.09	OPM-14A	11/5/21	11/3/21 13:50	aqueous		Adheres to Sample Acceptance Policy
234897.1	OPM-14B	11/5/21	11/3/21 14:05	aqueous		Adheres to Sample Acceptance Policy
234897.11	OPM-14C	11/5/21	11/3/21 13:35	aqueous		Adheres to Sample Acceptance Policy
234897.12	OPM-14D	11/5/21	11/3/21 13:40	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#: 234897

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: OPM-6A
 Lab Sample ID: 234897.01
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	62	10	50	ug/L	11/12/21 12:46	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	11/12/21 12:46	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 12:46	8260B SIM	AM

Client Sample ID: OPM-6B
 Lab Sample ID: 234897.02
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	96	20	100	ug/L	11/12/21 16:26	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	11/12/21 16:26	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 16:26	8260B SIM	AM

Client Sample ID: OPM-6C
 Lab Sample ID: 234897.03
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	59	10	50	ug/L	11/12/21 13:49	8260B SIM	AM
4-Bromofluorobenzene (surr)	95 %R			%	11/12/21 13:49	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 13:49	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **234897**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: OPM-6D
 Lab Sample ID: 234897.04
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	110	10	50	ug/L	11/12/21 14:20	8260B SIM	AM
4-Bromofluorobenzene (surr)	95 %R			%	11/12/21 14:20	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 14:20	8260B SIM	AM

Client Sample ID: OPM-11A
 Lab Sample ID: 234897.05
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	69	10	50	ug/L	11/12/21 14:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	94 %R			%	11/12/21 14:52	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 14:52	8260B SIM	AM

Client Sample ID: OPM-11B
 Lab Sample ID: 234897.06
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	81	10	50	ug/L	11/12/21 15:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	94 %R			%	11/12/21 15:23	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 15:23	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 234897

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: OPM-11C
 Lab Sample ID: 234897.07
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

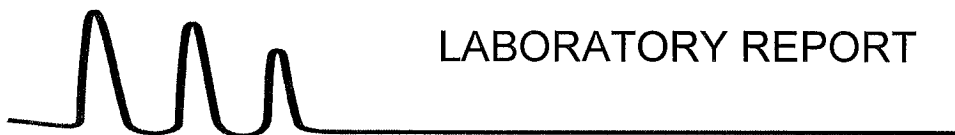
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	99	20	100	ug/L	11/12/21 16:57	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	11/12/21 16:57	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 16:57	8260B SIM	AM

Client Sample ID: OPM-11D
 Lab Sample ID: 234897.08
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	430	20	100	ug/L	11/12/21 17:29	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	11/12/21 17:29	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 17:29	8260B SIM	AM

Client Sample ID: OPM-14A
 Lab Sample ID: 234897.09
 Matrix: aqueous
 Date Sampled: 11/3/21
 Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	250	20	100	ug/L	11/12/21 18:00	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	11/12/21 18:00	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 18:00	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 234897

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: OPM-14B
Lab Sample ID: 234897.1
Matrix: aqueous
Date Sampled: 11/3/21
Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	280	10	50	ug/L	11/12/21 15:55	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	11/12/21 15:55	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 15:55	8260B SIM	AM

Client Sample ID: OPM-14C
Lab Sample ID: 234897.11
Matrix: aqueous
Date Sampled: 11/3/21
Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	120	20	100	ug/L	11/12/21 18:31	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	11/12/21 18:31	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 18:31	8260B SIM	AM

Client Sample ID: OPM-14D
Lab Sample ID: 234897.12
Matrix: aqueous
Date Sampled: 11/3/21
Date Received: 11/5/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	400	20	100	ug/L	11/12/21 19:03	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	11/12/21 19:03	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/12/21 19:03	8260B SIM	AM



QC REPORT

EAI ID#: **234897**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637725-61127/A111221DIOX1

Client Designation: **Rennie Farm | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.5 (91 %R)	4.6 (91 %R) (1 RPD)	11/12/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	93 %R	96 %R	94 %R	11/12/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	95 %R	96 %R	95 %R	11/12/2021	% Rec	70 - 130	50	8260B

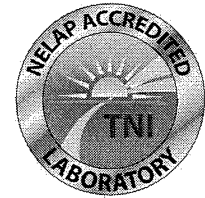
*! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 227873
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 6/17/2021

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.

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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:

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- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992

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,

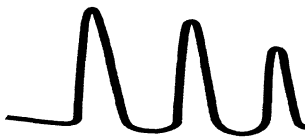
Lorraine Olashaw, Lab Director

6.24.21

Date

11

of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 227873

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 2.5

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

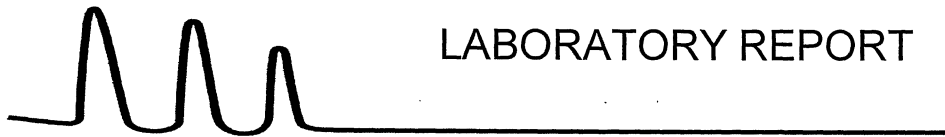
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
227873.01	GZ-PM-3U	6/17/21	6/17/21 12:25	aqueous		Adheres to Sample Acceptance Policy
227873.02	GZ-PM-3L	6/17/21	6/17/21 12:20	aqueous		Adheres to Sample Acceptance Policy
227873.03	GZ-PM-4U	6/17/21	6/17/21 12:35	aqueous		Adheres to Sample Acceptance Policy
227873.04	GZ-PM-4L	6/17/21	6/17/21 12:30	aqueous		Adheres to Sample Acceptance Policy
227873.05	GZ-PM-6U	6/17/21	6/17/21 12:40	aqueous		Adheres to Sample Acceptance Policy
227873.06	GZ-PM-2U	6/17/21	6/17/21 12:50	aqueous		Adheres to Sample Acceptance Policy
227873.07	GZ-PM-2L	6/17/21	6/17/21 12:45	aqueous		Adheres to Sample Acceptance Policy
227873.08	GZ-PM-5L	6/17/21	6/17/21 13:00	aqueous		Adheres to Sample Acceptance Policy
227873.09	GZ-PM-1U	6/17/21	6/17/21 13:10	aqueous		Adheres to Sample Acceptance Policy
227873.1	GZ-PM-1L	6/17/21	6/17/21 13:15	aqueous		Adheres to Sample Acceptance Policy
227873.11	GZ-PM-8L	6/17/21	6/17/21 13:25	aqueous		Adheres to Sample Acceptance Policy
227873.12	GZ-PM-9L	6/17/21	6/17/21 13:35	aqueous		Adheres to Sample Acceptance Policy

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

Unless otherwise noted:

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- 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#: 227873

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-3U
Lab Sample ID: 227873.01
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

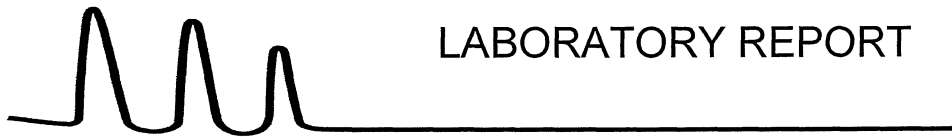
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	6/18/21 13:46	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	6/18/21 13:46	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 13:46	8260B SIM	AM

Client Sample ID: GZ-PM-3L
Lab Sample ID: 227873.02
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.1	0.2	1	ug/L	6/18/21 14:49	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	6/18/21 14:49	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	6/18/21 14:49	8260B SIM	AM

Client Sample ID: GZ-PM-4U
Lab Sample ID: 227873.03
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.4	0.2	1	ug/L	6/18/21 15:20	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	6/18/21 15:20	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 15:20	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 227873

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-4L
Lab Sample ID: 227873.04
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

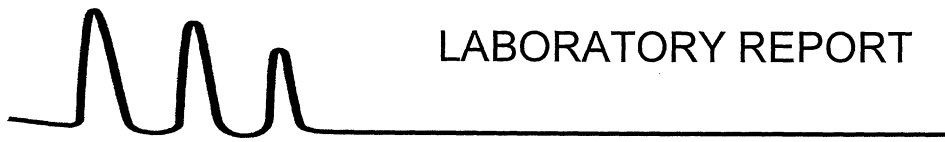
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.84	0.2	1	ug/L	6/18/21 15:51	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	6/18/21 15:51	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 15:51	8260B SIM	AM

Client Sample ID: GZ-PM-6U
Lab Sample ID: 227873.05
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	6.3	0.2	1	ug/L	6/18/21 16:22	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	6/18/21 16:22	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 16:22	8260B SIM	AM

Client Sample ID: GZ-PM-2U
Lab Sample ID: 227873.06
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	30	2	10	ug/L	6/18/21 21:32	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	6/18/21 21:32	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 21:32	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 227873

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-2L
Lab Sample ID: 227873.07
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

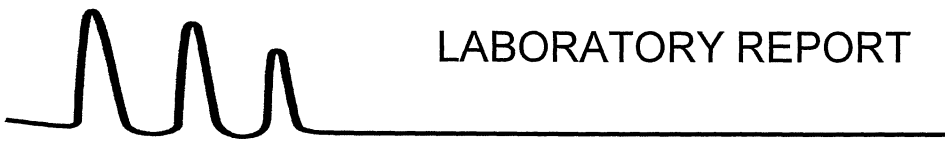
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	64	4	20	ug/L	6/18/21 22:03	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	6/18/21 22:03	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 22:03	8260B SIM	AM

Client Sample ID: GZ-PM-5L
Lab Sample ID: 227873.08
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3.7	0.2	1	ug/L	6/18/21 16:53	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	6/18/21 16:53	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 16:53	8260B SIM	AM

Client Sample ID: GZ-PM-1U
Lab Sample ID: 227873.09
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	6/18/21 17:24	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	6/18/21 17:24	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	6/18/21 17:24	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 227873

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-1L
Lab Sample ID: 227873.1
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

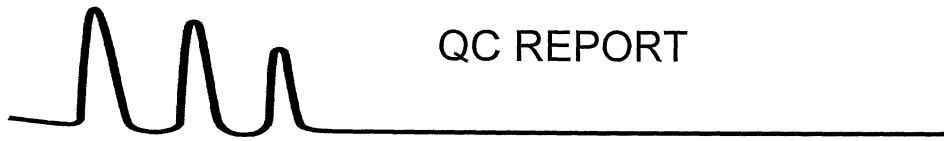
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	6.3	0.2	1	ug/L	6/18/21 17:55	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	6/18/21 17:55	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 17:55	8260B SIM	AM

Client Sample ID: GZ-PM-8L
Lab Sample ID: 227873.11
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	6/18/21 18:26	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	6/18/21 18:26	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	6/18/21 18:26	8260B SIM	AM

Client Sample ID: GZ-PM-9L
Lab Sample ID: 227873.12
Matrix: aqueous
Date Sampled: 6/17/21
Date Received: 6/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.22	0.2	1	ug/L	6/18/21 18:57	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	6/18/21 18:57	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/18/21 18:57	8260B SIM	AM



QC REPORT

EAI ID#: **227873**

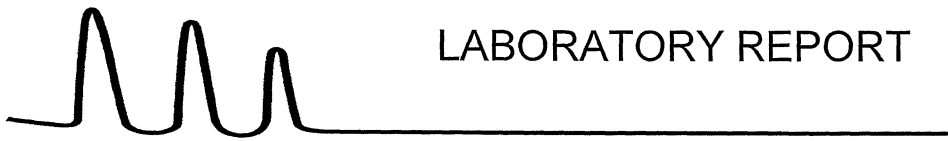
Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637598-60150/A061821DIOX1

Client Designation: **Rennie Farm | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.7 (95 %R)	4.6 (91 %R) (4 RPD)	6/18/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	97 %R	98 %R	99 %R	6/18/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	99 %R	100 %R	6/18/2021	% 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#: 227873

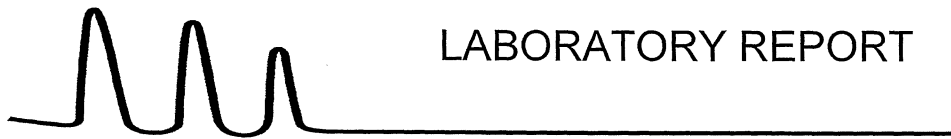
Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Sample ID:	GZ-PM-3L	GZ-PM-4U	GZ-PM-4L			Analysis			
Lab Sample ID:	227873.02	227873.03	227873.04	RL	Units	Date	Time	Method	Analyst
Matrix:	aqueous	aqueous	aqueous						
Date Sampled:	6/17/21	6/17/21	6/17/21						
Date Received:	6/17/21	6/17/21	6/17/21						
Cyanide Total	< 0.02	< 0.005	0.010	0.005	mg/L	6/22/21	11:37	ASTM D7511-09	KD
Cyanide Free	< 0.02	< 0.005	< 0.005	0.005	mg/L	6/23/21	9:47	OIA-1677-09	KD

Sample ID:	GZ-PM-6U	GZ-PM-2U	GZ-PM-2L			Analysis			
Lab Sample ID:	227873.05	227873.06	227873.07	RL	Units	Date	Time	Method	Analyst
Matrix:	aqueous	aqueous	aqueous						
Date Sampled:	6/17/21	6/17/21	6/17/21						
Date Received:	6/17/21	6/17/21	6/17/21						
Cyanide Total	0.0078	< 0.02	< 0.02	0.005	mg/L	6/22/21	12:12	ASTM D7511-09	KD
Cyanide Free	< 0.005	< 0.02	< 0.02	0.005	mg/L	6/23/21	10:04	OIA-1677-09	KD

GZ-PM-3L, GZ-PM-2U, GZ-PM-2L: The reporting limit for Cyanide Total and Cyanide Free has been elevated to 0.02 mg/L due to sample matrix.



LABORATORY REPORT

EAI ID#: **227873**

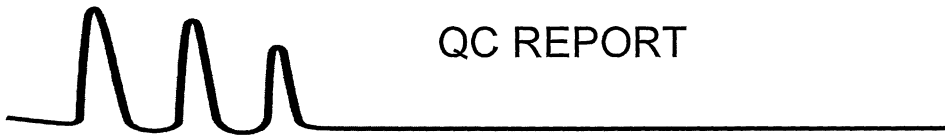
Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Sample ID:	GZ-PM-5L	GZ-PM-1U	GZ-PM-1L			Analysis			
Lab Sample ID:	227873.08	227873.09	227873.1	RL	Units	Date	Time	Method	Analyst
Matrix:	aqueous	aqueous	aqueous						
Date Sampled:	6/17/21	6/17/21	6/17/21						
Date Received:	6/17/21	6/17/21	6/17/21						
Cyanide Total	< 0.02	< 0.005	< 0.005	0.005	mg/L	6/22/21	12:26	ASTM D7511-09	KD
Cyanide Free	< 0.02	< 0.005	< 0.005	0.005	mg/L	6/23/21	10:30	OIA-1677-09	KD

Sample ID:	GZ-PM-8L	GZ-PM-9L				Analysis			
Lab Sample ID:	227873.11	227873.12	RL	Units	Date	Time	Method	Analyst	
Matrix:	aqueous	aqueous							
Date Sampled:	6/17/21	6/17/21							
Date Received:	6/17/21	6/17/21							
Cyanide Total	< 0.02	< 0.02	0.02	mg/L	6/22/21	12:59	ASTM D7511-09	KD	
Cyanide Free	< 0.02	< 0.02	0.02	mg/L	6/23/21	10:45	OIA-1677-09	KD	

GZ-PM-5L, GZ-PM-8L, GZ-PM-9L: The reporting limit for Cyanide Total and Cyanide Free has been elevated to 0.02 mg/L due to sample matrix.



QC REPORT

EAI ID#: **227873**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Cyanide Total	< 0.005	0.11 (110 %R)	0.11 (108 %R) (2 RPD)	mg/L	6/22/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 0.005	0.24 (94 %R)	0.27 (109 %R) (15 RPD)	mg/L	6/23/21	82 - 132	20	OIA-1677-09

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

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 232859
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 9/29/2021

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.

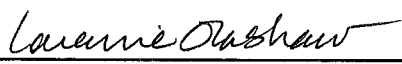
References:

- 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

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

10.13.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 232859

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 2.8

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)
232859.01	GZ-PM-1L	9/29/21	9/27/21 15:15	aqueous		Adheres to Sample Acceptance Policy
232859.02	GZ-PM-2U	9/29/21	9/27/21 15:00	aqueous		Adheres to Sample Acceptance Policy
232859.03	GZ-PM-2L	9/29/21	9/27/21 14:55	aqueous		Adheres to Sample Acceptance Policy
232859.04	GZ-PM-3U	9/29/21	9/27/21 14:40	aqueous		Adheres to Sample Acceptance Policy
232859.05	GZ-PM-3L	9/29/21	9/27/21 14:45	aqueous		Adheres to Sample Acceptance Policy
232859.06	GZ-PM-4U	9/29/21	9/27/21 14:50	aqueous		Adheres to Sample Acceptance Policy
232859.07	GZ-PM-4L	9/29/21	9/27/21 09:05	aqueous		Adheres to Sample Acceptance Policy
232859.08	GZ-PM-5L	9/29/21	9/27/21 15:10	aqueous		Adheres to Sample Acceptance Policy
232859.09	GZ-PM-6U	9/29/21	9/27/21 09:20	aqueous		Adheres to Sample Acceptance Policy
232859.1	GZ-PM-8L	9/29/21	9/27/21 15:30	aqueous		Adheres to Sample Acceptance Policy
232859.11	GZ-PM-9L	9/29/21	9/27/21 15:30	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#: **232859**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-1L
Lab Sample ID: 232859.01
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3.9	0.2	1	ug/L	10/5/21 18:00	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	10/5/21 18:00	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	10/5/21 18:00	8260B SIM	AM

Client Sample ID: GZ-PM-2U
Lab Sample ID: 232859.02
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	19	2	10	ug/L	10/5/21 18:31	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	10/5/21 18:31	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/5/21 18:31	8260B SIM	AM

Client Sample ID: GZ-PM-2L
Lab Sample ID: 232859.03
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	29	4	20	ug/L	10/5/21 19:03	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	10/5/21 19:03	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	10/5/21 19:03	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232859

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-3U
 Lab Sample ID: 232859.04
 Matrix: aqueous
 Date Sampled: 9/27/21
 Date Received: 9/29/21

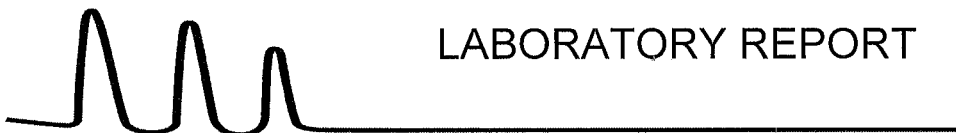
	Result	RL	Dilution Factor	Units	Date / Time		Method	Analyst
					Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	10/5/21	13:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	10/5/21	13:50	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	10/5/21	13:50	8260B SIM	AM

Client Sample ID: GZ-PM-3L
 Lab Sample ID: 232859.05
 Matrix: aqueous
 Date Sampled: 9/27/21
 Date Received: 9/29/21

	Result	RL	Dilution Factor	Units	Date / Time		Method	Analyst
					Analyzed			
1,4-Dioxane	0.96	0.2	1	ug/L	10/5/21	14:21	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	10/5/21	14:21	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	10/5/21	14:21	8260B SIM	AM

Client Sample ID: GZ-PM-4U
 Lab Sample ID: 232859.06
 Matrix: aqueous
 Date Sampled: 9/27/21
 Date Received: 9/29/21

	Result	RL	Dilution Factor	Units	Date / Time		Method	Analyst
					Analyzed			
1,4-Dioxane	1.3	0.2	1	ug/L	10/5/21	14:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	10/5/21	14:52	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	10/5/21	14:52	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232859

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-4L
Lab Sample ID: 232859.07
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

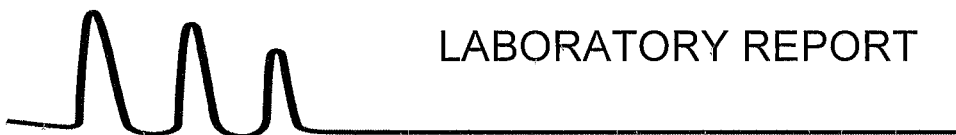
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.69	0.2	1	ug/L	10/5/21 15:24	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	10/5/21 15:24	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/5/21 15:24	8260B SIM	AM

Client Sample ID: GZ-PM-5L
Lab Sample ID: 232859.08
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.8	0.2	1	ug/L	10/5/21 15:55	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	10/5/21 15:55	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/5/21 15:55	8260B SIM	AM

Client Sample ID: GZ-PM-6U
Lab Sample ID: 232859.09
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	8.1	0.2	1	ug/L	10/5/21 16:26	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	10/5/21 16:26	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	10/5/21 16:26	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232859

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-PM-8L
Lab Sample ID: 232859.1
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	10/5/21	16:57	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	10/5/21	16:57	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/5/21	16:57	8260B SIM	AM

Client Sample ID: GZ-PM-9L
Lab Sample ID: 232859.11
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/29/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	10/5/21	17:29	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	10/5/21	17:29	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/5/21	17:29	8260B SIM	AM



QC REPORT

EAI ID#: **232859**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637690-42299/A100521DIOX1

Client Designation: **Rennie Farm | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.5 (90 %R)	4.5 (91 %R) (0 RPD)	10/5/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	98 %R	98 %R	10/5/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	100 %R	100 %R	10/5/2021	% 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.



Remedial System Monitoring Data and Selected Residential Samples



Groundwater Extraction Well Data

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 232640
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 9/24/2021

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

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

10.5.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: **232640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 0.8

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

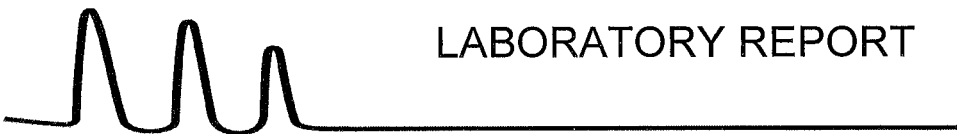
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
232640.01	GZ-47	9/24/21	9/23/21 14:00	aqueous		Adheres to Sample Acceptance Policy
232640.02	GZ-51	9/24/21	9/23/21 14:55	aqueous		Adheres to Sample Acceptance Policy
232640.03	GZ-52	9/24/21	9/23/21 14:55	aqueous		Adheres to Sample Acceptance Policy
232640.04	GZ-54U	9/24/21	9/23/21 13:50	aqueous		Adheres to Sample Acceptance Policy
232640.05	ORW-1	9/24/21	9/24/21 09:10	aqueous		Adheres to Sample Acceptance Policy
232640.06	ORW-2	9/24/21	9/24/21 09:15	aqueous		Adheres to Sample Acceptance Policy
232640.07	ORW-3	9/24/21	9/24/21 09:20	aqueous		Adheres to Sample Acceptance Policy
232640.08	ORW-4	9/24/21	9/24/21 09:25	aqueous		Adheres to Sample Acceptance Policy
232640.09	ORW-5	9/24/21	9/24/21 09:30	aqueous		Adheres to Sample Acceptance Policy
232640.1	ORW-6	9/24/21	9/24/21 09:35	aqueous		Adheres to Sample Acceptance Policy
232640.11	ORW-7	9/24/21	9/24/21 09:40	aqueous		Adheres to Sample Acceptance Policy
232640.12	ORW-8	9/24/21	9/24/21 09:45	aqueous		Adheres to Sample Acceptance Policy
232640.13	ORW-9	9/24/21	9/24/21 09:50	aqueous		Adheres to Sample Acceptance Policy
232640.14	ORW-10	9/24/21	9/24/21 09:55	aqueous		Adheres to Sample Acceptance Policy
232640.15	ORW-11	9/24/21	9/24/21 10:50	aqueous		Adheres to Sample Acceptance Policy
232640.16	ORW-12	9/24/21	9/24/21 10:30	aqueous		Adheres to Sample Acceptance Policy
232640.17	ORW-13	9/24/21	9/24/21 10:35	aqueous		Adheres to Sample Acceptance Policy
232640.18	ORW-14	9/24/21	9/24/21 10:40	aqueous		Adheres to Sample Acceptance Policy
232640.19	ORW-15	9/24/21	9/24/21 10:45	aqueous		Adheres to Sample Acceptance Policy
232640.2	RW-13	9/24/21	9/24/21 11:05	aqueous		Adheres to Sample Acceptance Policy
232640.21	RW-14	9/24/21	9/24/21 11:10	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#: 232640

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-47
Lab Sample ID: 232640.01
Matrix: aqueous
Date Sampled: 9/23/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	97	20	100	ug/L	9/28/21 15:45	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	9/28/21 15:45	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 15:45	8260B SIM	AM

Client Sample ID: GZ-51
Lab Sample ID: 232640.02
Matrix: aqueous
Date Sampled: 9/23/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	9.8	0.2	1	ug/L	9/28/21 14:42	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	9/28/21 14:42	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	9/28/21 14:42	8260B SIM	AM

Client Sample ID: GZ-52
Lab Sample ID: 232640.03
Matrix: aqueous
Date Sampled: 9/23/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	5.2	0.2	1	ug/L	9/28/21 15:14	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	9/28/21 15:14	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 15:14	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232640

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-54U
 Lab Sample ID: 232640.04
 Matrix: aqueous
 Date Sampled: 9/23/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	72	10	50	ug/L	9/28/21 16:16	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	9/28/21 16:16	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 16:16	8260B SIM	AM

Client Sample ID: ORW-1
 Lab Sample ID: 232640.05
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	19	2	10	ug/L	9/28/21 16:47	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	9/28/21 16:47	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 16:47	8260B SIM	AM

Client Sample ID: ORW-2
 Lab Sample ID: 232640.06
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	38	2	10	ug/L	9/28/21 17:19	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	9/28/21 17:19	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 17:19	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232640

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: ORW-3
Lab Sample ID: 232640.07
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	29	20	100	ug/L	9/28/21 17:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	9/28/21 17:50	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 17:50	8260B SIM	AM

Client Sample ID: ORW-4
Lab Sample ID: 232640.08
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	29	10	50	ug/L	9/28/21 18:21	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	9/28/21 18:21	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 18:21	8260B SIM	AM

Client Sample ID: ORW-5
Lab Sample ID: 232640.09
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	46	10	50	ug/L	9/28/21 18:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	9/28/21 18:52	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 18:52	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232640

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: ORW-6
 Lab Sample ID: 232640.1
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	100	10	50	ug/L	9/28/21 19:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	9/28/21 19:23	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 19:23	8260B SIM	AM

Client Sample ID: ORW-7
 Lab Sample ID: 232640.11
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	110	20	100	ug/L	9/28/21 19:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	9/28/21 19:54	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/28/21 19:54	8260B SIM	AM

Client Sample ID: ORW-8
 Lab Sample ID: 232640.12
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	190	20	100	ug/L	9/28/21 20:25	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	9/28/21 20:25	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/28/21 20:25	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232640

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: ORW-9
 Lab Sample ID: 232640.13
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	230	20	100	ug/L	9/28/21 20:57	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	9/28/21 20:57	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/28/21 20:57	8260B SIM	AM

Client Sample ID: ORW-10
 Lab Sample ID: 232640.14
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	280	20	100	ug/L	9/29/21 22:18	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	9/29/21 22:18	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/29/21 22:18	8260B SIM	AM

Client Sample ID: ORW-11
 Lab Sample ID: 232640.15
 Matrix: aqueous
 Date Sampled: 9/24/21
 Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	490	20	100	ug/L	9/29/21 22:49	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	9/29/21 22:49	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/29/21 22:49	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **232640**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: ORW-12
Lab Sample ID: 232640.16
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	190	20	100	ug/L	9/29/21 23:21	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	9/29/21 23:21	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	9/29/21 23:21	8260B SIM	AM

Client Sample ID: ORW-13
Lab Sample ID: 232640.17
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	180	20	100	ug/L	9/29/21 23:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	9/29/21 23:52	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/29/21 23:52	8260B SIM	AM

Client Sample ID: ORW-14
Lab Sample ID: 232640.18
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	170	20	100	ug/L	9/30/21 0:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	9/30/21 0:23	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/30/21 0:23	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232640

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: ORW-15
Lab Sample ID: 232640.19
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	47	20	100	ug/L	9/30/21 0:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	9/30/21 0:54	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/30/21 0:54	8260B SIM	AM

Client Sample ID: RW-13
Lab Sample ID: 232640.2
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.6	0.2	1	ug/L	9/29/21 17:05	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	9/29/21 17:05	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	9/29/21 17:05	8260B SIM	AM

Client Sample ID: RW-14
Lab Sample ID: 232640.21
Matrix: aqueous
Date Sampled: 9/24/21
Date Received: 9/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	5.9	0.2	1	ug/L	9/30/21 1:26	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	9/30/21 1:26	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/30/21 1:26	8260B SIM	AM



QC REPORT

EAI ID#: 232640

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637684-45013/A092821DIOX1

Client Designation: Rennie Farm | 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.2 (84 %R)	4.4 (87 %R) (4 RPD)	9/28/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	100 %R	100 %R	102 %R	9/28/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	102 %R	102 %R	103 %R	9/28/2021	% 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#: 232640

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637684-45166/A092921DIOX1

Client Designation: Rennie Farm | 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.3 (85 %R)	4.4 (87 %R) (2 RPD)	9/29/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	99 %R	99 %R	9/29/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	101 %R	101 %R	9/29/2021	% Rec	70 - 130	50	8260B

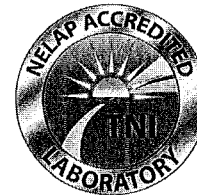
*! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 236937
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 12/17/2021

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.

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- %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.

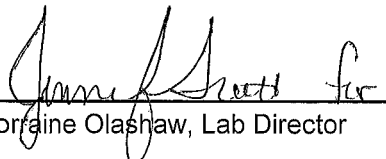
References:

- 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

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

12.29.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 236937

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02**

Temperature upon receipt (°C): 5.3

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
236937.01	GZ-37D	12/17/21	12/17/21 09:05	aqueous		Adheres to Sample Acceptance Policy
236937.02	GZ-51	12/17/21	12/17/21 13:15	aqueous		Adheres to Sample Acceptance Policy
236937.03	GZ-52	12/17/21	12/17/21 13:20	aqueous		Adheres to Sample Acceptance Policy
236937.04	RW-13	12/17/21	12/17/21 13:45	aqueous		Adheres to Sample Acceptance Policy
236937.05	RW-14	12/17/21	12/17/21 13:50	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#: 236937

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: GZ-37D
 Lab Sample ID: 236937.01
 Matrix: aqueous
 Date Sampled: 12/17/21
 Date Received: 12/17/21

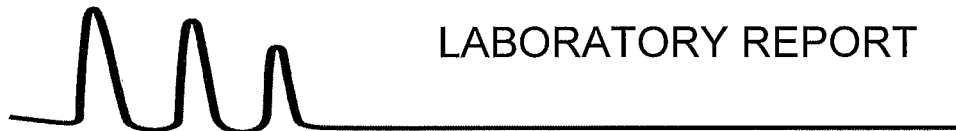
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.29	0.2	1	ug/L	12/23/21 13:16	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	12/23/21 13:16	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 13:16	8260B SIM	AM

Client Sample ID: GZ-51
 Lab Sample ID: 236937.02
 Matrix: aqueous
 Date Sampled: 12/17/21
 Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	10	0.2	1	ug/L	12/23/21 21:41	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	12/23/21 21:41	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 21:41	8260B SIM	AM

Client Sample ID: GZ-52
 Lab Sample ID: 236937.03
 Matrix: aqueous
 Date Sampled: 12/17/21
 Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3.6	0.2	1	ug/L	12/23/21 13:47	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	12/23/21 13:47	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	12/23/21 13:47	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **236937**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: RW-13
Lab Sample ID: 236937.04
Matrix: aqueous
Date Sampled: 12/17/21
Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.3	0.2	1	ug/L	12/23/21 14:19	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	12/23/21 14:19	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 14:19	8260B SIM	AM

Client Sample ID: RW-14
Lab Sample ID: 236937.05
Matrix: aqueous
Date Sampled: 12/17/21
Date Received: 12/17/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	5.6	0.2	1	ug/L	12/23/21 14:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	12/23/21 14:50	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 14:50	8260B SIM	AM



QC REPORT

EAI ID#: **236937**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637758-64484/A122321DIOX1

Client Designation: **Rennie Farm | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.9 (98 %R)	5.1 (101 %R) (3 RPD)	12/23/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	100 %R	102 %R	12/23/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	101 %R	100 %R	12/23/2021	% 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.

CHAIN-OF-CUSTODY RECORD

For Lab Use Only

236937

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC		SVOC		TCLP	INORGANICS				MICRO	METALS	OTHER	NOTES MeOH Vial #
				524.2 524.2 MTBE ONLY	VTCS 8260 624 4 DIOXANE	8015 GRO	MAAPH	8015 GRO	MAAPH	8015 GRO	MAAPH	8015 GRO	MAAPH	8015 GRO	MAAPH	
GZ-37D	12/17/21 0905	GW	G	X												2
GZ-51	12/17/21 1315			X												2
GZ-52	12/17/21 1320			X												2
RW-13	12/17/21 1345			X												2
RW-14	12/17/21 1350			X												2

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER
PRESERVATIVE: H-HCL; N-HNO₃; S-H₂SO₄; Na-NAOH; M-MEOH

PROJECT MANAGER: Jim Wieck
 COMPANY: GZA Geo Environmental
 ADDRESS: 5 Commerce Park N Suite 201
 CITY: Bedford STATE: NH ZIP: 03110
 PHONE: (603) 232-8732 EXT: _____
 E-MAIL: james.wieck@gza.com
 SITE NAME: Rennie Farm
 PROJECT #: 04.0190030.02
 STATE: (NH) MA ME VT OTHER: _____
 REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR
 GWP, OIL FUND, BROWNFIELD OR OTHER: _____
 QUOTE #: _____ PO #: _____

QA/QC REPORTING

A B C

MA MCP

TEMP. 5.3 °C
 ICE? YES NO

REPORTING OPTIONS

PRELIMS: YES OR NO

ELECTRONIC OPTIONS

PDF EXCEL

EQUIS

OTHER _____

TURN AROUND TIME

24hr* 48hr*

3-4 Days*

5 Day 7 Day

10 Day

*Pre-approval Required

METALS: 8 RCRA 13 PP FE, MN PB, CU

OTHER METALS: _____

SAMPLES FIELD FILTERED? YES NO

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

SAMPLER(S): E. Dyrness, E. Bennett

Emma Bennett 12/17/21 15:32 [Signature]
 RELINQUISHED BY: DATE: TIME: RECEIVED BY:

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

RELINQUISHED BY: DATE: TIME: RECEIVED BY:

SITE HISTORY: _____

SUSPECTED CONTAMINATION: _____

FIELD READINGS: _____



Treatment System Data



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 221158
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 1/13/2021

Dear Mr. Wieck :

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

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

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012) and New York (12072).

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director

1-22-21
Date

31
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 221158

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 2.7

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
221158.01	System Influent	1/13/21	1/13/21 13:30	aqueous		Adheres to Sample Acceptance Policy
221158.02	System Effluent	1/13/21	1/13/21 13:45	aqueous		Adheres to Sample Acceptance Policy

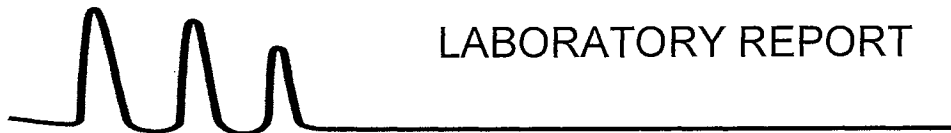
Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

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

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

References include:

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



LABORATORY REPORT

EAI ID#: 221158

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Client Sample ID: System Influent

Date of Preparation:

Lab Sample ID: 221158.01

Method: 624.1

Matrix: aqueous

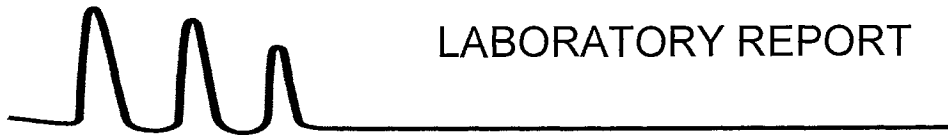
Analyst: SG

Date Sampled: 1/13/21

Units: ug/L

Date Received: 1/13/21

	Result	Dilution RL	Dilution Factor	Date Analyzed		Result	Dilution RL	Dilution Factor	Date Analyzed
Chloromethane	< 2	2	1	1/13/21	4-Bromofluorobenzene (surr)	105 %R			1/13/21
Vinyl chloride	< 1	1	1	1/13/21	1,2-Dichlorobenzene-d4	100 %R			1/13/21
Bromomethane	< 2	2	1	1/13/21	Toluene-d8 (surr)	97 %R			1/13/21
Chloroethane	< 2	2	1	1/13/21					
Trichlorofluoromethane	< 2	2	1	1/13/21					
Acrolein	< 50	50	1	1/13/21					
Acetone	< 10	10	1	1/13/21					
1,1-Dichloroethene	< 0.5	0.5	1	1/13/21					
Methylene chloride	< 1	1	1	1/13/21					
Acrylonitrile	< 50	50	1	1/13/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	1/13/21					
trans-1,2-Dichloroethene	< 1	1	1	1/13/21					
Vinyl acetate	< 10	10	1	1/13/21					
1,1-Dichloroethane	< 1	1	1	1/13/21					
cis-1,2-Dichloroethene	< 1	1	1	1/13/21					
2-Butanone(MEK)	< 10	10	1	1/13/21					
Chloroform	< 1	1	1	1/13/21					
1,1,1-Trichloroethane	< 1	1	1	1/13/21					
Carbon tetrachloride	< 1	1	1	1/13/21					
Benzene	< 1	1	1	1/13/21					
1,2-Dichloroethane	< 1	1	1	1/13/21					
Trichloroethene	< 1	1	1	1/13/21					
1,2-Dichloropropane	< 1	1	1	1/13/21					
Bromodichloromethane	< 0.5	0.5	1	1/13/21					
2-Chloroethylvinylether	< 2	2	1	1/13/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	1/13/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	1/13/21					
Toluene	< 1	1	1	1/13/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	1/13/21					
1,1,2-Trichloroethane	< 1	1	1	1/13/21					
2-Hexanone	< 10	10	1	1/13/21					
Tetrachloroethene	< 1	1	1	1/13/21					
Dibromochloromethane	< 1	1	1	1/13/21					
Chlorobenzene	< 1	1	1	1/13/21					
Ethylbenzene	< 1	1	1	1/13/21					
mp-Xylene	< 1	1	1	1/13/21					
o-Xylene	< 1	1	1	1/13/21					
Styrene	< 1	1	1	1/13/21					
Bromoform	< 2	2	1	1/13/21					
1,1,1,2-Tetrachloroethane	< 1	1	1	1/13/21					
1,3-Dichlorobenzene	< 1	1	1	1/13/21					
1,4-Dichlorobenzene	< 1	1	1	1/13/21					
1,2-Dichlorobenzene	< 1	1	1	1/13/21					



LABORATORY REPORT

EAI ID#: 221158

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 221158.02
 Matrix: aqueous
 Date Sampled: 1/13/21
 Date Received: 1/13/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	1/13/21	4-Bromofluorobenzene (surr)	105 %R			1/13/21
Vinyl chloride	< 1	1	1	1/13/21	1,2-Dichlorobenzene-d4	98 %R			1/13/21
Bromomethane	< 2	2	1	1/13/21	Toluene-d8 (surr)	98 %R			1/13/21
Chloroethane	< 2	2	1	1/13/21					
Trichlorofluoromethane	< 2	2	1	1/13/21					
Acrolein	< 50	50	1	1/13/21					
Acetone	< 10	10	1	1/13/21					
1,1-Dichloroethene	< 0.5	0.5	1	1/13/21					
Methylene chloride	< 1	1	1	1/13/21					
Acrylonitrile	< 50	50	1	1/13/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	1/13/21					
trans-1,2-Dichloroethene	< 1	1	1	1/13/21					
Vinyl acetate	< 10	10	1	1/13/21					
1,1-Dichloroethane	< 1	1	1	1/13/21					
cis-1,2-Dichloroethene	< 1	1	1	1/13/21					
2-Butanone(MEK)	< 10	10	1	1/13/21					
Chloroform	< 1	1	1	1/13/21					
1,1,1-Trichloroethane	< 1	1	1	1/13/21					
Carbon tetrachloride	< 1	1	1	1/13/21					
Benzene	< 1	1	1	1/13/21					
1,2-Dichloroethane	< 1	1	1	1/13/21					
Trichloroethene	< 1	1	1	1/13/21					
1,2-Dichloropropane	< 1	1	1	1/13/21					
Bromodichloromethane	< 0.5	0.5	1	1/13/21					
2-Chloroethylvinylether	< 2	2	1	1/13/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	1/13/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	1/13/21					
Toluene	< 1	1	1	1/13/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	1/13/21					
1,1,2-Trichloroethane	< 1	1	1	1/13/21					
2-Hexanone	< 10	10	1	1/13/21					
Tetrachloroethene	< 1	1	1	1/13/21					
Dibromochloromethane	< 1	1	1	1/13/21					
Chlorobenzene	< 1	1	1	1/13/21					
Ethylbenzene	< 1	1	1	1/13/21					
mp-Xylene	< 1	1	1	1/13/21					
o-Xylene	< 1	1	1	1/13/21					
Styrene	< 1	1	1	1/13/21					
Bromoform	< 2	2	1	1/13/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	1/13/21					
1,3-Dichlorobenzene	< 1	1	1	1/13/21					
1,4-Dichlorobenzene	< 1	1	1	1/13/21					
1,2-Dichlorobenzene	< 1	1	1	1/13/21					



QC REPORT

EAI ID#: 221158

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID:

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	18 (92 %R)	19 (95 %R) (3 RPD)	1/13/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .953	19 (94 %R)	19 (97 %R) (3 RPD)	1/13/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	16 (79 %R)	19 (95 %R) (17 RPD)	1/13/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .503	18 (92 %R)	19 (94 %R) (2 RPD)	1/13/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	18 (90 %R)	18 (91 %R) (1 RPD)	1/13/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< 5.45	< 50 (104 %R)	< 50 (108 %R) (4 RPD)	1/13/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 5.73	19 (94 %R)	20 (99 %R) (5 RPD)	1/13/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	19 (93 %R)	19 (94 %R) (1 RPD)	1/13/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< 1.4	18 (90 %R)	19 (93 %R) (3 RPD)	1/13/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .705	< 50 (98 %R)	< 50 (106 %R) (8 RPD)	1/13/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	18 (92 %R)	19 (97 %R) (5 RPD)	1/13/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	19 (94 %R)	19 (95 %R) (1 RPD)	1/13/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	22 (110 %R)	24 (118 %R) (8 RPD)	1/13/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .274	19 (93 %R)	19 (96 %R) (3 RPD)	1/13/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	19 (95 %R)	19 (97 %R) (2 RPD)	1/13/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< 2.642	19 (96 %R)	21 (104 %R) (9 RPD)	1/13/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .155	17 (87 %R)	18 (88 %R) (2 RPD)	1/13/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	19 (97 %R)	19 (97 %R) (0 RPD)	1/13/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .564	19 (96 %R)	19 (95 %R) (1 RPD)	1/13/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	19 (95 %R)	19 (97 %R) (2 RPD)	1/13/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	19 (93 %R)	19 (97 %R) (5 RPD)	1/13/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	19 (95 %R)	19 (96 %R) (2 RPD)	1/13/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	19 (96 %R)	20 (100 %R) (4 RPD)	1/13/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .345	20 (99 %R)	20 (102 %R) (3 RPD)	1/13/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	21 (106 %R)	23 (114 %R) (8 RPD)	1/13/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< 5.64	20 (99 %R)	21 (106 %R) (8 RPD)	1/13/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .409	19 (96 %R)	20 (99 %R) (3 RPD)	1/13/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .399	18 (90 %R)	18 (90 %R) (0 RPD)	1/13/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .207	19 (95 %R)	19 (97 %R) (2 RPD)	1/13/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	18 (92 %R)	19 (94 %R) (3 RPD)	1/13/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< 5.335	19 (94 %R)	20 (100 %R) (7 RPD)	1/13/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	18 (90 %R)	18 (89 %R) (1 RPD)	1/13/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .468	18 (92 %R)	19 (93 %R) (0 RPD)	1/13/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	18 (92 %R)	19 (93 %R) (0 RPD)	1/13/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .475	19 (93 %R)	19 (93 %R) (0 RPD)	1/13/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	36 (91 %R)	36 (91 %R) (0 RPD)	1/13/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	18 (91 %R)	18 (91 %R) (0 RPD)	1/13/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .278	19 (97 %R)	19 (97 %R) (1 RPD)	1/13/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< 1.014	19 (97 %R)	19 (96 %R) (1 RPD)	1/13/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	18 (88 %R)	18 (88 %R) (1 RPD)	1/13/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	18 (90 %R)	18 (89 %R) (1 RPD)	1/13/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	18 (88 %R)	17 (87 %R) (1 RPD)	1/13/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	18 (88 %R)	18 (88 %R) (0 RPD)	1/13/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	105 %R		104 %R	106 %R	1/13/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	100 %R		100 %R	100 %R	1/13/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	96 %R		97 %R	96 %R	1/13/2021	% Rec	70 - 130		624.1



QC REPORT

EAI ID#: 221158

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID:

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD Method
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Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

*//Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



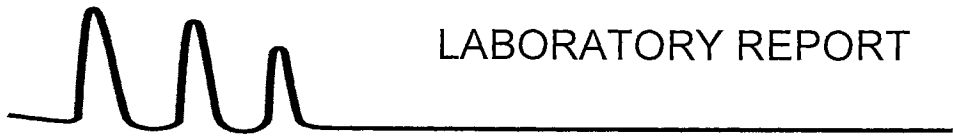
LABORATORY REPORT

EAI ID#: 221158

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 221158.01
 Matrix: aqueous
 Date Sampled: 1/13/21
 Date Received: 1/13/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
Phenol	< 1	1	1	ug/L	1/15/21	18:53	625.1	JMR
2-Fluorophenol (surr)	36 %R			%	1/15/21	18:53	625.1	JMR
Phenol-d6 (surr)	24 %R			%	1/15/21	18:53	625.1	JMR
2,4,6-Tribromophenol (surr)	72 %R			%	1/15/21	18:53	625.1	JMR



LABORATORY REPORT

EAI ID#: **221158**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 221158.02
Matrix: aqueous
Date Sampled: 1/13/21
Date Received: 1/13/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	1/15/21 19:15	625.1	JMR
2-Fluorophenol (surr)	35 %R			%	1/15/21 19:15	625.1	JMR
Phenol-d6 (surr)	23 %R			%	1/15/21 19:15	625.1	JMR
2,4,6-Tribromophenol (surr)	63 %R			%	1/15/21 19:15	625.1	JMR



QC REPORT

EAI ID#: **221158**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637462-94163/A011521E6251

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	18 (72 %R)	19 (76 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	14 (28 %R)	14 (29 %R) (4 RPD)	1/15/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	29 (58 %R)	31 (62 %R) (7 RPD)	1/15/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	32 (64 %R)	34 (68 %R) (7 RPD)	1/15/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	34 (68 %R)	36 (72 %R) (6 RPD)	1/15/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	34 (68 %R)	36 (72 %R) (7 RPD)	1/15/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	38 (75 %R)	40 (80 %R) (5 RPD)	1/15/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	34 (67 %R)	36 (72 %R) (7 RPD)	1/15/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	17 (34 %R)	18 (35 %R) (2 RPD)	1/15/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	39 (79 %R)	42 (85 %R) (7 RPD)	1/15/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	28 (56 %R)	30 (60 %R) (6 RPD)	1/15/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	27 (54 %R)	28 (57 %R) (6 RPD)	1/15/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	31 (62 %R)	33 (66 %R) (6 RPD)	1/15/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	33 (67 %R)	35 (70 %R) (6 RPD)	1/15/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	43 (86 %R)	46 (92 %R) (7 RPD)	1/15/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (19 %R)	< 50 (21 %R) (8 RPD)	1/15/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	11 (43 %R)	11 (44 %R) (3 RPD)	1/15/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	16 (66 %R)	18 (70 %R) (6 RPD)	1/15/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	19 (76 %R)	20 (81 %R) (6 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	16 (63 %R)	17 (67 %R) (5 RPD)	1/15/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	16 (64 %R)	17 (68 %R) (6 RPD)	1/15/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	17 (67 %R)	18 (71 %R) (7 RPD)	1/15/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	14 (55 %R)	14 (57 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	16 (66 %R)	17 (69 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	14 (55 %R)	15 (58 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	14 (57 %R)	15 (60 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	15 (59 %R)	16 (64 %R) (7 RPD)	1/15/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	17 (67 %R)	18 (71 %R) (6 RPD)	1/15/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	18 (70 %R)	18 (74 %R) (5 RPD)	1/15/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	19 (75 %R)	20 (79 %R) (6 RPD)	1/15/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	14 (55 %R)	15 (59 %R) (6 RPD)	1/15/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	14 (58 %R)	16 (62 %R) (7 RPD)	1/15/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	14 (57 %R)	15 (61 %R) (7 RPD)	1/15/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	19 (76 %R)	20 (80 %R) (5 RPD)	1/15/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	17 (69 %R)	18 (73 %R) (6 RPD)	1/15/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	17 (68 %R)	18 (73 %R) (6 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	20 (80 %R)	21 (85 %R) (6 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	19 (78 %R)	20 (82 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	19 (78 %R)	20 (81 %R) (4 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	15 (61 %R)	16 (64 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	16 (64 %R)	17 (67 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	17 (68 %R)	18 (72 %R) (6 RPD)	1/15/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	18 (72 %R)	19 (76 %R) (5 RPD)	1/15/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	20 (81 %R)	22 (86 %R) (6 RPD)	1/15/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	19 (77 %R)	20 (82 %R) (6 RPD)	1/15/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	17 (66 %R)	18 (72 %R) (9 RPD)	1/15/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 221158

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637462-94163/A011521E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	19 (77 %R)	20 (81 %R) (5 RPD)	1/15/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	10 (41 %R)	11 (42 %R) (3 RPD)	1/15/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	20 (80 %R)	21 (85 %R) (6 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	20 (78 %R)	20 (82 %R) (4 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	18 (74 %R)	19 (77 %R) (5 RPD)	1/15/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	20 (80 %R)	21 (84 %R) (4 RPD)	1/15/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	22 (88 %R)	22 (88 %R) (0 RPD)	1/15/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	22 (86 %R)	22 (89 %R) (3 RPD)	1/15/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	21 (84 %R)	22 (87 %R) (3 RPD)	1/15/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	20 (80 %R)	21 (83 %R) (4 RPD)	1/15/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	17 (69 %R)	18 (73 %R) (6 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	15 (60 %R)	16 (64 %R) (6 RPD)	1/15/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	16 (63 %R)	17 (67 %R) (6 RPD)	1/15/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	16 (63 %R)	17 (67 %R) (6 RPD)	1/15/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	16 (66 %R)	18 (70 %R) (7 RPD)	1/15/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	18 (72 %R)	19 (77 %R) (6 RPD)	1/15/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	17 (66 %R)	17 (70 %R) (5 RPD)	1/15/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	18 (71 %R)	19 (74 %R) (5 RPD)	1/15/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	18 (71 %R)	19 (75 %R) (5 RPD)	1/15/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	18 (70 %R)	18 (74 %R) (4 RPD)	1/15/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	18 (70 %R)	18 (73 %R) (4 RPD)	1/15/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	18 (70 %R)	18 (73 %R) (4 RPD)	1/15/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	18 (71 %R)	18 (74 %R) (4 RPD)	1/15/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	18 (72 %R)	18 (72 %R) (1 RPD)	1/15/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	17 (69 %R)	18 (73 %R) (5 RPD)	1/15/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	17 (66 %R)	17 (69 %R) (4 RPD)	1/15/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	18 (73 %R)	19 (75 %R) (3 RPD)	1/15/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	19 (74 %R)	19 (77 %R) (4 RPD)	1/15/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	17 (68 %R)	18 (71 %R) (4 RPD)	1/15/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	13 (51 %R)	13 (53 %R) (4 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	21 (83 %R)	22 (88 %R) (5 RPD)	1/15/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	38 %R		36 %R	38 %R	1/15/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	27 %R		26 %R	27 %R	1/15/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	74 %R		76 %R	81 %R	1/15/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	75 %R		69 %R	73 %R	1/15/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	75 %R		66 %R	70 %R	1/15/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	79 %R		80 %R	82 %R	1/15/2021	% Rec	30 - 130		625.1

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

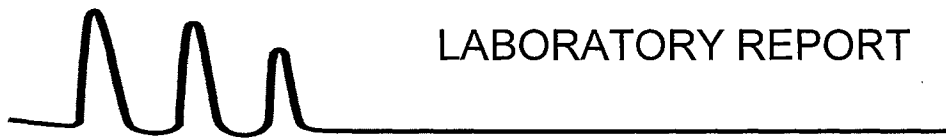
The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

*!/Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



LABORATORY REPORT

EAI ID#: 221158

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Sample ID: System Influent System Effluent

Lab Sample ID: 221158.01 221158.02

Matrix: aqueous aqueous

Date Sampled: 1/13/21 1/13/21

Date Received: 1/13/21 1/13/21

Solids Suspended < 5 < 5

Chloride **3100** **2900**

Cyanide Total < 5 < 5

Cyanide Free < 5 < 5

Ammonia-N < 0.05 < 0.05

		Analysis				
	RL	Units	Date	Time	Method	Analyst
Solids Suspended	5	mg/L	1/15/21	15:10	2540D-11	KJD
Chloride	1000	ug/L	1/14/21	9:53	4500CIE-11	ATA
Cyanide Total	5	ug/L	1/20/21	10:18	ASTM D7511-09	KD
Cyanide Free	5	ug/L	1/15/21	13:31	OIA-1677-09	KD
Ammonia-N	0.05	mg/L	1/19/21	10:27	TM NH3-001	SEL



QC REPORT

EAI ID#: 221158

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	940 (99 %R)	930 (98 %R) (1 RPD)	mg/L	1/15/21	90 - 110	20	2540D-11
Chloride	< 1000	24 (97 %R)	25 (98 %R) (2 RPD)	ug/L	1/14/21	90 - 110	20	4500CIE-11
Cyanide Total	< 5	0.11 (105 %R)	0.11 (111 %R) (5 RPD)	ug/L	1/20/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	0.23 (93 %R)	0.23 (91 %R) (2 RPD)	ug/L	1/15/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	1.8 (92 %R)	1.8 (89 %R) (3 RPD)	mg/L	1/19/21	87 - 104	20	TM NH3-001

Samples were analyzed within holding times unless noted on the sample results page.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.

Exceptions to the above statements are flagged or noted above or on the QC Narrative page.

*! Flagged analyte recoveries deviated from the QA/QC limits.



LABORATORY REPORT

EAI ID#: **221158**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 221158.01 221158.02

Matrix: aqueous aqueous

Date Sampled: 1/13/21 1/13/21

Date Received: 1/13/21 1/13/21

			Analytical			Analysis		Method	Analyst
	System Influent	System Effluent	RL	Matrix	Units	Date			
Chromium (VI)	< 10	< 10	10	AqTot	ug/L	1/13/21	7196A	HEH	
Antimony	< 0.5	< 0.5	0.5	AqTot	ug/L	1/14/21	200.8	HEH	
Arsenic	< 0.5	< 0.5	0.5	AqTot	ug/L	1/14/21	200.8	HEH	
Cadmium	< 0.1	< 0.1	0.1	AqTot	ug/L	1/14/21	200.8	HEH	
Chromium	< 0.5	< 0.5	0.5	AqTot	ug/L	1/14/21	200.8	HEH	
Chromium (III)	< 10	< 10	10	AqTot	ug/L	1/14/21	200.8	HEH	
Copper	1.1	< 0.1	0.1	AqTot	ug/L	1/14/21	200.8	HEH	
Iron	770	< 50	50	AqTot	ug/L	1/14/21	200.8	HEH	
Lead	< 0.1	< 0.1	0.1	AqTot	ug/L	1/14/21	200.8	HEH	
Mercury	< 0.1	< 0.1	0.1	AqTot	ug/L	1/14/21	200.8	HEH	
Nickel	1.0	0.98	0.1	AqTot	ug/L	1/14/21	200.8	HEH	
Selenium	< 0.5	< 0.5	0.5	AqTot	ug/L	1/14/21	200.8	HEH	
Silver	< 0.1	< 0.1	0.1	AqTot	ug/L	1/14/21	200.8	HEH	
Zinc	2.1	2.8	1	AqTot	ug/L	1/14/21	200.8	HEH	



QC REPORT

EAI ID#: 221158

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (110 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Arsenic	< 0.001	1.1 (105 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.0 (103 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Chromium	< 0.001	1.0 (103 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Copper	< 0.0001	1.0 (103 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Iron	< 0.05	11 (99 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (107 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (106 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (103 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Selenium	< 0.001	0.99 (99 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Silver	< 0.0001	10 (105 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Zinc	< 0.001	1.0 (105 %R)	NA	mg/L	1/14/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.33 (95 %R)	NA	mg/L	1/13/21	85 - 115	20	7196A

Samples were analyzed within holding times unless noted on the sample results page.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.

Exceptions to the above statements are flagged or noted above or on the QC Narrative page.

*! Flagged analyte recoveries deviated from the QA/QC limits.

January 21, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 221158 1/13
Pace Project No.: 70159568

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on January 15, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



CERTIFICATIONS

Project: 221158 1/13
Pace Project No.: 70159568

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158
Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435

Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: 221158 1/13
Pace Project No.: 70159568

Sample: SYSTEM INFLUENT		Lab ID: 70159568001	Collected: 01/13/21 13:30	Received: 01/15/21 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		01/18/21 17:50	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%	78-114	1		01/18/21 17:50	17060-07-0	
4-Bromofluorobenzene (S)	102	%	83-111	1		01/18/21 17:50	460-00-4	
Toluene-d8 (S)	110	%	80-131	1		01/18/21 17:50	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Date: 01/21/2021 10:31 AM

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Page 3 of 9

ANALYTICAL RESULTS

Project: 221158 1/13
Pace Project No.: 70159568

Sample: SYSTEM EFFLUENT		Lab ID: 70159568002	Collected: 01/13/21 13:45	Received: 01/15/21 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		01/18/21 17:29	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%	78-114	1		01/18/21 17:29	17060-07-0	
4-Bromofluorobenzene (S)	97	%	83-111	1		01/18/21 17:29	460-00-4	
Toluene-d8 (S)	113	%	80-131	1		01/18/21 17:29	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 221158 1/13
Pace Project No.: 70159568

QC Batch: 193467	Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B	Analysis Description: 1624B MSV
Associated Lab Samples: 70159568001, 70159568002	Laboratory: Pace Analytical Services - Melville

METHOD BLANK: 949030 Matrix: Water
Associated Lab Samples: 70159568001, 70159568002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	01/18/21 16:45	
1,2-Dichloroethane-d4 (S)	%	100	78-114	01/18/21 16:45	
4-Bromofluorobenzene (S)	%	101	83-111	01/18/21 16:45	
Toluene-d8 (S)	%	115	80-131	01/18/21 16:45	

LABORATORY CONTROL SAMPLE: 949031

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.045	90	20-200	
1,2-Dichloroethane-d4 (S)	%			98	78-114	
4-Bromofluorobenzene (S)	%			106	83-111	
Toluene-d8 (S)	%			112	80-131	

SAMPLE DUPLICATE: 949032

Parameter	Units	70159552001 Result	Dup Result	RPD	Qualifiers
Acetone	mg/L	7240 ug/L	7.2	1	
1,2-Dichloroethane-d4 (S)	%	102	95		
4-Bromofluorobenzene (S)	%	102	109		
Toluene-d8 (S)	%	116	118		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 221158 1/13
Pace Project No.: 70159568

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 221158 1/13
Pace Project No.: 70159568

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70159568001	SYSTEM INFLUENT	EPA 1624B	193467		
70159568002	SYSTEM EFFLUENT	EPA 1624B	193467		


REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD

EAI ID# 221158

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	1/13/2021 13:30	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	<div data-bbox="1373 272 1942 479" data-label="Complex-Block"> <p>WO#: 70159568</p>  <p>70159568</p> </div>
System Effluent	1/13/2021 13:45	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

EAI ID# 221158

Project State: NH

Project ID: 4965

Company PACE ANALYTICAL
Address 575 BROAD HOLLOW ROAD
Address MELVILLE, NY 11747
Account #
Phone # (631)694-3040

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.

1624 Acetone Only

PO #: 54156

EAI ID# 221158

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

Relinquished by

Date/Time

Received by

Eastern Analytical, Inc. 25 Chenell Dr. 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



Sample Condition Upon Receipt

WO#: 70159568

Client Name: _____

Project: _____

PM: KMM

Due Date: 01/22/21

CLIENT: EASTA

 Courier: Fed Ex UPS USPS Client Commercial Pace Other
 Tracking #: 1Z X46 599 01 9059 4006
Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes NoPacking Material: Bubble Wrap Bubble Bags Ziploc None Other

Thermometer Used: TH091

Correction Factor: -0.2Cooler Temperature(°C): 2.2Cooler Temperature Corrected(°C): 2.0

Temp should be above freezing to 6.0°C

USDA Regulated Soil (N/A, water sample)Date and Initials of person examining contents: CAH/1/14/21Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes NoDid samples originate from a foreign source including Hawaii and Puerto Rico? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (-72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for)	<input type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: <u>SL WT OIL</u>		
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #		Sample #
All containers needing preservation are found to be in compliance with method recommendation?		
[HNO ₃ , H ₂ SO ₄ , HCl, NaOH > 9 Sulfide, NaOH > 12 Cyanide]	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRD/8015 (water).		Initial when completed: _____ Lot # of added preservative: _____ Date/Time preservative added: _____
Per Method, VOA pH is checked after analysis.		
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	14. Positive for Res. Chlorine? Y N
KI starch test strips Lot #		
Residual chlorine strips Lot #		
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	15.
Lead Acetate Strips Lot #		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <u>N/A</u>	16.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	17.
Trip Blank Custody Seals Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	
Pace Trip Blank Lot # (if applicable):		

Client Notification/ Resolution: _____

Field Data Required? Y / N

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

* PM (Project Manager) review is documented electronically in LIMS.



Thursday, January 21, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 221158
SDG ID: GCH46530
Sample ID#s: CH46530 - CH46531

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

January 21, 2021

SDG I.D.: GCH46530

Project ID: 221158

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CH46530	WATER
SYSTEM EFFLUENT	CH46531	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

January 21, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54157

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time

01/13/21 13:30
 01/14/21 15:52

Laboratory Data

SDG ID: GCH46530
 Phoenix ID: CH46530

Project ID: 221158
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	8.3	0.20	ug/l	1	01/19/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	80		%	1	01/19/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				01/15/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

January 21, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

January 21, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54157

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 01/13/21 13:45
 01/14/21 15:52

Laboratory Data

SDG ID: GCH46530
 Phoenix ID: CH46531

Project ID: 221158
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	01/19/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	82		%	1	01/19/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				01/15/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

January 21, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045

Tel. (860) 645-1102

Fax (860) 645-0823



QA/QC Report

January 21, 2021

QA/QC Data

SDG I.D.: GCH46530

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 560036 (ug/l), QC Sample No: CH45742 (CH46530, CH46531)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	74	75	1.3	76			70 - 130	20
% 1,4-dioxane-d8	78	%	85	90	5.7	86			70 - 130	20

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
January 21, 2021

Thursday, January 21, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCH46530 - EASTANAL-NH

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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

January 21, 2021

SDG I.D.: GCH46530

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

1-2^o
w/c
p



Eastern Analytical, Inc.
professional laboratory and drilling services

003

EAI ID# **221158**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	1/13/2021 13:30	aqueous	Subcontract - 1,4 Dioxane EPA Method 522 40530	*
System Effluent	1/13/2021 13:45	aqueous	Subcontract - 1,4 Dioxane EPA Method 522 40531	*

* 1 80Z amber bottle
MOP

EAI ID# **221158**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 54157

EAI ID# **221158**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by: 1-14-2021

Relinquished by

Date/Time

Received by

Relinquished by

Date/Time

Received by

Eastern Analytical, Inc. 25 Chenell Dr. 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

0100 267

CHAIN-OF-CUSTODY RECORD

221158

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Sample IDs	Date/Time <small>Composites need start and stop dates/times</small>	Matrix	Parameters and Sample Notes	# of containers	
System Influent	1-13-21 13:30	aqueous <u>Grab</u> or Comp	AqTot/V624R/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCL</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	1-13-21 13:45	aqueous <u>Grab</u> or Comp	AqTot/V624R/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCL</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date _____
 Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options

- | | | |
|---|---|--|
| <input checked="" type="checkbox"/> HC | <input type="checkbox"/> NO FAX | PO# verbal |
| <input checked="" type="checkbox"/> EDD PDF | <input type="checkbox"/> Partial FAX | Quote#: |
| <input checked="" type="checkbox"/> EDD email | <input checked="" type="checkbox"/> PDF Invoice | Temp <u>27.0</u> °C |
| <input checked="" type="checkbox"/> PDF prelim, NO FAX | <input type="checkbox"/> EQUIS | Ice Y <input checked="" type="checkbox"/> N <input type="checkbox"/> |
| <input checked="" type="checkbox"/> e-mail Login Confirmation | | |

Samples Collected by: AVJ
al Jacobsen / 1-13-21 EAI Fridge
 Relinquished by Foyer Date/Time 1-13-21 1530 Received by [Signature]
 Relinquished by _____ Date/Time _____ Received by _____



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Subject: Laboratory Report
Eastern Analytical, Inc. ID: 221320
Client Identification: Rennie / 04.0190030.02 (22/1)
Date Received: 1/19/2021

Report revision/reissue: Revision, replaces report dated 1/26/2021
Revision information: Sample IDs revised, per customers request.

Dear Mr. Wieck :

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

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

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R : % Recovery

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director

1.27.21

Date

8

of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 221320

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie / 04.0190030.02 (22/1)**

Temperature upon receipt (°C): 2.9

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)
221320.01	MIDFLUENT	1/19/21	1/18/21 9:00	aqueous		Adheres to Sample Acceptance Policy
221320.02	INFLUENT	1/19/21	1/18/21 9:10	aqueous		Adheres to Sample Acceptance Policy
221320.03	ORW 7	1/19/21	1/18/21 13:50	aqueous		Adheres to Sample Acceptance Policy
221320.04	ORW 14	1/19/21	1/18/21 13:55	aqueous		Adheres to Sample Acceptance Policy
221320.05	ORW 5	1/19/21	1/18/21 13:45	aqueous		Adheres to Sample Acceptance Policy
221320.06	ORW 12	1/19/21	1/18/21 14:00	aqueous		Adheres to Sample Acceptance Policy
221320.07	LGAC IN (Inf)	1/19/21	1/19/21 9:35	aqueous		Adheres to Sample Acceptance Policy
221320.08	LGAC Mid	1/19/21	1/19/21 9:30	aqueous		Adheres to Sample Acceptance Policy
221320.09	LGAC OUT (Eff)	1/19/21	1/19/21 9:25	aqueous		Adheres to Sample Acceptance Policy

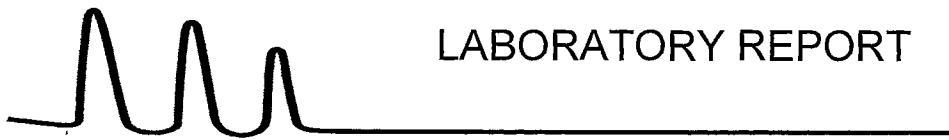
Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

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

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

References include:

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



LABORATORY REPORT

EAI ID#: 221320

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie / 04.0190030.02 (22/1)**

Client Sample ID: MIDFLUENT
 Lab Sample ID: 221320.01
 Matrix: aqueous
 Date Sampled: 1/18/21
 Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	1/21/21 18:00	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	1/21/21 18:00	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/21/21 18:00	8260B SIM	AM

Client Sample ID: INFLUENT
 Lab Sample ID: 221320.02
 Matrix: aqueous
 Date Sampled: 1/18/21
 Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	8.5	2	10	ug/L	1/21/21 19:01	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	1/21/21 19:01	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/21/21 19:01	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 221320

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie / 04.0190030.02 (22/1)**

Client Sample ID: ORW 7
 Lab Sample ID: 221320.03
 Matrix: aqueous
 Date Sampled: 1/18/21
 Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	140	40	200	ug/L	1/22/21 15:30	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	1/22/21 15:30	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/22/21 15:30	8260B SIM	AM

Client Sample ID: ORW 14
 Lab Sample ID: 221320.04
 Matrix: aqueous
 Date Sampled: 1/18/21
 Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	170	40	200	ug/L	1/22/21 16:01	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	1/22/21 16:01	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/22/21 16:01	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 221320

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie / 04.0190030.02 (22/1)**

Client Sample ID: ORW 5
 Lab Sample ID: 221320.05
 Matrix: aqueous
 Date Sampled: 1/18/21
 Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	56	10	50	ug/L	1/22/21 14:59	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	1/22/21 14:59	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/22/21 14:59	8260B SIM	AM

Client Sample ID: ORW 12
 Lab Sample ID: 221320.06
 Matrix: aqueous
 Date Sampled: 1/18/21
 Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	260	40	200	ug/L	1/22/21 16:32	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	1/22/21 16:32	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/22/21 16:32	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 221320

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie / 04.0190030.02 (22/1)**

Client Sample ID: LGAC IN (Inf)
Lab Sample ID: 221320.07
Matrix: aqueous
Date Sampled: 1/19/21
Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1000	20	100	ug/L	1/21/21 20:03	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	1/21/21 20:03	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/21/21 20:03	8260B SIM	AM

Client Sample ID: LGAC Mid
Lab Sample ID: 221320.08
Matrix: aqueous
Date Sampled: 1/19/21
Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	1/22/21 14:28	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	1/22/21 14:28	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	1/22/21 14:28	8260B SIM	AM

Client Sample ID: LGAC OUT (Eff)
Lab Sample ID: 221320.09
Matrix: aqueous
Date Sampled: 1/19/21
Date Received: 1/19/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.33	0.2	1	ug/L	1/21/21 18:31	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	1/21/21 18:31	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	1/21/21 18:31	8260B SIM	AM



QC REPORT

EAI ID#: 221320

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637468-27199/A012121DIOX1

Client Designation: Rennie / 04.0190030.02 (22/1)

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.5 (89 %R)	4.9 (98 %R) (9 RPD)	1/21/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	97 %R	98 %R	99 %R	1/21/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	100 %R	100 %R	1/21/2021	% Rec	70 - 130	50	8260B

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



QC REPORT

EAI ID#: 221320

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637469-17905/A012221DIOX1

Client Designation: Rennie / 04.0190030.02 (22/1)

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.3 (85 %R)	4.4 (89 %R) (4 RPD)	1/22/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	97 %R	99 %R	1/22/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	100 %R	100 %R	1/22/2021	% Rec	70 - 130	50	8260B

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

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Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 221937
Client Identification: 04.0190030.02 / Rennie
Date Received: 2/4/2021

Dear Mr. Wieck :

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

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

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


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

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

Sincerely,


Lorraine Olashaw, Lab Director

2.10.21
Date

5
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 221937

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **04.0190030.02 / Rennie**

Temperature upon receipt (°C): 2.9

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)
221937.01	INFLUENT	2/4/21	2/3/21 11:55	aqueous		Adheres to Sample Acceptance Policy
221937.02	MIDFLUENT	2/4/21	2/3/21 11:50	aqueous		Adheres to Sample Acceptance Policy
221937.03	LGAC INFLUENT	2/4/21	2/4/21 9:45	aqueous		Adheres to Sample Acceptance Policy
221937.04	LGAC MID	2/4/21	2/4/21 9:50	aqueous		Adheres to Sample Acceptance Policy
221937.05	LGAC EFFLUENT	2/4/21	2/4/21 9:55	aqueous		Adheres to Sample Acceptance Policy

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

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

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

References include:

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



LABORATORY REPORT

EAI ID#: 221937

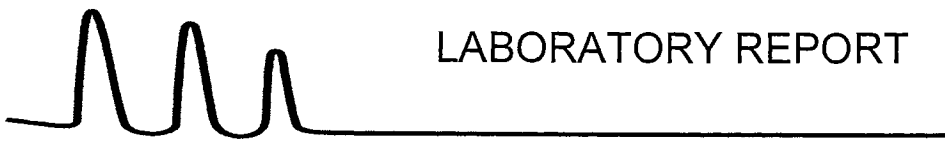
Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **04.0190030.02 / Rennie**

Client Sample ID: INFLUENT
 Lab Sample ID: 221937.01
 Matrix: aqueous
 Date Sampled: 2/3/21
 Date Received: 2/4/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	17	2	10	ug/L	2/5/21 19:32	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	2/5/21 19:32	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	2/5/21 19:32	8260B SIM	AM

Client Sample ID: MIDFLUENT
 Lab Sample ID: 221937.02
 Matrix: aqueous
 Date Sampled: 2/3/21
 Date Received: 2/4/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	2/5/21 17:59	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	2/5/21 17:59	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	2/5/21 17:59	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 221937

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **04.0190030.02 / Rennie**

Client Sample ID: LGAC INFLUENT
Lab Sample ID: 221937.03
Matrix: aqueous
Date Sampled: 2/4/21
Date Received: 2/4/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	910	20	100	ug/L	2/5/21 20:03	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	2/5/21 20:03	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	2/5/21 20:03	8260B SIM	AM

Client Sample ID: LGAC MID
Lab Sample ID: 221937.04
Matrix: aqueous
Date Sampled: 2/4/21
Date Received: 2/4/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	2/5/21 19:01	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	2/5/21 19:01	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	2/5/21 19:01	8260B SIM	AM

Client Sample ID: LGAC EFFLUENT
Lab Sample ID: 221937.05
Matrix: aqueous
Date Sampled: 2/4/21
Date Received: 2/4/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	2/5/21 18:30	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	2/5/21 18:30	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	2/5/21 18:30	8260B SIM	AM



QC REPORT

EAI ID#: 221937

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637481-37428/A020521DIOX1

Client Designation: 04.0190030.02 / Rennie

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.3 (107 %R)	5.4 (108 %R) (2 RPD)	2/5/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	100 %R	99 %R	2/5/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	101 %R	100 %R	2/5/2021	% Rec	70 - 130	50	8260B

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 222172
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 2/10/2021

Dear Mr. Wieck :

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director

2-19-21
Date

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of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 222172

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 0

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
222172.01	System Influent	2/10/21	2/10/21 12:40	aqueous		Adheres to Sample Acceptance Policy
222172.02	System Effluent	2/10/21	2/10/21 12:55	aqueous		Adheres to Sample Acceptance Policy

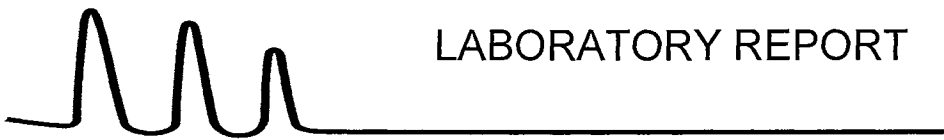
Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

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

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

References include:

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



LABORATORY REPORT

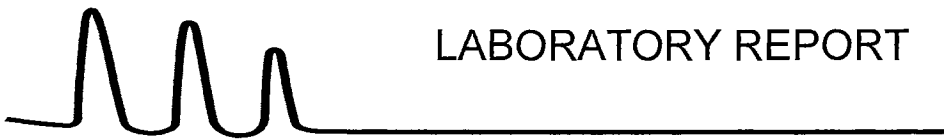
EAI ID#: 222172

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 222172.01
Matrix: aqueous
Date Sampled: 2/10/21
Date Received: 2/10/21

Date of Preparation:
Method: 624.1
Analyst: SG
Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	2/11/21	4-Bromofluorobenzene (surr)	82 %R			2/11/21
Vinyl chloride	< 1	1	1	2/11/21	1,2-Dichlorobenzene-d4	96 %R			2/11/21
Bromomethane	< 2	2	1	2/11/21	Toluene-d8 (surr)	105 %R			2/11/21
Chloroethane	< 2	2	1	2/11/21					
Trichlorofluoromethane	< 2	2	1	2/11/21					
Acrolein	< 50	50	1	2/11/21					
Acetone	< 10	10	1	2/11/21					
1,1-Dichloroethene	< 0.5	0.5	1	2/11/21					
Methylene chloride	< 1	1	1	2/11/21					
Acrylonitrile	< 50	50	1	2/11/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	2/11/21					
trans-1,2-Dichloroethene	< 1	1	1	2/11/21					
Vinyl acetate	< 10	10	1	2/11/21					
1,1-Dichloroethane	< 1	1	1	2/11/21					
cis-1,2-Dichloroethene	< 1	1	1	2/11/21					
2-Butanone(MEK)	< 10	10	1	2/11/21					
Chloroform	< 1	1	1	2/11/21					
1,1,1-Trichloroethane	< 1	1	1	2/11/21					
Carbon tetrachloride	< 1	1	1	2/11/21					
Benzene	< 1	1	1	2/11/21					
1,2-Dichloroethane	< 1	1	1	2/11/21					
Trichloroethene	< 1	1	1	2/11/21					
1,2-Dichloropropane	< 1	1	1	2/11/21					
Bromodichloromethane	< 0.5	0.5	1	2/11/21					
2-Chloroethylvinylether	< 2	2	1	2/11/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	2/11/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	2/11/21					
Toluene	< 1	1	1	2/11/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	2/11/21					
1,1,2-Trichloroethane	< 1	1	1	2/11/21					
2-Hexanone	< 10	10	1	2/11/21					
Tetrachloroethene	< 1	1	1	2/11/21					
Dibromochloromethane	< 1	1	1	2/11/21					
Chlorobenzene	< 1	1	1	2/11/21					
Ethylbenzene	< 1	1	1	2/11/21					
mp-Xylene	< 1	1	1	2/11/21					
o-Xylene	< 1	1	1	2/11/21					
Styrene	< 1	1	1	2/11/21					
Bromoform	< 2	2	1	2/12/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	2/11/21					
1,3-Dichlorobenzene	< 1	1	1	2/11/21					
1,4-Dichlorobenzene	< 1	1	1	2/11/21					
1,2-Dichlorobenzene	< 1	1	1	2/11/21					



LABORATORY REPORT

EAI ID#: 222172

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 222172.02
 Matrix: aqueous
 Date Sampled: 2/10/21
 Date Received: 2/10/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution			Date Analyzed		Result	Dilution			Date Analyzed
		RL	Factor					RL	Factor		
Chloromethane	< 2	2	1	2/11/21	4-Bromofluorobenzene (surr)	81 %R				2/11/21	
Vinyl chloride	< 1	1	1	2/11/21	1,2-Dichlorobenzene-d4	96 %R				2/11/21	
Bromomethane	< 2	2	1	2/11/21	Toluene-d8 (surr)	105 %R				2/11/21	
Chloroethane	< 2	2	1	2/11/21							
Trichlorofluoromethane	< 2	2	1	2/11/21							
Acrolein	< 50	50	1	2/11/21							
Acetone	< 10	10	1	2/11/21							
1,1-Dichloroethene	< 0.5	0.5	1	2/11/21							
Methylene chloride	< 1	1	1	2/11/21							
Acrylonitrile	< 50	50	1	2/11/21							
Methyl-t-butyl ether(MTBE)	< 1	1	1	2/11/21							
trans-1,2-Dichloroethene	< 1	1	1	2/11/21							
Vinyl acetate	< 10	10	1	2/11/21							
1,1-Dichloroethane	< 1	1	1	2/11/21							
cis-1,2-Dichloroethene	< 1	1	1	2/11/21							
2-Butanone(MEK)	< 10	10	1	2/11/21							
Chloroform	< 1	1	1	2/11/21							
1,1,1-Trichloroethane	< 1	1	1	2/11/21							
Carbon tetrachloride	< 1	1	1	2/11/21							
Benzene	< 1	1	1	2/11/21							
1,2-Dichloroethane	< 1	1	1	2/11/21							
Trichloroethene	< 1	1	1	2/11/21							
1,2-Dichloropropane	< 1	1	1	2/11/21							
Bromodichloromethane	< 0.5	0.5	1	2/11/21							
2-Chloroethylvinylether	< 2	2	1	2/11/21							
4-Methyl-2-pentanone(MIBK)	< 10	10	1	2/11/21							
cis-1,3-Dichloropropene	< 0.5	0.5	1	2/11/21							
Toluene	< 1	1	1	2/11/21							
trans-1,3-Dichloropropene	< 0.5	0.5	1	2/11/21							
1,1,2-Trichloroethane	< 1	1	1	2/11/21							
2-Hexanone	< 10	10	1	2/11/21							
Tetrachloroethene	< 1	1	1	2/11/21							
Dibromochloromethane	< 1	1	1	2/11/21							
Chlorobenzene	< 1	1	1	2/11/21							
Ethylbenzene	< 1	1	1	2/11/21							
mp-Xylene	< 1	1	1	2/11/21							
o-Xylene	< 1	1	1	2/11/21							
Styrene	< 1	1	1	2/11/21							
Bromoform	< 2	2	1	2/12/21							
1,1,2,2-Tetrachloroethane	< 1	1	1	2/11/21							
1,3-Dichlorobenzene	< 1	1	1	2/11/21							
1,4-Dichlorobenzene	< 1	1	1	2/11/21							
1,2-Dichlorobenzene	< 1	1	1	2/11/21							



QC REPORT

EAI ID#: 222172

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637486-59969/A021121V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	18 (90 %R)	18 (92 %R) (3 RPD)	2/11/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .953	27 (133 %R)	27 (135 %R) (1 RPD)	2/11/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	20 (102 %R)	21 (106 %R) (4 RPD)	2/11/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .503	17 (85 %R)	17 (87 %R) (3 RPD)	2/11/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	22 (110 %R)	23 (114 %R) (4 RPD)	2/11/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< 5.45	< 50 (114 %R)	< 50 (117 %R) (3 RPD)	2/11/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 5.73	16 (79 %R)	17 (85 %R) (7 RPD)	2/11/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	21 (103 %R)	22 (109 %R) (5 RPD)	2/11/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< 1.4	20 (102 %R)	21 (107 %R) (5 RPD)	2/11/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .705	< 50 (95 %R)	< 50 (96 %R) (1 RPD)	2/11/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	21 (104 %R)	18 (90 %R) (15 RPD)	2/11/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	18 (91 %R)	18 (92 %R) (1 RPD)	2/11/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	17 (84 %R)	17 (85 %R) (1 RPD)	2/11/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .274	18 (88 %R)	18 (91 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	18 (88 %R)	18 (91 %R) (4 RPD)	2/11/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< 2.642	16 (79 %R)	17 (83 %R) (5 RPD)	2/11/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	.155	18 (89 %R)	18 (92 %R) (3 RPD)	2/11/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	18 (89 %R)	18 (92 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .564	17 (84 %R)	17 (86 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	19 (93 %R)	19 (97 %R) (4 RPD)	2/11/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	17 (86 %R)	18 (88 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	18 (91 %R)	19 (94 %R) (4 RPD)	2/11/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	17 (85 %R)	18 (88 %R) (3 RPD)	2/11/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .345	16 (82 %R)	17 (85 %R) (3 RPD)	2/11/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	18 (92 %R)	19 (94 %R) (2 RPD)	2/11/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< 5.64	16 (81 %R)	17 (83 %R) (3 RPD)	2/11/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .409	16 (79 %R)	16 (82 %R) (4 RPD)	2/11/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .399	20 (98 %R)	20 (101 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .207	17 (84 %R)	17 (87 %R) (3 RPD)	2/11/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	19 (93 %R)	19 (97 %R) (4 RPD)	2/11/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< 5.335	16 (81 %R)	17 (84 %R) (3 RPD)	2/11/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	17 (83 %R)	17 (86 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .468	15 (75 %R)	16 (78 %R) (4 RPD)	2/11/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	19 (94 %R)	19 (97 %R) (3 RPD)	2/11/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .475	19 (97 %R)	20 (100 %R) (3 RPD)	2/11/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	37 (93 %R)	38 (96 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	19 (94 %R)	19 (97 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .278	19 (93 %R)	19 (96 %R) (3 RPD)	2/11/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< 1.014	* 13 (63 %R)	* 13 (66 %R) (4 RPD)	2/11/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	19 (97 %R)	21 (103 %R) (6 RPD)	2/11/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	18 (92 %R)	19 (97 %R) (5 RPD)	2/11/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	18 (91 %R)	19 (96 %R) (5 RPD)	2/11/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	18 (92 %R)	19 (96 %R) (5 RPD)	2/11/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	82 %R		87 %R	86 %R	2/11/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	100 %R		112 %R	114 %R	2/11/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	105 %R		104 %R	104 %R	2/11/2021	% Rec	70 - 130		624.1



QC REPORT

EAI ID#: 222172

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637486-59969/A021121V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD Method
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Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

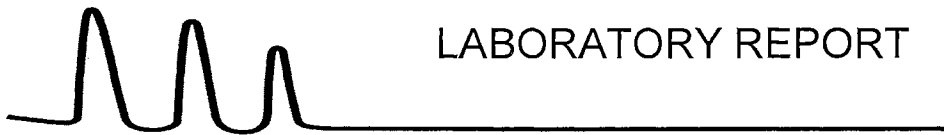
The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

*!/Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



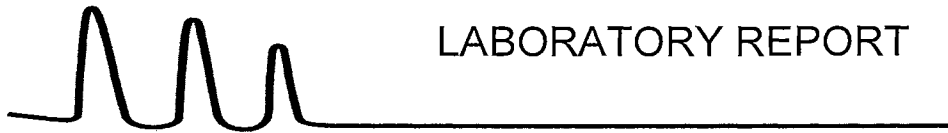
LABORATORY REPORT

EAI ID#: 222172

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 222172.01
 Matrix: aqueous
 Date Sampled: 2/10/21
 Date Received: 2/10/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed		Method	Analyst
Phenol	< 1	1	1	ug/L	2/11/21	14:23	625.1	JMR
2-Fluorophenol (surr)	40 %R			%	2/11/21	14:23	625.1	JMR
Phenol-d6 (surr)	26 %R			%	2/11/21	14:23	625.1	JMR
2,4,6-Tribromophenol (surr)	74 %R			%	2/11/21	14:23	625.1	JMR



LABORATORY REPORT

EAI ID#: 222172

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 222172.02
 Matrix: aqueous
 Date Sampled: 2/10/21
 Date Received: 2/10/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
Phenol	< 1	1	1	ug/L	2/11/21	14:46	625.1	JMR
2-Fluorophenol (surr)	41 %R			%	2/11/21	14:46	625.1	JMR
Phenol-d6 (surr)	27 %R			%	2/11/21	14:46	625.1	JMR
2,4,6-Tribromophenol (surr)	75 %R			%	2/11/21	14:46	625.1	JMR



QC REPORT

EAI ID#: 222172

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637486-44790/A021121E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	19 (77 %R)	18 (73 %R) (6 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	15 (31 %R)	14 (29 %R) (6 RPD)	2/11/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	34 (67 %R)	31 (61 %R) (9 RPD)	2/11/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	37 (74 %R)	35 (70 %R) (5 RPD)	2/11/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	38 (76 %R)	38 (75 %R) (2 RPD)	2/11/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	39 (77 %R)	37 (74 %R) (4 RPD)	2/11/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	37 (74 %R)	39 (78 %R) (5 RPD)	2/11/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	40 (79 %R)	37 (73 %R) (8 RPD)	2/11/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	14 (28 %R)	16 (32 %R) (11 RPD)	2/11/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	32 (64 %R)	41 (81 %R) (23 RPD)	2/11/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	32 (64 %R)	30 (59 %R) (7 RPD)	2/11/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	31 (62 %R)	29 (58 %R) (6 RPD)	2/11/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	35 (70 %R)	33 (67 %R) (5 RPD)	2/11/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	38 (75 %R)	36 (73 %R) (4 RPD)	2/11/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	43 (87 %R)	47 (95 %R) (9 RPD)	2/11/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	* < 50 (4 %R)	< 50 (17 %R) (125 RPD)	2/11/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	12 (48 %R)	11 (46 %R) (4 RPD)	2/11/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	19 (76 %R)	18 (70 %R) (8 RPD)	2/11/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	21 (85 %R)	20 (82 %R) (4 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	18 (73 %R)	17 (66 %R) (9 RPD)	2/11/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	17 (68 %R)	16 (62 %R) (10 RPD)	2/11/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	20 (80 %R)	18 (72 %R) (11 RPD)	2/11/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	16 (64 %R)	14 (57 %R) (12 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	19 (76 %R)	18 (70 %R) (8 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	16 (65 %R)	14 (58 %R) (13 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	17 (67 %R)	15 (59 %R) (12 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	18 (71 %R)	16 (64 %R) (11 RPD)	2/11/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	20 (79 %R)	18 (73 %R) (8 RPD)	2/11/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	21 (82 %R)	20 (79 %R) (4 RPD)	2/11/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	21 (85 %R)	20 (81 %R) (5 RPD)	2/11/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	15 (62 %R)	14 (54 %R) (13 RPD)	2/11/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	17 (69 %R)	15 (62 %R) (11 RPD)	2/11/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	16 (65 %R)	14 (57 %R) (12 RPD)	2/11/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	21 (83 %R)	20 (80 %R) (4 RPD)	2/11/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	19 (76 %R)	19 (75 %R) (2 RPD)	2/11/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	20 (80 %R)	19 (76 %R) (5 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	21 (84 %R)	20 (81 %R) (3 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	21 (85 %R)	21 (84 %R) (0 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	21 (85 %R)	21 (83 %R) (2 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	16 (65 %R)	16 (64 %R) (1 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	17 (69 %R)	17 (67 %R) (4 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	19 (74 %R)	17 (69 %R) (8 RPD)	2/11/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	20 (81 %R)	19 (76 %R) (6 RPD)	2/11/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	23 (94 %R)	23 (91 %R) (3 RPD)	2/11/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	23 (91 %R)	22 (88 %R) (3 RPD)	2/11/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	16 (65 %R)	17 (68 %R) (4 RPD)	2/11/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 222172

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637486-44790/A021121E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	21 (82 %R)	20 (80 %R) (2 RPD)	2/11/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	10 (41 %R)	10 (41 %R) (0 RPD)	2/11/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	20 (81 %R)	19 (78 %R) (5 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	21 (86 %R)	21 (82 %R) (4 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	21 (84 %R)	20 (82 %R) (3 RPD)	2/11/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	22 (90 %R)	22 (87 %R) (3 RPD)	2/11/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	23 (92 %R)	22 (88 %R) (5 RPD)	2/11/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	23 (94 %R)	22 (89 %R) (5 RPD)	2/11/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	24 (95 %R)	22 (89 %R) (7 RPD)	2/11/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	24 (97 %R)	23 (90 %R) (7 RPD)	2/11/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	20 (81 %R)	19 (77 %R) (5 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	18 (70 %R)	16 (64 %R) (9 RPD)	2/11/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	19 (75 %R)	17 (69 %R) (8 RPD)	2/11/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	19 (75 %R)	17 (69 %R) (8 RPD)	2/11/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	19 (78 %R)	18 (73 %R) (6 RPD)	2/11/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	21 (83 %R)	20 (81 %R) (3 RPD)	2/11/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	19 (78 %R)	19 (74 %R) (5 RPD)	2/11/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	20 (79 %R)	19 (75 %R) (5 RPD)	2/11/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	20 (79 %R)	19 (76 %R) (4 RPD)	2/11/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	20 (79 %R)	19 (75 %R) (5 RPD)	2/11/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	19 (76 %R)	18 (74 %R) (3 RPD)	2/11/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	19 (77 %R)	19 (74 %R) (3 RPD)	2/11/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	20 (78 %R)	19 (75 %R) (5 RPD)	2/11/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	20 (78 %R)	19 (77 %R) (1 RPD)	2/11/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	20 (78 %R)	19 (74 %R) (5 RPD)	2/11/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	18 (72 %R)	17 (70 %R) (3 RPD)	2/11/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	19 (77 %R)	19 (76 %R) (2 RPD)	2/11/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	19 (78 %R)	19 (76 %R) (2 RPD)	2/11/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	18 (73 %R)	18 (72 %R) (2 RPD)	2/11/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	14 (57 %R)	12 (50 %R) (14 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	22 (88 %R)	21 (82 %R) (7 RPD)	2/11/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	40 %R		40 %R	37 %R	2/11/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	28 %R		29 %R	27 %R	2/11/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	79 %R		82 %R	81 %R	2/11/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	75 %R		76 %R	70 %R	2/11/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	80 %R		80 %R	74 %R	2/11/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	88 %R		89 %R	87 %R	2/11/2021	% Rec	30 - 130		625.1

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

*!/Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



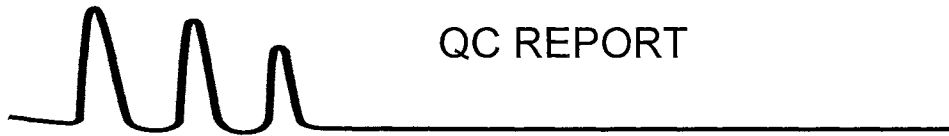
LABORATORY REPORT

EAI ID#: 222172

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID:	System Influent	System Effluent						
Lab Sample ID:	222172.01	222172.02						
Matrix:	aqueous	aqueous						
Date Sampled:	2/10/21	2/10/21						
Date Received:	2/10/21	2/10/21						
			RL	Units	Analysis		Method	Analyst
Solids Suspended	< 5	< 5	5	mg/L	2/11/21	11:20	2540D-11	KJD
Chloride	2400	2300	1000	ug/L	2/11/21	10:10	4500CIE-11	KJD
Cyanide Total	< 5	< 5	5	ug/L	2/12/21	9:45	ASTM D7511-09	ATA
Cyanide Free	< 5	< 5	5	ug/L	2/16/21	10:10	OIA-1677-09	KD
Ammonia-N	< 0.05	< 0.05	0.05	mg/L	2/11/21	14:04	TM NH3-001	SEL



QC REPORT

EAI ID#: 222172

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	860 (91 %R)	860 (90 %R) (0 RPD)	mg/L	2/11/21	90 - 110	20	2540D-11
Chloride	< 1000	25000 (100 %R)	26000 (103 %R) (3 RPD)	ug/L	2/11/21	90 - 110	20	4500CIE-11
Cyanide Total	< 5	91 (91 %R)	97 (97 %R) (6 RPD)	ug/L	2/12/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	240 (96 %R)	260 (102 %R) (6 RPD)	ug/L	2/16/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	2.0 (98 %R)	1.9 (96 %R) (2 RPD)	mg/L	2/11/21	87 - 104	20	TM NH3-001

Samples were analyzed within holding times unless noted on the sample results page.
 Instrumentation was calibrated in accordance with the method requirements.
 The method blanks were free of contamination at the reporting limits.
 The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.
 Exceptions to the above statements are flagged or noted above or on the QC Narrative page.
 *! Flagged analyte recoveries deviated from the QA/QC limits.



LABORATORY REPORT

EAI ID#: **222172**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 222172.01 222172.02

Matrix: aqueous aqueous

Date Sampled: 2/10/21 2/10/21

Date Received: 2/10/21 2/10/21

			Analytical			Analysis		
	RL	Matrix	Units	Date	Method	Analyst		
Chromium (VI)	< 10	< 10	10	AqTot	ug/L	2/11/21	7196A	RJ
Antimony	< 0.5	< 0.5	0.5	AqTot	ug/L	2/11/21	200.8	DS
Arsenic	< 0.5	< 0.5	0.5	AqTot	ug/L	2/11/21	200.8	DS
Cadmium	< 0.1	< 0.1	0.1	AqTot	ug/L	2/11/21	200.8	DS
Chromium	< 0.5	< 0.5	0.5	AqTot	ug/L	2/11/21	200.8	DS
Copper	1.0	< 0.1	0.1	AqTot	ug/L	2/11/21	200.8	DS
Iron	610	< 50	50	AqTot	ug/L	2/11/21	200.8	DS
Lead	< 0.1	< 0.1	0.1	AqTot	ug/L	2/11/21	200.8	DS
Mercury	< 0.1	< 0.1	0.1	AqTot	ug/L	2/11/21	200.8	DS
Nickel	0.84	0.79	0.1	AqTot	ug/L	2/11/21	200.8	DS
Selenium	< 0.5	< 0.5	0.5	AqTot	ug/L	2/11/21	200.8	DS
Silver	< 0.1	< 0.1	0.1	AqTot	ug/L	2/11/21	200.8	DS
Zinc	1.8	1.2	1	AqTot	ug/L	2/11/21	200.8	DS
Chromium (III)	< 10	< 10	10	AqTot	ug/L	2/11/21	200.8	DS



QC REPORT

EAI ID#: 222172

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (114 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.0 (102 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.1 (107 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (106 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Copper	< 0.0001	1.0 (105 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Iron	< 0.05	11 (97 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (114 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0010 (102 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (101 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Selenium	< 0.0005	1.0 (101 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Silver	< 0.0001	0.011 (105 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Zinc	< 0.001	1.0 (103 %R)	NA	mg/L	2/11/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.34 (97 %R)	NA	mg/L	2/11/21	85 - 115	20	7196A

Samples were analyzed within holding times unless noted on the sample results page.
 Instrumentation was calibrated in accordance with the method requirements.
 The method blanks were free of contamination at the reporting limits.
 The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.
 Exceptions to the above statements are flagged or noted above or on the QC Narrative page.
 *! Flagged analyte recoveries deviated from the QA/QC limits.

February 18, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 222172 2/10
Pace Project No.: 70162578

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on February 15, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 222172 2/10

Pace Project No.: 70162578

Pace Analytical Services Long Island

Delaware Certification # NY10478

Virginia Certification # 460302

Delaware Certification # NY10478

575 Broad Hollow Rd, Melville, NY 11747

New York Certification #: 10478 Primary Accrediting Body

New Jersey Certification #: NY158

Pennsylvania Certification #: 68-00350

Connecticut Certification #: PH-0435

Maryland Certification #: 208

Rhode Island Certification #: LAO00340

Massachusetts Certification #: M-NY026

New Hampshire Certification #: 2987

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 222172 2/10
Pace Project No.: 70162578

Sample: SYSTEM INFLUENT		Lab ID: 70162578001	Collected: 02/10/21 12:40	Received: 02/15/21 10:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		02/17/21 15:24	67-64-1	
<i>Surrogates</i>								
1,2-Dichloroethane-d4 (S)	96	%	78-114	1		02/17/21 15:24	17060-07-0	
4-Bromofluorobenzene (S)	92	%	83-111	1		02/17/21 15:24	460-00-4	
Toluene-d8 (S)	101	%	80-131	1		02/17/21 15:24	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 222172 2/10
Pace Project No.: 70162578

Sample: SYSTEM EFFLUENT		Lab ID: 70162578002	Collected: 02/10/21 12:55	Received: 02/15/21 10:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		02/17/21 15:02	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	78-114	1		02/17/21 15:02	17060-07-0	
4-Bromofluorobenzene (S)	101	%	83-111	1		02/17/21 15:02	460-00-4	
Toluene-d8 (S)	106	%	80-131	1		02/17/21 15:02	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 222172 2/10
Pace Project No.: 70162578

QC Batch: 197049 Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B Analysis Description: 1624B MSV
Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70162578001, 70162578002

METHOD BLANK: 967581 Matrix: Water

Associated Lab Samples: 70162578001, 70162578002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	02/17/21 14:18	
1,2-Dichloroethane-d4 (S)	%	103	78-114	02/17/21 14:18	
4-Bromofluorobenzene (S)	%	90	83-111	02/17/21 14:18	
Toluene-d8 (S)	%	108	80-131	02/17/21 14:18	

LABORATORY CONTROL SAMPLE: 967582

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.050	99	20-200	
1,2-Dichloroethane-d4 (S)	%			94	78-114	
4-Bromofluorobenzene (S)	%			100	83-111	
Toluene-d8 (S)	%			98	80-131	

SAMPLE DUPLICATE: 967583

Parameter	Units	70162338001 Result	Dup Result	RPD	Qualifiers
Acetone	mg/L	7600 ug/L	6.8	11	
1,2-Dichloroethane-d4 (S)	%	100	112		
4-Bromofluorobenzene (S)	%	94	94		
Toluene-d8 (S)	%	105	103		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 222172 2/10
Pace Project No.: 70162578

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 222172 2/10
Pace Project No.: 70162578

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70162578001	SYSTEM INFLUENT	EPA 1624B	197049		
70162578002	SYSTEM EFFLUENT	EPA 1624B	197049		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD

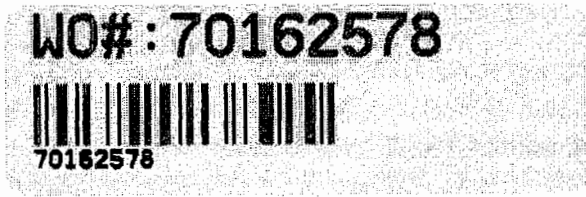


Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# **222172**

Page 1

Sample ID	Date Sampled	Matrix	Parameters	Sample Notes
System Influent	2/10/2021 12:40	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	2/10/2021 12:55	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	



EAI ID# **222172**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 VOC Acetone Only

PO #: 54329

EAI ID# **222172**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

[Signature] *[Signature]*

Relinquished by *[Signature]* Date/Time *2/15/21 10:30* Received by *[Signature]*

Relinquished by *UPS* Date/Time *2/15/21 10:30* Received by *[Signature]*

Relinquished by _____ Date/Time _____ Received by _____

Page 8 of 9

Eastern Analytical, Inc. 25 Chenell Dr. 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 damage 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



Sample Condition Upon Receipt

WO#: 70162578

Client Name:

Proj

PM: KMM

Due Date: 02/22/21

CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 1Z X46 509 01 9706 7724

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Ziploc None Other

Thermometer Used: TH091

Correction Factor: -0.2

Temperature Blank Present: Yes No

Type of Ice: Wet Blue None

Samples on ice, cooling process has begun

Date/Time 5035A kits placed in freezer

Cooler Temperature(°C): 1.3
Temp should be above freezing to 6.0°C

Cooler Temperature Corrected(°C): 1.1

USDA Regulated Soil (N/A, water sample)

Date and Initials of person examining contents: MS 2/16/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

Did samples originate from a foreign source including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: SL, WT, OIL		
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #		Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NaOH>12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water).		Initial when completed: Lot # of added preservative: Date/Time preservative added:
Per Method, VOA pH is checked after analysis:		
Samples checked for dechlorination: KI starch test strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
Residual chlorine strips Lot #		
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Lead Acetate Strips Lot #		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if applicable):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted:

Date/Time:

Comments/ Resolution:



Friday, February 19, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 222172
SDG ID: GCH61923
Sample ID#s: CH61923 - CH61924

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

February 19, 2021

SDG I.D.: GCH61923

Project ID: 222172

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CH61923	WATER
SYSTEM EFFLUENT	CH61924	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

February 19, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54328

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 02/10/21 12:40
 02/12/21 14:43

Laboratory Data

SDG ID: GCH61923
 Phoenix ID: CH61923

Project ID: 222172
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	12	0.20	ug/l	1	02/17/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	75		%	1	02/17/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				02/16/21	G/G	EPA522

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:

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

February 19, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report
 February 19, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54328

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 02/10/21 12:55
 02/12/21 14:43

Laboratory Data

SDG ID: GCH61923
 Phoenix ID: CH61924

Project ID: 222172
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	ND	0.20	ug/l	1	02/17/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	84		%	1	02/17/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				02/16/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

February 19, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

February 19, 2021

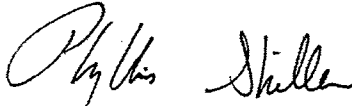
QA/QC Data

SDG I.D.: GCH61923

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 563601 (ug/l), QC Sample No: CH61708 (CH61923, CH61924)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	103	101	2.0	90			70 - 130	20
% 1,4-dioxane-d8	82	%	83	78	6.2	77			70 - 130	20

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
 February 19, 2021

Friday, February 19, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCH61923 - EASTANAL-NH

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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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance 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

February 19, 2021

SDG I.D.: GCH61923

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

WC
JPK
2.0

EAI ID# **222172**

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	2/10/2021 12:40	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	W1923
System Effluent	2/10/2021 12:55	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	W1924

EAI ID# **222172**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 54328

EAI ID# **222172**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by: 2-12-2021

[Signature] @ 10:00

Relinquished by _____ Date/Time _____ Received by _____

[Signature] 2-12-21 @ 11:00 *[Signature]*

Relinquished by _____ Date/Time _____ Received by _____

[Signature] Kaysia Hall 2/12/21 14:43
customerservice@easternanalytical.com

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Phone: (603)228-0525 1-800-287-0525

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

CHAIN-OF-CUSTODY RECORD

222172

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Sample IDs	Date/Time <small>Composites need start and stop dates/times</small>	Matrix	Parameters and Sample Notes	# of containers	
System Influent	2-10-21 12:40	aqueous <u>Grab</u> or Comp	AqTot/V624R/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/Cl/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s <u>HCl</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	2-10-21 12:55	aqueous <u>Grab</u> or Comp	AqTot/V624R/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/Cl/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s <u>HCl</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date 5 day
 Notes:

1624 Acetone Only

QC deliverables

A A+ B B+ C MA MCP

Reporting Options

<input checked="" type="checkbox"/> HC	<input type="checkbox"/> NO FAX	PO# verbal
<input checked="" type="checkbox"/> EDD PDF	<input type="checkbox"/> Partial FAX	Quote#:
<input checked="" type="checkbox"/> EDD email	<input checked="" type="checkbox"/> PDF Invoice	Temp <u>0</u> °C
<input checked="" type="checkbox"/> PDF prelim, NO FAX	<input type="checkbox"/> EQUIS	Ice Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
<input checked="" type="checkbox"/> e-mail Login Confirmation		

Samples Collected by: AYJ
al jacobsen 2-10-21
 Relinquished by Faye Date/Time 2/10/21 1620 Received by Jim Wieck



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 222441
Client Identification: Rennie | 04.019003.02
Date Received: 2/18/2021

Dear Mr. Wieck :

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

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

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R : % Recovery


Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012) and New York (12072).

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

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

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

Sincerely,


Lorraine Olashaw, Lab Director

2.24.21
Date

5
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 222441

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie | 04.019003.02**

Temperature upon receipt (°C): 1.5

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
222441.01	System INFLUENT	2/18/21	2/17/21 9:50	aqueous		Adheres to Sample Acceptance Policy
222441.02	System MID	2/18/21	2/17/21 10:00	aqueous		Adheres to Sample Acceptance Policy
222441.03	LGAC INFLUENT	2/18/21	2/18/21 10:05	aqueous		Adheres to Sample Acceptance Policy
222441.04	LGAC MID	2/18/21	2/18/21 10:00	aqueous		Adheres to Sample Acceptance Policy
222441.05	LGAC EFFLUENT	2/18/21	2/18/21 9:55	aqueous		Adheres to Sample Acceptance Policy

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

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

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

References include:

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



LABORATORY REPORT

EAI ID#: 222441

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie | 04.019003.02**

Client Sample ID: System INFLUENT

Lab Sample ID: 222441.01

Matrix: aqueous

Date Sampled: 2/17/21

Date Received: 2/18/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	20	2	10	ug/L	2/23/21 17:59	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	2/23/21 17:59	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	2/23/21 17:59	8260B SIM	AM

Client Sample ID: System MID

Lab Sample ID: 222441.02

Matrix: aqueous

Date Sampled: 2/17/21

Date Received: 2/18/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	2/23/21 16:26	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	2/23/21 16:26	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	2/23/21 16:26	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 222441

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie | 04.019003.02**

Client Sample ID: LGAC INFLUENT
Lab Sample ID: 222441.03
Matrix: aqueous
Date Sampled: 2/18/21
Date Received: 2/18/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	740	20	100	ug/L	2/23/21 18:30	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	2/23/21 18:30	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	2/23/21 18:30	8260B SIM	AM

Client Sample ID: LGAC MID
Lab Sample ID: 222441.04
Matrix: aqueous
Date Sampled: 2/18/21
Date Received: 2/18/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	2/23/21 16:57	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	2/23/21 16:57	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	2/23/21 16:57	8260B SIM	AM

Client Sample ID: LGAC EFFLUENT
Lab Sample ID: 222441.05
Matrix: aqueous
Date Sampled: 2/18/21
Date Received: 2/18/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.23	0.2	1	ug/L	2/23/21 17:28	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	2/23/21 17:28	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	2/23/21 17:28	8260B SIM	AM



QC REPORT

EAI ID#: **222441**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637496-91161/A022321DIOX1

Client Designation: **Rennie | 04.019003.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.4 (87 %R)	4.5 (90 %R) (3 RPD)	2/23/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	100 %R	100 %R	100 %R	2/23/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	101 %R	101 %R	2/23/2021	% Rec	70 - 130	50	8260B

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

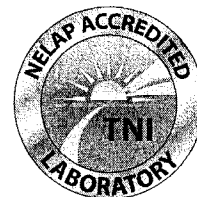
*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 223237
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 3/11/2021

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

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.

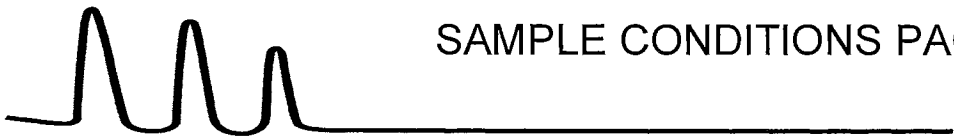
We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw
Lorraine Olashaw, Lab Director

3/31/21
Date

30
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 223237

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Temperature upon receipt (°C): 1.1

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

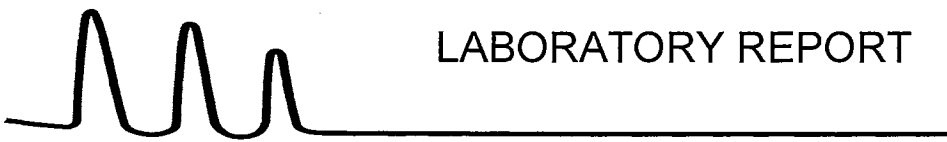
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
223237.01	System Influent	3/11/21	3/11/21 11:10	aqueous		Adheres to Sample Acceptance Policy
223237.02	System Effluent	3/11/21	3/11/21 11:25	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

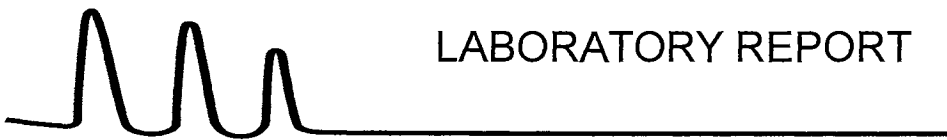
EAI ID#: 223237

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 223237.01
Matrix: aqueous
Date Sampled: 3/11/21
Date Received: 3/11/21

Date of Preparation:
Method: 624.1
Analyst: DGM
Units: ug/L

	Result	Dilution RL	Dilution Factor	Date Analyzed		Result	Dilution RL	Dilution Factor	Date Analyzed
Chloromethane	< 2	2	1	3/11/21	4-Bromofluorobenzene (surr)	95 %R			3/11/21
Vinyl chloride	< 1	1	1	3/11/21	1,2-Dichlorobenzene-d4	96 %R			3/11/21
Bromomethane	< 2	2	1	3/11/21	Toluene-d8 (surr)	100 %R			3/11/21
Chloroethane	< 2	2	1	3/11/21					
Trichlorofluoromethane	< 2	2	1	3/11/21					
Acrolein	< 50	50	1	3/11/21					
Acetone	< 10	10	1	3/11/21					
1,1-Dichloroethene	< 0.5	0.5	1	3/11/21					
Methylene chloride	< 1	1	1	3/11/21					
Acrylonitrile	< 50	50	1	3/11/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	3/11/21					
trans-1,2-Dichloroethene	< 1	1	1	3/11/21					
Vinyl acetate	< 10	10	1	3/11/21					
1,1-Dichloroethane	< 1	1	1	3/11/21					
cis-1,2-Dichloroethene	< 1	1	1	3/11/21					
2-Butanone(MEK)	< 10	10	1	3/11/21					
Chloroform	< 1	1	1	3/11/21					
1,1,1-Trichloroethane	< 1	1	1	3/11/21					
Carbon tetrachloride	< 1	1	1	3/11/21					
Benzene	< 1	1	1	3/11/21					
1,2-Dichloroethane	< 1	1	1	3/11/21					
Trichloroethene	< 1	1	1	3/11/21					
1,2-Dichloropropane	< 1	1	1	3/11/21					
Bromodichloromethane	< 0.5	0.5	1	3/11/21					
2-Chloroethylvinylether	< 2	2	1	3/11/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	3/11/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	3/11/21					
Toluene	< 1	1	1	3/11/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	3/11/21					
1,1,2-Trichloroethane	< 1	1	1	3/11/21					
2-Hexanone	< 10	10	1	3/11/21					
Tetrachloroethene	< 1	1	1	3/11/21					
Dibromochloromethane	< 1	1	1	3/11/21					
Chlorobenzene	< 1	1	1	3/11/21					
Ethylbenzene	< 1	1	1	3/11/21					
mp-Xylene	< 1	1	1	3/11/21					
o-Xylene	< 1	1	1	3/11/21					
Styrene	< 1	1	1	3/11/21					
Bromoform	< 2	2	1	3/11/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	3/11/21					
1,3-Dichlorobenzene	< 1	1	1	3/11/21					
1,4-Dichlorobenzene	< 1	1	1	3/11/21					
1,2-Dichlorobenzene	< 1	1	1	3/11/21					



LABORATORY REPORT

EAI ID#: 223237

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 223237.02
Matrix: aqueous
Date Sampled: 3/11/21
Date Received: 3/11/21

Date of Preparation:
Method: 624.1
Analyst: DGM
Units: ug/L

	Result	Dilution RL	Dilution Factor	Date Analyzed		Result	Dilution RL	Dilution Factor	Date Analyzed
Chloromethane	< 2	2	1	3/11/21	4-Bromofluorobenzene (surr)	96 %R			3/11/21
Vinyl chloride	< 1	1	1	3/11/21	1,2-Dichlorobenzene-d4	96 %R			3/11/21
Bromomethane	< 2	2	1	3/11/21	Toluene-d8 (surr)	99 %R			3/11/21
Chloroethane	< 2	2	1	3/11/21					
Trichlorofluoromethane	< 2	2	1	3/11/21					
Acrolein	< 50	50	1	3/11/21					
Acetone	< 10	10	1	3/11/21					
1,1-Dichloroethene	< 0.5	0.5	1	3/11/21					
Methylene chloride	< 1	1	1	3/11/21					
Acrylonitrile	< 50	50	1	3/11/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	3/11/21					
trans-1,2-Dichloroethene	< 1	1	1	3/11/21					
Vinyl acetate	< 10	10	1	3/11/21					
1,1-Dichloroethane	< 1	1	1	3/11/21					
cis-1,2-Dichloroethene	< 1	1	1	3/11/21					
2-Butanone(MEK)	< 10	10	1	3/11/21					
Chloroform	< 1	1	1	3/11/21					
1,1,1-Trichloroethane	< 1	1	1	3/11/21					
Carbon tetrachloride	< 1	1	1	3/11/21					
Benzene	< 1	1	1	3/11/21					
1,2-Dichloroethane	< 1	1	1	3/11/21					
Trichloroethene	< 1	1	1	3/11/21					
1,2-Dichloropropane	< 1	1	1	3/11/21					
Bromodichloromethane	< 0.5	0.5	1	3/11/21					
2-Chloroethylvinylether	< 2	2	1	3/11/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	3/11/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	3/11/21					
Toluene	< 1	1	1	3/11/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	3/11/21					
1,1,2-Trichloroethane	< 1	1	1	3/11/21					
2-Hexanone	< 10	10	1	3/11/21					
Tetrachloroethene	< 1	1	1	3/11/21					
Dibromochloromethane	< 1	1	1	3/11/21					
Chlorobenzene	< 1	1	1	3/11/21					
Ethylbenzene	< 1	1	1	3/11/21					
mp-Xylene	< 1	1	1	3/11/21					
o-Xylene	< 1	1	1	3/11/21					
Styrene	< 1	1	1	3/11/21					
Bromoform	< 2	2	1	3/11/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	3/11/21					
1,3-Dichlorobenzene	< 1	1	1	3/11/21					
1,4-Dichlorobenzene	< 1	1	1	3/11/21					
1,2-Dichlorobenzene	< 1	1	1	3/11/21					



QC REPORT

EAI ID#: 223237

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID:

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	18 (91 %R)	18 (89 %R) (2 RPD)	3/11/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	21 (105 %R)	20 (100 %R) (5 RPD)	3/11/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	20 (98 %R)	19 (93 %R) (6 RPD)	3/11/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	17 (84 %R)	16 (82 %R) (2 RPD)	3/11/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	21 (107 %R)	20 (101 %R) (6 RPD)	3/11/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (87 %R)	< 50 (74 %R) (17 RPD)	3/11/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	20 (100 %R)	21 (105 %R) (4 RPD)	3/11/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	19 (94 %R)	18 (88 %R) (7 RPD)	3/11/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	18 (91 %R)	18 (89 %R) (2 RPD)	3/11/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (94 %R)	< 50 (97 %R) (2 RPD)	3/11/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	20 (100 %R)	20 (98 %R) (3 RPD)	3/11/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	19 (96 %R)	19 (97 %R) (1 RPD)	3/11/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	16 (81 %R)	10 (52 %R) (45 RPD)	3/11/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	20 (101 %R)	19 (97 %R) (5 RPD)	3/11/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	21 (103 %R)	20 (98 %R) (4 RPD)	3/11/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	21 (106 %R)	22 (111 %R) (4 RPD)	3/11/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	19 (93 %R)	18 (89 %R) (5 RPD)	3/11/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	21 (104 %R)	20 (98 %R) (7 RPD)	3/11/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	20 (102 %R)	19 (96 %R) (7 RPD)	3/11/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	20 (101 %R)	19 (97 %R) (5 RPD)	3/11/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	21 (103 %R)	20 (100 %R) (3 RPD)	3/11/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	20 (101 %R)	19 (96 %R) (6 RPD)	3/11/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	20 (101 %R)	19 (97 %R) (4 RPD)	3/11/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	21 (107 %R)	21 (103 %R) (4 RPD)	3/11/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	20 (102 %R)	21 (103 %R) (1 RPD)	3/11/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	22 (112 %R)	21 (106 %R) (6 RPD)	3/11/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	21 (105 %R)	20 (102 %R) (3 RPD)	3/11/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	21 (103 %R)	20 (98 %R) (6 RPD)	3/11/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	23 (113 %R)	22 (110 %R) (3 RPD)	3/11/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	21 (104 %R)	20 (101 %R) (3 RPD)	3/11/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	24 (120 %R)	22 (109 %R) (10 RPD)	3/11/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	20 (101 %R)	19 (94 %R) (7 RPD)	3/11/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	22 (109 %R)	21 (105 %R) (4 RPD)	3/11/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	21 (103 %R)	20 (98 %R) (4 RPD)	3/11/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	21 (105 %R)	20 (100 %R) (5 RPD)	3/11/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	41 (103 %R)	40 (99 %R) (4 RPD)	3/11/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	21 (104 %R)	20 (101 %R) (3 RPD)	3/11/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	21 (106 %R)	21 (103 %R) (4 RPD)	3/11/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	24 (120 %R)	24 (118 %R) (1 RPD)	3/11/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	21 (105 %R)	21 (104 %R) (1 RPD)	3/11/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	21 (104 %R)	20 (100 %R) (3 RPD)	3/11/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	20 (102 %R)	20 (99 %R) (3 RPD)	3/11/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	20 (101 %R)	20 (99 %R) (3 RPD)	3/11/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	96 %R		100 %R	101 %R	3/11/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	96 %R		112 %R	112 %R	3/11/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	99 %R		100 %R	100 %R	3/11/2021	% Rec	70 - 130		624.1

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



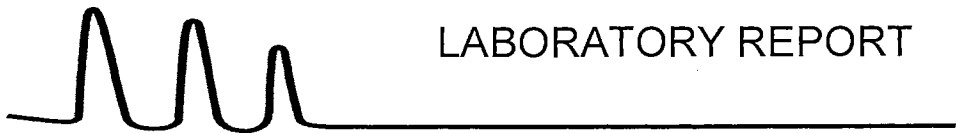
LABORATORY REPORT

EAI ID#: 223237

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 223237.01
Matrix: aqueous
Date Sampled: 3/11/21
Date Received: 3/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	3/17/21 20:13	625.1	JMR
2-Fluorophenol (surr)	37 %R			%	3/17/21 20:13	625.1	JMR
Phenol-d6 (surr)	25 %R			%	3/17/21 20:13	625.1	JMR
2,4,6-Tribromophenol (surr)	73 %R			%	3/17/21 20:13	625.1	JMR



LABORATORY REPORT

EAI ID#: **223237**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 223237.02
 Matrix: aqueous
 Date Sampled: 3/11/21
 Date Received: 3/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	3/17/21 20:35	625.1	JMR
2-Fluorophenol (surr)	42 %R			%	3/17/21 20:35	625.1	JMR
Phenol-d6 (surr)	29 %R			%	3/17/21 20:35	625.1	JMR
2,4,6-Tribromophenol (surr)	79 %R			%	3/17/21 20:35	625.1	JMR



QC REPORT

EAI ID#: 223237

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637515-63430/A031721E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	20 (81 %R)	19 (75 %R) (7 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	16 (32 %R)	15 (30 %R) (7 RPD)	3/17/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	34 (69 %R)	31 (63 %R) (9 RPD)	3/17/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	39 (77 %R)	36 (72 %R) (7 RPD)	3/17/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	42 (84 %R)	41 (82 %R) (2 RPD)	3/17/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	42 (84 %R)	41 (81 %R) (4 RPD)	3/17/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	46 (92 %R)	47 (95 %R) (3 RPD)	3/17/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	42 (84 %R)	38 (76 %R) (9 RPD)	3/17/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	19 (39 %R)	20 (39 %R) (2 RPD)	3/17/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	50 (99 %R)	52 (103 %R) (4 RPD)	3/17/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	33 (67 %R)	31 (62 %R) (8 RPD)	3/17/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	32 (64 %R)	30 (60 %R) (6 RPD)	3/17/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	37 (73 %R)	34 (68 %R) (7 RPD)	3/17/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	39 (78 %R)	38 (76 %R) (2 RPD)	3/17/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	51 (103 %R)	53 (106 %R) (3 RPD)	3/17/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (33 %R)	< 50 (32 %R) (3 RPD)	3/17/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	12 (49 %R)	11 (46 %R) (7 RPD)	3/17/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	19 (76 %R)	18 (70 %R) (8 RPD)	3/17/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	20 (82 %R)	21 (83 %R) (2 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	18 (73 %R)	17 (66 %R) (10 RPD)	3/17/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	18 (71 %R)	16 (65 %R) (9 RPD)	3/17/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	19 (77 %R)	18 (71 %R) (8 RPD)	3/17/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	15 (60 %R)	14 (56 %R) (8 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	19 (76 %R)	17 (70 %R) (9 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	15 (62 %R)	14 (57 %R) (9 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	16 (64 %R)	15 (58 %R) (9 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	17 (67 %R)	15 (62 %R) (8 RPD)	3/17/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	19 (78 %R)	18 (74 %R) (6 RPD)	3/17/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	21 (83 %R)	21 (82 %R) (1 RPD)	3/17/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	21 (82 %R)	21 (83 %R) (1 RPD)	3/17/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	15 (61 %R)	14 (56 %R) (9 RPD)	3/17/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	16 (65 %R)	15 (60 %R) (9 RPD)	3/17/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	18 (71 %R)	16 (63 %R) (11 RPD)	3/17/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	21 (83 %R)	21 (84 %R) (1 RPD)	3/17/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	20 (80 %R)	19 (75 %R) (6 RPD)	3/17/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	20 (82 %R)	20 (78 %R) (4 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	23 (92 %R)	23 (91 %R) (1 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	22 (90 %R)	23 (91 %R) (2 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	23 (93 %R)	24 (96 %R) (4 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	18 (70 %R)	17 (66 %R) (6 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	19 (75 %R)	18 (70 %R) (6 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	19 (77 %R)	18 (71 %R) (8 RPD)	3/17/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	21 (82 %R)	19 (77 %R) (6 RPD)	3/17/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	24 (94 %R)	24 (96 %R) (2 RPD)	3/17/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	23 (93 %R)	24 (94 %R) (2 RPD)	3/17/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	15 (60 %R)	16 (62 %R) (3 RPD)	3/17/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 223237

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637515-63430/A031721E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCS/D	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	21 (84 %R)	22 (87 %R) (3 RPD)	3/17/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	12 (48 %R)	11 (45 %R) (8 RPD)	3/17/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	20 (82 %R)	21 (82 %R) (1 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	21 (84 %R)	21 (86 %R) (3 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	21 (84 %R)	21 (86 %R) (2 RPD)	3/17/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	22 (89 %R)	23 (93 %R) (3 RPD)	3/17/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	23 (90 %R)	24 (95 %R) (5 RPD)	3/17/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	24 (94 %R)	25 (99 %R) (5 RPD)	3/17/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	23 (92 %R)	24 (96 %R) (4 RPD)	3/17/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	24 (97 %R)	25 (100 %R) (3 RPD)	3/17/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	20 (80 %R)	20 (79 %R) (1 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	17 (70 %R)	16 (64 %R) (8 RPD)	3/17/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	18 (73 %R)	17 (68 %R) (7 RPD)	3/17/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	18 (74 %R)	17 (69 %R) (7 RPD)	3/17/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	20 (79 %R)	19 (76 %R) (3 RPD)	3/17/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	24 (97 %R)	24 (94 %R) (3 RPD)	3/17/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	20 (79 %R)	20 (79 %R) (0 RPD)	3/17/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	19 (77 %R)	20 (79 %R) (3 RPD)	3/17/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	20 (79 %R)	20 (80 %R) (2 RPD)	3/17/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	19 (78 %R)	20 (80 %R) (3 RPD)	3/17/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	19 (77 %R)	20 (80 %R) (3 RPD)	3/17/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	20 (78 %R)	20 (81 %R) (3 RPD)	3/17/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	19 (78 %R)	20 (81 %R) (4 RPD)	3/17/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	20 (81 %R)	21 (84 %R) (4 RPD)	3/17/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	20 (79 %R)	20 (81 %R) (2 RPD)	3/17/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	19 (75 %R)	19 (77 %R) (3 RPD)	3/17/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	21 (82 %R)	21 (84 %R) (2 RPD)	3/17/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	20 (80 %R)	21 (82 %R) (3 RPD)	3/17/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	20 (80 %R)	20 (81 %R) (2 RPD)	3/17/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	13 (52 %R)	12 (48 %R) (10 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	21 (85 %R)	22 (87 %R) (2 RPD)	3/17/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	38 %R		42 %R	38 %R	3/17/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	28 %R		31 %R	29 %R	3/17/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	84 %R		88 %R	89 %R	3/17/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	74 %R		80 %R	72 %R	3/17/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	76 %R		80 %R	75 %R	3/17/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	84 %R		85 %R	88 %R	3/17/2021	% Rec	30 - 130		625.1

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

*!/Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



LABORATORY REPORT

EAI ID#: **223237**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 223237.01 223237.02

Matrix: aqueous aqueous

Date Sampled: 3/11/21 3/11/21

Date Received: 3/11/21 3/11/21

Solids Suspended < 5 < 5

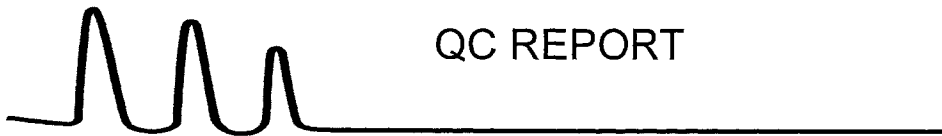
Chloride **2600** **2200**

Cyanide Total < 5 < 5

Cyanide Free < 5 < 5

Ammonia-N < 0.05 < 0.05

		Analysis			
RL	Units	Date	Time	Method	Analyst
5	mg/L	3/15/21	13:25	2540D-11	HEH
1000	ug/L	3/12/21	10:18	4500CIE-11	ATA
5	ug/L	3/16/21	10:06	ASTM D7511-09	KD
5	ug/L	3/16/21	12:26	OIA-1677-09	KD
0.05	mg/L	3/12/21	12:21	TM NH3-001	SEL



QC REPORT

EAI ID#: **223237**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	860 (90 %R)	860 (91 %R) (0 RPD)	mg/L	3/15/21	90 - 110	20	2540D-11
Chloride	< 1000	25 (101 %R)	25 (101 %R) (0 RPD)	ug/L	3/12/21	90 - 110	20	4500CIE-11
Cyanide Total	< 5	0.088 (88 %R)	0.099 (99 %R) (12 RPD)	ug/L	3/16/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	0.25 (100 %R)	0.26 (104 %R) (4 RPD)	ug/L	3/16/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	2.0 (99 %R)	1.9 (97 %R) (2 RPD)	mg/L	3/12/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: 223237

Client: GZA GeoEnvironmental, Inc. (NH)
 Client Designation: Rennie Farm RGP / 04.0190030.02

Sample ID: System Influent System Effluent

Lab Sample ID: 223237.01 223237.02

Matrix: aqueous aqueous

Date Sampled: 3/11/21 3/11/21

Date Received: 3/11/21 3/11/21

Chromium (VI)	< 10	< 10
Antimony	< 0.5	< 0.5
Arsenic	< 0.5	< 0.5
Cadmium	< 0.1	< 0.1
Chromium	< 0.5	< 0.5
Copper	1.1	< 0.1
Iron	730	< 50
Lead	< 0.1	< 0.1
Mercury	< 0.1	< 0.1
Nickel	0.61	0.46
Selenium	< 0.5	< 0.5
Silver	< 0.1	< 0.1
Zinc	1.8	1.4
Chromium (III)	< 10	< 10

RL	Analytical		Analysis		
	Matrix	Units	Date	Method	Analyst
10	AqTot	ug/L	3/11/21	7196A	HEH
0.5	AqTot	ug/L	3/12/21	200.8	DS
0.5	AqTot	ug/L	3/12/21	200.8	DS
0.1	AqTot	ug/L	3/12/21	200.8	DS
0.5	AqTot	ug/L	3/12/21	200.8	DS
0.1	AqTot	ug/L	3/12/21	200.8	DS
50	AqTot	ug/L	3/12/21	200.8	DS
0.1	AqTot	ug/L	3/12/21	200.8	DS
0.1	AqTot	ug/L	3/12/21	200.8	DS
0.1	AqTot	ug/L	3/12/21	200.8	DS
0.5	AqTot	ug/L	3/12/21	200.8	DS
0.1	AqTot	ug/L	3/12/21	200.8	DS
1	AqTot	ug/L	3/12/21	200.8	DS
10	AqTot	ug/L	3/12/21	200.8	DS



QC REPORT

EAI ID#: 223237

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (111 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.0 (105 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.0 (105 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (111 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Copper	< 0.0001	1.0 (104 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Iron	< 0.05	12 (105 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Lead	< 0.0001	0.97 (97 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Mercury	< 0.0001	0.00099 (100 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Nickel	< 0.0001	1.1 (109 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Selenium	< 0.0005	1.0 (103 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Silver	< 0.0001	0.010 (102 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Zinc	< 0.001	1.1 (109 %R)	NA	mg/L	3/12/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.34 (96 %R)	NA	mg/L	3/11/21	85 - 115	20	7196A

Samples were analyzed within holding times unless noted on the sample results page.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.

Exceptions to the above statements are flagged or noted above or on the QC Narrative page.

*! Flagged analyte recoveries deviated from the QA/QC limits.

March 19, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 223237 3/11
Pace Project No.: 70165537

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 223237 3/11
Pace Project No.: 70165537

Pace Analytical Services Long Island

Delaware Certification # NY10478
Virginia Certification # 460302
Delaware Certification # NY10478
575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158

Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 223237 3/11

Pace Project No.: 70165537

Sample: SYSTEM INFLUENT		Lab ID: 70165537001	Collected: 03/11/21 11:10	Received: 03/12/21 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		03/18/21 17:27	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	78-114	1		03/18/21 17:27	17060-07-0	
4-Bromofluorobenzene (S)	89	%	83-111	1		03/18/21 17:27	460-00-4	
Toluene-d8 (S)	98	%	80-131	1		03/18/21 17:27	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 223237 3/11
Pace Project No.: 70165537

Sample: SYSTEM EFFLUENT		Lab ID: 70165537002	Collected: 03/11/21 11:25	Received: 03/12/21 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		03/18/21 17:05	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%	78-114	1		03/18/21 17:05	17060-07-0	
4-Bromofluorobenzene (S)	93	%	83-111	1		03/18/21 17:05	460-00-4	
Toluene-d8 (S)	95	%	80-131	1		03/18/21 17:05	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 223237 3/11
Pace Project No.: 70165537

QC Batch: 200788 Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B Analysis Description: 1624B MSV
Laboratory: Pace Analytical Services - Melville
Associated Lab Samples: 70165537001, 70165537002

METHOD BLANK: 988222 Matrix: Water
Associated Lab Samples: 70165537001, 70165537002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	03/18/21 15:58	
1,2-Dichloroethane-d4 (S)	%	104	78-114	03/18/21 15:58	
4-Bromofluorobenzene (S)	%	86	83-111	03/18/21 15:58	
Toluene-d8 (S)	%	97	80-131	03/18/21 15:58	

LABORATORY CONTROL SAMPLE: 988223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.048	96	20-200	
1,2-Dichloroethane-d4 (S)	%			105	78-114	
4-Bromofluorobenzene (S)	%			90	83-111	
Toluene-d8 (S)	%			91	80-131	

SAMPLE DUPLICATE: 988628

Parameter	Units	70165446001 Result	Dup Result	RPD	Qualifiers
Acetone	mg/L	4490 ug/L	3.8	18	
1,2-Dichloroethane-d4 (S)	%	102	98		
4-Bromofluorobenzene (S)	%	85	86		
Toluene-d8 (S)	%	91	97		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 223237 3/11
Pace Project No.: 70165537

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 223237 3/11
Pace Project No.: 70165537

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70165537001	SYSTEM INFLUENT	EPA 1624B	200788		
70165537002	SYSTEM EFFLUENT	EPA 1624B	200788		


REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD

EAI ID# 223237

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	3/11/2021 11:10	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	WO# : 70165537  70165537
System Effluent	3/11/2021 11:25	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

EAI ID# 223237

Project State: NH

Project ID: 4965

Company PACE ANALYTICAL

Address 575 BROAD HOLLOW ROAD

Address MELVILLE, NY 11747

Account #

Phone # (631)694-3040

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.

1624 Acetone Only

PO #: 54501

EAI ID# 223237

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Chris Johnson 3/11/21 1500 UPS

Relinquished by Date/Time Received by

[Signature] 3/11/21 9:50 *[Signature]*

Relinquished by Date/Time Received by

Client Name:

Project:

PM: KMM

Due Date: 03/19/21

CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 12 X46 599 01 9976 5538

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Ziploc None Other

Thermometer Used: TH091

Correction Factor: +0.0

Cooler Temperature(°C): 3.4

Cooler Temperature Corrected(°C): 3.4

Temp should be above freezing to 6.0°C

USDA Regulated Soil (N/A, water sample)

Date and Initials of person examining contents: YTS 3.12.21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

Did samples originate from a foreign source including Hawaii and Puerto Rico? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

			COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		7.
Sufficient Volume: (Triple volume provided for)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		12.
-Includes date/time/ID, Matrix:	SI (WT) OIL		
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #			Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH > 9 Sulfide, NaOH > 12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRG/BD15 (water).			Initial when completed: Lot # of added preservative: Date/Time preservative added:
Per Method, VOA pH is checked after analysis			
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		14. Positive for Res. Chlorine? Y N
KI starch test strips Lot #			
Residual chlorine strips Lot #			
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		15.
Lead Acetate Strips Lot #			
Headspace in VOA Vials (>5mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		16.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		17.
Trip Blank Custody Seals Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Pace Trip Blank Lot # (if applicable):			

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted:

Date/Time:

Comments/ Resolution:



Tuesday, March 30, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 223237
SDG ID: GCH77541
Sample ID#s: CH77541 - CH77542

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

March 30, 2021

SDG I.D.: GCH77541

Project ID: 223237

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CH77541	WATER
SYSTEM EFFLUENT	CH77542	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

March 30, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54502

Custody Information

Collected by:
 Received by: LB
 Analyzed by: see "By" below

Date Time
 03/11/21 11:10
 03/12/21 10:47

Laboratory Data

SDG ID: GCH77541
 Phoenix ID: CH77541

Project ID: 223237
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	18	0.20	ug/l	1	03/16/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	79		%	1	03/16/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				03/15/21	H/H	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

March 30, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

March 30, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54502

Custody Information

Collected by:
 Received by: LB
 Analyzed by: see "By" below

Date Time
 03/11/21 11:25
 03/12/21 10:47

Laboratory Data

SDG ID: GCH77541
 Phoenix ID: CH77542

Project ID: 223237
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	03/16/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	79		%	1	03/16/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				03/15/21	H/H	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

March 30, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045

Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

March 30, 2021

QA/QC Data

SDG I.D.: GCH77541

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 566888 (ug/l), QC Sample No: CH76642 (CH77541, CH77542)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	82	81	1.2	85			70 - 130	20
% 1,4-dioxane-d8	78	%	83	82	1.2	82			70 - 130	20

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
March 30, 2021

Tuesday, March 30, 2021

Sample Criteria Exceedances Report

27

Criteria: None

GCH77541 - EASTANAL-NH

State: NH

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

March 30, 2021

SDG I.D.: GCH77541

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

4-9°
wc
cd.

EAI ID# **223237**

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	3/11/2021 11:10	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	77541
System Effluent	3/11/2021 11:25	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	77542

Rwd - 1 802 amber per sample.

EAI ID# **223237**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 54502

EAI ID# **223237**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Chen Zhen 3/11/21 1500 VPS

Relinquished by _____ Date/Time _____ Received by _____

[Signature] 3/12/21 1047

Relinquished by _____ Date/Time _____ Received by _____

Eastern Analytical, Inc. 25 Chenell Dr. 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

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers
System Influent	3-11-21 11:10	aqueous <input checked="" type="radio"/> Grab or <input type="radio"/> Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree <i>PT&Ta</i>	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		<i>Circle preservative/s: (HCL) (HNO₃) (H₂SO₄) (NaOH) (MEOH) (Na₂S₂O₈) (ICE)</i>		Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	3-11-21 11:25	aqueous <input checked="" type="radio"/> Grab or <input type="radio"/> Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree <i>PT&Ta</i>	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		<i>Circle preservative/s: (HCL) (HNO₃) (H₂SO₄) (NaOH) (MEOH) (Na₂S₂O₈) (ICE)</i>		Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date _____
 Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options
 HC NO FAX PO# verbal
 EDD PDF Partial FAX Quote#:
 EDD email PDF Invoice
 PDF prelim, NO FAX EQUIS Temp 1-1 °C
 e-mail Login Confirmation Ice Y N

Samples Collected by: AVJ
alfred jacobsen 3-11-21
 Relinquished by _____ Date/Time _____ Received by _____
Foyen 3/11/21 1414 Chapman
 Relinquished by _____ Date/Time _____ Received by _____



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Subject: Laboratory Report

Eastern Analytical, Inc. ID: 223238
Client Identification: Rennie Onsite Treatment System | 04.0190030.02
Date Received: 3/11/2021

Dear Mr. Wieck :

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

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

- Solid samples are reported on a dry weight basis, unless otherwise noted
- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R : % Recovery


Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012) and New York (12072).

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

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

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

Sincerely,


Lorraine Olashaw, Lab Director

3.18.21
Date

5
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 223238

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Onsite Treatment System | 04.0190030.02**

Temperature upon receipt (°C): 1.1

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

Acceptable temperature range (°C): 0-6

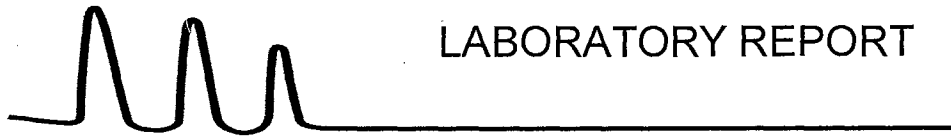
Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
223238.01	System INFLUENT	3/11/21	3/8/21 08:35	aqueous		Adheres to Sample Acceptance Policy
223238.02	System MID	3/11/21	3/8/21 08:30	aqueous		Adheres to Sample Acceptance Policy
223238.03	LGAC INFLUENT	3/11/21	3/9/21 09:15	aqueous		Adheres to Sample Acceptance Policy
223238.04	LGAC MID	3/11/21	3/9/21 09:20	aqueous		Adheres to Sample Acceptance Policy
223238.05	LGAC EFFLUENT	3/11/21	3/9/21 09:25	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:

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



LABORATORY REPORT

EAI ID#: 223238

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Onsite Treatment System | 04.0190030.02**

Client Sample ID: System INFLUENT

Lab Sample ID: 223238.01

Matrix: aqueous

Date Sampled: 3/8/21

Date Received: 3/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	35	2	10	ug/L	3/16/21 20:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	3/16/21 20:23	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/16/21 20:23	8260B SIM	AM

Client Sample ID: System MID

Lab Sample ID: 223238.02

Matrix: aqueous

Date Sampled: 3/8/21

Date Received: 3/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	3/16/21 13:09	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	3/16/21 13:09	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/16/21 13:09	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 223238

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Onsite Treatment System | 04.0190030.02**

Client Sample ID: LGAC INFLUENT

Lab Sample ID: 223238.03

Matrix: aqueous

Date Sampled: 3/9/21

Date Received: 3/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1500	20	100	ug/L	3/16/21 20:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	3/16/21 20:54	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	3/16/21 20:54	8260B SIM	AM

Client Sample ID: LGAC MID

Lab Sample ID: 223238.04

Matrix: aqueous

Date Sampled: 3/9/21

Date Received: 3/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.69	0.2	1	ug/L	3/16/21 13:40	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	3/16/21 13:40	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/16/21 13:40	8260B SIM	AM

Client Sample ID: LGAC EFFLUENT

Lab Sample ID: 223238.05

Matrix: aqueous

Date Sampled: 3/9/21

Date Received: 3/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.23	0.2	1	ug/L	3/16/21 14:11	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	3/16/21 14:11	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/16/21 14:11	8260B SIM	AM



QC REPORT

EAI ID#: **223238**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637514-88525/A031621DIOX1

Client Designation: **Rennie Onsite Treatment System | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.8 (96 %R)	4.7 (93 %R) (2 RPD)	3/16/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	101 %R	102 %R	102 %R	3/16/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	101 %R	101 %R	3/16/2021	% Rec	70 - 130	50	8260B

Samples were extracted and analyzed within holding time limits.

Instrumentation was calibrated in accordance with the method requirements.

The method blanks were free of contamination at the reporting limits.

Sample surrogate recoveries met the above stated criteria.

The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.

There were no exceptions in the analyses, unless noted.

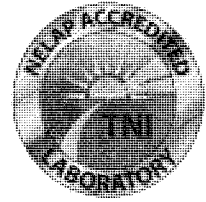
*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted on the sample page, flagged analytes that exceed acceptance limits in the Quality Control sample do not impact the data.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 223708
Client Identification: Rennie Farm | 04.0190030.02 Task No. 22 ST-1
Date Received: 3/25/2021

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

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
Lorraine Olashaw, Lab Director

4.1.21
Date

7
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 223708

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No. 22 ST-1**

Temperature upon receipt (°C): 1.5

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
223708.01	System Influent	3/25/21	3/23/21 09:30	aqueous		Adheres to Sample Acceptance Policy
223708.02	System Mid	3/25/21	3/23/21 09:40	aqueous		Adheres to Sample Acceptance Policy
223708.03	LGAC Out	3/25/21	3/24/21 09:00	aqueous		Adheres to Sample Acceptance Policy
223708.04	LGAC Mid	3/25/21	3/24/21 09:05	aqueous		Adheres to Sample Acceptance Policy
223708.05	LGAC In	3/25/21	3/24/21 09:10	aqueous		Adheres to Sample Acceptance Policy
223708.06	7 Rennie Rd	3/25/21	3/24/21 11:20	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#: 223708

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No. 22 ST-1

Client Sample ID: System Influent
 Lab Sample ID: 223708.01
 Matrix: aqueous
 Date Sampled: 3/23/21
 Date Received: 3/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	29	2	10	ug/L	3/26/21 23:51	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	3/26/21 23:51	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/26/21 23:51	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 223708.02
 Matrix: aqueous
 Date Sampled: 3/23/21
 Date Received: 3/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	3/26/21 16:05	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	3/26/21 16:05	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/26/21 16:05	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 223708

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No. 22 ST-1

Client Sample ID: LGAC Out

Lab Sample ID: 223708.03

Matrix: aqueous

Date Sampled: 3/24/21

Date Received: 3/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.2	0.2	1	ug/L	3/26/21 16:36	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	3/26/21 16:36	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/26/21 16:36	8260B SIM	AM

Client Sample ID: LGAC Mid

Lab Sample ID: 223708.04

Matrix: aqueous

Date Sampled: 3/24/21

Date Received: 3/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	3/26/21 17:07	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	3/26/21 17:07	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	3/26/21 17:07	8260B SIM	AM

Client Sample ID: LGAC In

Lab Sample ID: 223708.05

Matrix: aqueous

Date Sampled: 3/24/21

Date Received: 3/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2100	100	500	ug/L	3/30/21 16:08	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	3/30/21 16:08	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	3/30/21 16:08	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 223708

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No. 22 ST-1

Client Sample ID: 7 Rennie Rd
Lab Sample ID: 223708.06
Matrix: aqueous
Date Sampled: 3/24/21
Date Received: 3/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	3/26/21 17:38	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	3/26/21 17:38	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	3/26/21 17:38	8260B SIM	AM



QC REPORT

EAI ID#: 223708

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637523-68358/A032621DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No. 22 ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.8 (96 %R)	5.4 (109 %R) (13 RPD)	3/26/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	103 %R	103 %R	3/26/2021	% Rec.	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	102 %R	101 %R	3/26/2021	% 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#: 223708

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637527-13931/A033021DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task No. 22 ST-1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.7 (94 %R)	4.7 (94 %R) (0 RPD)	3/30/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	103 %R	102 %R	3/30/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	102 %R	101 %R	3/30/2021	% 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.

CHAIN-OF-CUSTODY RECORD

Sample I.D.	Date/Time Sampled	Media	ANALYSIS REQUIRED																				Total # of Cont.	Notes
			Asph	Benz	Chloro	DCM	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl	Diethyl		
System Influent	3-23-21 9:30	GW																					2	
System Mid	3-23-21 9:40	GW																					2	
LGAC Out	3-24-21 9:00	GW																					2	
LGAC Mid	3-24-21 9:05	GW																					2	
LGAC In	3-24-21 9:10	GW																					2	
7 Benville Rd	3-24-21 11:20	DW																					2	
oe Jacobsen 3-25-21 12:20																								
Toys 3/25/21 1230																								
Project Manager: Jim Wieck																								
OEA OROENVIRONMENTAL, INC.																								
12 Commerce Park North, Suite 201 Bedford, New Hampshire 03110																								
TURNAROUND TIME: Standard Rush 5 Days																								
LAB USE: TEMP OF COOLER °C																								
OEA FILE NO: 040190030.02 TANK NO: 22 ST-1 PO NO: 26228																								
PROJECT: Benville Farm																								
LOCATION: Hanover NH.																								
COLLECTOR(S): RJJ																								
OEA FILE NO: 1 OF 1																								

NOTE: (Unless otherwise noted, all samples have been refrigerated at 4-14 °C) "Specify "Other" preservation and container type in this space.

1.5 °C

1-4-Dioxane Level



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 224317

Client Identification: Rennie Farm | 04.0190030.02 | Task No. 22 ST-1, Task 9

Date Received: 4/8/2021

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

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.

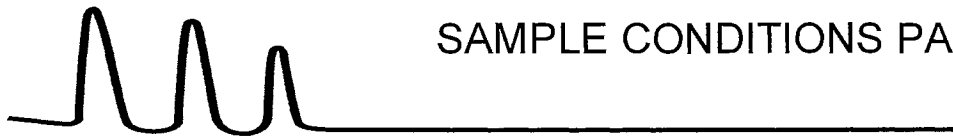
We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw
Lorraine Olashaw, Lab Director

4.14.21
Date

7
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 224317

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22 ST-1, Task 9**

Temperature upon receipt (°C): 3.8

Acceptable temperature range (°C): 0-6

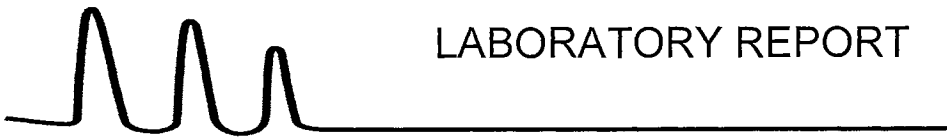
Received on ice or cold packs (Yes/No): Y

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
224317.01	System Influent	4/8/21	4/5/21 09:40	aqueous		Adheres to Sample Acceptance Policy
224317.02	System Mid	4/8/21	4/5/21 09:45	aqueous		Adheres to Sample Acceptance Policy
224317.03	LGAC IN	4/8/21	4/6/21 09:50	aqueous		Adheres to Sample Acceptance Policy
224317.04	LGAC Mid	4/8/21	4/6/21 09:45	aqueous		Adheres to Sample Acceptance Policy
224317.05	LGAC OUT	4/8/21	4/6/21 09:40	aqueous		Adheres to Sample Acceptance Policy
224317.06	44 Rennie Rd	4/8/21	4/6/21 12:50	aqueous		Adheres to Sample Acceptance Policy
224317.07	44 Rennie Rd Pond	4/8/21	4/6/21 12:40	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#: 224317

Client: **GZA GeoEnvironmental, Inc. (NH)**

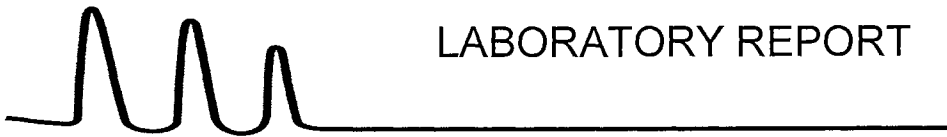
Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22 ST-1, Task 9**

Client Sample ID: System Influent
 Lab Sample ID: 224317.01
 Matrix: aqueous
 Date Sampled: 4/5/21
 Date Received: 4/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	7.7	2	10	ug/L	4/10/21 1:02	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	4/10/21 1:02	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	4/10/21 1:02	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 224317.02
 Matrix: aqueous
 Date Sampled: 4/5/21
 Date Received: 4/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	4/9/21 16:46	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	4/9/21 16:46	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/9/21 16:46	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 224317

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | Task No. 22 ST-1, Task 9

Client Sample ID: LGAC IN

Lab Sample ID: 224317.03

Matrix: aqueous

Date Sampled: 4/6/21

Date Received: 4/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1900	40	200	ug/L	4/10/21 1:33	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	4/10/21 1:33	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/10/21 1:33	8260B SIM	AM

Client Sample ID: LGAC Mid

Lab Sample ID: 224317.04

Matrix: aqueous

Date Sampled: 4/6/21

Date Received: 4/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2.3	0.2	1	ug/L	4/9/21 17:17	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	4/9/21 17:17	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/9/21 17:17	8260B SIM	AM

Client Sample ID: LGAC OUT

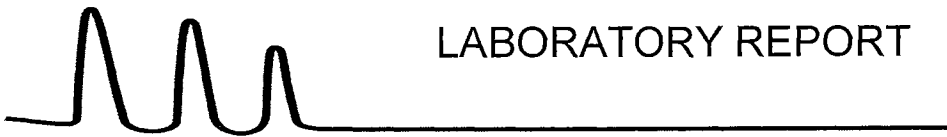
Lab Sample ID: 224317.05

Matrix: aqueous

Date Sampled: 4/6/21

Date Received: 4/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.82	0.2	1	ug/L	4/9/21 17:48	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	4/9/21 17:48	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/9/21 17:48	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 224317

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | Task No. 22 ST-1, Task 9

Client Sample ID: 44 Rennie Rd
 Lab Sample ID: 224317.06
 Matrix: aqueous
 Date Sampled: 4/6/21
 Date Received: 4/8/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	4/9/21	18:19	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	4/9/21	18:19	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/9/21	18:19	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 224317

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22 ST-1, Task 9**

Client Sample ID: 44 Rennie Rd Pond

Lab Sample ID: 224317.07

Matrix: aqueous

Date Sampled: 4/6/21

Date Received: 4/8/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
1,4-Dioxane	< 0.2	0.2	1	ug/L	4/9/21	18:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	4/9/21	18:50	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/9/21	18:50	8260B SIM	AM



QC REPORT

EAI ID#: **224317**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637535-80121/A040921DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22 ST-1, Task 9**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.6 (93 %R)	4.7 (95 %R) (2 RPD)	4/9/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	102 %R	104 %R	104 %R	4/9/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	102 %R	102 %R	4/9/2021	% Rec	70 - 130	50	8260B

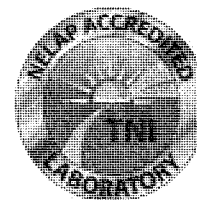
*! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 224593
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 4/13/2021

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.

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- > : "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

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

4.23.21
Date

30
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 224593

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 3.7

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)
224593.01	System Influent	4/13/21	4/13/21 12:00	aqueous		Adheres to Sample Acceptance Policy
224593.02	System Effluent	4/13/21	4/13/21 12:20	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#: 224593

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 224593.01
 Matrix: aqueous
 Date Sampled: 4/13/21
 Date Received: 4/13/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	4/14/21	4-Bromofluorobenzene (surr)	99 %R			4/14/21
Vinyl chloride	< 1	1	1	4/14/21	1,2-Dichlorobenzene-d4	99 %R			4/14/21
Bromomethane	< 2	2	1	4/14/21	Toluene-d8 (surr)	100 %R			4/14/21
Chloroethane	< 2	2	1	4/14/21					
Trichlorofluoromethane	< 2	2	1	4/14/21					
Acrolein	< 50	50	1	4/14/21					
Acetone	< 10	10	1	4/14/21					
1,1-Dichloroethene	< 0.5	0.5	1	4/14/21					
Methylene chloride	< 1	1	1	4/14/21					
Acrylonitrile	< 50	50	1	4/14/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	4/14/21					
trans-1,2-Dichloroethene	< 1	1	1	4/14/21					
Vinyl acetate	< 10	10	1	4/14/21					
1,1-Dichloroethane	< 1	1	1	4/14/21					
cis-1,2-Dichloroethene	< 1	1	1	4/14/21					
2-Butanone(MEK)	< 10	10	1	4/14/21					
Chloroform	< 1	1	1	4/14/21					
1,1,1-Trichloroethane	< 1	1	1	4/14/21					
Carbon tetrachloride	< 1	1	1	4/14/21					
Benzene	< 1	1	1	4/14/21					
1,2-Dichloroethane	< 1	1	1	4/14/21					
Trichloroethene	< 1	1	1	4/14/21					
1,2-Dichloropropane	< 1	1	1	4/14/21					
Bromodichloromethane	< 0.5	0.5	1	4/14/21					
2-Chloroethylvinylether	< 2	2	1	4/14/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	4/14/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	4/14/21					
Toluene	< 1	1	1	4/14/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	4/14/21					
1,1,2-Trichloroethane	< 1	1	1	4/14/21					
2-Hexanone	< 10	10	1	4/14/21					
Tetrachloroethene	< 1	1	1	4/14/21					
Dibromochloromethane	< 1	1	1	4/14/21					
Chlorobenzene	< 1	1	1	4/14/21					
Ethylbenzene	< 1	1	1	4/14/21					
mp-Xylene	< 1	1	1	4/14/21					
o-Xylene	< 1	1	1	4/14/21					
Styrene	< 1	1	1	4/14/21					
Bromoform	< 2	2	1	4/14/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	4/14/21					
1,3-Dichlorobenzene	< 1	1	1	4/14/21					
1,4-Dichlorobenzene	< 1	1	1	4/14/21					
1,2-Dichlorobenzene	< 1	1	1	4/14/21					



LABORATORY REPORT

EAI ID#: **224593**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 224593.02
 Matrix: aqueous
 Date Sampled: 4/13/21
 Date Received: 4/13/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	4/14/21	4-Bromofluorobenzene (surr)	100 %R			4/14/21
Vinyl chloride	< 1	1	1	4/14/21	1,2-Dichlorobenzene-d4	99 %R			4/14/21
Bromomethane	< 2	2	1	4/14/21	Toluene-d8 (surr)	99 %R			4/14/21
Chloroethane	< 2	2	1	4/14/21					
Trichlorofluoromethane	< 2	2	1	4/14/21					
Acrolein	< 50	50	1	4/14/21					
Acetone	< 10	10	1	4/14/21					
1,1-Dichloroethene	< 0.5	0.5	1	4/14/21					
Methylene chloride	< 1	1	1	4/14/21					
Acrylonitrile	< 50	50	1	4/14/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	4/14/21					
trans-1,2-Dichloroethene	< 1	1	1	4/14/21					
Vinyl acetate	< 10	10	1	4/14/21					
1,1-Dichloroethane	< 1	1	1	4/14/21					
cis-1,2-Dichloroethene	< 1	1	1	4/14/21					
2-Butanone(MEK)	< 10	10	1	4/14/21					
Chloroform	< 1	1	1	4/14/21					
1,1,1-Trichloroethane	< 1	1	1	4/14/21					
Carbon tetrachloride	< 1	1	1	4/14/21					
Benzene	< 1	1	1	4/14/21					
1,2-Dichloroethane	< 1	1	1	4/14/21					
Trichloroethene	< 1	1	1	4/14/21					
1,2-Dichloropropane	< 1	1	1	4/14/21					
Bromodichloromethane	< 0.5	0.5	1	4/14/21					
2-Chloroethylvinylether	< 2	2	1	4/14/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	4/14/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	4/14/21					
Toluene	< 1	1	1	4/14/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	4/14/21					
1,1,2-Trichloroethane	< 1	1	1	4/14/21					
2-Hexanone	< 10	10	1	4/14/21					
Tetrachloroethene	< 1	1	1	4/14/21					
Dibromochloromethane	< 1	1	1	4/14/21					
Chlorobenzene	< 1	1	1	4/14/21					
Ethylbenzene	< 1	1	1	4/14/21					
mp-Xylene	< 1	1	1	4/14/21					
o-Xylene	< 1	1	1	4/14/21					
Styrene	< 1	1	1	4/14/21					
Bromoform	< 2	2	1	4/14/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	4/14/21					
1,3-Dichlorobenzene	< 1	1	1	4/14/21					
1,4-Dichlorobenzene	< 1	1	1	4/14/21					
1,2-Dichlorobenzene	< 1	1	1	4/14/21					



QC REPORT

EAI ID#: 224593

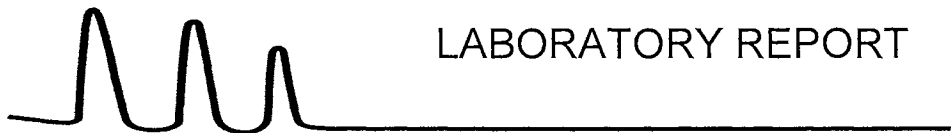
Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637539-35447/A041321V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	20 (98 %R)	19 (96 %R) (2 RPD)	4/13/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	22 (108 %R)	21 (107 %R) (0 RPD)	4/13/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	19 (97 %R)	20 (98 %R) (1 RPD)	4/13/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	18 (90 %R)	18 (90 %R) (0 RPD)	4/13/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	20 (99 %R)	20 (100 %R) (1 RPD)	4/13/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (109 %R)	< 50 (108 %R) (1 RPD)	4/13/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	20 (98 %R)	19 (96 %R) (2 RPD)	4/13/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	19 (97 %R)	19 (97 %R) (0 RPD)	4/13/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	18 (88 %R)	18 (88 %R) (0 RPD)	4/13/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (93 %R)	< 50 (92 %R) (1 RPD)	4/13/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	19 (95 %R)	19 (95 %R) (0 RPD)	4/13/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	20 (98 %R)	20 (98 %R) (0 RPD)	4/13/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	18 (90 %R)	18 (91 %R) (1 RPD)	4/13/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	19 (96 %R)	19 (96 %R) (1 RPD)	4/13/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	19 (95 %R)	19 (94 %R) (0 RPD)	4/13/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	19 (95 %R)	19 (94 %R) (1 RPD)	4/13/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	.36	17 (87 %R)	17 (87 %R) (0 RPD)	4/13/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	19 (96 %R)	19 (96 %R) (0 RPD)	4/13/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	19 (94 %R)	19 (95 %R) (1 RPD)	4/13/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	19 (97 %R)	19 (97 %R) (0 RPD)	4/13/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	19 (93 %R)	18 (92 %R) (1 RPD)	4/13/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	19 (95 %R)	19 (95 %R) (0 RPD)	4/13/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	19 (96 %R)	19 (96 %R) (0 RPD)	4/13/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	19 (97 %R)	19 (97 %R) (0 RPD)	4/13/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	20 (100 %R)	20 (100 %R) (0 RPD)	4/13/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	19 (95 %R)	19 (94 %R) (1 RPD)	4/13/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	19 (95 %R)	19 (94 %R) (0 RPD)	4/13/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	19 (97 %R)	19 (96 %R) (1 RPD)	4/13/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	20 (101 %R)	20 (99 %R) (2 RPD)	4/13/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	20 (98 %R)	19 (96 %R) (2 RPD)	4/13/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	19 (94 %R)	18 (91 %R) (4 RPD)	4/13/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	19 (97 %R)	19 (97 %R) (0 RPD)	4/13/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	20 (98 %R)	19 (96 %R) (1 RPD)	4/13/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	20 (98 %R)	19 (97 %R) (1 RPD)	4/13/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	20 (99 %R)	20 (98 %R) (1 RPD)	4/13/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	39 (97 %R)	38 (95 %R) (1 RPD)	4/13/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	20 (98 %R)	19 (97 %R) (1 RPD)	4/13/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	20 (100 %R)	20 (101 %R) (1 RPD)	4/13/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	20 (101 %R)	20 (99 %R) (2 RPD)	4/13/2021	ug/L	70 - 130	42	624.1
1,1,1,2-Tetrachloroethane	< 1	< .381	19 (96 %R)	18 (92 %R) (5 RPD)	4/13/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	20 (99 %R)	19 (96 %R) (3 RPD)	4/13/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	19 (97 %R)	19 (95 %R) (3 RPD)	4/13/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	20 (98 %R)	19 (96 %R) (3 RPD)	4/13/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	99 %R		99 %R	99 %R	4/13/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	98 %R		100 %R	100 %R	4/13/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	99 %R		101 %R	100 %R	4/13/2021	% Rec	70 - 130		624.1

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



LABORATORY REPORT

EAI ID#: 224593

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 224593.01
Matrix: aqueous
Date Sampled: 4/13/21
Date Received: 4/13/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
Phenol	< 1	1	1	ug/L	4/14/21	16:07	625.1	JMR
2-Fluorophenol (surr)	41 %R			%	4/14/21	16:07	625.1	JMR
Phenol-d6 (surr)	27 %R			%	4/14/21	16:07	625.1	JMR
2,4,6-Tribromophenol (surr)	69 %R			%	4/14/21	16:07	625.1	JMR



LABORATORY REPORT

EAI ID#: **224593**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 224593.02
Matrix: aqueous
Date Sampled: 4/13/21
Date Received: 4/13/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	4/14/21 16:30	625.1	JMR
2-Fluorophenol (surr)	46 %R			%	4/14/21 16:30	625.1	JMR
Phenol-d6 (surr)	30 %R			%	4/14/21 16:30	625.1	JMR
2,4,6-Tribromophenol (surr)	72 %R			%	4/14/21 16:30	625.1	JMR



QC REPORT

EAI ID#: 224593

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637539-84373/A041421E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	19 (78 %R)	20 (81 %R) (5 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	14 (28 %R)	15 (30 %R) (7 RPD)	4/14/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	30 (60 %R)	33 (67 %R) (10 RPD)	4/14/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	34 (68 %R)	36 (72 %R) (6 RPD)	4/14/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	36 (72 %R)	37 (74 %R) (2 RPD)	4/14/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	36 (72 %R)	37 (75 %R) (3 RPD)	4/14/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	32 (65 %R)	34 (67 %R) (4 RPD)	4/14/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	36 (72 %R)	39 (78 %R) (9 RPD)	4/14/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	16 (32 %R)	17 (33 %R) (2 RPD)	4/14/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	37 (73 %R)	39 (77 %R) (5 RPD)	4/14/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	29 (58 %R)	32 (63 %R) (8 RPD)	4/14/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	28 (57 %R)	30 (61 %R) (7 RPD)	4/14/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	34 (68 %R)	36 (71 %R) (5 RPD)	4/14/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	36 (72 %R)	37 (74 %R) (3 RPD)	4/14/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	46 (92 %R)	47 (94 %R) (2 RPD)	4/14/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (15 %R)	< 50 (16 %R) (6 RPD)	4/14/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	11 (44 %R)	12 (48 %R) (10 RPD)	4/14/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	18 (71 %R)	19 (76 %R) (7 RPD)	4/14/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	20 (82 %R)	21 (83 %R) (1 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	16 (64 %R)	18 (71 %R) (11 RPD)	4/14/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	16 (64 %R)	18 (71 %R) (11 RPD)	4/14/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	18 (72 %R)	19 (76 %R) (6 RPD)	4/14/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	14 (56 %R)	16 (63 %R) (12 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	17 (69 %R)	19 (75 %R) (8 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	14 (56 %R)	16 (63 %R) (12 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	14 (57 %R)	16 (64 %R) (11 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	15 (62 %R)	17 (68 %R) (9 RPD)	4/14/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	18 (72 %R)	19 (76 %R) (5 RPD)	4/14/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	20 (78 %R)	20 (79 %R) (1 RPD)	4/14/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	21 (82 %R)	21 (83 %R) (1 RPD)	4/14/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	14 (58 %R)	16 (66 %R) (13 RPD)	4/14/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	15 (61 %R)	17 (67 %R) (10 RPD)	4/14/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	14 (56 %R)	15 (61 %R) (8 RPD)	4/14/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	21 (83 %R)	21 (83 %R) (1 RPD)	4/14/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	19 (75 %R)	20 (78 %R) (4 RPD)	4/14/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	19 (76 %R)	20 (79 %R) (3 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	23 (91 %R)	23 (91 %R) (0 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	21 (83 %R)	21 (83 %R) (0 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	21 (84 %R)	21 (84 %R) (0 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	16 (63 %R)	17 (68 %R) (8 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	17 (68 %R)	18 (73 %R) (7 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	17 (70 %R)	19 (75 %R) (8 RPD)	4/14/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	20 (79 %R)	20 (82 %R) (4 RPD)	4/14/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	21 (84 %R)	21 (85 %R) (0 RPD)	4/14/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	21 (85 %R)	21 (85 %R) (1 RPD)	4/14/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	17 (70 %R)	19 (74 %R) (6 RPD)	4/14/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: **224593**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637539-84373/A041421E6251

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	21 (83 %R)	21 (84 %R) (1 RPD)	4/14/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	12 (50 %R)	14 (54 %R) (9 RPD)	4/14/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	22 (86 %R)	22 (88 %R) (2 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	20 (82 %R)	20 (82 %R) (0 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	20 (81 %R)	20 (81 %R) (0 RPD)	4/14/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	22 (87 %R)	22 (87 %R) (1 RPD)	4/14/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	23 (91 %R)	23 (92 %R) (1 RPD)	4/14/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	24 (95 %R)	24 (96 %R) (1 RPD)	4/14/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	23 (93 %R)	23 (93 %R) (1 RPD)	4/14/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	24 (98 %R)	24 (98 %R) (0 RPD)	4/14/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	19 (75 %R)	19 (76 %R) (1 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	16 (64 %R)	17 (69 %R) (8 RPD)	4/14/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	17 (67 %R)	18 (71 %R) (7 RPD)	4/14/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	17 (68 %R)	18 (72 %R) (7 RPD)	4/14/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	18 (74 %R)	19 (76 %R) (3 RPD)	4/14/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	19 (75 %R)	19 (78 %R) (3 RPD)	4/14/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	19 (74 %R)	19 (75 %R) (1 RPD)	4/14/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	19 (76 %R)	19 (77 %R) (1 RPD)	4/14/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	19 (76 %R)	19 (77 %R) (1 RPD)	4/14/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	19 (74 %R)	19 (75 %R) (1 RPD)	4/14/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	19 (76 %R)	19 (76 %R) (0 RPD)	4/14/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	20 (78 %R)	20 (79 %R) (1 RPD)	4/14/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	19 (76 %R)	19 (77 %R) (1 RPD)	4/14/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	20 (80 %R)	20 (80 %R) (0 RPD)	4/14/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	19 (77 %R)	19 (77 %R) (0 RPD)	4/14/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	19 (74 %R)	18 (74 %R) (1 RPD)	4/14/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	19 (77 %R)	19 (77 %R) (0 RPD)	4/14/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	18 (73 %R)	18 (73 %R) (0 RPD)	4/14/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	18 (73 %R)	18 (72 %R) (0 RPD)	4/14/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	13 (53 %R)	15 (59 %R) (11 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	23 (91 %R)	23 (93 %R) (1 RPD)	4/14/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	41 %R		37 %R	41 %R	4/14/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	29 %R		27 %R	29 %R	4/14/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	79 %R		81 %R	81 %R	4/14/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	79 %R		70 %R	76 %R	4/14/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	78 %R		71 %R	75 %R	4/14/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	82 %R		82 %R	82 %R	4/14/2021	% Rec	30 - 130		625.1

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

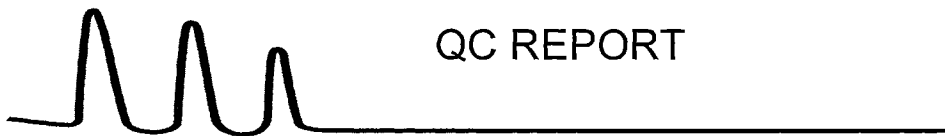


LABORATORY REPORT

EAI ID#: 224593

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID:	System Influent	System Effluent						
Lab Sample ID:	224593.01	224593.02						
Matrix:	aqueous	aqueous						
Date Sampled:	4/13/21	4/13/21						
Date Received:	4/13/21	4/13/21						
			RL	Units	Analysis		Method	Analyst
Solids Suspended	< 5	< 5	5	mg/L	4/15/21 14:50	2540D-11	KJD	
Chloride	3500	3600	1000	ug/L	4/14/21 11:18	4500CIE-11	ATA	
Cyanide Total	7.6	< 5	5	ug/L	4/15/21 9:46	ASTM D7511-09	ATA	
Cyanide Free	< 5	< 5	5	ug/L	4/16/21 11:51	OIA-1677-09	KD	
Ammonia-N	< 0.05	< 0.05	0.05	mg/L	4/15/21 10:10	TM NH3-001	SEL	



QC REPORT

EAI ID#: 224593

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	92 (98 %R)	94 (100 %R) (2 RPD)	mg/L	4/15/21	90 - 110	20	2540D-11
Chloride	< 1000	25000 (100 %R)	24000 (96 %R) (3 RPD)	ug/L	4/14/21	90 - 110	20	4500CIE-11
Cyanide Total	< 5	100 (102 %R)	100 (103 %R) (2 RPD)	ug/L	4/15/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	250 (99 %R)	290 (116 %R) (16 RPD)	ug/L	4/16/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	2.0 (98 %R)	1.9 (97 %R) (2 RPD)	mg/L	4/15/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: 224593

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Sample ID: System Influent System Effluent

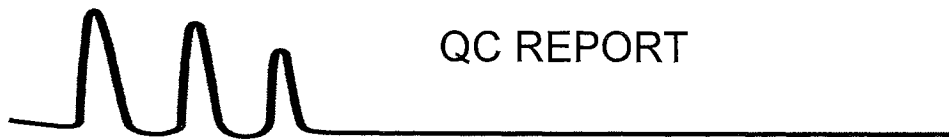
Lab Sample ID: 224593.01 224593.02

Matrix: aqueous aqueous

Date Sampled: 4/13/21 4/13/21

Date Received: 4/13/21 4/13/21

			Analytical			Analysis			
			RL	Matrix	Units	Date	Method	Analyst	
Chromium (VI)	< 10	< 10	10	AqTot	ug/L	4/14/21	7196A	HEH	
Antimony	< 0.5	< 0.5	0.5	AqTot	ug/L	4/14/21	200.8	DS	
Arsenic	< 0.5	< 0.5	0.5	AqTot	ug/L	4/14/21	200.8	DS	
Cadmium	< 0.1	< 0.1	0.1	AqTot	ug/L	4/14/21	200.8	DS	
Chromium	< 0.5	< 0.5	0.5	AqTot	ug/L	4/14/21	200.8	DS	
Chromium (III)	< 10	< 10	10	AqTot	ug/L	4/14/21	200.8	DS	
Copper	1.2	0.17	0.1	AqTot	ug/L	4/14/21	200.8	DS	
Iron	1400	< 50	50	AqTot	ug/L	4/14/21	200.8	DS	
Lead	< 0.1	< 0.1	0.1	AqTot	ug/L	4/14/21	200.8	DS	
Mercury	< 0.1	< 0.1	0.1	AqTot	ug/L	4/14/21	200.8	DS	
Nickel	1.1	0.56	0.1	AqTot	ug/L	4/14/21	200.8	DS	
Selenium	< 0.5	< 0.5	0.5	AqTot	ug/L	4/14/21	200.8	DS	
Silver	< 0.1	< 0.1	0.1	AqTot	ug/L	4/14/21	200.8	DS	
Zinc	2.2	1.5	1	AqTot	ug/L	4/14/21	200.8	DS	



QC REPORT

EAI ID#: 224593

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.2 (115 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.0 (104 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.1 (106 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (108 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Copper	< 0.0001	1.0 (105 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Iron	< 0.05	11 (104 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (106 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (110 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (104 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Selenium	< 0.0005	1.1 (112 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Silver	< 0.0001	0.011 (111 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Zinc	< 0.001	1.0 (104 %R)	NA	mg/L	4/14/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (95 %R)	NA	mg/L	4/14/21	85 - 115	20	7196A

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

April 21, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 224593 4/13
Pace Project No.: 70169447

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on April 16, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 224593 4/13
Pace Project No.: 70169447

Pace Analytical Services Long Island

Virginia Certification # 460302

Delaware Certification # NY10478

Delaware Certification # NY10478

575 Broad Hollow Rd, Melville, NY 11747

New York Certification #: 10478 Primary Accrediting Body

New Jersey Certification #: NY158

Pennsylvania Certification #: 68-00350

Connecticut Certification #: PH-0435

Maryland Certification #: 208

Rhode Island Certification #: LAO00340

Massachusetts Certification #: M-NY026

New Hampshire Certification #: 2987

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 224593 4/13

Pace Project No.: 70169447

Sample: SYSTEM INFLUENT		Lab ID: 70169447001	Collected: 04/13/21 12:00	Received: 04/16/21 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville								
Acetone	<0.010	mg/L	0.010	1		04/19/21 13:16	67-64-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	92	%	78-114	1		04/19/21 13:16	17060-07-0		
4-Bromofluorobenzene (S)	88	%	83-111	1		04/19/21 13:16	460-00-4		
Toluene-d8 (S)	99	%	80-131	1		04/19/21 13:16	2037-26-5		

REPORT OF LABORATORY ANALYSIS

Date: 04/21/2021 03:29 PM

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Page 3 of 9

ANALYTICAL RESULTS

Project: 224593 4/13
Pace Project No.: 70169447

Sample: SYSTEM EFFLUENT		Lab ID: 70169447002	Collected: 04/13/21 12:20	Received: 04/16/21 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		04/19/21 12:54	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	92	%	78-114	1		04/19/21 12:54	17060-07-0	
4-Bromofluorobenzene (S)	88	%	83-111	1		04/19/21 12:54	460-00-4	
Toluene-d8 (S)	100	%	80-131	1		04/19/21 12:54	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 224593 4/13
Pace Project No.: 70169447

QC Batch: 204314	Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B	Analysis Description: 1624B MSV
	Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70169447001, 70169447002

METHOD BLANK: 1008394 Matrix: Water
Associated Lab Samples: 70169447001, 70169447002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	04/19/21 12:09	
1,2-Dichloroethane-d4 (S)	%	90	78-114	04/19/21 12:09	
4-Bromofluorobenzene (S)	%	92	83-111	04/19/21 12:09	
Toluene-d8 (S)	%	99	80-131	04/19/21 12:09	

LABORATORY CONTROL SAMPLE: 1008395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.059	118	20-200	
1,2-Dichloroethane-d4 (S)	%			83	78-114	
4-Bromofluorobenzene (S)	%			88	83-111	
Toluene-d8 (S)	%			92	80-131	

SAMPLE DUPLICATE: 1013113

Parameter	Units	70169341001 Result	Dup Result	RPD	Qualifiers
Acetone	mg/L	5750 ug/L	6.5	13	
1,2-Dichloroethane-d4 (S)	%	94	88		
4-Bromofluorobenzene (S)	%	83	87		
Toluene-d8 (S)	%	98	98		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 224593 4/13
Pace Project No.: 70169447

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 224593 4/13
Pace Project No.: 70169447

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70169447001	SYSTEM INFLUENT	EPA 1624B	204314		
70169447002	SYSTEM EFFLUENT	EPA 1624B	204314		

REPORT OF LABORATORY ANALYSIS

CHAIN-OF-CUST

WO#: 70169447



70169447

EAI ID# 224593

Page 1

Sample ID	Date Sampled	Matrix	Sample Notes
System Influent	4/13/2021 12:00	aqueous	Subcontract - EPA Method 1624 Isotope Dilution
System Effluent	4/13/2021 12:20	aqueous	Subcontract - EPA Method 1624 Isotope Dilution

EAI ID# 224593

Project State: NH

Project ID: 4965

Company PACE ANALYTICAL
 Address 575 BROAD HOLLOW ROAD
 Address MELVILLE, NY 11747
 Account #
 Phone # (631)694-3040

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.

1624 VOC Acetone Only

PO #: 54700

EAI ID# 224593

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Ch... 4/15/21 16:30 UPS

Relinquished by Date/Time Received by

Relinquished by Date/Time Received by

M... 4/16/21
... 4:50

Eastern Analytical, Inc. 25 Chenell Dr. 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



Sample Condition Upon Receipt

Client Name: Eastern Analytical

WO#: **70169447**
 PM: **KMM**
 CLIENT: **EASTA**
 Due Date: **04/23/21**

Courier: Fed Ex UPS USPS Client Commercial Pace Other
 Tracking #: 1Z X46 599 01 9305 0785
 Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No
 Packing Material: Bubble Wrap Bubble Bags Ziploc None Other
 Thermometer Used: TH091 Correction Factor: +0.0
 Cooler Temperature(°C): 4.0 Cooler Temperature Corrected(°C): 4.0
 Temp should be above freezing to 6.0°C
 USDA Regulated Soil (N/A, water sample)

Temperature Blank Present: Yes No
 Type of Ice: Wet Blue None
 Samples on ice, cooling process has begun
 Date/Time 5035A kits placed in freezer

Date and Initials of person examining contents: M84/16/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No
 Did samples originate from a foreign source including Hawaii and Puerto Rico)? Yes No
 If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: <u>SL (W) OIL</u>		
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #		Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NAOH>12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis		Initial when completed: Lot # of added preservative: Date/Time preservative added:
Samples checked for dechlorination: KI starch test strips Lot # Residual chlorine strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
SM 4500 CN samples checked for sulfide? Lead Acetate Strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # [if applicable]:		

Client Notification/ Resolution: _____ Field Data Required? Y / N
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____



Thursday, April 22, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 224593
SDG ID: GCI10416
Sample ID#s: CI10416 - CI10417

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in black ink that reads "Phyllis Shiller". The signature is written in a cursive style.

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

April 22, 2021

SDG I.D.: GCI10416

Project ID: 224593

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CI10416	WATER
SYSTEM EFFLUENT	CI10417	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

April 22, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: 72 Hour
 P.O.#: 54699

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 04/13/21 12:00
 04/16/21 15:15

Laboratory Data

SDG ID: GCI10416
 Phoenix ID: CI10416

Project ID: 224593
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	20	0.20	ug/l	1	04/21/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	76		%	1	04/21/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				04/20/21	G/G	EPA522

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:

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

April 22, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

April 22, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: 72 Hour
 P.O.#: 54699

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 04/13/21 12:20
 04/16/21 15:15

Laboratory Data

SDG ID: GCI10416
 Phoenix ID: CI10417

Project ID: 224593
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	04/21/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	80		%	1	04/21/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				04/20/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

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Phyllis Shiller, Laboratory Director

April 22, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045

Tel. (860) 645-1102

Fax (860) 645-0823



QA/QC Report

April 22, 2021

QA/QC Data

SDG I.D.: GCI10416

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 571793 (ug/l), QC Sample No: CH99388 (CI10416, CI10417)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	106	97	8.9	93			70 - 130	20
% 1,4-dioxane-d8	83	%	82	75	8.9	77			70 - 130	20

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

April 22, 2021

Thursday, April 22, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCI10416 - EASTANAL-NH

27

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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance 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

April 22, 2021

SDG I.D.: GCI10416

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

WC
IRK
1.5

EAI ID# **224593**

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	4/13/2021 12:00	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	10416
System Effluent	4/13/2021 12:20	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	10417

EAI ID# **224593** Project State: NH
Project ID: 4965
Company Phoenix Environmental Labs
Address 587 East Middle Turnpike
Address Manchester, CT 06040
Account #
Phone # (860) 645-1102

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.

ASAP without surcharge

PO #: 54699 EAI ID# **224593**

Data Deliverable (circle)
Excel NH EMD EQUIS ME EGAD

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

Sample Collected by: 4-16-2021
[Signature] @ 1130 *[Signature]*

Relinquished by: *[Signature]* Date/Time: 4-16-21 @ 11:35 Received by: *[Signature]*

Relinquished by: *[Signature]* Date/Time: Kristal Hall 4/16/21 1515 Received by: customerservice@easternanalytical.com

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525

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



Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers
System Influent	4-13-21 12:00	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCL</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 <u>ICE</u>		Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	12:20 4/13/21	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCL</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 ICE		Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date 5 Day
Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options
 HC NO FAX PO# verbal
 EDD PDF Partial FAX Quote#:
 EDD email PDF Invoice Temp 3.7 °C
 PDF prelim, NO FAX EQUIS Ice Y N
 e-mail Login Confirmation

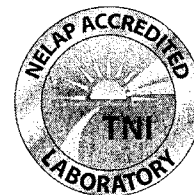
Samples Collected by: AVJ
at Jacobson 4-13-21
 Relinquished by Foye Date/Time 4/13/21 1530 Received by [Signature]
 Relinquished by _____ Date/Time _____ Received by _____



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 224748
Client Identification: Rennie Farm | 04.0190030.02 | Task No. 22, ST-1
Date Received: 4/15/2021

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

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

4-21-21
Date

6
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 224748

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | Task No. 22, ST-1

Temperature upon receipt (°C): 3.9

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
224748.01	System Influent	4/15/21	4/14/21 11:15	aqueous		Adheres to Sample Acceptance Policy
224748.02	System Mid	4/15/21	4/14/21 11:20	aqueous		Adheres to Sample Acceptance Policy
224748.03	LGAC Out	4/15/21	4/15/21 09:50	aqueous		Adheres to Sample Acceptance Policy
224748.04	LGAC Mid	4/15/21	4/15/21 09:53	aqueous		Adheres to Sample Acceptance Policy
224748.05	LGAC In	4/15/21	4/15/21 09:56	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#: 224748

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22, ST-1**

Client Sample ID: System Influent
Lab Sample ID: 224748.01
Matrix: aqueous
Date Sampled: 4/14/21
Date Received: 4/15/21

	Result	Dilution		Units	Date / Time Analyzed	Method	Analyst
		RL	Factor				
1,4-Dioxane	15	2	10	ug/L	4/16/21 21:04	8260B SIM	AM
4-Bromofluorobenzene (surr)	106 %R			%	4/16/21 21:04	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	4/16/21 21:04	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 224748.02
Matrix: aqueous
Date Sampled: 4/14/21
Date Received: 4/15/21

	Result	Dilution		Units	Date / Time Analyzed	Method	Analyst
		RL	Factor				
1,4-Dioxane	< 0.2	0.2	1	ug/L	4/16/21 14:20	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	4/16/21 14:20	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/16/21 14:20	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **224748**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22, ST-1**

Client Sample ID: LGAC Out
 Lab Sample ID: 224748.03
 Matrix: aqueous
 Date Sampled: 4/15/21
 Date Received: 4/15/21

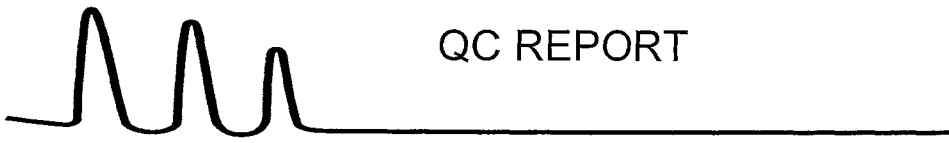
	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.70	0.2	1	ug/L	4/16/21 14:51	8260B SIM	AM
4-Bromofluorobenzene (surr)	105 %R			%	4/16/21 14:51	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	4/16/21 14:51	8260B SIM	AM

Client Sample ID: LGAC Mid
 Lab Sample ID: 224748.04
 Matrix: aqueous
 Date Sampled: 4/15/21
 Date Received: 4/15/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	280	40	200	ug/L	4/19/21 16:39	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	4/19/21 16:39	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	4/19/21 16:39	8260B SIM	AM

Client Sample ID: LGAC In
 Lab Sample ID: 224748.05
 Matrix: aqueous
 Date Sampled: 4/15/21
 Date Received: 4/15/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1100	100	500	ug/L	4/16/21 21:35	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	4/16/21 21:35	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	4/16/21 21:35	8260B SIM	AM



QC REPORT

EAI ID#: 224748

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22, ST-1**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.5 (90 %R)	4.3 (86 %R) (5 RPD)	ug/L	4/16/21	70 - 130	20	8260B SIM
4-Bromofluorobenzene (surr)	104 %R	104 %R	104 %R	% Rec	4/16/21	70 - 130	50	8260B SIM
Toluene-d8 (surr)	103 %R	103 %R	103 %R	% Rec	4/16/21	70 - 130	50	8260B SIM

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



QC REPORT

EAI ID#: **224748**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | Task No. 22, ST-1**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.4 (88 %R)	4.3 (86 %R) (3 RPD)	ug/L	4/19/21	70 - 130	20	8260B SIM
4-Bromofluorobenzene (surr)	103 %R	103 %R	104 %R	% Rec	4/19/21	70 - 130	50	8260B SIM
Toluene-d8 (surr)	103 %R	103 %R	103 %R	% Rec	4/19/21	70 - 130	50	8260B SIM

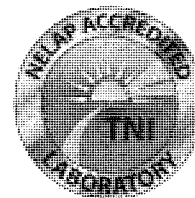
*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 225431
Client Identification: Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9
Date Received: 4/29/2021

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.

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References:

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- 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

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

5.6.21
Date

8
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 225431

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9**

Temperature upon receipt (°C): 4.1

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
225431.01	System Influent	4/29/21	4/28/21 10:25	aqueous		Adheres to Sample Acceptance Policy
225431.02	System Mid	4/29/21	4/28/21 10:30	aqueous		Adheres to Sample Acceptance Policy
225431.03	LGAC In	4/29/21	4/29/21 09:41	aqueous		Adheres to Sample Acceptance Policy
225431.04	LGAC Mid	4/29/21	4/29/21 09:38	aqueous		Adheres to Sample Acceptance Policy
225431.05	LGAC Out	4/29/21	4/29/21 09:35	aqueous		Adheres to Sample Acceptance Policy
225431.06	9 Rennie Rd	4/29/21	4/29/21 11:30	aqueous		Adheres to Sample Acceptance Policy
225431.07	7 Rennie Rd	4/29/21	4/29/21 10:50	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#: 225431

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9

Client Sample ID: System Influent
 Lab Sample ID: 225431.01
 Matrix: aqueous
 Date Sampled: 4/28/21
 Date Received: 4/29/21
 Time Sampled: 10:25

	Result	RL	Dilution Factor	Analytical Matrix	Units	Date Analyzed	Time Analyzed	Method	Analyst
1,4-Dioxane	36	2	10	AqTot	ug/L	5/1/21	10:55	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			AqTot	%	5/1/21	10:55	8260B SIM	AM
Toluene-d8 (surr)	99 %R			AqTot	%	5/1/21	10:55	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 225431.02
 Matrix: aqueous
 Date Sampled: 4/28/21
 Date Received: 4/29/21
 Time Sampled: 10:30

	Result	RL	Dilution Factor	Analytical Matrix	Units	Date Analyzed	Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	AqTot	ug/L	5/1/21	3:08	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			AqTot	%	5/1/21	3:08	8260B SIM	AM
Toluene-d8 (surr)	100 %R			AqTot	%	5/1/21	3:08	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 225431

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9

Client Sample ID: LGAC In
 Lab Sample ID: 225431.03
 Matrix: aqueous
 Date Sampled: 4/29/21
 Date Received: 4/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1800	100	500	ug/L	5/1/21 11:57	8260B SIM	AM
4-Bromofluorobenzene (surr)	94 %R			%	5/1/21 11:57	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	5/1/21 11:57	8260B SIM	AM

Client Sample ID: LGAC Mid
 Lab Sample ID: 225431.04
 Matrix: aqueous
 Date Sampled: 4/29/21
 Date Received: 4/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.59	0.2	1	ug/L	5/2/21 13:18	8260B SIM	AM
4-Bromofluorobenzene (surr)	94 %R			%	5/2/21 13:18	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	5/2/21 13:18	8260B SIM	AM

Client Sample ID: LGAC Out
 Lab Sample ID: 225431.05
 Matrix: aqueous
 Date Sampled: 4/29/21
 Date Received: 4/29/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.1	0.2	1	ug/L	5/1/21 3:39	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	5/1/21 3:39	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/1/21 3:39	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 225431

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9**

Client Sample ID: 9 Rennie Rd
Lab Sample ID: 225431.06
Matrix: aqueous
Date Sampled: 4/29/21
Date Received: 4/29/21
Time Sampled: 11:30

	Result	RL	Dilution Factor	Analytical Matrix	Units	Date Analyzed	Time Analyzed	Method	Analyst
1,4-Dioxane	12	0.2	1	AqTot	ug/L	5/1/21	4:10	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			AqTot	%	5/1/21	4:10	8260B SIM	AM
Toluene-d8 (surr)	101 %R			AqTot	%	5/1/21	4:10	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 225431

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9**

Client Sample ID: 7 Rennie Rd
 Lab Sample ID: 225431.07
 Matrix: aqueous
 Date Sampled: 4/29/21
 Date Received: 4/29/21
 Time Sampled: 10:50

	Result	RL	Dilution Factor	Analytical Matrix	Units	Date Analyzed	Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	AqTot	ug/L	5/1/21	4:41	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			AqTot	%	5/1/21	4:41	8260B SIM	AM
Toluene-d8 (surr)	100 %R			AqTot	%	5/1/21	4:41	8260B SIM	AM



QC REPORT

EAI ID#: **225431**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637555-38490/A043021DIOX2

Client Designation: **Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.6 (92 %R)	4.7 (95 %R) (3 RPD)	5/1/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	99 %R	100 %R	99 %R	5/1/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	100 %R	100 %R	5/1/2021	% 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#: 225431

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637556-41207/A050221DIOX1

Client Designation: Rennie Farm | 04.0190030.02 | #1, Task 22, Subtask 1 | #2, Task 9

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.7 (95 %R)	4.5 (90 %R) (5 RPD)	5/2/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	94 %R	95 %R	95 %R	5/2/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	99 %R	99 %R	5/2/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 225980
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 5/10/2021

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

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.

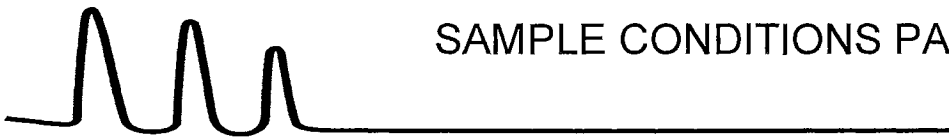
We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,


Lorraine Olashaw, Lab Director

5.21.21
Date

30
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 225980

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 3.2

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
225980.01	System Influent	5/10/21	5/10/21 12:15	aqueous		Adheres to Sample Acceptance Policy
225980.02	System Effluent	5/10/21	5/10/21 12:05	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#: 225980

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 225980.01
 Matrix: aqueous
 Date Sampled: 5/10/21
 Date Received: 5/10/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution RL	Date Factor	Analyzed		Result	Dilution RL	Date Factor	Analyzed
Chloromethane	< 2	2	1	5/10/21	4-Bromofluorobenzene (surr)	103 %R			5/10/21
Vinyl chloride	< 1	1	1	5/10/21	1,2-Dichlorobenzene-d4	99 %R			5/10/21
Bromomethane	< 2	2	1	5/10/21	Toluene-d8 (surr)	98 %R			5/10/21
Chloroethane	< 2	2	1	5/10/21					
Trichlorofluoromethane	< 2	2	1	5/10/21					
Acrolein	< 50	50	1	5/10/21					
Acetone	< 10	10	1	5/10/21					
1,1-Dichloroethene	< 0.5	0.5	1	5/10/21					
Methylene chloride	< 1	1	1	5/10/21					
Acrylonitrile	< 50	50	1	5/10/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	5/10/21					
trans-1,2-Dichloroethene	< 1	1	1	5/10/21					
Vinyl acetate	< 10	10	1	5/10/21					
1,1-Dichloroethane	< 1	1	1	5/10/21					
cis-1,2-Dichloroethene	< 1	1	1	5/10/21					
2-Butanone(MEK)	< 10	10	1	5/10/21					
Chloroform	< 1	1	1	5/10/21					
1,1,1-Trichloroethane	< 1	1	1	5/10/21					
Carbon tetrachloride	< 1	1	1	5/10/21					
Benzene	< 1	1	1	5/10/21					
1,2-Dichloroethane	< 1	1	1	5/10/21					
Trichloroethene	< 1	1	1	5/10/21					
1,2-Dichloropropane	< 1	1	1	5/10/21					
Bromodichloromethane	< 0.5	0.5	1	5/10/21					
2-Chloroethylvinylether	< 2	2	1	5/10/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	5/10/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	5/10/21					
Toluene	< 1	1	1	5/10/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	5/10/21					
1,1,2-Trichloroethane	< 1	1	1	5/10/21					
2-Hexanone	< 10	10	1	5/10/21					
Tetrachloroethene	< 1	1	1	5/10/21					
Dibromochloromethane	< 1	1	1	5/10/21					
Chlorobenzene	< 1	1	1	5/10/21					
Ethylbenzene	< 1	1	1	5/10/21					
mp-Xylene	< 1	1	1	5/10/21					
o-Xylene	< 1	1	1	5/10/21					
Styrene	< 1	1	1	5/10/21					
Bromoform	< 2	2	1	5/10/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	5/10/21					
1,3-Dichlorobenzene	< 1	1	1	5/10/21					
1,4-Dichlorobenzene	< 1	1	1	5/10/21					
1,2-Dichlorobenzene	< 1	1	1	5/10/21					



LABORATORY REPORT

EAI ID#: 225980

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent

Date of Preparation:

Lab Sample ID: 225980.02

Method: 624.1

Matrix: aqueous

Analyst: SG

Date Sampled: 5/10/21

Units: ug/L

Date Received: 5/10/21

	Result	Dilution			Date Analyzed		Result	Dilution			Date Analyzed
		RL	Factor					RL	Factor		
Chloromethane	< 2	2	1	5/10/21	4-Bromofluorobenzene (surr)	104 %R				5/10/21	
Vinyl chloride	< 1	1	1	5/10/21	1,2-Dichlorobenzene-d4	99 %R				5/10/21	
Bromomethane	< 2	2	1	5/10/21	Toluene-d8 (surr)	99 %R				5/10/21	
Chloroethane	< 2	2	1	5/10/21							
Trichlorofluoromethane	< 2	2	1	5/10/21							
Acrolein	< 50	50	1	5/10/21							
Acetone	< 10	10	1	5/10/21							
1,1-Dichloroethene	< 0.5	0.5	1	5/10/21							
Methylene chloride	< 1	1	1	5/10/21							
Acrylonitrile	< 50	50	1	5/10/21							
Methyl-t-butyl ether(MTBE)	< 1	1	1	5/10/21							
trans-1,2-Dichloroethene	< 1	1	1	5/10/21							
Vinyl acetate	< 10	10	1	5/10/21							
1,1-Dichloroethane	< 1	1	1	5/10/21							
cis-1,2-Dichloroethene	< 1	1	1	5/10/21							
2-Butanone(MEK)	< 10	10	1	5/10/21							
Chloroform	< 1	1	1	5/10/21							
1,1,1-Trichloroethane	< 1	1	1	5/10/21							
Carbon tetrachloride	< 1	1	1	5/10/21							
Benzene	< 1	1	1	5/10/21							
1,2-Dichloroethane	< 1	1	1	5/10/21							
Trichloroethene	< 1	1	1	5/10/21							
1,2-Dichloropropane	< 1	1	1	5/10/21							
Bromodichloromethane	< 0.5	0.5	1	5/10/21							
2-Chloroethylvinylether	< 2	2	1	5/10/21							
4-Methyl-2-pentanone(MIBK)	< 10	10	1	5/10/21							
cis-1,3-Dichloropropene	< 0.5	0.5	1	5/10/21							
Toluene	< 1	1	1	5/10/21							
trans-1,3-Dichloropropene	< 0.5	0.5	1	5/10/21							
1,1,2-Trichloroethane	< 1	1	1	5/10/21							
2-Hexanone	< 10	10	1	5/10/21							
Tetrachloroethene	< 1	1	1	5/10/21							
Dibromochloromethane	< 1	1	1	5/10/21							
Chlorobenzene	< 1	1	1	5/10/21							
Ethylbenzene	< 1	1	1	5/10/21							
mp-Xylene	< 1	1	1	5/10/21							
o-Xylene	< 1	1	1	5/10/21							
Styrene	< 1	1	1	5/10/21							
Bromoform	< 2	2	1	5/10/21							
1,1,2,2-Tetrachloroethane	< 1	1	1	5/10/21							
1,3-Dichlorobenzene	< 1	1	1	5/10/21							
1,4-Dichlorobenzene	< 1	1	1	5/10/21							
1,2-Dichlorobenzene	< 1	1	1	5/10/21							



QC REPORT

EAI ID#: 225980

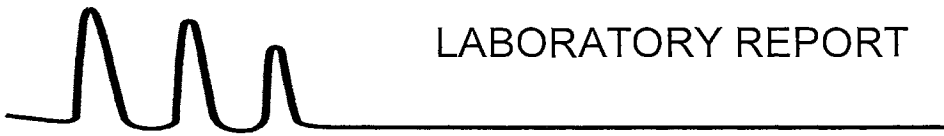
Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637562-58894/A051021V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	22 (112 %R)	24 (118 %R) (5 RPD)	5/10/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	28 (138 %R)	29 (146 %R) (6 RPD)	5/10/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	26 (129 %R)	28 (138 %R) (7 RPD)	5/10/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	19 (96 %R)	21 (103 %R) (7 RPD)	5/10/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	24 (118 %R)	25 (125 %R) (6 RPD)	5/10/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (92 %R)	< 50 (97 %R) (5 RPD)	5/10/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	19 (94 %R)	19 (96 %R) (2 RPD)	5/10/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	21 (107 %R)	23 (113 %R) (5 RPD)	5/10/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	19 (97 %R)	20 (102 %R) (5 RPD)	5/10/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (86 %R)	< 50 (89 %R) (4 RPD)	5/10/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	19 (96 %R)	20 (102 %R) (6 RPD)	5/10/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	19 (96 %R)	20 (101 %R) (5 RPD)	5/10/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	19 (96 %R)	20 (100 %R) (3 RPD)	5/10/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	21 (103 %R)	22 (108 %R) (5 RPD)	5/10/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	21 (103 %R)	21 (107 %R) (4 RPD)	5/10/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	18 (92 %R)	19 (94 %R) (2 RPD)	5/10/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	20 (101 %R)	21 (107 %R) (5 RPD)	5/10/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	22 (111 %R)	23 (115 %R) (4 RPD)	5/10/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	22 (112 %R)	23 (115 %R) (3 RPD)	5/10/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	20 (99 %R)	21 (103 %R) (4 RPD)	5/10/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	21 (107 %R)	23 (113 %R) (5 RPD)	5/10/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	20 (102 %R)	21 (105 %R) (3 RPD)	5/10/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	20 (99 %R)	21 (103 %R) (5 RPD)	5/10/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	22 (111 %R)	23 (115 %R) (4 RPD)	5/10/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	20 (102 %R)	21 (105 %R) (3 RPD)	5/10/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	19 (93 %R)	19 (93 %R) (1 RPD)	5/10/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	20 (102 %R)	21 (106 %R) (4 RPD)	5/10/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	19 (95 %R)	20 (100 %R) (4 RPD)	5/10/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	21 (106 %R)	22 (111 %R) (5 RPD)	5/10/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	19 (95 %R)	20 (99 %R) (4 RPD)	5/10/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	18 (92 %R)	19 (93 %R) (1 RPD)	5/10/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	19 (97 %R)	20 (100 %R) (4 RPD)	5/10/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	21 (103 %R)	22 (108 %R) (5 RPD)	5/10/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	19 (97 %R)	20 (101 %R) (4 RPD)	5/10/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	20 (100 %R)	21 (104 %R) (3 RPD)	5/10/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	39 (99 %R)	41 (102 %R) (3 RPD)	5/10/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	20 (99 %R)	21 (103 %R) (3 RPD)	5/10/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	20 (98 %R)	20 (102 %R) (4 RPD)	5/10/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	21 (103 %R)	21 (107 %R) (4 RPD)	5/10/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	18 (88 %R)	19 (93 %R) (6 RPD)	5/10/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	19 (96 %R)	20 (101 %R) (6 RPD)	5/10/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	19 (94 %R)	20 (99 %R) (6 RPD)	5/10/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	19 (94 %R)	20 (100 %R) (7 RPD)	5/10/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	102 %R		103 %R	102 %R	5/10/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	99 %R		100 %R	100 %R	5/10/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	97 %R		98 %R	98 %R	5/10/2021	% Rec	70 - 130		624.1

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



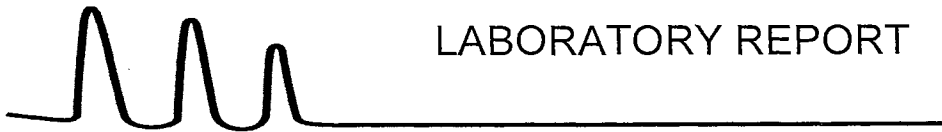
LABORATORY REPORT

EAI ID#: 225980

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 225980.01
 Matrix: aqueous
 Date Sampled: 5/10/21
 Date Received: 5/10/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	5/11/21 14:11	625.1	JMR
2-Fluorophenol (surr)	40 %R			%	5/11/21 14:11	625.1	JMR
Phenol-d6 (surr)	26 %R			%	5/11/21 14:11	625.1	JMR
2,4,6-Tribromophenol (surr)	76 %R			%	5/11/21 14:11	625.1	JMR



LABORATORY REPORT

EAI ID#: 225980

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 225980.02
 Matrix: aqueous
 Date Sampled: 5/10/21
 Date Received: 5/10/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	5/11/21 14:32	625.1	JMR
2-Fluorophenol (surr)	40 %R			%	5/11/21 14:32	625.1	JMR
Phenol-d6 (surr)	26 %R			%	5/11/21 14:32	625.1	JMR
2,4,6-Tribromophenol (surr)	81 %R			%	5/11/21 14:32	625.1	JMR



QC REPORT

EAI ID#: **225980**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637563-15746/A051121E6251

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	19 (74 %R)	20 (79 %R) (7 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	14 (27 %R)	15 (30 %R) (9 RPD)	5/11/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	30 (61 %R)	33 (66 %R) (8 RPD)	5/11/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	34 (68 %R)	36 (73 %R) (7 RPD)	5/11/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	35 (71 %R)	37 (75 %R) (6 RPD)	5/11/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	35 (71 %R)	38 (75 %R) (6 RPD)	5/11/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	32 (64 %R)	34 (67 %R) (5 RPD)	5/11/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	37 (73 %R)	39 (79 %R) (7 RPD)	5/11/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	16 (31 %R)	16 (32 %R) (3 RPD)	5/11/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	33 (66 %R)	37 (74 %R) (13 RPD)	5/11/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	28 (57 %R)	31 (62 %R) (9 RPD)	5/11/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	29 (57 %R)	31 (62 %R) (8 RPD)	5/11/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	33 (65 %R)	35 (70 %R) (7 RPD)	5/11/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	35 (70 %R)	37 (74 %R) (6 RPD)	5/11/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	45 (90 %R)	47 (94 %R) (4 RPD)	5/11/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	* < 50 (13 %R)	< 50 (15 %R) (17 RPD)	5/11/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	11 (43 %R)	12 (48 %R) (10 RPD)	5/11/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	18 (72 %R)	20 (78 %R) (8 RPD)	5/11/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	19 (76 %R)	20 (79 %R) (4 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	15 (61 %R)	17 (67 %R) (10 RPD)	5/11/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	15 (61 %R)	17 (67 %R) (9 RPD)	5/11/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	17 (69 %R)	19 (75 %R) (8 RPD)	5/11/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	13 (53 %R)	15 (59 %R) (11 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	17 (67 %R)	18 (74 %R) (10 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	13 (53 %R)	15 (59 %R) (11 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	14 (54 %R)	15 (60 %R) (11 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	15 (60 %R)	16 (65 %R) (9 RPD)	5/11/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	17 (67 %R)	18 (72 %R) (7 RPD)	5/11/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	18 (72 %R)	19 (76 %R) (6 RPD)	5/11/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	19 (75 %R)	20 (78 %R) (4 RPD)	5/11/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	14 (54 %R)	15 (61 %R) (11 RPD)	5/11/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	15 (59 %R)	16 (64 %R) (9 RPD)	5/11/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	12 (50 %R)	13 (54 %R) (8 RPD)	5/11/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	19 (75 %R)	20 (78 %R) (4 RPD)	5/11/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	18 (72 %R)	19 (76 %R) (6 RPD)	5/11/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	18 (72 %R)	19 (77 %R) (7 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	20 (82 %R)	22 (86 %R) (5 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	20 (78 %R)	21 (82 %R) (5 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	21 (83 %R)	22 (87 %R) (4 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	16 (64 %R)	17 (68 %R) (6 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	16 (66 %R)	18 (70 %R) (7 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	16 (65 %R)	18 (71 %R) (8 RPD)	5/11/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	18 (74 %R)	20 (80 %R) (8 RPD)	5/11/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	19 (75 %R)	20 (79 %R) (4 RPD)	5/11/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	20 (79 %R)	21 (83 %R) (5 RPD)	5/11/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	17 (69 %R)	17 (67 %R) (3 RPD)	5/11/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 225980

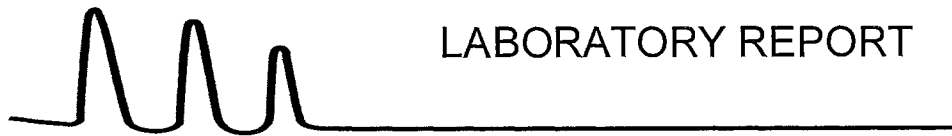
Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637563-15746/A051121E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	20 (78 %R)	20 (81 %R) (3 RPD)	5/11/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	12 (48 %R)	13 (52 %R) (8 RPD)	5/11/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	19 (77 %R)	20 (80 %R) (4 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	20 (79 %R)	20 (82 %R) (3 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	19 (75 %R)	20 (79 %R) (5 RPD)	5/11/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	20 (82 %R)	21 (85 %R) (4 RPD)	5/11/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	22 (87 %R)	22 (90 %R) (2 RPD)	5/11/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	22 (90 %R)	23 (93 %R) (3 RPD)	5/11/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	22 (88 %R)	23 (91 %R) (4 RPD)	5/11/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	23 (93 %R)	24 (95 %R) (3 RPD)	5/11/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	18 (71 %R)	19 (75 %R) (6 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	15 (62 %R)	17 (67 %R) (9 RPD)	5/11/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	16 (64 %R)	17 (69 %R) (8 RPD)	5/11/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	16 (66 %R)	18 (71 %R) (8 RPD)	5/11/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	17 (69 %R)	18 (74 %R) (7 RPD)	5/11/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	17 (69 %R)	18 (73 %R) (6 RPD)	5/11/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	18 (71 %R)	19 (75 %R) (6 RPD)	5/11/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	18 (72 %R)	19 (75 %R) (4 RPD)	5/11/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	18 (74 %R)	19 (76 %R) (3 RPD)	5/11/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	18 (72 %R)	19 (74 %R) (3 RPD)	5/11/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	18 (74 %R)	19 (76 %R) (3 RPD)	5/11/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	18 (73 %R)	19 (77 %R) (4 RPD)	5/11/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	18 (72 %R)	19 (75 %R) (4 RPD)	5/11/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	18 (74 %R)	19 (77 %R) (4 RPD)	5/11/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	18 (73 %R)	19 (75 %R) (3 RPD)	5/11/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	17 (69 %R)	18 (71 %R) (3 RPD)	5/11/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	18 (73 %R)	19 (75 %R) (3 RPD)	5/11/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	18 (73 %R)	19 (76 %R) (5 RPD)	5/11/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	16 (66 %R)	17 (68 %R) (4 RPD)	5/11/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	12 (47 %R)	13 (53 %R) (12 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	20 (79 %R)	21 (82 %R) (4 RPD)	5/11/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	40 %R		37 %R	41 %R	5/11/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	27 %R		26 %R	28 %R	5/11/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	79 %R		79 %R	82 %R	5/11/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	68 %R		67 %R	73 %R	5/11/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	70 %R		68 %R	73 %R	5/11/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	80 %R		79 %R	82 %R	5/11/2021	% Rec	30 - 130		625.1

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



LABORATORY REPORT

EAI ID#: **225980**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 225980.01 225980.02

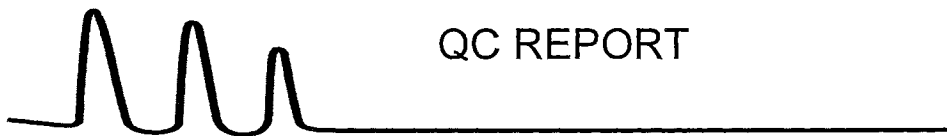
Matrix: aqueous aqueous

Date Sampled: 5/10/21 5/10/21

Date Received: 5/10/21 5/10/21

Solids Suspended	< 5	< 5
Chloride	5700	5500
Cyanide Total	< 5	< 5
Cyanide Free	< 5	< 5
Ammonia-N	< 0.05	< 0.05

RL	Units	Analysis		Method	Analyst
		Date	Time		
5	mg/L	5/11/21	11:45	2540D-11	KJD
1000	ug/L	5/11/21	10:57	4500CIE-11	ATA
5	ug/L	5/11/21	16:29	ASTM D7511-09	KD
5	ug/L	5/13/21	13:31	OIA-1677-09	KD
0.05	mg/L	5/11/21	13:34	TM NH3-001	SEL



QC REPORT

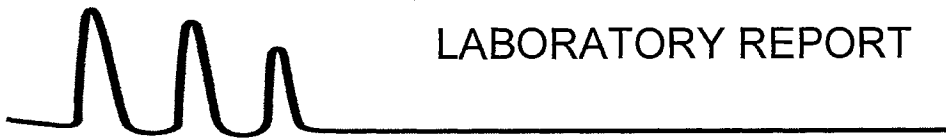
EAI ID#: 225980

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	100 (108 %R)	100 (110 %R) (2 RPD)	mg/L	5/11/21	90 - 110	20	2540D-11
Chloride	< 1000	24000 (96 %R)	26000 (103 %R) (7 RPD)	ug/L	5/11/21	90 - 110	20	4500CIE-11
Cyanide Total	< 5	100 (102 %R)	100 (101 %R) (2 RPD)	ug/L	5/11/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	280 (111 %R)	250 (101 %R) (9 RPD)	ug/L	5/13/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	2.0 (101 %R)	2.0 (99 %R) (2 RPD)	mg/L	5/11/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: 225980

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Sample ID: System Influent System Effluent

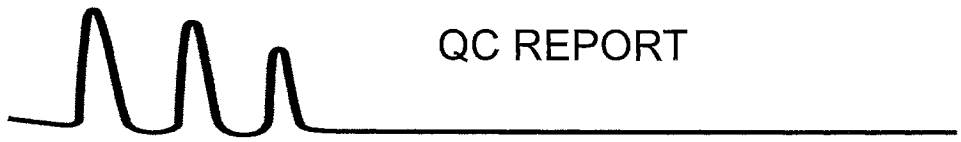
Lab Sample ID: 225980.01 225980.02

Matrix: aqueous aqueous

Date Sampled: 5/10/21 5/10/21

Date Received: 5/10/21 5/10/21

	Analytical			Analysis	
	RL	Matrix	Units	Date	Method Analyst
Chromium (VI)	< 10	< 10	10	AqTot ug/L	5/10/21 7196A HEH
Antimony	< 0.5	< 0.5	0.5	AqTot ug/L	5/11/21 200.8 DS
Arsenic	0.51	< 0.5	0.5	AqTot ug/L	5/11/21 200.8 DS
Cadmium	< 0.1	< 0.1	0.1	AqTot ug/L	5/11/21 200.8 DS
Chromium	< 0.5	< 0.5	0.5	AqTot ug/L	5/11/21 200.8 DS
Chromium (III)	< 10	< 10	10	AqTot ug/L	5/11/21 200.8 DS
Copper	0.78	0.16	0.1	AqTot ug/L	5/11/21 200.8 DS
Iron	860	< 50	50	AqTot ug/L	5/11/21 200.8 DS
Lead	< 0.1	< 0.1	0.1	AqTot ug/L	5/11/21 200.8 DS
Mercury	< 0.1	< 0.1	0.1	AqTot ug/L	5/11/21 200.8 DS
Nickel	1.1	0.57	0.1	AqTot ug/L	5/11/21 200.8 DS
Selenium	< 0.5	< 0.5	0.5	AqTot ug/L	5/11/21 200.8 DS
Silver	< 0.1	< 0.1	0.1	AqTot ug/L	5/11/21 200.8 DS
Zinc	1.1	1.7	1	AqTot ug/L	5/11/21 200.8 DS



QC REPORT

EAI ID#: 225980

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (114 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.1 (107 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.1 (106 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (106 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Copper	< 0.0001	1.0 (102 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Iron	< 0.05	11 (101 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (112 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (109 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (101 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Selenium	< 0.0005	1.1 (113 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Silver	< 0.0001	0.010 (102 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Zinc	< 0.001	1.1 (108 %R)		NA mg/L	5/11/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (95 %R)		NA mg/L	5/10/21	85 - 115	20	7196A

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



Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

May 20, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 225980
Pace Project No.: 70173012

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on May 14, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
• Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 225980
Pace Project No.: 70173012

Pace Analytical Services Long Island

Virginia Certification # 460302
Delaware Certification # NY10478
Delaware Certification # NY10478
575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158

Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 225980
 Pace Project No.: 70173012

Sample: SYSTEM INFLUENT		Lab ID: 70173012001	Collected: 05/10/21 12:15	Received: 05/14/21 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		05/19/21 14:05	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	78-114	1		05/19/21 14:05	17060-07-0	
4-Bromofluorobenzene (S)	98	%	83-111	1		05/19/21 14:05	460-00-4	
Toluene-d8 (S)	111	%	80-131	1		05/19/21 14:05	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 225980
 Pace Project No.: 70173012

Sample: **SYSTEM EFFLUENT** Lab ID: **70173012002** Collected: 05/10/21 12:05 Received: 05/14/21 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		05/19/21 13:42	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	88	%	78-114	1		05/19/21 13:42	17060-07-0	
4-Bromofluorobenzene (S)	93	%	83-111	1		05/19/21 13:42	460-00-4	
Toluene-d8 (S)	106	%	80-131	1		05/19/21 13:42	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 225980
 Pace Project No.: 70173012

QC Batch: 209703 Analysis Method: EPA 1624B
 QC Batch Method: EPA 1624B Analysis Description: 1624B MSV
 Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70173012001, 70173012002

METHOD BLANK: 1046833 Matrix: Water

Associated Lab Samples: 70173012001, 70173012002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	05/19/21 12:54	
1,2-Dichloroethane-d4 (S)	%	89	78-114	05/19/21 12:54	
4-Bromofluorobenzene (S)	%	94	83-111	05/19/21 12:54	
Toluene-d8 (S)	%	108	80-131	05/19/21 12:54	

LABORATORY CONTROL SAMPLE: 1046834

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.030	59	20-200	
1,2-Dichloroethane-d4 (S)	%			85	78-114	
4-Bromofluorobenzene (S)	%			94	83-111	
Toluene-d8 (S)	%			102	80-131	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 225980
Pace Project No.: 70173012

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 225980
Pace Project No.: 70173012

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70173012001	SYSTEM INFLUENT	EPA 1624B	209703		
70173012002	SYSTEM EFFLUENT	EPA 1624B	209703		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD



Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# **225980**

Page 1

Sample ID	Date Sampled	Matrix	Parameters	Sample Notes
System Influent	5/10/2021 12:15	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	5/10/2021 12:05	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

WO#: 70173012



EAI ID# **225980**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 Acetone Only

PO #: 54912

EAI ID# **225980**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Chris Johnson 5/13/21 1600 VPS

Relinquished by

Date/Time

Received by

Relinquished by

Date/Time

Received by

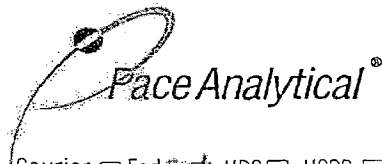
Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

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.



Sample Condition Upon Receipt

WO#: 70173012

Client Name:

Project

PM: KMM

Due Date: 05/21/21

CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 1Z X46 599 01 9055 7056

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Ziploc None Other

Thermometer Used: TH091 Correction Factor: +0.0

Cooler Temperature(°C): 5.7 Cooler Temperature Corrected(°C): 5.7

Temp should be above freezing to 6.0°C

USDA Regulated Soil (N/A, water sample)

Date and Initials of person examining contents: MS 5/14/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

Did samples originate from a foreign source including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: <u>SL (WT) OIL</u>		
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #		Sample #
All containers needing preservation are found to be in compliance with method recommendation?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
(HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NAOH>12 Cyanide)		
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water).		Initial when completed: Lot # of added preservative: Date/Time preservative added:
Per Method, VOA pH is checked after analysis		
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
KI starch test strips Lot #		
Residual chlorine strips Lot #		
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Lead Acetate Strips Lot #		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if applicable):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted:

Date/Time:

Comments/ Resolution:



Thursday, May 20, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 225980
SDG ID: GCI31572
Sample ID#s: CI31572 - CI31573

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

May 20, 2021

SDG I.D.: GCI31572

Project ID: 225980

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CI31572	WATER
SYSTEM EFFLUENT	CI31573	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

May 20, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54911

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 05/10/21 12:15
 05/14/21 15:54

Laboratory Data

SDG ID: GCI31572
 Phoenix ID: CI31572

Project ID: 225980
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	20	0.20	ug/l	1	05/19/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	86		%	1	05/19/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				05/18/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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 20, 2021

Reviewed and Released by: Kathleen Cressia, QA/QC Officer



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

May 20, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 54911

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 05/10/21 12:05
 05/14/21 15:54

Laboratory Data

SDG ID: GCI31572
 Phoenix ID: CI31573

Project ID: 225980
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	05/19/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	85		%	1	05/19/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				05/18/21	G/G	EPA522

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:

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 20, 2021

Reviewed and Released by: Kathleen Cressia, QA/QC Officer



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

May 20, 2021

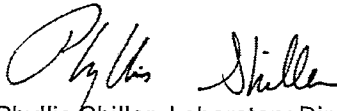
QA/QC Data

SDG I.D.: GCI31572

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 575821 (ug/l), QC Sample No: CI29571 (CI31572, CI31573)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	112	107	4.6	88			70 - 130	20
% 1,4-dioxane-d8	85	%	87	77	12.2	85			70 - 130	20

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 20, 2021

Thursday, May 20, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCI31572 - EASTANAL-NH

27

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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance 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 20, 2021

SDG I.D.: GCI31572

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

WCIP
1.2



Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# **225980**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent 31572	5/10/2021 12:15	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	
System Effluent 31573	5/10/2021 12:05	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	

EAI ID# **225980**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 54911

EAI ID# **225980**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by: 5-14-2021

[Signature] @ 100 *[Signature]*

Relinquished by *[Signature]* Date/Time 5-14-21 @ 12:50 Received by *[Signature]*

Relinquished by *[Signature]* Date/Time 5/14/2021 Received by *[Signature]*

customerservice@easternanalytical.com

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Phone: (603)228-0525

1-800-287-0525

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

CHAIN-OF-CUSTODY RECORD

225980
GZANH

30

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers	
System Influent	5-10-21 12:15	aqueous <input checked="" type="radio"/> Grab or <input type="radio"/> Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625ATSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <input checked="" type="radio"/> HCL <input checked="" type="radio"/> HNO ₃ <input checked="" type="radio"/> H ₂ SO ₄ <input checked="" type="radio"/> NaOH MEOH Na ₂ S ₂ O ₈ <input checked="" type="radio"/> ICF			Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	5-10-21 12:05	aqueous <input checked="" type="radio"/> Grab or <input type="radio"/> Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625ATSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <input checked="" type="radio"/> HCL <input checked="" type="radio"/> HNO ₃ <input checked="" type="radio"/> H ₂ SO ₄ <input checked="" type="radio"/> NaOH MEOH Na ₂ S ₂ O ₈ <input checked="" type="radio"/> ICF			Dissolved Sample Field Filtered <input type="checkbox"/>

EAI Project ID 4965

Project Name Rennie Farm RGP / 04.0190030.02

State NH

Client (Pro Mgr) Jim Wieck

Customer GZA GeoEnvironmental, Inc. (NH)

Address 5 Commerce Park North, Suite 201

City Bedford NH 03110

Phone 623-3600

Fax 624-9463 (37)

Email: James.Wieck@gza.com

Direct 232-8732

Results Needed by: Preferred date 5-Day
Notes:

1624 Acetone Only

QC deliverables

A A+ B B+ C MA MCP

Reporting Options

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

PO# verbal

Quote#:

Temp 3.2 °C

Ice Y N

Samples Collected by: AVJ
al Jacobsen 5-10-21 15:25

Relinquished by _____ Date/Time _____ Received by _____

Fayer 5/10/21 1525 Ch...
Relinquished by _____ Date/Time _____ Received by _____

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



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 226169
Client Identification: Rennie Farm | 04.0190030.02 | Task 22, SubTask-1
Date Received: 5/12/2021

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

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

5.18.21
Date

5
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 226169

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | Task 22, SubTask-1

Temperature upon receipt (°C): 1.0

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
226169.01	System MIDFLUENT	5/12/21	5/11/21 08:55	aqueous		Adheres to Sample Acceptance Policy
226169.02	System INFLUENT	5/12/21	5/11/21 09:00	aqueous		Adheres to Sample Acceptance Policy
226169.03	LGAC OUT	5/12/21	5/12/21 08:30	aqueous		Adheres to Sample Acceptance Policy
226169.04	LGAC MID	5/12/21	5/12/21 08:35	aqueous		Adheres to Sample Acceptance Policy
226169.05	LGAC IN	5/12/21	5/12/21 08:40	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#: 226169

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | Task 22, SubTask-1

Client Sample ID: System MIDFLUENT

Lab Sample ID: 226169.01

Matrix: aqueous

Date Sampled: 5/11/21

Date Received: 5/12/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	5/13/21 13:41	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	5/13/21 13:41	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/13/21 13:41	8260B SIM	AM

Client Sample ID: System INFLUENT

Lab Sample ID: 226169.02

Matrix: aqueous

Date Sampled: 5/11/21

Date Received: 5/12/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	21	2	10	ug/L	5/13/21 21:58	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	5/13/21 21:58	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/13/21 21:58	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 226169

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 | Task 22, SubTask-1

Client Sample ID: LGAC OUT

Lab Sample ID: 226169.03

Matrix: aqueous

Date Sampled: 5/12/21

Date Received: 5/12/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.62	0.2	1	ug/L	5/13/21 14:12	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	5/13/21 14:12	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	5/13/21 14:12	8260B SIM	AM

Client Sample ID: LGAC MID

Lab Sample ID: 226169.04

Matrix: aqueous

Date Sampled: 5/12/21

Date Received: 5/12/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.60	0.2	1	ug/L	5/13/21 14:43	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	5/13/21 14:43	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	5/13/21 14:43	8260B SIM	AM

Client Sample ID: LGAC IN

Lab Sample ID: 226169.05

Matrix: aqueous

Date Sampled: 5/12/21

Date Received: 5/12/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1400	100	500	ug/L	5/13/21 22:28	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	5/13/21 22:28	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/13/21 22:28	8260B SIM	AM



QC REPORT

EAI ID#: **226169**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637565-12804/A051321DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 | Task 22, SubTask-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.4 (89 %R)	4.4 (89 %R) (0 RPD)	5/13/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	100 %R	100 %R	99 %R	5/13/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	98 %R	102 %R	99 %R	5/13/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 226737
Client Identification: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1
Date Received: 5/25/2021

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.

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- > : "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

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.

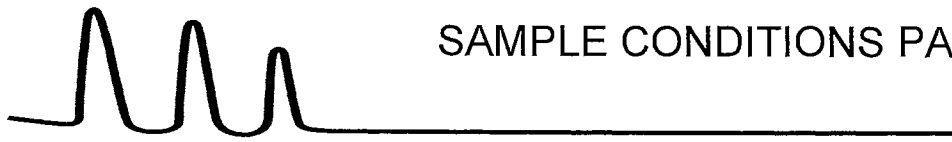
We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,


Lorraine Olashaw, Lab Director

6.1.21
Date

5
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 226737

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Temperature upon receipt (°C): 0.5

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
226737.01	System Influent	5/25/21	5/24/21 09:20	aqueous		Adheres to Sample Acceptance Policy
226737.02	System Mid	5/25/21	5/24/21 09:25	aqueous		Adheres to Sample Acceptance Policy
226737.03	LGAC In	5/25/21	5/25/21 10:21	aqueous		Adheres to Sample Acceptance Policy
226737.04	LGAC Mid	5/25/21	5/25/21 10:18	aqueous		Adheres to Sample Acceptance Policy
226737.05	LGAC Out	5/25/21	5/25/21 10:15	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#: 226737

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Client Sample ID: System Influent
 Lab Sample ID: 226737.01
 Matrix: aqueous
 Date Sampled: 5/24/21
 Date Received: 5/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	21	2	10	ug/L	5/27/21 9:01	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	5/27/21 9:01	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/27/21 9:01	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 226737.02
 Matrix: aqueous
 Date Sampled: 5/24/21
 Date Received: 5/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	5/27/21 6:25	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	5/27/21 6:25	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/27/21 6:25	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 226737

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1

Client Sample ID: LGAC In

Lab Sample ID: 226737.03

Matrix: aqueous

Date Sampled: 5/25/21

Date Received: 5/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1400	100	500	ug/L	5/27/21 9:32	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	5/27/21 9:32	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	5/27/21 9:32	8260B SIM	AM

Client Sample ID: LGAC Mid

Lab Sample ID: 226737.04

Matrix: aqueous

Date Sampled: 5/25/21

Date Received: 5/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.61	0.2	1	ug/L	5/27/21 6:56	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	5/27/21 6:56	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	5/27/21 6:56	8260B SIM	AM

Client Sample ID: LGAC Out

Lab Sample ID: 226737.05

Matrix: aqueous

Date Sampled: 5/25/21

Date Received: 5/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.43	0.2	1	ug/L	5/27/21 7:27	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	5/27/21 7:27	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	5/27/21 7:27	8260B SIM	AM



QC REPORT

EAI ID#: **226737**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637577-20335/A052621DIOX2

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.8 (95 %R)	4.0 (80 %R) (18 RPD)	5/26/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	100 %R	100 %R	101 %R	5/26/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	101 %R	100 %R	5/26/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 227441
Client Identification: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1
Date Received: 6/9/2021

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.

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- Hach Water Analysis Handbook, 4th edition, 1992

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

6.15.21
Date

5
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 227441

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Temperature upon receipt (°C): 5.5

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)
227441.01	System Influent	6/9/21	6/7/21 09:35	aqueous		Adheres to Sample Acceptance Policy
227441.02	System Mid	6/9/21	6/7/21 09:40	aqueous		Adheres to Sample Acceptance Policy
227441.03	LGAC Out	6/9/21	6/9/21 09:30	aqueous		Adheres to Sample Acceptance Policy
227441.04	LGAC Mid	6/9/21	6/9/21 09:33	aqueous		Adheres to Sample Acceptance Policy
227441.05	LGAC In	6/9/21	6/9/21 09:36	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#: 227441

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1

Client Sample ID: System Influent
 Lab Sample ID: 227441.01
 Matrix: aqueous
 Date Sampled: 6/7/21
 Date Received: 6/9/21

	Result	Dilution		Units	Date / Time Analyzed	Method	Analyst
		RL	Factor				
1,4-Dioxane	26	2	10	ug/L	6/10/21 22:12	8260B SIM	AM
4-Bromofluorobenzene (surr)	130 %R			%	6/10/21 22:12	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	6/10/21 22:12	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 227441.02
 Matrix: aqueous
 Date Sampled: 6/7/21
 Date Received: 6/9/21

	Result	Dilution		Units	Date / Time Analyzed	Method	Analyst
		RL	Factor				
1,4-Dioxane	< 0.2	0.2	1	ug/L	6/10/21 20:08	8260B SIM	AM
4-Bromofluorobenzene (surr)	107 %R			%	6/10/21 20:08	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	6/10/21 20:08	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 227441

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1

Client Sample ID: LGAC Out

Lab Sample ID: 227441.03

Matrix: aqueous

Date Sampled: 6/9/21

Date Received: 6/9/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.44	0.2	1	ug/L	6/10/21 20:39	8260B SIM	AM
4-Bromofluorobenzene (surr)	106 %R			%	6/10/21 20:39	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	6/10/21 20:39	8260B SIM	AM

Client Sample ID: LGAC Mid

Lab Sample ID: 227441.04

Matrix: aqueous

Date Sampled: 6/9/21

Date Received: 6/9/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	11	0.2	1	ug/L	6/10/21 21:09	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	6/10/21 21:09	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	6/10/21 21:09	8260B SIM	AM

Client Sample ID: LGAC In

Lab Sample ID: 227441.05

Matrix: aqueous

Date Sampled: 6/9/21

Date Received: 6/9/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	670	100	500	ug/L	6/10/21 22:43	8260B SIM	AM
4-Bromofluorobenzene (surr)	108 %R			%	6/10/21 22:43	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	6/10/21 22:43	8260B SIM	AM



QC REPORT

EAI ID#: **227441**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637589-33505/A061021DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.9 (99 %R)	4.9 (98 %R) (1 RPD)	6/10/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	105 %R	105 %R	105 %R	6/10/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	103 %R	103 %R	103 %R	6/10/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 227526
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 6/10/2021

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.

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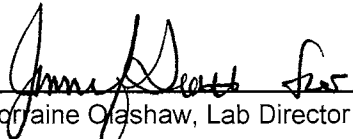
References:

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- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992

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 O'Leary, Lab Director

6/21/21
Date

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of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 227526

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 2.2

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)
227526.01	System Influent	6/10/21	6/10/21 11:00	aqueous		Adheres to Sample Acceptance Policy
227526.02	System Effluent	6/10/21	6/10/21 11:20	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#: 227526

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 227526.01
Matrix: aqueous
Date Sampled: 6/10/21
Date Received: 6/10/21

Date of Preparation:
Method: 624.1
Analyst: SG
Units: ug/L

	Result	Dilution			Date Analyzed	Result	Dilution			Date Analyzed
		RL	Factor				RL	Factor		
Chloromethane	< 2	2	1	6/11/21	4-Bromofluorobenzene (surr)	105 %R			6/11/21	
Vinyl chloride	< 1	1	1	6/11/21	1,2-Dichlorobenzene-d4	98 %R			6/11/21	
Bromomethane	< 2	2	1	6/11/21	Toluene-d8 (surr)	91 %R			6/11/21	
Chloroethane	< 2	2	1	6/11/21						
Trichlorofluoromethane	< 2	2	1	6/11/21						
Acrolein	< 50	50	1	6/11/21						
Acetone	< 10	10	1	6/11/21						
1,1-Dichloroethene	< 0.5	0.5	1	6/11/21						
Methylene chloride	< 1	1	1	6/11/21						
Acrylonitrile	< 50	50	1	6/11/21						
Methyl-t-butyl ether(MTBE)	< 1	1	1	6/11/21						
trans-1,2-Dichloroethene	< 1	1	1	6/11/21						
Vinyl acetate	< 10	10	1	6/11/21						
1,1-Dichloroethane	< 1	1	1	6/11/21						
cis-1,2-Dichloroethene	< 1	1	1	6/11/21						
2-Butanone(MEK)	< 10	10	1	6/11/21						
Chloroform	< 1	1	1	6/11/21						
1,1,1-Trichloroethane	< 1	1	1	6/11/21						
Carbon tetrachloride	< 1	1	1	6/11/21						
Benzene	< 1	1	1	6/11/21						
1,2-Dichloroethane	< 1	1	1	6/11/21						
Trichloroethene	< 1	1	1	6/11/21						
1,2-Dichloropropane	< 1	1	1	6/11/21						
Bromodichloromethane	< 0.5	0.5	1	6/11/21						
2-Chloroethylvinylether	< 2	2	1	6/11/21						
4-Methyl-2-pentanone(MIBK)	< 10	10	1	6/11/21						
cis-1,3-Dichloropropene	< 0.5	0.5	1	6/11/21						
Toluene	< 1	1	1	6/11/21						
trans-1,3-Dichloropropene	< 0.5	0.5	1	6/11/21						
1,1,2-Trichloroethane	< 1	1	1	6/11/21						
2-Hexanone	< 10	10	1	6/11/21						
Tetrachloroethene	< 1	1	1	6/11/21						
Dibromochloromethane	< 1	1	1	6/11/21						
Chlorobenzene	< 1	1	1	6/11/21						
Ethylbenzene	< 1	1	1	6/11/21						
mp-Xylene	< 1	1	1	6/11/21						
o-Xylene	< 1	1	1	6/11/21						
Styrene	< 1	1	1	6/11/21						
Bromoform	< 2	2	1	6/11/21						
1,1,2,2-Tetrachloroethane	< 1	1	1	6/11/21						
1,3-Dichlorobenzene	< 1	1	1	6/11/21						
1,4-Dichlorobenzene	< 1	1	1	6/11/21						
1,2-Dichlorobenzene	< 1	1	1	6/11/21						



LABORATORY REPORT

EAI ID#: 227526

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 227526.02
 Matrix: aqueous
 Date Sampled: 6/10/21
 Date Received: 6/10/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution			Date Analyzed	Result	Dilution			Date Analyzed
		RL	Factor				RL	Factor		
Chloromethane	< 2	2	1	6/11/21	4-Bromofluorobenzene (surr)	104 %R			6/11/21	
Vinyl chloride	< 1	1	1	6/11/21	1,2-Dichlorobenzene-d4	99 %R			6/11/21	
Bromomethane	< 2	2	1	6/11/21	Toluene-d8 (surr)	92 %R			6/11/21	
Chloroethane	< 2	2	1	6/11/21						
Trichlorofluoromethane	< 2	2	1	6/11/21						
Acrolein	< 50	50	1	6/11/21						
Acetone	< 10	10	1	6/11/21						
1,1-Dichloroethene	< 0.5	0.5	1	6/11/21						
Methylene chloride	< 1	1	1	6/11/21						
Acrylonitrile	< 50	50	1	6/11/21						
Methyl-t-butyl ether(MTBE)	< 1	1	1	6/11/21						
trans-1,2-Dichloroethene	< 1	1	1	6/11/21						
Vinyl acetate	< 10	10	1	6/11/21						
1,1-Dichloroethane	< 1	1	1	6/11/21						
cis-1,2-Dichloroethene	< 1	1	1	6/11/21						
2-Butanone(MEK)	< 10	10	1	6/11/21						
Chloroform	< 1	1	1	6/11/21						
1,1,1-Trichloroethane	< 1	1	1	6/11/21						
Carbon tetrachloride	< 1	1	1	6/11/21						
Benzene	< 1	1	1	6/11/21						
1,2-Dichloroethane	< 1	1	1	6/11/21						
Trichloroethene	< 1	1	1	6/11/21						
1,2-Dichloropropane	< 1	1	1	6/11/21						
Bromodichloromethane	< 0.5	0.5	1	6/11/21						
2-Chloroethylvinylether	< 2	2	1	6/11/21						
4-Methyl-2-pentanone(MIBK)	< 10	10	1	6/11/21						
cis-1,3-Dichloropropene	< 0.5	0.5	1	6/11/21						
Toluene	< 1	1	1	6/11/21						
trans-1,3-Dichloropropene	< 0.5	0.5	1	6/11/21						
1,1,2-Trichloroethane	< 1	1	1	6/11/21						
2-Hexanone	< 10	10	1	6/11/21						
Tetrachloroethene	< 1	1	1	6/11/21						
Dibromochloromethane	< 1	1	1	6/11/21						
Chlorobenzene	< 1	1	1	6/11/21						
Ethylbenzene	< 1	1	1	6/11/21						
mp-Xylene	< 1	1	1	6/11/21						
o-Xylene	< 1	1	1	6/11/21						
Styrene	< 1	1	1	6/11/21						
Bromoform	< 2	2	1	6/11/21						
1,1,2,2-Tetrachloroethane	< 1	1	1	6/11/21						
1,3-Dichlorobenzene	< 1	1	1	6/11/21						
1,4-Dichlorobenzene	< 1	1	1	6/11/21						
1,2-Dichlorobenzene	< 1	1	1	6/11/21						



QC REPORT

EAI ID#: 227526

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637590-04477/A061121V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	18 (91 %R)	18 (92 %R) (1 RPD)	6/11/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	23 (114 %R)	23 (116 %R) (1 RPD)	6/11/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	18 (88 %R)	18 (91 %R) (4 RPD)	6/11/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	17 (87 %R)	18 (88 %R) (2 RPD)	6/11/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	21 (103 %R)	21 (103 %R) (0 RPD)	6/11/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (92 %R)	< 50 (91 %R) (1 RPD)	6/11/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	19 (96 %R)	18 (90 %R) (6 RPD)	6/11/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	20 (102 %R)	20 (101 %R) (0 RPD)	6/11/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	18 (92 %R)	18 (92 %R) (0 RPD)	6/11/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (88 %R)	< 50 (84 %R) (5 RPD)	6/11/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	19 (96 %R)	19 (95 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	20 (98 %R)	19 (97 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	18 (89 %R)	18 (88 %R) (1 RPD)	6/11/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	20 (100 %R)	20 (100 %R) (0 RPD)	6/11/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	20 (100 %R)	20 (100 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	19 (94 %R)	17 (87 %R) (8 RPD)	6/11/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	20 (102 %R)	20 (101 %R) (0 RPD)	6/11/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	21 (105 %R)	21 (104 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	21 (103 %R)	20 (102 %R) (2 RPD)	6/11/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	19 (97 %R)	19 (96 %R) (1 RPD)	6/11/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	20 (102 %R)	20 (102 %R) (0 RPD)	6/11/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	20 (98 %R)	20 (98 %R) (0 RPD)	6/11/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	19 (96 %R)	19 (96 %R) (1 RPD)	6/11/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	21 (104 %R)	21 (105 %R) (1 RPD)	6/11/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	19 (96 %R)	19 (95 %R) (2 RPD)	6/11/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	19 (93 %R)	18 (88 %R) (5 RPD)	6/11/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	19 (96 %R)	19 (97 %R) (0 RPD)	6/11/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	17 (85 %R)	17 (84 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	18 (90 %R)	18 (89 %R) (0 RPD)	6/11/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	17 (85 %R)	17 (85 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	17 (84 %R)	16 (79 %R) (6 RPD)	6/11/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	17 (87 %R)	17 (85 %R) (2 RPD)	6/11/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	18 (88 %R)	17 (87 %R) (1 RPD)	6/11/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	17 (87 %R)	17 (86 %R) (1 RPD)	6/11/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	18 (89 %R)	18 (88 %R) (1 RPD)	6/11/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	35 (87 %R)	35 (87 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	18 (88 %R)	17 (87 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	17 (87 %R)	17 (86 %R) (1 RPD)	6/11/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	18 (89 %R)	17 (86 %R) (3 RPD)	6/11/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	16 (79 %R)	15 (75 %R) (5 RPD)	6/11/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	17 (83 %R)	16 (81 %R) (3 RPD)	6/11/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	16 (82 %R)	16 (80 %R) (2 RPD)	6/11/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	16 (82 %R)	16 (80 %R) (3 RPD)	6/11/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	105 %R		106 %R	106 %R	6/11/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	99 %R		100 %R	100 %R	6/11/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	92 %R		92 %R	92 %R	6/11/2021	% Rec	70 - 130		624.1

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



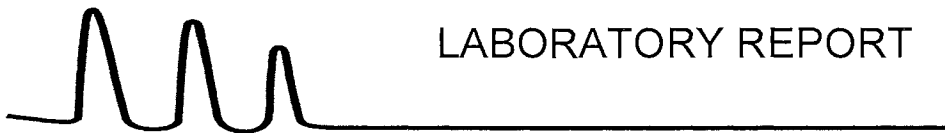
LABORATORY REPORT

EAI ID#: **227526**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 227526.01
Matrix: aqueous
Date Sampled: 6/10/21
Date Received: 6/10/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	6/14/21 14:01	625.1	JMR
2-Fluorophenol (surr)	38 %R			%	6/14/21 14:01	625.1	JMR
Phenol-d6 (surr)	25 %R			%	6/14/21 14:01	625.1	JMR
2,4,6-Tribromophenol (surr)	82 %R			%	6/14/21 14:01	625.1	JMR



LABORATORY REPORT

EAI ID#: **227526**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 227526.02
 Matrix: aqueous
 Date Sampled: 6/10/21
 Date Received: 6/10/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
Phenol	< 1	1	1	ug/L	6/14/21	14:22	625.1	JMR
2-Fluorophenol (surr)	43 %R			%	6/14/21	14:22	625.1	JMR
Phenol-d6 (surr)	28 %R			%	6/14/21	14:22	625.1	JMR
2,4,6-Tribromophenol (surr)	86 %R			%	6/14/21	14:22	625.1	JMR



QC REPORT

EAI ID#: 227526

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637592-53013/A061421E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	19 (76 %R)	16 (64 %R) (17 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	15 (30 %R)	12 (24 %R) (24 RPD)	6/14/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	33 (66 %R)	25 (50 %R) (27 RPD)	6/14/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	36 (73 %R)	30 (61 %R) (18 RPD)	6/14/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	37 (74 %R)	33 (67 %R) (10 RPD)	6/14/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	36 (73 %R)	32 (65 %R) (12 RPD)	6/14/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	34 (68 %R)	31 (63 %R) (8 RPD)	6/14/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	41 (81 %R)	31 (63 %R) (25 RPD)	6/14/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	14 (29 %R)	14 (28 %R) (4 RPD)	6/14/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	31 (63 %R)	35 (70 %R) (12 RPD)	6/14/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	31 (62 %R)	24 (49 %R) (24 RPD) !	6/14/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	31 (63 %R)	26 (51 %R) (20 RPD)	6/14/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	35 (70 %R)	29 (58 %R) (18 RPD)	6/14/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	38 (75 %R)	34 (67 %R) (11 RPD)	6/14/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	43 (85 %R)	44 (88 %R) (4 RPD)	6/14/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (22 %R)	< 50 (16 %R) (29 RPD)	6/14/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	12 (47 %R)	9.2 (37 %R) (25 RPD) !	6/14/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	20 (79 %R)	15 (62 %R) (25 RPD)	6/14/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	21 (83 %R)	19 (77 %R) (8 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	18 (70 %R)	13 (51 %R) (32 RPD)	6/14/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	16 (64 %R)	12 (47 %R) (31 RPD)	6/14/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	19 (77 %R)	16 (63 %R) (21 RPD)	6/14/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	16 (65 %R)	12 (46 %R) (33 RPD) !	6/14/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	19 (76 %R)	14 (57 %R) (27 RPD) !	6/14/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	16 (63 %R)	11 (45 %R) (33 RPD) !	6/14/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	16 (65 %R)	12 (47 %R) (33 RPD) !	6/14/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	17 (69 %R)	13 (54 %R) (25 RPD)	6/14/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	19 (74 %R)	16 (63 %R) (16 RPD)	6/14/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	19 (77 %R)	18 (71 %R) (8 RPD)	6/14/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	21 (84 %R)	19 (77 %R) (8 RPD)	6/14/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	16 (64 %R)	11 (45 %R) (35 RPD)	6/14/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	17 (70 %R)	13 (52 %R) (28 RPD)	6/14/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	12 (46 %R)	9.2 (37 %R) (24 RPD) !	6/14/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	22 (87 %R)	20 (79 %R) (10 RPD)	6/14/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	20 (79 %R)	17 (70 %R) (12 RPD)	6/14/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	20 (78 %R)	17 (69 %R) (13 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	19 (77 %R)	18 (73 %R) (5 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	20 (81 %R)	20 (78 %R) (3 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	21 (82 %R)	21 (82 %R) (0 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	18 (72 %R)	15 (61 %R) (16 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	18 (71 %R)	15 (58 %R) (20 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	18 (72 %R)	14 (55 %R) (27 RPD)	6/14/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	20 (79 %R)	17 (66 %R) (17 RPD)	6/14/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	19 (77 %R)	18 (74 %R) (5 RPD)	6/14/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	22 (88 %R)	20 (81 %R) (8 RPD)	6/14/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	18 (72 %R)	17 (67 %R) (7 RPD)	6/14/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 227526

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637592-53013/A061421E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	20 (81 %R)	19 (78 %R) (4 RPD)	6/14/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	13 (51 %R)	11 (42 %R) (19 RPD)	6/14/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	19 (76 %R)	18 (71 %R) (7 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	20 (81 %R)	20 (79 %R) (2 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	20 (81 %R)	19 (76 %R) (7 RPD)	6/14/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	21 (85 %R)	20 (81 %R) (5 RPD)	6/14/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	23 (90 %R)	21 (85 %R) (6 RPD)	6/14/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	23 (94 %R)	22 (88 %R) (6 RPD)	6/14/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	23 (91 %R)	21 (85 %R) (7 RPD)	6/14/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	28 (112 %R)	25 (100 %R) (11 RPD)	6/14/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	19 (75 %R)	17 (69 %R) (9 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	17 (70 %R)	14 (55 %R) (24 RPD)	6/14/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	18 (73 %R)	15 (58 %R) (22 RPD)	6/14/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	19 (74 %R)	15 (60 %R) (22 RPD)	6/14/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	19 (74 %R)	16 (66 %R) (12 RPD)	6/14/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	19 (76 %R)	16 (66 %R) (14 RPD)	6/14/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	19 (75 %R)	17 (70 %R) (7 RPD)	6/14/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	19 (74 %R)	18 (71 %R) (4 RPD)	6/14/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	19 (76 %R)	18 (73 %R) (4 RPD)	6/14/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	19 (74 %R)	18 (71 %R) (4 RPD)	6/14/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	19 (76 %R)	18 (71 %R) (6 RPD)	6/14/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	19 (78 %R)	19 (74 %R) (5 RPD)	6/14/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	19 (76 %R)	18 (72 %R) (5 RPD)	6/14/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	20 (79 %R)	18 (74 %R) (7 RPD)	6/14/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	20 (79 %R)	18 (73 %R) (7 RPD)	6/14/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	18 (72 %R)	17 (68 %R) (6 RPD)	6/14/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	19 (74 %R)	18 (74 %R) (0 RPD)	6/14/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	18 (72 %R)	18 (72 %R) (1 RPD)	6/14/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	18 (72 %R)	18 (71 %R) (1 RPD)	6/14/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	14 (56 %R) * 9.9 (39 %R) (34 RPD) !		6/14/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	20 (81 %R)	19 (76 %R) (6 RPD)	6/14/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	33 %R		41 %R	31 %R	6/14/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	24 %R		28 %R	22 %R	6/14/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	83 %R		88 %R	81 %R	6/14/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	58 %R		74 %R	57 %R	6/14/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	67 %R		75 %R	64 %R	6/14/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	82 %R		86 %R	81 %R	6/14/2021	% Rec	30 - 130		625.1

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



LABORATORY REPORT

EAI ID#: **227526**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 227526.01 227526.02

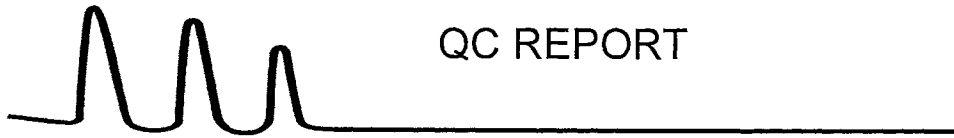
Matrix: aqueous aqueous

Date Sampled: 6/10/21 6/10/21

Date Received: 6/10/21 6/10/21

Solids Suspended	< 5	< 5
Chloride	2900	2800
Cyanide Total	< 5	< 5
Cyanide Free	< 5	< 5
Ammonia-N	< 0.05	< 0.05

		Analysis				
	RL	Units	Date	Time	Method	Analyst
	5	mg/L	6/11/21	15:00	2540D-11	KJD
	1000	ug/L	6/11/21	11:08	4500CIE-11	ATA
	5	ug/L	6/11/21	14:28	ASTM D7511-09	KD
	5	ug/L	6/16/21	9:12	OIA-1677-09	KD
	0.05	mg/L	6/15/21	10:06	TM NH3-001	SEL



QC REPORT

EAI ID#: 227526

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	95 (101 %R)	98 (104 %R) (3 RPD)	mg/L	6/11/21	90 - 110	20	2540D-11
Chloride	< 1000	26000 (104 %R)	26000 (103 %R) (1 RPD)	ug/L	6/11/21	90 - 110	20	4500CIE-11
Cyanide Total	< 5	110 (106 %R)	110 (110 %R) (3 RPD)	ug/L	6/11/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	220 (89 %R)	250 (99 %R) (10 RPD)	ug/L	6/16/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	2.1 (104 %R)	2.0 (98 %R) (6 RPD)	mg/L	6/15/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: 227526

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Sample ID: System Influent System Effluent

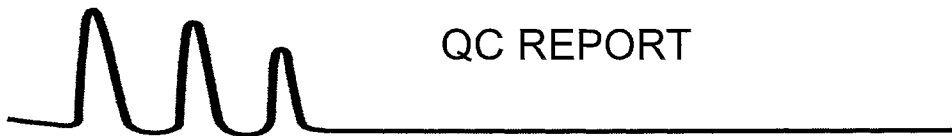
Lab Sample ID: 227526.01 227526.02

Matrix: aqueous aqueous

Date Sampled: 6/10/21 6/10/21

Date Received: 6/10/21 6/10/21

	Analytical			Analysis				
	RL	Matrix	Units	Date	Method	Analyst		
Chromium (VI)	< 10	< 10	10	AqTot	ug/L	6/10/21	7196A	HEH
Antimony	< 0.5	< 0.5	0.5	AqTot	ug/L	6/15/21	200.8	DS
Arsenic	< 0.5	< 0.5	0.5	AqTot	ug/L	6/15/21	200.8	DS
Cadmium	< 0.1	< 0.1	0.1	AqTot	ug/L	6/15/21	200.8	DS
Chromium	< 0.5	< 0.5	0.5	AqTot	ug/L	6/15/21	200.8	DS
Copper	0.97	< 0.1	0.1	AqTot	ug/L	6/15/21	200.8	DS
Iron	540	< 50	50	AqTot	ug/L	6/15/21	200.8	DS
Lead	< 0.1	< 0.1	0.1	AqTot	ug/L	6/15/21	200.8	DS
Mercury	< 0.1	< 0.1	0.1	AqTot	ug/L	6/15/21	200.8	DS
Nickel	0.74	0.29	0.1	AqTot	ug/L	6/15/21	200.8	DS
Selenium	< 0.5	< 0.5	0.5	AqTot	ug/L	6/15/21	200.8	DS
Silver	< 0.1	< 0.1	0.1	AqTot	ug/L	6/15/21	200.8	DS
Zinc	7.1	2.5	1	AqTot	ug/L	6/15/21	200.8	DS
Chromium (III)	< 10	< 10	10	AqTot	mg/L	6/15/21	200.8	DS



QC REPORT

EAI ID#: 227526

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (112 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.0 (104 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.0 (101 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (106 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Copper	< 0.0001	1.0 (101 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Iron	< 0.05	11 (99 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (106 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (107 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (102 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Selenium	< 0.0005	1.1 (105 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Silver	< 0.0001	0.011 (106 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Zinc	< 0.001	1.0 (104 %R)	NA	mg/L	6/15/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (94 %R)	NA	mg/L	6/10/21	85 - 115	20	7196A

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



June 17, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 227526 6/10
Pace Project No.: 70176517

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on June 11, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
• Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



CERTIFICATIONS

Project: 227526 6/10
Pace Project No.: 70176517

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
Connecticut Certification #: PH-0435
Delaware Certification # NY 10478
Maryland Certification #: 208
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

New Jersey Certification #: NY158
New York Certification #: 10478 Primary Accrediting Body
Pennsylvania Certification #: 68-00350
Rhode Island Certification #: LAO00340
Virginia Certification # 460302

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 227526 6/10
Pace Project No.: 70176517

Sample: SYSTEM INFLUENT		Lab ID: 70176517001	Collected: 06/10/21 11:00	Received: 06/11/21 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		06/16/21 12:46	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%	78-114	1		06/16/21 12:46	17060-07-0	
4-Bromofluorobenzene (S)	94	%	83-111	1		06/16/21 12:46	460-00-4	
Toluene-d8 (S)	101	%	80-131	1		06/16/21 12:46	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 227526 6/10
 Pace Project No.: 70176517

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: SYSTEM EFFLUENT Lab ID: 70176517002 Collected: 06/10/21 11:20 Received: 06/11/21 10:00 Matrix: Water								
1624B MSV								
Analytical Method: EPA 1624B								
Pace Analytical Services - Melville								
Acetone	<0.010	mg/L	0.010	1		06/16/21 12:24	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%	78-114	1		06/16/21 12:24	17060-07-0	
4-Bromofluorobenzene (S)	94	%	83-111	1		06/16/21 12:24	460-00-4	
Toluene-d8 (S)	99	%	80-131	1		06/16/21 12:24	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 227526 6/10
Pace Project No.: 70176517

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 227526 6/10
Pace Project No.: 70176517

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70176517001	SYSTEM INFLUENT	EPA 1624B	213801		
70176517002	SYSTEM EFFLUENT	EPA 1624B	213801		


REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD

EAI ID# **227526**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	6/10/2021 11:00	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	WO# : 70176517  70176517
System Effluent	6/10/2021 11:20	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

EAI ID# **227526**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 Acetone Only

PO #:55111

EAI ID# **227526**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Chris Johnson 6/10/21 1630 UPS

Relinquished by _____ Date/Time _____ Received by _____

W. J. [Signature] 6/10/21 10:00

Relinquished by _____ Date/Time _____ Received by _____

Page 8 of 8

Eastern Analytical, Inc. 25 Chenell Dr. 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



Sample Condition Upon Receipt

WO#: 70176517

Client Name: Easton Analytical

Project # PM: KMM Due Date: 05/18/21
CLIENT: EASTA

Courier: Fed UPS USPS Client Commercial Pace Other
 Tracking #: 1Z X46 599 019056 5752
 Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No
 Packing Material: Bubble Wrap Bubble Bags Ziploc None Other
 Thermometer Used: TH091 Correction Factor: +0.0
 Cooler Temperature(°C): 1.8 Cooler Temperature Corrected(°C): 1.8
 Temp should be above freezing to 6.0°C
 USDA Regulated Soil (N/A, water sample)

Temperature Blank Present: Yes No
 Type of Ice: Wet Blue None
 Samples on ice, cooling process has begun
 Date/Time 5035A kits placed in freezer _____

Date and Initials of person examining contents: MN 6/11/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA [check map]? Yes No
 Did samples originate from a foreign source including Hawaii and Puerto Rico)? Yes No
 If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished: <input type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: <u>SL (WT) OIL</u>	
All containers needing preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #	Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A NaOH>12 Cyanide)	
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	Initial when completed: _____ Lot # of added preservative: _____ Date/Time preservative added: _____
Samples checked for dechlorination: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
KI starch test strips Lot #	
Residual chlorine strips Lot #	
SM 4500 CN samples checked for sulfide? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Lead Acetate Strips Lot #	
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if applicable): _____	

Client Notification/ Resolution: _____ Field Data Required? Y / N
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____



Monday, June 21, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 227526
SDG ID: GCI54777
Sample ID#s: CI54777 - CI54778

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

June 21, 2021

SDG I.D.: GCI54777

Project ID: 227526

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CI54777	WATER
SYSTEM EFFLUENT	CI54778	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

June 21, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55112

Custody Information

Collected by:
 Received by: SW
 Analyzed by: see "By" below

Date Time

06/10/21 11:00
 06/15/21 11:33

Laboratory Data

SDG ID: GCI54777
 Phoenix ID: CI54777

Project ID: 227526
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	16	0.20	ug/l	1	06/17/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	71		%	1	06/17/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				06/16/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

June 21, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

June 21, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55112

Custody Information

Collected by:
 Received by: SW
 Analyzed by: see "By" below

Date Time

06/10/21 11:20
 06/15/21 11:33

Laboratory Data

SDG ID: GC154777
 Phoenix ID: CI54778

Project ID: 227526
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	ND	0.20	ug/l	1	06/17/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	77		%	1	06/17/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				06/16/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

June 21, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

June 21, 2021

QA/QC Data

SDG I.D.: GCI54777

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 579770 (ug/l), QC Sample No: CI53547 (CI54777, CI54778)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	87	91	4.5	87			70 - 130	20
% 1,4-dioxane-d8	87	%	93	93	0.0	90			70 - 130	20

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
 June 21, 2021

Monday, June 21, 2021

Sample Criteria Exceedances Report

Criteria: None

GCI54777 - EASTANAL-NH

State: NH

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
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Analysis Comments

June 21, 2021

SDG I.D.: GCI54777

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

4-7°
wc
cd

EAI ID# 227526

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	6/10/2021 11:00	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	54777
System Effluent	6/10/2021 11:20	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	54778

Rwd - 1 see amber per sample.

EAI ID# 227526 Project State: NH
Project ID: 4965
Company Phoenix Environmental Labs
Address 587 East Middle Turnpike
Address Manchester, CT 06040
Account #
Phone # (860) 645-1102

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.

PO #: 55112 EAI ID# 227526
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 6/14/21 1500 VPS
Received by _____
Relinquished by UPS _____ Date/Time 6/15/21 11:33
Received by _____

Eastern Analytical, Inc. 25 Chenell Dr. 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

CHAIN-OF-CUSTODY RECORD

227526

GZANN

30

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers	
System Influent	6-10-21 11:00	aqueous <input checked="" type="radio"/> Grab or <input type="radio"/> Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/Cl/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <input checked="" type="radio"/> HCl <input checked="" type="radio"/> HNO ₃ <input checked="" type="radio"/> H ₂ SO ₄ <input checked="" type="radio"/> NaOH <input type="radio"/> MEOH <input type="radio"/> Na ₂ S ₂ O ₈ <input checked="" type="radio"/> ICE			Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	6-10-21 11:30	aqueous <input checked="" type="radio"/> Grab or <input type="radio"/> Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/Cl/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <input checked="" type="radio"/> HCl <input checked="" type="radio"/> HNO ₃ <input checked="" type="radio"/> H ₂ SO ₄ <input checked="" type="radio"/> NaOH <input type="radio"/> MEOH <input type="radio"/> Na ₂ S ₂ O ₈ <input checked="" type="radio"/> ICE			Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date _____
 Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options

- | | | |
|---|---|--|
| <input checked="" type="checkbox"/> HC | <input type="checkbox"/> NO FAX | PO# verbal |
| <input checked="" type="checkbox"/> EDD PDF | <input type="checkbox"/> Partial FAX | Quote#: |
| <input checked="" type="checkbox"/> EDD email | <input checked="" type="checkbox"/> PDF Invoice | Temp <u>2.2</u> °C |
| <input checked="" type="checkbox"/> PDF prelim, NO FAX | <input type="checkbox"/> EQUIS | Ice <input checked="" type="checkbox"/> <input type="checkbox"/> |
| <input checked="" type="checkbox"/> e-mail Login Confirmation | | |

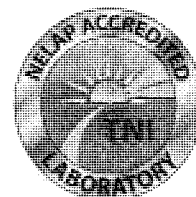
Samples Collected by: AVJ
al jacobson 6-10-21
 Relinquished by _____ Date/Time _____ Received by _____
Foy 6/10/21 1435 Ch...
 Relinquished by _____ Date/Time _____ Received by _____



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 228084

Client Identification: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1

Date Received: 6/23/2021

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

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.

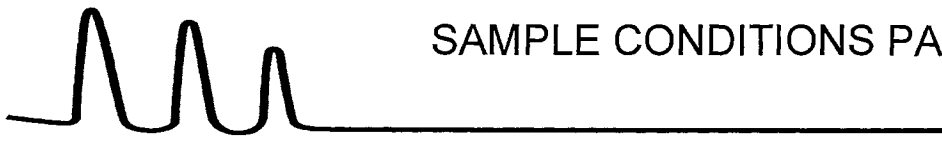
We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,


Lorraine Olashaw, Lab Director

6.29.21
Date

7
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 228084

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Temperature upon receipt (°C): 1.5

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

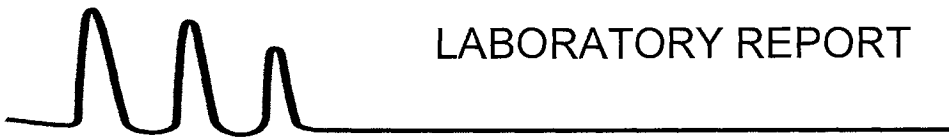
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
228084.01	System Influent	6/23/21	6/22/21 10:44	aqueous		Adheres to Sample Acceptance Policy
228084.02	System Mid	6/23/21	6/22/21 10:48	aqueous		Adheres to Sample Acceptance Policy
228084.03	LGAC In	6/23/21	6/23/21 09:48	aqueous		Adheres to Sample Acceptance Policy
228084.04	LGAC Mid	6/23/21	6/23/21 09:44	aqueous		Adheres to Sample Acceptance Policy
228084.05	LGAC Out	6/23/21	6/23/21 09:40	aqueous		Adheres to Sample Acceptance Policy
228084.06	7 Rennie Rd	6/23/21	6/22/21 14:05	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#: 228084

Client: **GZA GeoEnvironmental, Inc. (NH)**

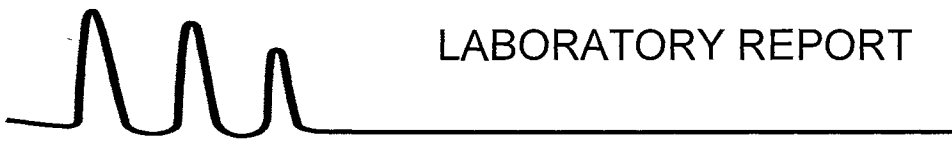
Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Client Sample ID: System Influent
Lab Sample ID: 228084.01
Matrix: aqueous
Date Sampled: 6/22/21
Date Received: 6/23/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	23	2	10	ug/L	6/25/21 18:49	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	6/25/21 18:49	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	6/25/21 18:49	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 228084.02
Matrix: aqueous
Date Sampled: 6/22/21
Date Received: 6/23/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	6/24/21 14:03	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	6/24/21 14:03	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/24/21 14:03	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 228084

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Client Sample ID: LGAC In
 Lab Sample ID: 228084.03
 Matrix: aqueous
 Date Sampled: 6/23/21
 Date Received: 6/23/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2000	100	500	ug/L	6/25/21 19:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	6/25/21 19:50	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	6/25/21 19:50	8260B SIM	AM

Client Sample ID: LGAC Mid
 Lab Sample ID: 228084.04
 Matrix: aqueous
 Date Sampled: 6/23/21
 Date Received: 6/23/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	98	20	100	ug/L	6/25/21 19:19	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	6/25/21 19:19	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	6/25/21 19:19	8260B SIM	AM

Client Sample ID: LGAC Out
 Lab Sample ID: 228084.05
 Matrix: aqueous
 Date Sampled: 6/23/21
 Date Received: 6/23/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.95	0.2	1	ug/L	6/24/21 14:34	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	6/24/21 14:34	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	6/24/21 14:34	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 228084

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 - ST-1**

Client Sample ID: 7 Rennie Rd

Lab Sample ID: 228084.06

Matrix: aqueous

Date Sampled: 6/22/21

Date Received: 6/23/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	6/24/21 15:05	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	6/24/21 15:05	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	6/24/21 15:05	8260B SIM	AM



QC REPORT

EAI ID#: 228084

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637601-39229/A062421DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.2 (103 %R)	4.8 (97 %R) (6 RPD)	6/24/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	99 %R	99 %R	98 %R	6/24/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	100 %R	100 %R	6/24/2021	% 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#: 228084

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637602-34847/A062521DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22 - ST-1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.8 (96 %R)	5.0 (100 %R) (4 RPD)	6/25/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	101 %R	99 %R	102 %R	6/25/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	102 %R	101 %R	102 %R	6/25/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 228909
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 7/12/2021

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.

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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

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

7.24.21
Date

30
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 228909

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 1.3

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)
228909.01	System Influent	7/12/21	7/12/21 11:25	aqueous		Adheres to Sample Acceptance Policy
228909.02	System Effluent	7/12/21	7/12/21 11:45	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#: 228909

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 228909.01
 Matrix: aqueous
 Date Sampled: 7/12/21
 Date Received: 7/12/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	7/12/21	4-Bromofluorobenzene (surr)	100 %R			7/12/21
Vinyl chloride	< 1	1	1	7/12/21	1,2-Dichlorobenzene-d4	98 %R			7/12/21
Bromomethane	< 2	2	1	7/12/21	Toluene-d8 (surr)	103 %R			7/12/21
Chloroethane	< 2	2	1	7/12/21					
Trichlorofluoromethane	< 2	2	1	7/12/21					
Acrolein	< 50	50	1	7/12/21					
Acetone	< 10	10	1	7/12/21					
1,1-Dichloroethene	< 0.5	0.5	1	7/12/21					
Methylene chloride	< 1	1	1	7/12/21					
Acrylonitrile	< 50	50	1	7/12/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	7/12/21					
trans-1,2-Dichloroethene	< 1	1	1	7/12/21					
Vinyl acetate	< 10	10	1	7/12/21					
1,1-Dichloroethane	< 1	1	1	7/12/21					
cis-1,2-Dichloroethene	< 1	1	1	7/12/21					
2-Butanone(MEK)	< 10	10	1	7/12/21					
Chloroform	< 1	1	1	7/12/21					
1,1,1-Trichloroethane	< 1	1	1	7/12/21					
Carbon tetrachloride	< 1	1	1	7/12/21					
Benzene	< 1	1	1	7/12/21					
1,2-Dichloroethane	< 1	1	1	7/12/21					
Trichloroethene	< 1	1	1	7/12/21					
1,2-Dichloropropane	< 1	1	1	7/12/21					
Bromodichloromethane	< 0.5	0.5	1	7/12/21					
2-Chloroethylvinylether	< 2	2	1	7/12/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	7/12/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	7/12/21					
Toluene	< 1	1	1	7/12/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	7/12/21					
1,1,2-Trichloroethane	< 1	1	1	7/12/21					
2-Hexanone	< 10	10	1	7/12/21					
Tetrachloroethene	< 1	1	1	7/12/21					
Dibromochloromethane	< 1	1	1	7/12/21					
Chlorobenzene	< 1	1	1	7/12/21					
Ethylbenzene	< 1	1	1	7/12/21					
mp-Xylene	< 1	1	1	7/12/21					
o-Xylene	< 1	1	1	7/12/21					
Styrene	< 1	1	1	7/12/21					
Bromoform	< 2	2	1	7/12/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	7/12/21					
1,3-Dichlorobenzene	< 1	1	1	7/12/21					
1,4-Dichlorobenzene	< 1	1	1	7/12/21					
1,2-Dichlorobenzene	< 1	1	1	7/12/21					



LABORATORY REPORT

EAI ID#: 228909

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 228909.02
 Matrix: aqueous
 Date Sampled: 7/12/21
 Date Received: 7/12/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	Dilution			Date Analyzed	Result	Dilution			Date Analyzed
		RL	Factor				RL	Factor		
Chloromethane	< 2	2	1	7/12/21	4-Bromofluorobenzene (surr)	99 %R			7/12/21	
Vinyl chloride	< 1	1	1	7/12/21	1,2-Dichlorobenzene-d4	97 %R			7/12/21	
Bromomethane	< 2	2	1	7/12/21	Toluene-d8 (surr)	102 %R			7/12/21	
Chloroethane	< 2	2	1	7/12/21						
Trichlorofluoromethane	< 2	2	1	7/12/21						
Acrolein	< 50	50	1	7/12/21						
Acetone	< 10	10	1	7/12/21						
1,1-Dichloroethene	< 0.5	0.5	1	7/12/21						
Methylene chloride	< 1	1	1	7/12/21						
Acrylonitrile	< 50	50	1	7/12/21						
Methyl-t-butyl ether(MTBE)	< 1	1	1	7/12/21						
trans-1,2-Dichloroethene	< 1	1	1	7/12/21						
Vinyl acetate	< 10	10	1	7/12/21						
1,1-Dichloroethane	< 1	1	1	7/12/21						
cis-1,2-Dichloroethene	< 1	1	1	7/12/21						
2-Butanone(MEK)	< 10	10	1	7/12/21						
Chloroform	< 1	1	1	7/12/21						
1,1,1-Trichloroethane	< 1	1	1	7/12/21						
Carbon tetrachloride	< 1	1	1	7/12/21						
Benzene	< 1	1	1	7/12/21						
1,2-Dichloroethane	< 1	1	1	7/12/21						
Trichloroethene	< 1	1	1	7/12/21						
1,2-Dichloropropane	< 1	1	1	7/12/21						
Bromodichloromethane	< 0.5	0.5	1	7/12/21						
2-Chloroethylvinylether	< 2	2	1	7/12/21						
4-Methyl-2-pentanone(MIBK)	< 10	10	1	7/12/21						
cis-1,3-Dichloropropene	< 0.5	0.5	1	7/12/21						
Toluene	< 1	1	1	7/12/21						
trans-1,3-Dichloropropene	< 0.5	0.5	1	7/12/21						
1,1,2-Trichloroethane	< 1	1	1	7/12/21						
2-Hexanone	< 10	10	1	7/12/21						
Tetrachloroethene	< 1	1	1	7/12/21						
Dibromochloromethane	< 1	1	1	7/12/21						
Chlorobenzene	< 1	1	1	7/12/21						
Ethylbenzene	< 1	1	1	7/12/21						
mp-Xylene	< 1	1	1	7/12/21						
o-Xylene	< 1	1	1	7/12/21						
Styrene	< 1	1	1	7/12/21						
Bromoform	< 2	2	1	7/12/21						
1,1,2,2-Tetrachloroethane	< 1	1	1	7/12/21						
1,3-Dichlorobenzene	< 1	1	1	7/12/21						
1,4-Dichlorobenzene	< 1	1	1	7/12/21						
1,2-Dichlorobenzene	< 1	1	1	7/12/21						



QC REPORT

EAI ID#: 228909

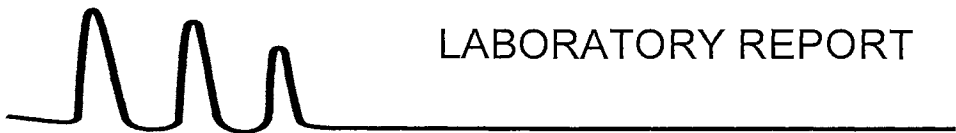
Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637617-02770/A071221V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	25 (124 %R)	24 (118 %R) (4 RPD)	7/12/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	23 (117 %R)	22 (110 %R) (6 RPD)	7/12/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	27 (135 %R)	26 (130 %R) (4 RPD)	7/12/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	22 (112 %R)	22 (108 %R) (4 RPD)	7/12/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	21 (105 %R)	21 (103 %R) (2 RPD)	7/12/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (91 %R)	< 50 (91 %R) (0 RPD)	7/12/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	19 (94 %R)	19 (93 %R) (1 RPD)	7/12/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	20 (100 %R)	19 (96 %R) (4 RPD)	7/12/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	19 (95 %R)	18 (91 %R) (4 RPD)	7/12/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (93 %R)	< 50 (92 %R) (1 RPD)	7/12/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	20 (98 %R)	19 (95 %R) (3 RPD)	7/12/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	20 (98 %R)	19 (95 %R) (3 RPD)	7/12/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	20 (102 %R)	20 (101 %R) (1 RPD)	7/12/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	20 (100 %R)	20 (98 %R) (3 RPD)	7/12/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	20 (99 %R)	20 (99 %R) (1 RPD)	7/12/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	19 (94 %R)	19 (93 %R) (1 RPD)	7/12/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	20 (100 %R)	20 (99 %R) (1 RPD)	7/12/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	20 (101 %R)	20 (99 %R) (1 RPD)	7/12/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	20 (100 %R)	20 (99 %R) (1 RPD)	7/12/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	20 (99 %R)	20 (98 %R) (1 RPD)	7/12/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	20 (101 %R)	20 (99 %R) (1 RPD)	7/12/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	19 (97 %R)	19 (97 %R) (0 RPD)	7/12/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	20 (101 %R)	20 (100 %R) (1 RPD)	7/12/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	21 (106 %R)	21 (104 %R) (2 RPD)	7/12/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	21 (103 %R)	21 (103 %R) (0 RPD)	7/12/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	18 (92 %R)	19 (93 %R) (0 RPD)	7/12/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	20 (102 %R)	20 (100 %R) (1 RPD)	7/12/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	20 (98 %R)	20 (100 %R) (2 RPD)	7/12/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	22 (108 %R)	22 (109 %R) (1 RPD)	7/12/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	20 (101 %R)	20 (102 %R) (1 RPD)	7/12/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	19 (94 %R)	19 (96 %R) (2 RPD)	7/12/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	19 (95 %R)	19 (96 %R) (2 RPD)	7/12/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	21 (103 %R)	21 (104 %R) (1 RPD)	7/12/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	20 (99 %R)	20 (100 %R) (1 RPD)	7/12/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	20 (102 %R)	21 (103 %R) (1 RPD)	7/12/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	41 (102 %R)	41 (102 %R) (0 RPD)	7/12/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	20 (102 %R)	20 (102 %R) (0 RPD)	7/12/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	21 (104 %R)	21 (104 %R) (0 RPD)	7/12/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	22 (108 %R)	22 (108 %R) (0 RPD)	7/12/2021	ug/L	70 - 130	42	624.1
1,1,1,2-Tetrachloroethane	< 1	< .381	20 (101 %R)	20 (102 %R) (1 RPD)	7/12/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	20 (102 %R)	20 (102 %R) (0 RPD)	7/12/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	20 (100 %R)	20 (101 %R) (1 RPD)	7/12/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	20 (101 %R)	20 (102 %R) (0 RPD)	7/12/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	101 %R		101 %R	101 %R	7/12/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	102 %R		100 %R	99 %R	7/12/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	100 %R		99 %R	101 %R	7/12/2021	% Rec	70 - 130		624.1

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



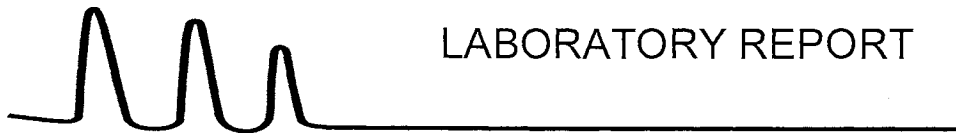
LABORATORY REPORT

EAI ID#: **228909**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 228909.01
 Matrix: aqueous
 Date Sampled: 7/12/21
 Date Received: 7/12/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
Phenol	< 1	1	1	ug/L	7/13/21	15:10	625.1	JMR
2-Fluorophenol (surr)	41 %R			%	7/13/21	15:10	625.1	JMR
Phenol-d6 (surr)	27 %R			%	7/13/21	15:10	625.1	JMR
2,4,6-Tribromophenol (surr)	77 %R			%	7/13/21	15:10	625.1	JMR



LABORATORY REPORT

EAI ID#: **228909**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 228909.02
Matrix: aqueous
Date Sampled: 7/12/21
Date Received: 7/12/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed		Method	Analyst
Phenol	< 1	1	1	ug/L	7/13/21	15:32	625.1	JMR
2-Fluorophenol (surr)	42 %R			%	7/13/21	15:32	625.1	JMR
Phenol-d6 (surr)	28 %R			%	7/13/21	15:32	625.1	JMR
2,4,6-Tribromophenol (surr)	78 %R			%	7/13/21	15:32	625.1	JMR



QC REPORT

EAI ID#: **228909**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637616-75019/A071221E6251

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	19 (77 %R)	19 (75 %R) (2 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	15 (30 %R)	15 (30 %R) (2 RPD)	7/12/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	32 (63 %R)	31 (62 %R) (1 RPD)	7/12/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	37 (74 %R)	36 (73 %R) (2 RPD)	7/12/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	38 (77 %R)	38 (76 %R) (1 RPD)	7/12/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	39 (78 %R)	38 (76 %R) (2 RPD)	7/12/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	38 (77 %R)	39 (79 %R) (2 RPD)	7/12/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	36 (72 %R)	35 (70 %R) (2 RPD)	7/12/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	17 (34 %R)	17 (34 %R) (2 RPD)	7/12/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	41 (81 %R)	42 (84 %R) (3 RPD)	7/12/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	31 (62 %R)	31 (61 %R) (2 RPD)	7/12/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	31 (62 %R)	31 (61 %R) (1 RPD)	7/12/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	35 (71 %R)	35 (69 %R) (2 RPD)	7/12/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	37 (74 %R)	37 (73 %R) (2 RPD)	7/12/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	42 (84 %R)	43 (86 %R) (2 RPD)	7/12/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (21 %R)	< 50 (23 %R) (13 RPD)	7/12/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	12 (47 %R)	12 (47 %R) (1 RPD)	7/12/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	18 (73 %R)	18 (72 %R) (2 RPD)	7/12/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	20 (79 %R)	20 (80 %R) (1 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	17 (70 %R)	17 (68 %R) (3 RPD)	7/12/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	17 (69 %R)	17 (67 %R) (2 RPD)	7/12/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	19 (75 %R)	18 (73 %R) (2 RPD)	7/12/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	15 (60 %R)	15 (60 %R) (0 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	18 (74 %R)	18 (72 %R) (2 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	15 (61 %R)	15 (61 %R) (0 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	15 (62 %R)	15 (62 %R) (0 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	17 (67 %R)	17 (67 %R) (1 RPD)	7/12/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	19 (76 %R)	19 (74 %R) (2 RPD)	7/12/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	20 (80 %R)	20 (79 %R) (1 RPD)	7/12/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	20 (80 %R)	20 (80 %R) (0 RPD)	7/12/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	16 (62 %R)	16 (63 %R) (1 RPD)	7/12/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	16 (66 %R)	16 (66 %R) (0 RPD)	7/12/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	18 (70 %R)	17 (69 %R) (1 RPD)	7/12/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	20 (80 %R)	20 (80 %R) (1 RPD)	7/12/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	20 (80 %R)	20 (79 %R) (2 RPD)	7/12/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	19 (77 %R)	19 (75 %R) (2 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	21 (83 %R)	21 (83 %R) (1 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	21 (83 %R)	21 (82 %R) (1 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	21 (84 %R)	21 (84 %R) (1 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	18 (73 %R)	18 (72 %R) (1 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	18 (73 %R)	18 (70 %R) (3 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	18 (71 %R)	17 (70 %R) (2 RPD)	7/12/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	19 (78 %R)	19 (76 %R) (2 RPD)	7/12/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	22 (86 %R)	22 (87 %R) (0 RPD)	7/12/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	21 (83 %R)	21 (82 %R) (1 RPD)	7/12/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	18 (71 %R)	17 (68 %R) (5 RPD)	7/12/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 228909

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637616-75019/A071221E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	20 (79 %R)	20 (81 %R) (2 RPD)	7/12/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	11 (42 %R)	10 (41 %R) (3 RPD)	7/12/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	20 (81 %R)	20 (82 %R) (0 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	20 (82 %R)	21 (83 %R) (2 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	20 (82 %R)	20 (81 %R) (1 RPD)	7/12/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	22 (87 %R)	22 (87 %R) (0 RPD)	7/12/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	22 (90 %R)	23 (90 %R) (1 RPD)	7/12/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	22 (88 %R)	22 (88 %R) (0 RPD)	7/12/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	22 (87 %R)	22 (88 %R) (1 RPD)	7/12/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	22 (89 %R)	23 (90 %R) (1 RPD)	7/12/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	20 (79 %R)	19 (78 %R) (2 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	17 (67 %R)	17 (67 %R) (1 RPD)	7/12/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	17 (70 %R)	17 (69 %R) (2 RPD)	7/12/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	18 (71 %R)	17 (69 %R) (3 RPD)	7/12/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	18 (71 %R)	17 (70 %R) (2 RPD)	7/12/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	22 (86 %R)	21 (85 %R) (2 RPD)	7/12/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	18 (74 %R)	18 (73 %R) (1 RPD)	7/12/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	19 (74 %R)	19 (75 %R) (1 RPD)	7/12/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	18 (74 %R)	19 (75 %R) (1 RPD)	7/12/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	18 (73 %R)	19 (75 %R) (2 RPD)	7/12/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	18 (74 %R)	18 (73 %R) (1 RPD)	7/12/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	18 (73 %R)	19 (74 %R) (1 RPD)	7/12/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	19 (75 %R)	19 (75 %R) (0 RPD)	7/12/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	19 (76 %R)	19 (76 %R) (0 RPD)	7/12/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	19 (77 %R)	19 (77 %R) (0 RPD)	7/12/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	19 (75 %R)	19 (76 %R) (0 RPD)	7/12/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	19 (76 %R)	19 (76 %R) (0 RPD)	7/12/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	19 (75 %R)	19 (75 %R) (0 RPD)	7/12/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	19 (74 %R)	18 (74 %R) (0 RPD)	7/12/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	13 (54 %R)	14 (54 %R) (1 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	21 (82 %R)	21 (82 %R) (0 RPD)	7/12/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	32 %R		38 %R	38 %R	7/12/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	23 %R		28 %R	28 %R	7/12/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	71 %R		79 %R	79 %R	7/12/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	61 %R		71 %R	70 %R	7/12/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	66 %R		76 %R	74 %R	7/12/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	78 %R		82 %R	82 %R	7/12/2021	% Rec	30 - 130		625.1

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



LABORATORY REPORT

EAI ID#: **228909**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 228909.01 228909.02

Matrix: aqueous aqueous

Date Sampled: 7/12/21 7/12/21

Date Received: 7/12/21 7/12/21

Solids Suspended < 5 < 5

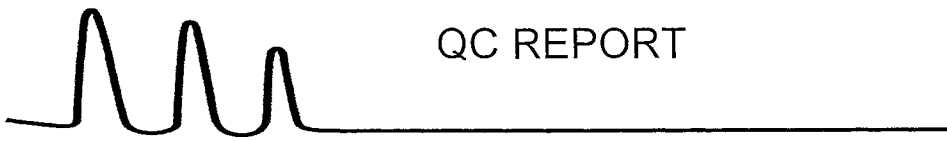
Chloride **2400** **2500**

Cyanide Total < 5 < 5

Ammonia-N < 0.05 < 0.05

Cyanide Free < 5 < 5

RL	Units	Analysis		Method	Analyst
		Date	Time		
5	mg/L	7/14/21	16:21	2540D-11	HEH
1000	ug/L	7/13/21	14:52	300.0	ATA
5	ug/L	7/20/21	17:50	ASTM D7511-09	KD
0.05	mg/L	7/15/21	9:35	TM NH3-001	SEL
5	ug/L	7/14/21	15:57	OIA-1677-09	KD



QC REPORT

EAI ID#: 228909

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	89 (95 %R)	91 (97 %R) (2 RPD)	mg/L	7/14/21	90 - 110	20	2540D-11
Chloride	< 1000	20 (98 %R)	19 (96 %R) (3 RPD)	ug/L	7/13/21	90 - 110	20	300.0
Cyanide Total	< 5	110 (114 %R)	110 (114 %R) (0 RPD)	ug/L	7/20/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	260 (104 %R)	210 (82 %R) (23 RPD)	ug/L	7/14/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	2.0 (99 %R)	1.9 (97 %R) (2 RPD)	mg/L	7/15/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: **228909**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

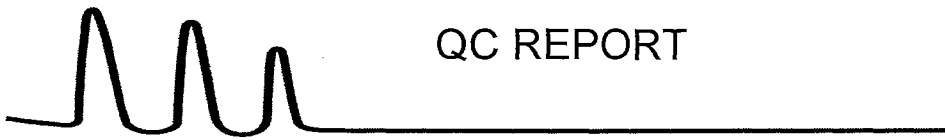
Lab Sample ID: 228909.01 228909.02

Matrix: aqueous aqueous

Date Sampled: 7/12/21 7/12/21

Date Received: 7/12/21 7/12/21

	Analytical			Analysis	
	RL	Matrix	Units	Date	Method Analyst
Chromium (VI)	< 10	< 10	10	AqTot ug/L	7/13/21 7196A RJ
Antimony	< 0.5	< 0.5	0.5	AqTot ug/L	7/13/21 200.8 DS
Arsenic	< 0.5	< 0.5	0.5	AqTot ug/L	7/13/21 200.8 DS
Cadmium	< 0.1	< 0.1	0.1	AqTot ug/L	7/13/21 200.8 DS
Chromium	< 0.5	< 0.5	0.5	AqTot ug/L	7/13/21 200.8 DS
Copper	1.1	< 0.1	0.1	AqTot ug/L	7/13/21 200.8 DS
Iron	500	< 50	50	AqTot ug/L	7/13/21 200.8 DS
Lead	< 0.1	< 0.1	0.1	AqTot ug/L	7/13/21 200.8 DS
Mercury	< 0.1	< 0.1	0.1	AqTot ug/L	7/13/21 200.8 DS
Nickel	0.74	0.24	0.1	AqTot ug/L	7/13/21 200.8 DS
Selenium	< 0.5	< 0.5	0.5	AqTot ug/L	7/13/21 200.8 DS
Silver	< 0.1	< 0.1	0.1	AqTot ug/L	7/13/21 200.8 DS
Zinc	1.5	1.9	1	AqTot ug/L	7/13/21 200.8 DS
Chromium (III)	< 10	< 10	10	AqTot ug/L	7/13/21 200.8 DS



QC REPORT

EAI ID#: 228909

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (114 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.1 (105 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.0 (105 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (110 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Copper	< 0.0001	1.1 (106 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Iron	< 0.05	11 (104 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Lead	< 0.0001	1.0 (101 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (107 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (102 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Selenium	< 0.0005	1.1 (108 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Silver	< 0.0001	0.010 (104 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Zinc	< 0.001	1.1 (107 %R)	NA	mg/L	7/13/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (96 %R)	NA	mg/L	7/13/21	85 - 115	20	7196A

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



Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

July 22, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 228909
Pace Project No.: 70180744

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on July 16, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

CERTIFICATIONS

Project: 228909
Pace Project No.: 70180744

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
Connecticut Certification #: PH-0435
Delaware Certification # NY 10478
Maryland Certification #: 208
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

New Jersey Certification #: NY158
New York Certification #: 10478 Primary Accrediting Body
Pennsylvania Certification #: 68-00350
Rhode Island Certification #: LAO00340
Virginia Certification # 460302

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 228909
 Pace Project No.: 70180744

Sample: SYSTEM INFLUENT		Lab ID: 70180744001	Collected: 07/12/21 11:25	Received: 07/16/21 10:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		07/21/21 12:25	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	85	%	78-114	1		07/21/21 12:25	17060-07-0	
4-Bromofluorobenzene (S)	94	%	83-111	1		07/21/21 12:25	460-00-4	
Toluene-d8 (S)	97	%	80-131	1		07/21/21 12:25	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 228909
 Pace Project No.: 70180744

Sample: SYSTEM EFFLUENT Lab ID: 70180744002 Collected: 07/12/21 11:45 Received: 07/16/21 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		07/21/21 12:03	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	87	%	78-114	1		07/21/21 12:03	17060-07-0	
4-Bromofluorobenzene (S)	95	%	83-111	1		07/21/21 12:03	460-00-4	
Toluene-d8 (S)	94	%	80-131	1		07/21/21 12:03	2037-26-5	

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QUALITY CONTROL DATA

Project: 228909
 Pace Project No.: 70180744

QC Batch: 218725 Analysis Method: EPA 1624B
 QC Batch Method: EPA 1624B Analysis Description: 1624B MSV
 Laboratory: Pace Analytical Services - Melville
 Associated Lab Samples: 70180744001, 70180744002

METHOD BLANK: 1102833 Matrix: Water
 Associated Lab Samples: 70180744001, 70180744002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	07/21/21 11:20	
1,2-Dichloroethane-d4 (S)	%	89	78-114	07/21/21 11:20	
4-Bromofluorobenzene (S)	%	89	83-111	07/21/21 11:20	
Toluene-d8 (S)	%	95	80-131	07/21/21 11:20	

LABORATORY CONTROL SAMPLE: 1102834

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.049	98	20-200	
1,2-Dichloroethane-d4 (S)	%			85	78-114	
4-Bromofluorobenzene (S)	%			95	83-111	
Toluene-d8 (S)	%			91	80-131	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 228909
Pace Project No.: 70180744

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 228909
Pace Project No.: 70180744

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70180744001	SYSTEM INFLUENT	EPA 1624B	218725		
70180744002	SYSTEM EFFLUENT	EPA 1624B	218725		

REPORT OF LABORATORY ANALYSIS

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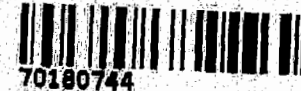
CHAIN-OF-CUSTODY RECORD

EAI ID# **228909**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	7/12/2021 11:25	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	7/12/2021 11:45	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

WO# : 70180744



EAI ID# **228909**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 Acetone Only

PO #: 55296

EAI ID# **228909**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Chen Johnson 7/15/21 1600 UPS
Relinquished by _____ Date/Time _____ Received by _____

Relinquished by _____ Date/Time _____ Received by _____

7/16/21 10:20
customerservice@easternanalytical.com

Page 8 of 8

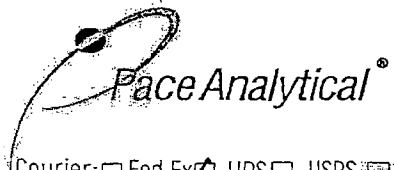
Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

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



Sample Condition Upon Receipt

WO#: 70180744

Client Name: _____

Project: _____

PM: KMM

Due Date: 07/23/21

CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other
 Tracking #: 1Z X46 599 01 9646 6429

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Ziploc None Other

Thermometer Used: TH091 Correction Factor: +0.0

Cooler Temperature(°C): 5.0 Cooler Temperature Corrected(°C): 5.0

Temperature Blank Present: Yes No

Type of Ice: Wet Blue None

Samples on ice, cooling process has begun

Date/Time 5035A kits placed in freezer _____

Temp should be above freezing to 6.0°C

USDA Regulated Soil (N/A, water sample)

Date and Initials of person examining contents: CH 7/16/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

Did samples originate from a foreign source including Hawaii and Puerto Rico? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: <u>SL (WT) OIL</u>		
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #		Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NAOH>12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water).		
Per Method, VOA pH is checked after analysis		Initial when completed: _____ Lot # of added preservative: _____ Date/Time preservative added: _____
Samples checked for dechlorination: KI starch test strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
Residual chlorine strips Lot #		
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Lead Acetate Strips Lot #		
Headspace in VOA Vials (>6mm)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16. <u>CH 7/16/21</u>
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if applicable):		

Client Notification/ Resolution: _____

Field Data Required? Y / N

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

* PM (Project Manager) review is documented electronically in LIMS.



Friday, July 23, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 228909
SDG ID: GCI73116
Sample ID#s: CI73116 - CI73117

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

July 23, 2021

SDG I.D.: GCI73116

Project ID: 228909

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CI73116	WATER
SYSTEM EFFLUENT	CI73117	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report
 July 23, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55297

Custody Information

Collected by:
 Received by: SW
 Analyzed by: see "By" below

Date Time

07/12/21 11:25
 07/14/21 11:02

Laboratory Data

SDG ID: GC173116
 Phoenix ID: CI73116

Project ID: 228909
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	5.9	0.20	ug/l	1	07/21/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	72		%	1	07/21/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				07/20/21	G/G	EPA522

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:

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
 July 23, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report
 July 23, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55297

Custody Information

Collected by:
 Received by: SW
 Analyzed by: see "By" below

Date Time
 07/12/21 11:45
 07/14/21 11:02

Laboratory Data

SDG ID: GCI73116
 Phoenix ID: CI73117

Project ID: 228909
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	0.21	0.20	ug/l	1	07/21/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	75		%	1	07/21/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				07/20/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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Phyllis Shiller, Laboratory Director
 July 23, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



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 Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

July 23, 2021

QA/QC Data

SDG I.D.: GCI73116

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 584208 (ug/l), QC Sample No: CI73116 (CI73116, CI73117)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	95	92	3.2	103			70 - 130	20
% 1,4-dioxane-d8	77	%	74	74	0.0	77			70 - 130	20

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
 July 23, 2021

Friday, July 23, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCI73116 - EASTANAL-NH

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	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

July 23, 2021

SDG I.D.: GCI73116

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

4.600K10



Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# 228909

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	7/12/2021 11:25	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	73116
System Effluent	7/12/2021 11:45	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	73117

EAI ID# 228909

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 55297

EAI ID# 228909

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Relinquished by: UPS Date/Time: 7/13/21 1500 Received by: [Signature]
 Relinquished by: UPS Date/Time: 7/14/21 11:02 Received by: [Signature]

Eastern Analytical, Inc. 25 Chenell Dr. 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

2.10.9.9/28

CHAIN-OF-CUSTODY RECORD

228909

GZANI

30

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers	
System Influent	7-12-21 11:25	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/Cl/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: (HCL) (HNO ₃) (H ₂ SO ₄) (NaOH) MEOH Na ₂ S ₂ O ₈ (ICE)			Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	7-12-21 11:45	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/Cl/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: (HCL) (HNO ₃) (H ₂ SO ₄) (NaOH) MEOH Na ₂ S ₂ O ₈ (ICE)			Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date 5 Day
 Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options

- | | | |
|---|---|--|
| <input checked="" type="checkbox"/> HC | <input type="checkbox"/> NO FAX | PO# verbal |
| <input checked="" type="checkbox"/> EDD PDF | <input type="checkbox"/> Partial FAX | Quote#: |
| <input checked="" type="checkbox"/> EDD email | <input checked="" type="checkbox"/> PDF Invoice | Temp <u>13</u> °C |
| <input checked="" type="checkbox"/> PDF prelim, NO FAX | <input type="checkbox"/> EQUIS | Ice <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |
| <input checked="" type="checkbox"/> e-mail Login Confirmation | | |

Samples Collected by: AYJ
al jacobson 7-12-21
 Relinquished by Ray Date/Time 7/12/21 1453 Received by [Signature]
 Relinquished by _____ Date/Time _____ Received by _____



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 229151
Client Identification: Rennie Farm | 04.0190030.00
Date Received: 7/15/2021

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.

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- < : "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

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.

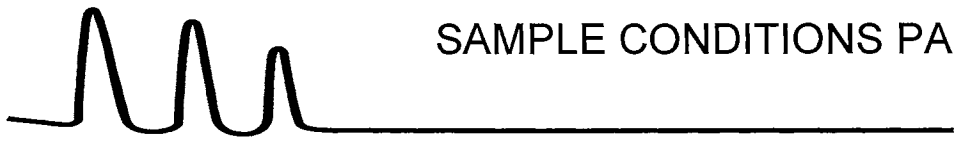
We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,


Lorraine Olashaw, Lab Director

7-21-21
Date

7
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 229151

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.00**

Temperature upon receipt (°C): 5.5

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
229151.01	System Mid	7/15/21	7/14/21 09:00	aqueous		Adheres to Sample Acceptance Policy
229151.02	System Influent	7/15/21	7/14/21 09:05	aqueous		Adheres to Sample Acceptance Policy
229151.03	LGAC Effluent	7/15/21	7/15/21 08:30	aqueous		Adheres to Sample Acceptance Policy
229151.04	LGAC Mid	7/15/21	7/15/21 08:35	aqueous		Adheres to Sample Acceptance Policy
229151.05	LGAC Influent	7/15/21	7/15/21 08:40	aqueous		Adheres to Sample Acceptance Policy
229151.06	7 Rennie Rd	7/15/21	7/15/21 11:40	aqueous		Adheres to Sample Acceptance Policy
229151.07	9 Rennie Rd	7/15/21	7/15/21 12:00	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#: 229151

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.00**

Client Sample ID: System Mid
 Lab Sample ID: 229151.01
 Matrix: aqueous
 Date Sampled: 7/14/21
 Date Received: 7/15/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	7/16/21 17:48	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	7/16/21 17:48	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	7/16/21 17:48	8260B SIM	AM

Client Sample ID: System Influent
 Lab Sample ID: 229151.02
 Matrix: aqueous
 Date Sampled: 7/14/21
 Date Received: 7/15/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	7.1	2	10	ug/L	7/16/21 19:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	105 %R			%	7/16/21 19:52	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	7/16/21 19:52	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 229151

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.00**

Client Sample ID: LGAC Effluent
 Lab Sample ID: 229151.03
 Matrix: aqueous
 Date Sampled: 7/15/21
 Date Received: 7/15/21

	Result	RL	Dilution		Units	Date / Time		Method	Analyst
			Factor			Analyzed			
1,4-Dioxane	0.83	0.2	1		ug/L	7/16/21	18:19	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R				%	7/16/21	18:19	8260B SIM	AM
Toluene-d8 (surr)	102 %R				%	7/16/21	18:19	8260B SIM	AM

Client Sample ID: LGAC Mid
 Lab Sample ID: 229151.04
 Matrix: aqueous
 Date Sampled: 7/15/21
 Date Received: 7/15/21

	Result	RL	Dilution		Units	Date / Time		Method	Analyst
			Factor			Analyzed			
1,4-Dioxane	570	10	50		ug/L	7/16/21	20:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R				%	7/16/21	20:23	8260B SIM	AM
Toluene-d8 (surr)	103 %R				%	7/16/21	20:23	8260B SIM	AM

Client Sample ID: LGAC Influent
 Lab Sample ID: 229151.05
 Matrix: aqueous
 Date Sampled: 7/15/21
 Date Received: 7/15/21

	Result	RL	Dilution		Units	Date / Time		Method	Analyst
			Factor			Analyzed			
1,4-Dioxane	1700	100	500		ug/L	7/16/21	20:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R				%	7/16/21	20:54	8260B SIM	AM
Toluene-d8 (surr)	102 %R				%	7/16/21	20:54	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 229151

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.00**

Client Sample ID: 7 Rennie Rd
 Lab Sample ID: 229151.06
 Matrix: aqueous
 Date Sampled: 7/15/21
 Date Received: 7/15/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed		Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	7/16/21	18:50	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	7/16/21	18:50	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	7/16/21	18:50	8260B SIM	AM



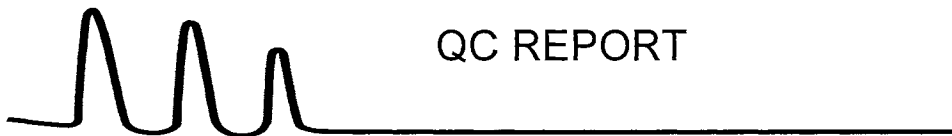
LABORATORY REPORT

EAI ID#: **229151**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.00**

Client Sample ID: 9 Rennie Rd
Lab Sample ID: 229151.07
Matrix: aqueous
Date Sampled: 7/15/21
Date Received: 7/15/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed		Method	Analyst
1,4-Dioxane	14	0.2	1	ug/L	7/16/21	19:21	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	7/16/21	19:21	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	7/16/21	19:21	8260B SIM	AM



QC REPORT

EAI ID#: **229151**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637620-39164/A071621DIOX1

Client Designation: **Rennie Farm | 04.0190030.00**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.0 (101 %R)	5.1 (102 %R) (1 RPD)	7/16/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	102 %R	102 %R	7/16/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	103 %R	103 %R	103 %R	7/16/2021	% Rec	70 - 130	50	8260B

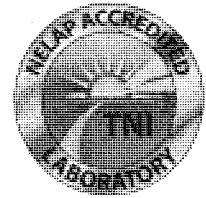
*! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 229674
Client Identification: Rennie Farm | 04.0190030.02 Task No: 22 ST-1
Date Received: 7/26/2021

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.

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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

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

7-30-21
Date

4
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 229674

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 ST-1**

Temperature upon receipt (°C): 2.6

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

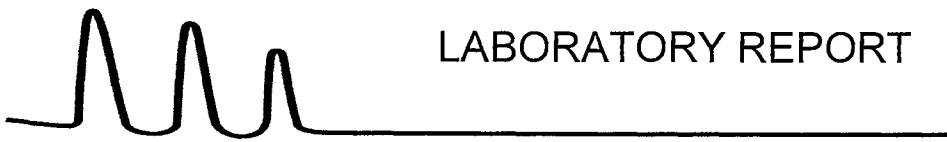
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date		Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
		Received					
229674.01	System Mid	7/26/21		7/26/21 11:50	aqueous		Adheres to Sample Acceptance Policy
229674.02	System Effluent	7/26/21		7/26/21 11:45	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#: 229674

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 ST-1**

Client Sample ID: System Mid
Lab Sample ID: 229674.01
Matrix: aqueous
Date Sampled: 7/26/21
Date Received: 7/26/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	7/26/21 17:33	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	7/26/21 17:33	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	7/26/21 17:33	8260B SIM	AM

Client Sample ID: System Effluent
Lab Sample ID: 229674.02
Matrix: aqueous
Date Sampled: 7/26/21
Date Received: 7/26/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	7/26/21 17:02	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	7/26/21 17:02	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	7/26/21 17:02	8260B SIM	AM



QC REPORT

EAI ID#: 229674

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637628-95633/A072621DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22 ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.4 (108 %R)	5.4 (108 %R) (0 RPD)	7/26/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	102 %R	102 %R	102 %R	7/26/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	104 %R	104 %R	104 %R	7/26/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 229953
Client Identification: Rennie Farm | 04.0190030.00
Date Received: 7/30/2021

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.

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- Hach Water Analysis Handbook, 4th edition, 1992

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

8-9-21
Date

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of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 229953

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.00**

Temperature upon receipt (°C): 2.1

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)
229953.01	System Mid	7/30/21	7/29/21 08:00	aqueous		Adheres to Sample Acceptance Policy
229953.02	System Influent	7/30/21	7/29/21 08:05	aqueous		Adheres to Sample Acceptance Policy
229953.03	3 Dairy Lane	7/30/21	7/29/21 10:10	aqueous		Adheres to Sample Acceptance Policy
229953.04	LGAC Effluent	7/30/21	7/30/21 08:00	aqueous		Adheres to Sample Acceptance Policy
229953.05	LGAC Mid	7/30/21	7/30/21 08:05	aqueous		Adheres to Sample Acceptance Policy
229953.06	LGAC Influent	7/30/21	7/30/21 08:10	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#: 229953

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.00**

Client Sample ID: System Mid
Lab Sample ID: 229953.01
Matrix: aqueous
Date Sampled: 7/29/21
Date Received: 7/30/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	8/4/21 15:18	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	8/4/21 15:18	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	8/4/21 15:18	8260B SIM	AM

Client Sample ID: System Influent
Lab Sample ID: 229953.02
Matrix: aqueous
Date Sampled: 7/29/21
Date Received: 7/30/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	6.3	0.2	1	ug/L	8/4/21 16:51	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	8/4/21 16:51	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/4/21 16:51	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 229953

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.00**

Client Sample ID: 3 Dairy Lane
 Lab Sample ID: 229953.03
 Matrix: aqueous
 Date Sampled: 7/29/21
 Date Received: 7/30/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed		Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	8/4/21	15:49	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	8/4/21	15:49	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	8/4/21	15:49	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 229953

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.00**

Client Sample ID: LGAC Effluent
Lab Sample ID: 229953.04
Matrix: aqueous
Date Sampled: 7/30/21
Date Received: 7/30/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	5.3	0.2	1	ug/L	8/4/21 16:20	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	8/4/21 16:20	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/4/21 16:20	8260B SIM	AM

Client Sample ID: LGAC Mid
Lab Sample ID: 229953.05
Matrix: aqueous
Date Sampled: 7/30/21
Date Received: 7/30/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1500	20	100	ug/L	8/4/21 17:22	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	8/4/21 17:22	8260B SIM	AM
Toluene-d8 (surr)	103 %R			%	8/4/21 17:22	8260B SIM	AM

Client Sample ID: LGAC Influent
Lab Sample ID: 229953.06
Matrix: aqueous
Date Sampled: 7/30/21
Date Received: 7/30/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	960	100	500	ug/L	8/4/21 17:53	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	8/4/21 17:53	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/4/21 17:53	8260B SIM	AM



QC REPORT

EAI ID#: 229953

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637636-82748/A080421DIOX1

Client Designation: Rennie Farm | 04.0190030.00

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.2 (104 %R)	5.3 (105 %R) (1 RPD)	8/4/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	103 %R	102 %R	8/4/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	104 %R	104 %R	103 %R	8/4/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 230511
Client Identification: Rennie Farm | 04.0190030.02 Task No: 22, ST 1
Date Received: 8/11/2021

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.

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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

8.19.21
Date

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of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 230511

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22, ST 1**

Temperature upon receipt (°C): 4.6

Acceptable temperature range (°C): 0-6

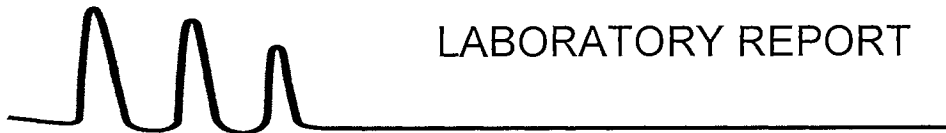
Received on ice or cold packs (Yes/No): Y

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
230511.01	System Influent	8/11/21	8/10/21 09:40	aqueous		Adheres to Sample Acceptance Policy
230511.02	System Mid	8/11/21	8/10/21 09:45	aqueous		Adheres to Sample Acceptance Policy
230511.03	LGAC Effluent	8/11/21	8/11/21 08:30	aqueous		Adheres to Sample Acceptance Policy
230511.04	LGAC Mid	8/11/21	8/11/21 08:35	aqueous		Adheres to Sample Acceptance Policy
230511.05	LGAC Influent	8/11/21	8/11/21 08:40	aqueous		Adheres to Sample Acceptance Policy

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

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- 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#: 230511

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22, ST 1

Client Sample ID: System Influent
 Lab Sample ID: 230511.01
 Matrix: aqueous
 Date Sampled: 8/10/21
 Date Received: 8/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	18	0.2	1	ug/L	8/17/21 15:06	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	8/17/21 15:06	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/17/21 15:06	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 230511.02
 Matrix: aqueous
 Date Sampled: 8/10/21
 Date Received: 8/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	8/17/21 14:35	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	8/17/21 14:35	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/17/21 14:35	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 230511

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22, ST 1

Client Sample ID: LGAC Effluent

Lab Sample ID: 230511.03

Matrix: aqueous

Date Sampled: 8/11/21

Date Received: 8/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.52	0.2	1	ug/L	8/17/21 15:37	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	8/17/21 15:37	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/17/21 15:37	8260B SIM	AM

Client Sample ID: LGAC Mid

Lab Sample ID: 230511.04

Matrix: aqueous

Date Sampled: 8/11/21

Date Received: 8/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	77	20	100	ug/L	8/17/21 16:08	8260B SIM	AM
4-Bromofluorobenzene (surr)	105 %R			%	8/17/21 16:08	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/17/21 16:08	8260B SIM	AM

Client Sample ID: LGAC Influent

Lab Sample ID: 230511.05

Matrix: aqueous

Date Sampled: 8/11/21

Date Received: 8/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1000	100	500	ug/L	8/17/21 16:39	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	8/17/21 16:39	8260B SIM	AM
Toluene-d8 (surr)	104 %R			%	8/17/21 16:39	8260B SIM	AM



QC REPORT

EAI ID#: **230511**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637648-86442/A081721DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22, ST 1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.0 (100 %R)	5.2 (103 %R) (3 RPD)	8/17/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	104 %R	103 %R	8/17/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	104 %R	104 %R	104 %R	8/17/2021	% 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.



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford , NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 230704
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 8/16/2021

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.

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Sincerely,


Lorraine Olashaw, Lab Director

8.30.21
Date

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of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 230704

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 1.9

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
230704.01	System Influent	8/16/21	8/16/21 12:50	aqueous		Adheres to Sample Acceptance Policy
230704.02	System Effluent	8/16/21	8/16/21 13:10	aqueous		Adheres to Sample Acceptance Policy

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

Unless otherwise noted:

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- 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#: 230704

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 230704.01
 Matrix: aqueous
 Date Sampled: 8/16/21
 Date Received: 8/16/21

Date of Preparation:
 Method: 624.1
 Analyst: AM
 Units: ug/L

	Result	RL	Dilution Factor	Date Analyzed		Result	RL	Dilution Factor	Date Analyzed
Chloromethane	< 2	2	1	8/16/21	1,2-Dichlorobenzene	< 1	1	1	8/16/21
Vinyl chloride	< 1	1	1	8/16/21	4-Bromofluorobenzene (surr)	103 %R			8/16/21
Bromomethane	< 2	2	1	8/16/21	1,2-Dichlorobenzene-d4	101 %R			8/16/21
Chloroethane	< 2	2	1	8/16/21	Toluene-d8 (surr)	93 %R			8/16/21
Trichlorofluoromethane	< 2	2	1	8/16/21					
Acrolein	< 50	50	1	8/16/21					
Acetone	< 10	10	1	8/16/21					
1,1-Dichloroethene	< 0.5	0.5	1	8/16/21					
Methylene chloride	< 1	1	1	8/16/21					
Acrylonitrile	< 50	50	1	8/16/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	8/16/21					
trans-1,2-Dichloroethene	< 1	1	1	8/16/21					
Vinyl acetate	< 10	10	1	8/16/21					
1,1-Dichloroethane	< 1	1	1	8/16/21					
cis-1,2-Dichloroethene	< 1	1	1	8/16/21					
2-Butanone(MEK)	< 10	10	1	8/16/21					
Chloroform	< 1	1	1	8/16/21					
1,1,1-Trichloroethane	< 1	1	1	8/16/21					
Carbon tetrachloride	< 1	1	1	8/16/21					
Benzene	< 1	1	1	8/16/21					
1,2-Dichloroethane	< 1	1	1	8/16/21					
Trichloroethene	< 1	1	1	8/16/21					
1,2-Dichloropropane	< 1	1	1	8/16/21					
Bromodichloromethane	< 0.5	0.5	1	8/16/21					
2-Chloroethylvinylether	< 2	2	1	8/16/21					
1,4-Dioxane	< 50	50	1	8/16/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	8/16/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	8/16/21					
Toluene	< 1	1	1	8/16/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	8/16/21					
1,1,2-Trichloroethane	< 1	1	1	8/16/21					
2-Hexanone	< 10	10	1	8/16/21					
Tetrachloroethene	< 1	1	1	8/16/21					
Dibromochloromethane	< 1	1	1	8/16/21					
Chlorobenzene	< 1	1	1	8/16/21					
Ethylbenzene	< 1	1	1	8/16/21					
mp-Xylene	< 1	1	1	8/16/21					
o-Xylene	< 1	1	1	8/16/21					
Styrene	< 1	1	1	8/16/21					
Bromoform	< 2	2	1	8/16/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	8/16/21					
1,3-Dichlorobenzene	< 1	1	1	8/16/21					
1,4-Dichlorobenzene	< 1	1	1	8/16/21					



LABORATORY REPORT

EAI ID#: 230704

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 230704.02
 Matrix: aqueous
 Date Sampled: 8/16/21
 Date Received: 8/16/21

Date of Preparation:
 Method: 624.1
 Analyst: AM
 Units: ug/L

	Result	RL	Dilution Factor	Date Analyzed		Result	Dilution		Date Analyzed
							RL	Factor	
Chloromethane	< 2	2	1	8/16/21	1,2-Dichlorobenzene	< 1	1	1	8/16/21
Vinyl chloride	< 1	1	1	8/16/21	4-Bromofluorobenzene (surr)	103 %R			8/16/21
Bromomethane	< 2	2	1	8/16/21	1,2-Dichlorobenzene-d4	100 %R			8/16/21
Chloroethane	< 2	2	1	8/16/21	Toluene-d8 (surr)	91 %R			8/16/21
Trichlorofluoromethane	< 2	2	1	8/16/21					
Acrolein	< 50	50	1	8/16/21					
Acetone	< 10	10	1	8/16/21					
1,1-Dichloroethene	< 0.5	0.5	1	8/16/21					
Methylene chloride	< 1	1	1	8/16/21					
Acrylonitrile	< 50	50	1	8/16/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	8/16/21					
trans-1,2-Dichloroethene	< 1	1	1	8/16/21					
Vinyl acetate	< 10	10	1	8/16/21					
1,1-Dichloroethane	< 1	1	1	8/16/21					
cis-1,2-Dichloroethene	< 1	1	1	8/16/21					
2-Butanone(MEK)	< 10	10	1	8/16/21					
Chloroform	< 1	1	1	8/16/21					
1,1,1-Trichloroethane	< 1	1	1	8/16/21					
Carbon tetrachloride	< 1	1	1	8/16/21					
Benzene	< 1	1	1	8/16/21					
1,2-Dichloroethane	< 1	1	1	8/16/21					
Trichloroethene	< 1	1	1	8/16/21					
1,2-Dichloropropane	< 1	1	1	8/16/21					
Bromodichloromethane	< 0.5	0.5	1	8/16/21					
2-Chloroethylvinylether	< 2	2	1	8/16/21					
1,4-Dioxane	< 50	50	1	8/16/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	8/16/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	8/16/21					
Toluene	< 1	1	1	8/16/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	8/16/21					
1,1,2-Trichloroethane	< 1	1	1	8/16/21					
2-Hexanone	< 10	10	1	8/16/21					
Tetrachloroethene	< 1	1	1	8/16/21					
Dibromochloromethane	< 1	1	1	8/16/21					
Chlorobenzene	< 1	1	1	8/16/21					
Ethylbenzene	< 1	1	1	8/16/21					
mp-Xylene	< 1	1	1	8/16/21					
o-Xylene	< 1	1	1	8/16/21					
Styrene	< 1	1	1	8/16/21					
Bromoform	< 2	2	1	8/16/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	8/16/21					
1,3-Dichlorobenzene	< 1	1	1	8/16/21					
1,4-Dichlorobenzene	< 1	1	1	8/16/21					



QC REPORT

EAI ID#: 230704

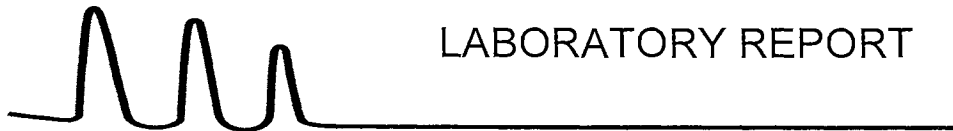
Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637647-31265/A081621V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	32 (162 %R)	32 (162 %R) (0 RPD)	8/16/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	31 (157 %R)	31 (157 %R) (0 RPD)	8/16/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	28 (138 %R)	28 (139 %R) (0 RPD)	8/16/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	28 (140 %R)	27 (137 %R) (2 RPD)	8/16/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	27 (135 %R)	26 (129 %R) (4 RPD)	8/16/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	* < 50 (156 %	* < 50 (153 %R) (2 RPD)	8/16/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	24 (122 %R)	24 (120 %R) (2 RPD)	8/16/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	23 (113 %R)	22 (108 %R) (5 RPD)	8/16/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	22 (109 %R)	21 (106 %R) (3 RPD)	8/16/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (123 %R)	< 50 (121 %R) (2 RPD)	8/16/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	23 (114 %R)	22 (109 %R) (4 RPD)	8/16/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	22 (112 %R)	22 (108 %R) (4 RPD)	8/16/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	26 (130 %R)	25 (125 %R) (4 RPD)	8/16/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	23 (116 %R)	22 (111 %R) (4 RPD)	8/16/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	23 (115 %R)	22 (111 %R) (3 RPD)	8/16/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	24 (120 %R)	23 (117 %R) (2 RPD)	8/16/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	22 (108 %R)	21 (106 %R) (2 RPD)	8/16/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	23 (114 %R)	22 (112 %R) (2 RPD)	8/16/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	22 (112 %R)	22 (109 %R) (2 RPD)	8/16/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	22 (112 %R)	22 (110 %R) (2 RPD)	8/16/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	24 (118 %R)	23 (117 %R) (1 RPD)	8/16/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	22 (111 %R)	22 (109 %R) (2 RPD)	8/16/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	23 (115 %R)	23 (113 %R) (2 RPD)	8/16/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	24 (118 %R)	23 (116 %R) (2 RPD)	8/16/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	26 (128 %R)	25 (126 %R) (2 RPD)	8/16/2021	ug/L	1 - 225	71	624.1
1,4-Dioxane	< 50	<	< 50 (118 %R)	< 50 (119 %R) (1 RPD)	8/16/2021	ug/L	40 - 160	20	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	23 (117 %R)	23 (115 %R) (1 RPD)	8/16/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	23 (117 %R)	23 (114 %R) (2 RPD)	8/16/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	19 (97 %R)	19 (94 %R) (3 RPD)	8/16/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	22 (108 %R)	21 (106 %R) (3 RPD)	8/16/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	20 (102 %R)	20 (100 %R) (3 RPD)	8/16/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	21 (104 %R)	20 (102 %R) (2 RPD)	8/16/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	19 (94 %R)	18 (90 %R) (4 RPD)	8/16/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	18 (91 %R)	18 (89 %R) (2 RPD)	8/16/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	20 (98 %R)	20 (98 %R) (0 RPD)	8/16/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	20 (99 %R)	20 (99 %R) (0 RPD)	8/16/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	39 (98 %R)	39 (98 %R) (0 RPD)	8/16/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	20 (102 %R)	21 (103 %R) (1 RPD)	8/16/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	20 (101 %R)	21 (103 %R) (1 RPD)	8/16/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	19 (94 %R)	19 (96 %R) (1 RPD)	8/16/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	19 (97 %R)	19 (95 %R) (2 RPD)	8/16/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	19 (93 %R)	19 (93 %R) (0 RPD)	8/16/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	18 (92 %R)	18 (92 %R) (0 RPD)	8/16/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	19 (93 %R)	19 (93 %R) (0 RPD)	8/16/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	104 %R		107 %R	108 %R	8/16/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	102 %R		100 %R	100 %R	8/16/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	92 %R		91 %R	90 %R	8/16/2021	% Rec	70 - 130		624.1

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



LABORATORY REPORT

EAI ID#: 230704

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 230704.01
Matrix: aqueous
Date Sampled: 8/16/21
Date Received: 8/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	8/20/21 12:27	625.1	JMR
2-Fluorophenol (surr)	43 %R			%	8/20/21 12:27	625.1	JMR
Phenol-d6 (surr)	29 %R			%	8/20/21 12:27	625.1	JMR
2,4,6-Tribromophenol (surr)	83 %R			%	8/20/21 12:27	625.1	JMR



LABORATORY REPORT

EAI ID#: 230704

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 230704.02
Matrix: aqueous
Date Sampled: 8/16/21
Date Received: 8/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed		Method	Analyst
Phenol	< 1	1	1	ug/L	8/20/21	12:50	625.1	JMR
2-Fluorophenol (surr)	45 %R			%	8/20/21	12:50	625.1	JMR
Phenol-d6 (surr)	31 %R			%	8/20/21	12:50	625.1	JMR
2,4,6-Tribromophenol (surr)	82 %R			%	8/20/21	12:50	625.1	JMR



QC REPORT

EAI ID#: 230704

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637649-56911/A081921625A1

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	19 (76 %R)	18 (72 %R) (6 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	16 (32 %R)	15 (31 %R) (6 RPD)	8/20/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	36 (71 %R)	33 (67 %R) (6 RPD)	8/20/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	39 (78 %R)	36 (73 %R) (7 RPD)	8/20/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	39 (79 %R)	37 (73 %R) (7 RPD)	8/20/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	40 (80 %R)	37 (74 %R) (8 RPD)	8/20/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	39 (77 %R)	36 (71 %R) (8 RPD)	8/20/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	39 (79 %R)	37 (74 %R) (6 RPD)	8/20/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	17 (35 %R)	16 (32 %R) (8 RPD)	8/20/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	43 (87 %R)	39 (77 %R) (11 RPD)	8/20/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	33 (67 %R)	31 (63 %R) (6 RPD)	8/20/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	34 (67 %R)	32 (63 %R) (6 RPD)	8/20/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	37 (74 %R)	35 (69 %R) (7 RPD)	8/20/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	39 (78 %R)	36 (73 %R) (7 RPD)	8/20/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	43 (87 %R)	40 (80 %R) (8 RPD)	8/20/2021	ug/L	1 - 181	203	625.1
N-Nitrosodimethylamine	< 1	< .11	13 (51 %R)	12 (47 %R) (7 RPD)	8/20/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	19 (78 %R)	18 (74 %R) (6 RPD)	8/20/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	21 (82 %R)	19 (75 %R) (9 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	19 (74 %R)	17 (70 %R) (6 RPD)	8/20/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	17 (67 %R)	16 (64 %R) (6 RPD)	8/20/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	19 (76 %R)	18 (73 %R) (5 RPD)	8/20/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	17 (70 %R)	16 (65 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	20 (80 %R)	19 (76 %R) (6 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	19 (74 %R)	17 (69 %R) (8 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	18 (71 %R)	17 (67 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	19 (75 %R)	18 (70 %R) (7 RPD)	8/20/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	20 (79 %R)	19 (74 %R) (6 RPD)	8/20/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	20 (82 %R)	19 (76 %R) (7 RPD)	8/20/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	21 (83 %R)	19 (77 %R) (7 RPD)	8/20/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	19 (74 %R)	17 (69 %R) (7 RPD)	8/20/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	19 (75 %R)	18 (71 %R) (5 RPD)	8/20/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	17 (69 %R)	16 (63 %R) (8 RPD)	8/20/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	22 (86 %R)	20 (80 %R) (8 RPD)	8/20/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	21 (82 %R)	19 (78 %R) (6 RPD)	8/20/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	20 (80 %R)	19 (75 %R) (8 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	21 (84 %R)	20 (78 %R) (8 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	21 (85 %R)	20 (79 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	22 (88 %R)	20 (82 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	18 (70 %R)	17 (66 %R) (5 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	19 (77 %R)	18 (72 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	19 (74 %R)	17 (70 %R) (6 RPD)	8/20/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	20 (79 %R)	18 (74 %R) (7 RPD)	8/20/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	22 (87 %R)	20 (81 %R) (8 RPD)	8/20/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	21 (86 %R)	20 (79 %R) (8 RPD)	8/20/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	19 (78 %R)	17 (67 %R) (14 RPD)	8/20/2021	ug/L	1 - 200	50	625.1
3,3'-Dichlorobenzidine	< 1	< .27	20 (82 %R)	19 (76 %R) (8 RPD)	8/20/2021	ug/L	1 - 262	108	625.1



QC REPORT

EAI ID#: 230704

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637649-56911/A081921625A1

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Pyridine	< 5	< .18	11 (43 %R)	9.8 (39 %R) (10 RPD)	8/20/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	20 (78 %R)	18 (72 %R) (8 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	21 (83 %R)	20 (78 %R) (6 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	20 (82 %R)	19 (77 %R) (6 RPD)	8/20/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	22 (87 %R)	20 (82 %R) (6 RPD)	8/20/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	22 (90 %R)	21 (84 %R) (6 RPD)	8/20/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	22 (89 %R)	21 (83 %R) (7 RPD)	8/20/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	22 (89 %R)	21 (84 %R) (6 RPD)	8/20/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	23 (90 %R)	21 (85 %R) (6 RPD)	8/20/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	20 (81 %R)	19 (76 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	18 (72 %R)	17 (68 %R) (6 RPD)	8/20/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	19 (75 %R)	18 (70 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	19 (75 %R)	18 (71 %R) (6 RPD)	8/20/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	18 (74 %R)	17 (69 %R) (7 RPD)	8/20/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	19 (74 %R)	17 (70 %R) (6 RPD)	8/20/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	19 (76 %R)	18 (71 %R) (7 RPD)	8/20/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	19 (75 %R)	17 (69 %R) (8 RPD)	8/20/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	19 (75 %R)	17 (70 %R) (8 RPD)	8/20/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	18 (74 %R)	17 (69 %R) (6 RPD)	8/20/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	18 (73 %R)	17 (69 %R) (6 RPD)	8/20/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	19 (74 %R)	18 (70 %R) (6 RPD)	8/20/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	19 (76 %R)	18 (71 %R) (7 RPD)	8/20/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	19 (78 %R)	18 (72 %R) (8 RPD)	8/20/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	19 (78 %R)	18 (73 %R) (7 RPD)	8/20/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	19 (77 %R)	18 (72 %R) (7 RPD)	8/20/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	20 (81 %R)	19 (75 %R) (7 RPD)	8/20/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	20 (80 %R)	19 (75 %R) (6 RPD)	8/20/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	19 (76 %R)	18 (71 %R) (7 RPD)	8/20/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	15 (60 %R)	14 (56 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	20 (78 %R)	18 (73 %R) (7 RPD)	8/20/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)			40 %R	44 %R	41 %R	8/20/2021	% Rec	15 - 110	625.1
Phenol-d6 (surr)			29 %R	31 %R	29 %R	8/20/2021	% Rec	15 - 110	625.1
2,4,6-Tribromophenol (surr)			87 %R	86 %R	78 %R	8/20/2021	% Rec	15 - 110	625.1
Nitrobenzene-D5 (surr)			70 %R	75 %R	70 %R	8/20/2021	% Rec	30 - 130	625.1
2-Fluorobiphenyl (surr)			79 %R	80 %R	74 %R	8/20/2021	% Rec	30 - 130	625.1
p-Terphenyl-D14 (surr)			87 %R	86 %R	79 %R	8/20/2021	% Rec	30 - 130	625.1

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



LABORATORY REPORT

EAI ID#: 230704

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Sample ID:	System Influent	System Effluent								
Lab Sample ID:	230704.01	230704.02								
Matrix:	aqueous	aqueous								
Date Sampled:	8/16/21	8/16/21								
Date Received:	8/16/21	8/16/21	RL	Units	Analysis		Date	Time	Method	Analyst
Solids Suspended	< 5	< 5	5	mg/L	8/18/21	12:10	2540D-11	CF		
Chloride	3100	3300	1000	ug/L	8/17/21	14:16	300.0	KD		
Cyanide Total	< 5	< 5	5	ug/L	8/23/21	12:28	ASTM D7511-09	KD		
Cyanide Free	< 5	< 5	5	ug/L	8/24/21	13:24	OIA-1677-09	KD		
Ammonia-N	< 0.05	< 0.05	0.05	mg/L	8/18/21	15:04	TM NH3-001	SEL		



QC REPORT

EAI ID#: 230704

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	86 (92 %R)	92 (99 %R) (7 RPD)	mg/L	8/18/21	90 - 110	20	2540D-11
Chloride	< 1000	20000 (98 %R)	19000 (97 %R) (1 RPD)	ug/L	8/17/21	90 - 110	20	300.0
Cyanide Total	< 5	100 (103 %R)	110 (114 %R) (10 RPD)	ug/L	8/23/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	220 (89 %R)	230 (90 %R) (1 RPD)	ug/L	8/24/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	2.0 (100 %R)	1.9 (94 %R) (5 RPD)	mg/L	8/18/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: 230704

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

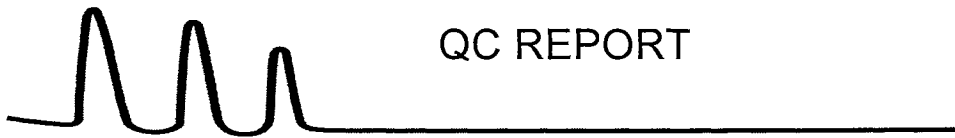
Lab Sample ID: 230704.01 230704.02

Matrix: aqueous aqueous

Date Sampled: 8/16/21 8/16/21

Date Received: 8/16/21 8/16/21

	Analytical			Analysis	
	RL	Matrix	Units	Date	Method Analyst
Chromium (VI)	< 10	< 10		8/16/21	7196A HEH
Antimony	< 0.5	< 0.5	0.5	AqTot ug/L	8/17/21 200.8 DS
Arsenic	< 0.5	< 0.5	0.5	AqTot ug/L	8/17/21 200.8 DS
Cadmium	< 0.1	< 0.1	0.1	AqTot ug/L	8/17/21 200.8 DS
Chromium	< 0.5	< 0.5	0.5	AqTot ug/L	8/17/21 200.8 DS
Copper	1.0	0.14	0.1	AqTot ug/L	8/17/21 200.8 DS
Iron	550	< 50	50	AqTot ug/L	8/17/21 200.8 DS
Lead	< 0.1	< 0.1	0.1	AqTot ug/L	8/17/21 200.8 DS
Mercury	< 0.1	< 0.1	0.1	AqTot ug/L	8/17/21 200.8 DS
Nickel	0.77	0.29	0.1	AqTot ug/L	8/17/21 200.8 DS
Selenium	< 0.5	< 0.5	0.5	AqTot ug/L	8/17/21 200.8 DS
Silver	< 0.1	< 0.1	0.1	AqTot ug/L	8/17/21 200.8 DS
Zinc	1.6	2.6	1	AqTot ug/L	8/17/21 200.8 DS
Chromium (III)	< 10	< 10	10	AqTot ug/L	8/17/21 200.8 DS



QC REPORT

EAI ID#: 230704

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.3 (133 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.1 (106 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.0 (101 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (108 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Copper	< 0.0001	1.1 (109 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Iron	< 0.05	11 (104 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (110 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (108 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Nickel	< 0.0001	1.1 (106 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Selenium	< 0.0005	1.1 (113 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Silver	< 0.0001	0.011 (109 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Zinc	< 0.001	1.0 (105 %R)	NA	mg/L	8/17/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (95 %R)	NA	mg/L	8/16/21	85 - 115	20	7196A

The laboratory control sample for Antimony did not meet the acceptance criteria. The high bias has no impact on the data reported as no Antimony was found in any of the samples.

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

August 25, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 230704
Pace Project No.: 70184475

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on August 18, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: 230704
Pace Project No.: 70184475

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
Connecticut Certification #: PH-0435
Delaware Certification # NY 10478
Maryland Certification #: 208
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

New Jersey Certification #: NY158
New York Certification #: 10478 Primary Accrediting Body
Pennsylvania Certification #: 68-00350
Rhode Island Certification #: LAO00340
Virginia Certification # 460302

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: 230704
Pace Project No.: 70184475

Sample: SYSTEM INFLUENT		Lab ID: 70184475001	Collected: 08/16/21 12:50	Received: 08/18/21 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		08/24/21 13:42	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%	78-114	1		08/24/21 13:42	17060-07-0	
4-Bromofluorobenzene (S)	102	%	83-111	1		08/24/21 13:42	460-00-4	
Toluene-d8 (S)	108	%	80-131	1		08/24/21 13:42	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 230704
Pace Project No.: 70184475

Sample: SYSTEM EFFLUENT		Lab ID: 70184475002	Collected: 08/16/21 13:10	Received: 08/18/21 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		08/24/21 13:20	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	78-114	1		08/24/21 13:20	17060-07-0	
4-Bromofluorobenzene (S)	101	%	83-111	1		08/24/21 13:20	460-00-4	
Toluene-d8 (S)	106	%	80-131	1		08/24/21 13:20	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 230704
Pace Project No.: 70184475

QC Batch: 223246	Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B	Analysis Description: 1624B MSV
	Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70184475001, 70184475002

METHOD BLANK: 1125427 Matrix: Water
Associated Lab Samples: 70184475001, 70184475002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	08/24/21 12:12	
1,2-Dichloroethane-d4 (S)	%	106	78-114	08/24/21 12:12	
4-Bromofluorobenzene (S)	%	104	83-111	08/24/21 12:12	
Toluene-d8 (S)	%	107	80-131	08/24/21 12:12	

LABORATORY CONTROL SAMPLE: 1125428

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.051	102	20-200	
1,2-Dichloroethane-d4 (S)	%			102	78-114	
4-Bromofluorobenzene (S)	%			110	83-111	
Toluene-d8 (S)	%			103	80-131	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 230704
Pace Project No.: 70184475

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 230704
Pace Project No.: 70184475

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70184475001	SYSTEM INFLUENT	EPA 1624B	223246		
70184475002	SYSTEM EFFLUENT	EPA 1624B	223246		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD

EAI ID# **230704**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	8/16/2021 12:50	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	8/16/2021 13:10	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

WO# : 70184475



EAI ID# **230704**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 VOC Acetone Only

PO #: 55524

EAI ID# **230704**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by: _____

Chris Johnson 8/17/21 1500 CAPS

Relinquished by _____ Date/Time _____ Received by _____

Relinquished by _____ Date/Time _____ Received by _____

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Phone: (603)228-0525

1-800-287-0525

customerservice@easternanalytical.com

8/20/21 10:00

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



Sample Condition Upon Receipt

WO#: 70184475

Client Name:

Project:

PM: KMM

Due Date: 08/25/21

CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 1Z x46 599 01 9175 S394

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Ziploc None Other

Thermometer Used: TH091 Correction Factor: +0.0

Cooler Temperature(°C): 5.3 Cooler Temperature Corrected(°C): 5.3

Temp should be above freezing to 6.0°C

USDA Regulated Soil (N/A, water sample)

Date and Initials of person examining contents: CA 8/18/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

Did samples originate from a foreign source including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

			COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		7.
Sufficient Volume: (Triple volume provided for)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		12.
-Includes date/time/ID, Matrix: SL WT OIL			
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #			Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NaOH>12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water).			
Per Method, VOA pH is checked after analysis:			Initial when completed: Lot # of added preservative: Date/Time preservative added:
Samples checked for dechlorination: KI starch test strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		14. Positive for Res. Chlorine? Y N
Residual chlorine strips Lot #			
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		15.
Lead Acetate Strips Lot #			
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		16.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if applicable):			

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted:

Date/Time:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.



Monday, August 30, 2021

Attn: Front Office
Eastern Analytical
25 Chenell Drive
Concord, NH 03301

Project ID: 230704
SDG ID: GCJ00022
Sample ID#s: CJ00022 - CJ00023

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

August 30, 2021

SDG I.D.: GCJ00022

Project ID: 230704

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CJ00022	WATER
SYSTEM EFFLUENT	CJ00023	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

August 30, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55523

Custody Information

Collected by:
 Received by: B
 Analyzed by: see "By" below

Date Time

08/16/21 12:50
 08/18/21 16:39

Laboratory Data

SDG ID: GCJ00022
 Phoenix ID: CJ00022

Project ID: 230704
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	5.5	0.20	ug/l	1	08/26/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	90		%	1	08/26/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				08/25/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

August 30, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

August 30, 2021

FOR: Attn: Front Office
 Eastern Analytical
 25 Chenell Drive
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55523

Custody Information

Collected by:
 Received by: B
 Analyzed by: see "By" below

Date Time

08/16/21 13:10
 08/18/21 16:39

Laboratory Data

SDG ID: GCJ00022
 Phoenix ID: CJ00023

Project ID: 230704
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	ND	0.20	ug/l	1	08/26/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	92		%	1	08/26/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				08/25/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

August 30, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045

Tel. (860) 645-1102

Fax (860) 645-0823



QA/QC Report

August 30, 2021

QA/QC Data

SDG I.D.: GCJ00022

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 589238 (ug/l), QC Sample No: CI99852 (CJ00022, CJ00023)										
1,4dioxane - Water										
1,4-dioxane	ND	0.20	96	108	11.8	102			70 - 130	20
% 1,4-dioxane-d8	104	%	93	102	9.2	92			70 - 130	20

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

August 30, 2021

Monday, August 30, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCJ00022 - EASTANAL-NH

27

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
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*** 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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

CHAIN-OF-CUSTODY RECORD

WCIP 2.0

EAI ID# 230704

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	8/16/2021 12:50	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	00022
System Effluent	8/16/2021 13:10	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	00023

EAI ID# 230704

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 55523

EAI ID# 230704

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by: 8-18-2021

Relinquished by: [Signature] Date/Time: 8-18-2021 12:30 Received by: [Signature]

Relinquished by: [Signature] Date/Time: 8-18-2021 13:45 Received by: [Signature]

customerservice@easternanalytical.com

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301

Phone: (603)228-0525

1-800-287-0525

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

8118121 1039

CHAIN-OF-CUSTODY RECORD

230704

GZANH

62

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers
System Influent	8-16-21 12:50	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate Circle preservative/s: <u>HCL</u> <u>HNO₃</u> <u>H₂SO₄</u> <u>NaOH</u> MEOH Na ₂ S ₂ O ₈ <u>ICE</u> Dissolved Sample Field Filtered <input type="checkbox"/>				
System Effluent	8-16-21 13:10	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate Circle preservative/s: <u>HCL</u> <u>HNO₃</u> <u>H₂SO₄</u> <u>NaOH</u> MEOH Na ₂ S ₂ O ₈ <u>ICE</u> Dissolved Sample Field Filtered <input type="checkbox"/>				

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

EAI Project ID 4965
Project Name Rennie Farm RGP / 04.0190030.02

State NH

Client (Pro Mgr) Jim Wieck

Customer GZA GeoEnvironmental, Inc. (NH)

Address 5 Commerce Park North, Suite 201

City Bedford NH 03110

Phone 623-3600

Fax 624-9463 (37)

Email: James.Wieck@gza.com

Direct 232-8732

Results Needed by: Preferred date 5 day
Notes:

1624 Acetone Only

QC deliverables

A A+ B B+ C MA MCP

Reporting Options

<input checked="" type="checkbox"/> HC	<input type="checkbox"/> NO FAX	PO# verbal
<input checked="" type="checkbox"/> EDD PDF	<input type="checkbox"/> Partial FAX	Quote#:
<input checked="" type="checkbox"/> EDD email	<input checked="" type="checkbox"/> PDF Invoice	Temp <u>19°C</u>
<input checked="" type="checkbox"/> PDF prelim, NO FAX	<input type="checkbox"/> EQUIS	Ice Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
<input checked="" type="checkbox"/> e-mail Login Confirmation		

Samples Collected by: AJ J
al jordan 8-16-21

Relinquished by	Date/Time	Received by
<u>Fay</u>	<u>8/16/21 1527</u>	<u>[Signature]</u>
Relinquished by	Date/Time	Received by



Eastern Analytical, Inc.

professional laboratory and drilling services

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 231176
Client Identification: Rennie Farm | 04.0190030.02 Task No: 22-ST 1
Date Received: 8/25/2021

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.

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- < : "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

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

9-8-21
Date

7
of pages (excluding cover letter)



SAMPLE CONDITIONS PAGE

EAI ID#: 231176

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Temperature upon receipt (°C): 4.5

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

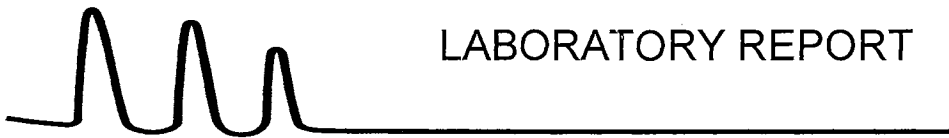
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
231176.01	System Influent	8/25/21	8/23/21 09:20	aqueous		Adheres to Sample Acceptance Policy
231176.02	System Mid	8/25/21	8/23/21 09:25	aqueous		Adheres to Sample Acceptance Policy
231176.03	LGAC Effluent	8/25/21	8/25/21 09:00	aqueous		Adheres to Sample Acceptance Policy
231176.04	LGAC Mid	8/25/21	8/25/21 09:05	aqueous		Adheres to Sample Acceptance Policy
231176.05	LGAC Influent	8/25/21	8/25/21 09:10	aqueous		Adheres to Sample Acceptance Policy
231176.06	9 Rennie Rd	8/25/21	8/25/21 13:00	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#: 231176

Client: **GZA GeoEnvironmental, Inc. (NH)**

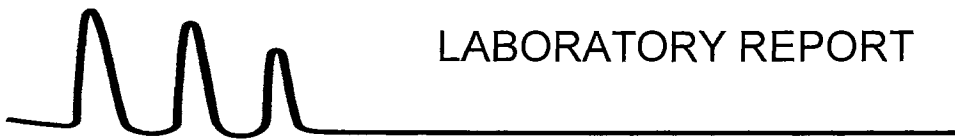
Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Client Sample ID: System Influent
 Lab Sample ID: 231176.01
 Matrix: aqueous
 Date Sampled: 8/23/21
 Date Received: 8/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	28	2	10	ug/L	9/2/21 14:38	8260B SIM	AM
4-Bromofluorobenzene (surr)	107 %R			%	9/2/21 14:38	8260B SIM	AM
Toluene-d8 (surr)	105 %R			%	9/2/21 14:38	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 231176.02
 Matrix: aqueous
 Date Sampled: 8/23/21
 Date Received: 8/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	8/30/21 17:21	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	8/30/21 17:21	8260B SIM	AM
Toluene-d8 (surr)	105 %R			%	8/30/21 17:21	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 231176

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Client Sample ID: LGAC Effluent

Lab Sample ID: 231176.03

Matrix: aqueous

Date Sampled: 8/25/21

Date Received: 8/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.24	0.2	1	ug/L	8/30/21 17:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	8/30/21 17:52	8260B SIM	AM
Toluene-d8 (surr)	105 %R			%	8/30/21 17:52	8260B SIM	AM

Client Sample ID: LGAC Mid

Lab Sample ID: 231176.04

Matrix: aqueous

Date Sampled: 8/25/21

Date Received: 8/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	500	20	100	ug/L	8/30/21 22:00	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	8/30/21 22:00	8260B SIM	AM
Toluene-d8 (surr)	105 %R			%	8/30/21 22:00	8260B SIM	AM

Client Sample ID: LGAC Influent

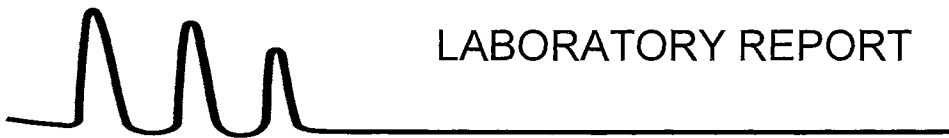
Lab Sample ID: 231176.05

Matrix: aqueous

Date Sampled: 8/25/21

Date Received: 8/25/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1500	100	500	ug/L	8/30/21 22:31	8260B SIM	AM
4-Bromofluorobenzene (surr)	105 %R			%	8/30/21 22:31	8260B SIM	AM
Toluene-d8 (surr)	105 %R			%	8/30/21 22:31	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 231176

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Client Sample ID: 9 Rennie Rd
Lab Sample ID: 231176.06
Matrix: aqueous
Date Sampled: 8/25/21
Date Received: 8/25/21

	Result	Dilution RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	13	0.2	1	ug/L	8/30/21 18:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	8/30/21 18:23	8260B SIM	AM
Toluene-d8 (surr)	105 %R			%	8/30/21 18:23	8260B SIM	AM



QC REPORT

EAI ID#: 231176

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637659-40365/A083021DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22-ST 1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.7 (113 %R)	5.6 (112 %R) (1 RPD)	8/30/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	106 %R	104 %R	8/30/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	105 %R	105 %R	105 %R	8/30/2021	% 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#: 231176

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637661-93101/A090221DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task No: 22-ST 1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.3 (106 %R)	5.1 (101 %R) (4 RPD)	9/2/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	104 %R	104 %R	104 %R	9/2/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	104 %R	104 %R	105 %R	9/2/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 231808
Client Identification: Rennie Farm | 04.0190030.02 Task No: 22-ST 1
Date Received: 9/8/2021

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.

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References:

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- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992

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

9.22.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 231808

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Temperature upon receipt (°C): 5.9

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
231808.01	System Influent	9/8/21	9/7/21 09:35	aqueous		Adheres to Sample Acceptance Policy
231808.02	System Mid	9/8/21	9/7/21 09:40	aqueous		Adheres to Sample Acceptance Policy
231808.03	LGAC In	9/8/21	9/8/21 09:21	aqueous		Adheres to Sample Acceptance Policy
231808.04	LGAC Mid	9/8/21	9/8/21 09:18	aqueous		Adheres to Sample Acceptance Policy
231808.05	LGAC Out	9/8/21	9/8/21 09:15	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#: 231808

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Client Sample ID: System Influent
Lab Sample ID: 231808.01
Matrix: aqueous
Date Sampled: 9/7/21
Date Received: 9/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	24	2	10	ug/L	9/18/21 1:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	9/18/21 1:52	8260B SIM	AM
Toluene-d8 (surr)	102 %R			%	9/18/21 1:52	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 231808.02
Matrix: aqueous
Date Sampled: 9/7/21
Date Received: 9/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	9/17/21 17:32	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	9/17/21 17:32	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	9/17/21 17:32	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 231808

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Client Sample ID: LGAC In
 Lab Sample ID: 231808.03
 Matrix: aqueous
 Date Sampled: 9/8/21
 Date Received: 9/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2400	100	500	ug/L	9/18/21 2:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	9/18/21 2:23	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/18/21 2:23	8260B SIM	AM

Client Sample ID: LGAC Mid
 Lab Sample ID: 231808.04
 Matrix: aqueous
 Date Sampled: 9/8/21
 Date Received: 9/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	740	20	100	ug/L	9/18/21 2:55	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	9/18/21 2:55	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/18/21 2:55	8260B SIM	AM

Client Sample ID: LGAC Out
 Lab Sample ID: 231808.05
 Matrix: aqueous
 Date Sampled: 9/8/21
 Date Received: 9/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	9/17/21 18:03	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	9/17/21 18:03	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	9/17/21 18:03	8260B SIM	AM



QC REPORT

EAI ID#: **231808**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637674-93681/A091721DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.4 (87 %R)	4.6 (92 %R) (5 RPD)	9/17/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	101 %R	100 %R	102 %R	9/17/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	101 %R	101 %R	9/17/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 232227
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 9/16/2021

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.

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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

9.30.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 232227

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 3.0

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

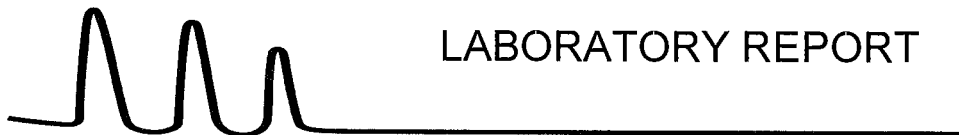
Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
232227.01	System Influent	9/16/21	9/16/21 11:00	aqueous		Adheres to Sample Acceptance Policy
232227.02	System Effluent	9/16/21	9/16/21 11:15	aqueous		Adheres to Sample Acceptance Policy

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

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- 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#: **232227**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 232227.01
Matrix: aqueous
Date Sampled: 9/16/21
Date Received: 9/16/21

Date of Preparation:
Method: 624.1
Analyst: DGM
Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	9/18/21	1,2-Dichlorobenzene	< 1	1	1	9/18/21
Vinyl chloride	< 1	1	1	9/18/21	4-Bromofluorobenzene (surr)	96 %R			9/18/21
Bromomethane	< 2	2	1	9/18/21	1,2-Dichlorobenzene-d4	93 %R			9/18/21
Chloroethane	< 2	2	1	9/18/21	Toluene-d8 (surr)	96 %R			9/18/21
Trichlorofluoromethane	< 2	2	1	9/18/21					
Acrolein	< 50	50	1	9/18/21					
Acetone	< 10	10	1	9/18/21					
1,1-Dichloroethene	< 0.5	0.5	1	9/18/21					
Methylene chloride	< 1	1	1	9/18/21					
Acrylonitrile	< 50	50	1	9/18/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	9/18/21					
trans-1,2-Dichloroethene	< 1	1	1	9/18/21					
Vinyl acetate	< 10	10	1	9/18/21					
1,1-Dichloroethane	< 1	1	1	9/18/21					
cis-1,2-Dichloroethene	< 1	1	1	9/18/21					
2-Butanone(MEK)	< 10	10	1	9/18/21					
Chloroform	< 1	1	1	9/18/21					
1,1,1-Trichloroethane	< 1	1	1	9/18/21					
Carbon tetrachloride	< 1	1	1	9/18/21					
Benzene	< 1	1	1	9/18/21					
1,2-Dichloroethane	< 1	1	1	9/18/21					
Trichloroethene	< 1	1	1	9/18/21					
1,2-Dichloropropane	< 1	1	1	9/18/21					
Bromodichloromethane	< 0.5	0.5	1	9/18/21					
2-Chloroethylvinylether	< 2	2	1	9/18/21					
1,4-Dioxane	< 50	50	1	9/18/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	9/18/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	9/18/21					
Toluene	< 1	1	1	9/18/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	9/18/21					
1,1,2-Trichloroethane	< 1	1	1	9/18/21					
2-Hexanone	< 10	10	1	9/18/21					
Tetrachloroethene	< 1	1	1	9/18/21					
Dibromochloromethane	< 1	1	1	9/18/21					
Chlorobenzene	< 1	1	1	9/18/21					
Ethylbenzene	< 1	1	1	9/18/21					
mp-Xylene	< 1	1	1	9/18/21					
o-Xylene	< 1	1	1	9/18/21					
Styrene	< 1	1	1	9/18/21					
Bromoform	< 2	2	1	9/18/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	9/18/21					
1,3-Dichlorobenzene	< 1	1	1	9/18/21					
1,4-Dichlorobenzene	< 1	1	1	9/18/21					



LABORATORY REPORT

EAI ID#: 232227

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 232227.02
 Matrix: aqueous
 Date Sampled: 9/16/21
 Date Received: 9/16/21

Date of Preparation:
 Method: 624.1
 Analyst: DGM
 Units: ug/L

	Result	Dilution RL	Factor	Date Analyzed		Result	Dilution RL	Factor	Date Analyzed
Chloromethane	< 2	2	1	9/18/21	1,2-Dichlorobenzene	< 1	1	1	9/18/21
Vinyl chloride	< 1	1	1	9/18/21	4-Bromofluorobenzene (surr)	97 %R			9/18/21
Bromomethane	< 2	2	1	9/18/21	1,2-Dichlorobenzene-d4	92 %R			9/18/21
Chloroethane	< 2	2	1	9/18/21	Toluene-d8 (surr)	95 %R			9/18/21
Trichlorofluoromethane	< 2	2	1	9/18/21					
Acrolein	< 50	50	1	9/18/21					
Acetone	< 10	10	1	9/18/21					
1,1-Dichloroethene	< 0.5	0.5	1	9/18/21					
Methylene chloride	< 1	1	1	9/18/21					
Acrylonitrile	< 50	50	1	9/18/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	9/18/21					
trans-1,2-Dichloroethene	< 1	1	1	9/18/21					
Vinyl acetate	< 10	10	1	9/18/21					
1,1-Dichloroethane	< 1	1	1	9/18/21					
cis-1,2-Dichloroethene	< 1	1	1	9/18/21					
2-Butanone(MEK)	< 10	10	1	9/18/21					
Chloroform	< 1	1	1	9/18/21					
1,1,1-Trichloroethane	< 1	1	1	9/18/21					
Carbon tetrachloride	< 1	1	1	9/18/21					
Benzene	< 1	1	1	9/18/21					
1,2-Dichloroethane	< 1	1	1	9/18/21					
Trichloroethene	< 1	1	1	9/18/21					
1,2-Dichloropropane	< 1	1	1	9/18/21					
Bromodichloromethane	< 0.5	0.5	1	9/18/21					
2-Chloroethylvinylether	< 2	2	1	9/18/21					
1,4-Dioxane	< 50	50	1	9/18/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	9/18/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	9/18/21					
Toluene	< 1	1	1	9/18/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	9/18/21					
1,1,2-Trichloroethane	< 1	1	1	9/18/21					
2-Hexanone	< 10	10	1	9/18/21					
Tetrachloroethene	< 1	1	1	9/18/21					
Dibromochloromethane	< 1	1	1	9/18/21					
Chlorobenzene	< 1	1	1	9/18/21					
Ethylbenzene	< 1	1	1	9/18/21					
mp-Xylene	< 1	1	1	9/18/21					
o-Xylene	< 1	1	1	9/18/21					
Styrene	< 1	1	1	9/18/21					
Bromoform	< 2	2	1	9/18/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	9/18/21					
1,3-Dichlorobenzene	< 1	1	1	9/18/21					
1,4-Dichlorobenzene	< 1	1	1	9/18/21					



QC REPORT

EAI ID#: 232227

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID:

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	20 (99 %R)	20 (101 %R) (2 RPD)	9/18/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	21 (106 %R)	22 (110 %R) (3 RPD)	9/18/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	21 (107 %R)	22 (108 %R) (1 RPD)	9/18/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	19 (95 %R)	20 (99 %R) (4 RPD)	9/18/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	23 (116 %R)	24 (118 %R) (2 RPD)	9/18/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (107 %R)	< 50 (111 %R) (4 RPD)	9/18/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	21 (106 %R)	22 (108 %R) (2 RPD)	9/18/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	20 (98 %R)	21 (103 %R) (5 RPD)	9/18/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	19 (96 %R)	19 (95 %R) (2 RPD)	9/18/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (99 %R)	< 50 (101 %R) (2 RPD)	9/18/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	15 (75 %R)	15 (76 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	20 (101 %R)	21 (103 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	14 (71 %R)	14 (72 %R) (2 RPD)	9/18/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	20 (101 %R)	21 (103 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	20 (102 %R)	21 (103 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	23 (114 %R)	23 (116 %R) (2 RPD)	9/18/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	20 (102 %R)	21 (104 %R) (2 RPD)	9/18/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	18 (91 %R)	19 (94 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	19 (95 %R)	20 (98 %R) (3 RPD)	9/18/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	20 (102 %R)	21 (105 %R) (2 RPD)	9/18/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	19 (97 %R)	20 (98 %R) (1 RPD)	9/18/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	20 (101 %R)	21 (103 %R) (2 RPD)	9/18/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	21 (103 %R)	21 (105 %R) (2 RPD)	9/18/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	21 (104 %R)	21 (105 %R) (1 RPD)	9/18/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	< 2 (6 %R)	< 2 (6 %R) (5 RPD)	9/18/2021	ug/L	1 - 225	71	624.1
1,4-Dioxane	< 50	<	< 50 (138 %R)	< 50 (138 %R) (0 RPD)	9/18/2021	ug/L	40 - 160	20	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	21 (107 %R)	22 (108 %R) (1 RPD)	9/18/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	19 (93 %R)	19 (94 %R) (1 RPD)	9/18/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	20 (100 %R)	20 (102 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	17 (86 %R)	17 (86 %R) (0 RPD)	9/18/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	22 (110 %R)	22 (110 %R) (0 RPD)	9/18/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	23 (115 %R)	23 (116 %R) (1 RPD)	9/18/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	21 (103 %R)	21 (105 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	21 (104 %R)	21 (104 %R) (0 RPD)	9/18/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	21 (105 %R)	21 (107 %R) (2 RPD)	9/18/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	21 (106 %R)	22 (108 %R) (2 RPD)	9/18/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	41 (102 %R)	42 (104 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	21 (106 %R)	22 (108 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	21 (107 %R)	22 (109 %R) (2 RPD)	9/18/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	23 (116 %R)	23 (115 %R) (0 RPD)	9/18/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	22 (110 %R)	22 (110 %R) (0 RPD)	9/18/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	20 (101 %R)	20 (102 %R) (0 RPD)	9/18/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	20 (99 %R)	20 (99 %R) (0 RPD)	9/18/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	21 (103 %R)	21 (103 %R) (0 RPD)	9/18/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	93 %R		103 %R	103 %R	9/18/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	102 %R		115 %R	115 %R	9/18/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	95 %R		98 %R	97 %R	9/18/2021	% Rec	70 - 130		624.1

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



LABORATORY REPORT

EAI ID#: 232227

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 232227.01
Matrix: aqueous
Date Sampled: 9/16/21
Date Received: 9/16/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed		Method	Analyst
Phenol	< 1	1	1	ug/L	9/21/21	0:30	625.1	JMR
2-Fluorophenol (surr)	40 %R			%	9/21/21	0:30	625.1	JMR
Phenol-d6 (surr)	25 %R			%	9/21/21	0:30	625.1	JMR
2,4,6-Tribromophenol (surr)	71 %R			%	9/21/21	0:30	625.1	JMR



LABORATORY REPORT

EAI ID#: 232227

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
 Lab Sample ID: 232227.02
 Matrix: aqueous
 Date Sampled: 9/16/21
 Date Received: 9/16/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
Phenol	< 1	1	1	ug/L	9/21/21	0:52	625.1	JMR
2-Fluorophenol (surr)	42 %R			%	9/21/21	0:52	625.1	JMR
Phenol-d6 (surr)	27 %R			%	9/21/21	0:52	625.1	JMR
2,4,6-Tribromophenol (surr)	70 %R			%	9/21/21	0:52	625.1	JMR



QC REPORT

EAI ID#: 232227

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637674-66037/A091721E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	20 (80 %R)	20 (79 %R) (1 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	15 (30 %R)	15 (29 %R) (1 RPD)	9/20/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	38 (76 %R)	36 (73 %R) (4 RPD)	9/20/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	43 (86 %R)	42 (84 %R) (2 RPD)	9/20/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	42 (83 %R)	42 (84 %R) (1 RPD)	9/20/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	41 (82 %R)	42 (83 %R) (2 RPD)	9/20/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	40 (80 %R)	42 (84 %R) (5 RPD)	9/20/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	41 (81 %R)	40 (80 %R) (2 RPD)	9/20/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	17 (33 %R)	18 (35 %R) (5 RPD)	9/20/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	44 (88 %R)	46 (92 %R) (5 RPD)	9/20/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	36 (71 %R)	35 (70 %R) (2 RPD)	9/20/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	35 (71 %R)	35 (70 %R) (2 RPD)	9/20/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	41 (82 %R)	40 (80 %R) (3 RPD)	9/20/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	42 (85 %R)	43 (85 %R) (1 RPD)	9/20/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	43 (86 %R)	45 (89 %R) (4 RPD)	9/20/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (29 %R)	< 50 (37 %R) (24 RPD)	9/20/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	12 (47 %R)	12 (47 %R) (0 RPD)	9/20/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	20 (82 %R)	20 (79 %R) (4 RPD)	9/20/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	20 (80 %R)	21 (82 %R) (3 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	19 (74 %R)	18 (71 %R) (4 RPD)	9/20/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	19 (75 %R)	18 (71 %R) (5 RPD)	9/20/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	20 (79 %R)	19 (76 %R) (4 RPD)	9/20/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	15 (59 %R)	15 (58 %R) (2 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	20 (81 %R)	19 (77 %R) (4 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	15 (60 %R)	15 (59 %R) (2 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	16 (62 %R)	15 (61 %R) (3 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	17 (66 %R)	16 (63 %R) (5 RPD)	9/20/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	19 (76 %R)	19 (74 %R) (2 RPD)	9/20/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	20 (79 %R)	20 (80 %R) (1 RPD)	9/20/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	20 (79 %R)	20 (81 %R) (2 RPD)	9/20/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	15 (60 %R)	15 (59 %R) (2 RPD)	9/20/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	16 (62 %R)	15 (58 %R) (6 RPD)	9/20/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	14 (55 %R)	14 (54 %R) (2 RPD)	9/20/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	19 (78 %R)	20 (80 %R) (3 RPD)	9/20/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	19 (77 %R)	19 (77 %R) (0 RPD)	9/20/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	20 (78 %R)	19 (78 %R) (1 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	20 (78 %R)	20 (81 %R) (3 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	20 (80 %R)	21 (82 %R) (2 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	21 (85 %R)	22 (86 %R) (1 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	17 (68 %R)	17 (68 %R) (1 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	17 (67 %R)	17 (67 %R) (0 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	19 (78 %R)	18 (74 %R) (5 RPD)	9/20/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	20 (81 %R)	20 (79 %R) (1 RPD)	9/20/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	21 (85 %R)	22 (88 %R) (3 RPD)	9/20/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	21 (85 %R)	22 (86 %R) (2 RPD)	9/20/2021	ug/L	50 - 158	48	625.1
Benidine (estimated)	< 5	< .41	16 (63 %R)	16 (63 %R) (0 RPD)	9/20/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 232227

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637674-66037/A091721E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	20 (81 %R)	21 (83 %R) (2 RPD)	9/20/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	8.5 (34 %R)	8.5 (34 %R) (0 RPD)	9/20/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	21 (84 %R)	21 (86 %R) (2 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	21 (86 %R)	22 (87 %R) (1 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	21 (85 %R)	21 (85 %R) (1 RPD)	9/20/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	21 (82 %R)	21 (83 %R) (1 RPD)	9/20/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	23 (92 %R)	23 (93 %R) (1 RPD)	9/20/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	21 (83 %R)	21 (82 %R) (2 RPD)	9/20/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	21 (83 %R)	21 (83 %R) (1 RPD)	9/20/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	22 (86 %R)	22 (87 %R) (1 RPD)	9/20/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	20 (81 %R)	20 (81 %R) (0 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	19 (78 %R)	18 (74 %R) (6 RPD)	9/20/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	20 (78 %R)	19 (75 %R) (4 RPD)	9/20/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	20 (79 %R)	19 (76 %R) (4 RPD)	9/20/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	21 (84 %R)	21 (83 %R) (1 RPD)	9/20/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	22 (90 %R)	22 (89 %R) (1 RPD)	9/20/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	21 (84 %R)	21 (84 %R) (1 RPD)	9/20/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	22 (87 %R)	22 (89 %R) (3 RPD)	9/20/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	22 (88 %R)	23 (91 %R) (2 RPD)	9/20/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	23 (92 %R)	23 (93 %R) (1 RPD)	9/20/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	23 (90 %R)	23 (92 %R) (2 RPD)	9/20/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	21 (86 %R)	22 (86 %R) (1 RPD)	9/20/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	22 (89 %R)	23 (90 %R) (1 RPD)	9/20/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	22 (89 %R)	23 (91 %R) (2 RPD)	9/20/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	23 (92 %R)	23 (92 %R) (0 RPD)	9/20/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	22 (88 %R)	22 (89 %R) (1 RPD)	9/20/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	22 (88 %R)	22 (89 %R) (1 RPD)	9/20/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	22 (89 %R)	23 (93 %R) (4 RPD)	9/20/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	22 (89 %R)	22 (90 %R) (1 RPD)	9/20/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	13 (53 %R)	13 (51 %R) (5 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	21 (84 %R)	22 (87 %R) (3 RPD)	9/20/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	41 %R		42 %R	40 %R	9/20/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	28 %R		28 %R	28 %R	9/20/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	83 %R		84 %R	87 %R	9/20/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	75 %R		78 %R	74 %R	9/20/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	81 %R		78 %R	75 %R	9/20/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	91 %R		86 %R	87 %R	9/20/2021	% Rec	30 - 130		625.1

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



LABORATORY REPORT

EAI ID#: 232227

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 232227.01 232227.02

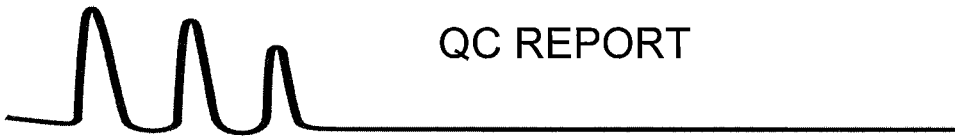
Matrix: aqueous aqueous

Date Sampled: 9/16/21 9/16/21

Date Received: 9/16/21 9/16/21

Solids Suspended	< 5	< 5	5	mg/L	9/22/21 15:40	2540D-11	CF
Cyanide Total	< 5	< 5	5	ug/L	9/28/21 18:33	ASTM D7511-09	KD
Cyanide Free	< 5	< 5	5	ug/L	9/22/21 12:31	OIA-1677-09	KD
Ammonia-N	< 0.05	< 0.05	0.05	mg/L	9/22/21 14:07	TM NH3-001	SEL
Chloride	2000	2000	1000	ug/L	9/21/21 3:18	300.0	LLG

		Analysis				
	RL	Units	Date	Time	Method	Analyst
	5	mg/L	9/22/21	15:40	2540D-11	CF
	5	ug/L	9/28/21	18:33	ASTM D7511-09	KD
	5	ug/L	9/22/21	12:31	OIA-1677-09	KD
	0.05	mg/L	9/22/21	14:07	TM NH3-001	SEL
	1000	ug/L	9/21/21	3:18	300.0	LLG



QC REPORT

EAI ID#: 232227

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	96 (101 %R)	94 (99 %R) (2 RPD)	mg/L	9/22/21	90 - 110	20	2540D-11
Chloride	< 1000	21000 (103 %R)	20000 (100 %R) (3 RPD)	ug/L	9/20/21	90 - 110	20	300.0
Cyanide Total	< 5	120 (116 %R)	110 (113 %R) (3 RPD)	ug/L	9/28/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	260 (106 %R)	250 (100 %R) (5 RPD)	ug/L	9/22/21	82 - 132	20	OIA-1677-09
Ammonia-N	< 0.05	1.9 (96 %R)	1.9 (93 %R) (3 RPD)	mg/L	9/22/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: **232227**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 232227.01 232227.02

Matrix: aqueous aqueous

Date Sampled: 9/16/21 9/16/21

Date Received: 9/16/21 9/16/21

	Analytical			Analysis	
	RL	Matrix	Units	Date	Method Analyst
Chromium (VI)	< 10	< 10	10	AqTot ug/L	9/17/21 7196A HEH
Antimony	< 0.5	< 0.5	0.5	AqTot ug/L	9/20/21 200.8 DS
Arsenic	< 0.5	< 0.5	0.5	AqTot ug/L	9/20/21 200.8 DS
Cadmium	< 0.1	< 0.1	0.1	AqTot ug/L	9/20/21 200.8 DS
Chromium	0.55	< 0.5	0.5	AqTot ug/L	9/20/21 200.8 DS
Copper	1.4	0.12	0.1	AqTot ug/L	9/20/21 200.8 DS
Iron	590	< 50	50	AqTot ug/L	9/20/21 200.8 DS
Lead	< 0.1	< 0.1	0.1	AqTot ug/L	9/20/21 200.8 DS
Mercury	< 0.1	< 0.1	0.1	AqTot ug/L	9/20/21 200.8 DS
Nickel	0.77	0.22	0.1	AqTot ug/L	9/20/21 200.8 DS
Selenium	< 0.5	< 0.5	0.5	AqTot ug/L	9/20/21 200.8 DS
Silver	< 0.1	< 0.1	0.1	AqTot ug/L	9/20/21 200.8 DS
Zinc	3.4	1.7	1	AqTot ug/L	9/20/21 200.8 DS
Chromium (III)	< 10	< 10	10	AqTot ug/L	9/20/21 200.8 DS



QC REPORT

EAI ID#: 232227

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (114 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.1 (109 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.1 (107 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (105 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Copper	< 0.0001	1.1 (107 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Iron	< 0.05	11 (97 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (106 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (112 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (105 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Selenium	< 0.0005	1.1 (108 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Silver	< 0.0001	0.010 (105 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Zinc	< 0.001	1.1 (107 %R)	NA	mg/L	9/20/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (95 %R)	NA	mg/L	9/17/21	85 - 115	20	7196A

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

September 24, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 232227 9/16
Pace Project No.: 70188354

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on September 22, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 232227 9/16
Pace Project No.: 70188354

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
Connecticut Certification #: PH-0435
Delaware Certification # NY 10478
Maryland Certification #: 208
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

New Jersey Certification #: NY158
New York Certification #: 10478 Primary Accrediting Body
Pennsylvania Certification #: 68-00350
Rhode Island Certification #: LAO00340
Virginia Certification # 460302

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 232227 9/16
Pace Project No.: 70188354

Sample: SYSTEM INFLUENT		Lab ID: 70188354001	Collected: 09/16/21 11:00	Received: 09/22/21 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		09/23/21 13:19	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	88	%	78-114	1		09/23/21 13:19	17060-07-0	
4-Bromofluorobenzene (S)	98	%	83-111	1		09/23/21 13:19	460-00-4	
Toluene-d8 (S)	105	%	80-131	1		09/23/21 13:19	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Date: 09/24/2021 03:37 PM

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ANALYTICAL RESULTS

Project: 232227 9/16
 Pace Project No.: 70188354

Sample: SYSTEM EFFLUENT		Lab ID: 70188354002	Collected: 09/16/21 11:15	Received: 09/22/21 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		09/23/21 12:57	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	91	%	78-114	1		09/23/21 12:57	17060-07-0	
4-Bromofluorobenzene (S)	97	%	83-111	1		09/23/21 12:57	460-00-4	
Toluene-d8 (S)	101	%	80-131	1		09/23/21 12:57	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 232227 9/16
Pace Project No.: 70188354

QC Batch: 226849	Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B	Analysis Description: 1624B MSV
	Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70188354001, 70188354002

METHOD BLANK: 1143989 Matrix: Water
Associated Lab Samples: 70188354001, 70188354002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	09/23/21 12:14	
1,2-Dichloroethane-d4 (S)	%	92	78-114	09/23/21 12:14	
4-Bromofluorobenzene (S)	%	98	83-111	09/23/21 12:14	
Toluene-d8 (S)	%	100	80-131	09/23/21 12:14	

LABORATORY CONTROL SAMPLE: 1143990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.041	83	20-200	
1,2-Dichloroethane-d4 (S)	%			87	78-114	
4-Bromofluorobenzene (S)	%			99	83-111	
Toluene-d8 (S)	%			95	80-131	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 232227 9/16
Pace Project No.: 70188354

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 232227 9/16
Pace Project No.: 70188354

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70188354001	SYSTEM INFLUENT	EPA 1624B	226849		
70188354002	SYSTEM EFFLUENT	EPA 1624B	226849		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD

EAI ID# **232227**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	9/16/2021 11:00	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	9/16/2021 11:15	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	



EAI ID# **232227**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 Acetone Only

PO #: 55746

EAI ID# **232227**

Data Deliverable (circle)

Excel NH EMD EquiS ME EGAD

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

Samples Collected by:

[Handwritten signatures and dates]
 Relinquished by _____ Date/Time **9/21/21 1500 UPS** Received by _____
 Relinquished by _____ Date/Time **9/21/21 9:50** Received by _____

Sample Condition Upon Receipt



Client Name: EAST-A

Project

WO#: 70188354

PM: KMM

Due Date: 09/29/21

CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 13 246 534 019564 403

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Ziploc None Other

Thermometer Used: TH091

Correction Factor: +0.0

Cooler Temperature(°C): 1.4

Cooler Temperature Corrected(°C): 1.4

Temp should be above freezing to 6.0°C

USDA Regulated Soil (N/A, water sample)

Temperature blank Present: Yes No

Type of Ice: Wet Blue None

Samples on ice, cooling process has begun

Date/Time 5035A kits placed in freezer

Date and Initials of person examining contents: KW

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

Did samples originate from a foreign source including Hawaii and Puerto Rico? Yes No

If Yes to either question, fill out a Regulated Soil Checklist [F-LI-C-010] and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		7.
Sufficient Volume: (Triple volume provided for	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		10.
Containers Intact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		11.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		12.
-Includes date/time/ID, Matrix: SL <input checked="" type="checkbox"/> OIL				
All containers needing preservation have been checked?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	13.
pH paper Lot #				
All containers needing preservation are found to be in compliance with method recommendation?				
(HNO ₃ , H ₂ SO ₄ , HCl, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water).				
Per Method, VOA pH is checked after analysis				Initial when completed:
Samples checked for dechlorination:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	Lot # of added preservative:
KI starch test strips Lot #				Date/Time preservative added:
Residual chlorine strips Lot #				14.
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	Positive for Res. Chlorine? Y N
Lead Acetate Strips Lot #				
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	17.
Pace Trip Blank Lot # (if applicable):				

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted:

Date/Time:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.



Tuesday, September 28, 2021

Attn: Front Office
Eastern Analytical
51 Antrim Ave
Concord, NH 03301

Project ID: 232227
SDG ID: GCJ31559
Sample ID#s: CJ31559 - CJ31560

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

September 28, 2021

SDG I.D.: GCJ31559

Project ID: 232227

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CJ31559	WATER
SYSTEM EFFLUENT	CJ31560	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

September 28, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55747

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 09/16/21 11:00
 09/17/21 16:13

Laboratory Data

SDG ID: GCJ31559
 Phoenix ID: CJ31559

Project ID: 232227
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	21	0.20	ug/l	1	09/24/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	83		%	1	09/24/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				09/23/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

September 28, 2021

Reviewed and Released by: Kathleen Cressia, QA/QC Officer



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report
 September 28, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55747

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 09/16/21 11:15
 09/17/21 16:13

Laboratory Data

SDG ID: GCJ31559
 Phoenix ID: CJ31560

Project ID: 232227
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	ND	0.20	ug/l	1	09/24/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	77		%	1	09/24/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				09/23/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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Phyllis Shiller, Laboratory Director

September 28, 2021

Reviewed and Released by: Kathleen Cressia, QA/QC Officer



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

September 28, 2021

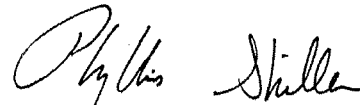
QA/QC Data

SDG I.D.: GCJ31559

Parameter	BIK		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 593240 (ug/l), QC Sample No: CJ31559 (CJ31559, CJ31560)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	82	70	15.8	NC			70 - 130	20
% 1,4-dioxane-d8	89	%	89	85	4.6	85			70 - 130	20

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
 September 28, 2021

Tuesday, September 28, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCJ31559 - EASTANAL-NH

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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance 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

September 28, 2021

SDG I.D.: GCJ31559

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

EAI ID# **232227**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	9/16/2021 11:00	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	31559 *
System Effluent	9/16/2021 11:15	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	31560 *

*REC - 1 8oz amber

EAI ID# **232227**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

~~Customer Only~~

PO #: 55747


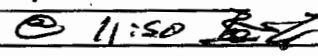


EAI ID# **232227**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by: 9-17-21

	<u>9-17-21</u>	
Relinquished by	Date/Time	Received by
	9/17/21 10:13	
Relinquished by	Date/Time	Received by

Eastern Analytical, Inc. 25 Chenell Dr. 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

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers	
System Influent	9-16-21 11:00	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCL</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	9-16-21 11:15	aqueous <u>Grab</u> or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13	
<input type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCL</u> <u>HNO3</u> <u>H2SO4</u> <u>NaOH</u> MEOH Na2S2O8 <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)

Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date _____
 Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options
 HC NO FAX PO# verbal
 EDD PDF Partial FAX Quote#:
 EDD email PDF Invoice
 PDF prelim, NO FAX EQUIS Temp 30 °C
 e-mail Login Confirmation Ice Y N

Samples Collected by: AVJ
al jacobson / 9-16-21 1530 [Signature]
 Relinquished by Date/Time Received by

Relinquished by Date/Time Received by

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 232759
Client Identification: Rennie Farm | 04.0190030.02 Task No: 22-ST 1
Date Received: 9/28/2021

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

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

10.8.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 232759

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Temperature upon receipt (°C): 2.3

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
232759.01	System Influent	9/28/21	9/27/21 09:45	aqueous		Adheres to Sample Acceptance Policy
232759.02	System Mid	9/28/21	9/27/21 09:50	aqueous		Adheres to Sample Acceptance Policy
232759.03	LGAC In	9/28/21	9/28/21 09:10	aqueous		Adheres to Sample Acceptance Policy
232759.04	LGAC Mid	9/28/21	9/28/21 09:05	aqueous		Adheres to Sample Acceptance Policy
232759.05	LGAC Out	9/28/21	9/28/21 09:00	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#: 232759

Client: **GZA GeoEnvironmental, Inc. (NH)**

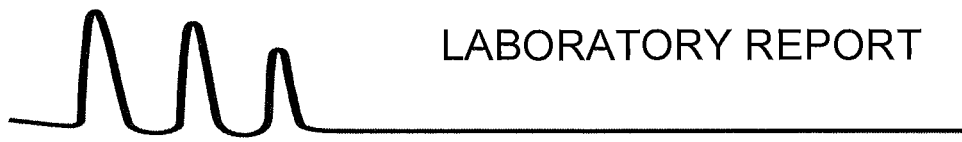
Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Client Sample ID: System Influent
Lab Sample ID: 232759.01
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/28/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	25	2	10	ug/L	10/4/21 21:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	10/4/21 21:54	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/4/21 21:54	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 232759.02
Matrix: aqueous
Date Sampled: 9/27/21
Date Received: 9/28/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	10/4/21 17:44	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	10/4/21 17:44	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/4/21 17:44	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 232759

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Client Sample ID: LGAC In

Lab Sample ID: 232759.03

Matrix: aqueous

Date Sampled: 9/28/21

Date Received: 9/28/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3000	100	500	ug/L	10/4/21 22:25	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	10/4/21 22:25	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/4/21 22:25	8260B SIM	AM

Client Sample ID: LGAC Mid

Lab Sample ID: 232759.04

Matrix: aqueous

Date Sampled: 9/28/21

Date Received: 9/28/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.9	0.2	1	ug/L	10/5/21 12:16	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	10/5/21 12:16	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/5/21 12:16	8260B SIM	AM

Client Sample ID: LGAC Out

Lab Sample ID: 232759.05

Matrix: aqueous

Date Sampled: 9/28/21

Date Received: 9/28/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.6	0.2	1	ug/L	10/4/21 18:15	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	10/4/21 18:15	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	10/4/21 18:15	8260B SIM	AM



QC REPORT

EAI ID#: **232759**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637690-19737/A100421DIQX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.6 (91 %R)	4.7 (94 %R) (3 RPD)	10/4/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	98 %R	99 %R	10/4/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	99 %R	100 %R	10/4/2021	% 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#: **232759**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637690-42299/A100521DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task No: 22-ST 1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.5 (90 %R)	4.5 (91 %R) (0 RPD)	10/5/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	98 %R	98 %R	10/5/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	100 %R	100 %R	100 %R	10/5/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 233431
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 10/11/2021

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.

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- > : "greater than" followed by the reporting limit
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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

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

10.25.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 233431

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 3.1

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
233431.01	System Influent	10/11/21	10/11/21 11:10	aqueous		Adheres to Sample Acceptance Policy
233431.02	System Effluent	10/11/21	10/11/21 11:25	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#: **233431**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 233431.01
Matrix: aqueous
Date Sampled: 10/11/21
Date Received: 10/11/21

Date of Preparation:
Method: 624.1
Analyst: JAK
Units: ug/L

	Result	Dilution RL	Dilution Factor	Date Analyzed		Result	Dilution RL	Dilution Factor	Date Analyzed
Chloromethane	< 2	2	1	10/12/21	4-Bromofluorobenzene (surr)	97 %R			10/12/21
Vinyl chloride	< 1	1	1	10/12/21	1,2-Dichlorobenzene-d4	95 %R			10/12/21
Bromomethane	< 2	2	1	10/12/21	Toluene-d8 (surr)	98 %R			10/12/21
Chloroethane	< 2	2	1	10/12/21					
Trichlorofluoromethane	< 2	2	1	10/12/21					
Acrolein	< 50	50	1	10/12/21					
Acetone	< 10	10	1	10/12/21					
1,1-Dichloroethene	< 0.5	0.5	1	10/12/21					
Methylene chloride	< 1	1	1	10/12/21					
Acrylonitrile	< 50	50	1	10/12/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	10/12/21					
trans-1,2-Dichloroethene	< 1	1	1	10/12/21					
Vinyl acetate	< 10	10	1	10/12/21					
1,1-Dichloroethane	< 1	1	1	10/12/21					
cis-1,2-Dichloroethene	< 1	1	1	10/12/21					
2-Butanone(MEK)	< 10	10	1	10/12/21					
Chloroform	< 1	1	1	10/12/21					
1,1,1-Trichloroethane	< 1	1	1	10/12/21					
Carbon tetrachloride	< 1	1	1	10/12/21					
Benzene	< 1	1	1	10/12/21					
1,2-Dichloroethane	< 1	1	1	10/12/21					
Trichloroethene	< 1	1	1	10/12/21					
1,2-Dichloropropane	< 1	1	1	10/12/21					
Bromodichloromethane	< 0.5	0.5	1	10/12/21					
2-Chloroethylvinylether	< 2	2	1	10/12/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	10/12/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	10/12/21					
Toluene	< 1	1	1	10/12/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	10/12/21					
1,1,2-Trichloroethane	< 1	1	1	10/12/21					
2-Hexanone	< 10	10	1	10/12/21					
Tetrachloroethene	< 1	1	1	10/12/21					
Dibromochloromethane	< 1	1	1	10/12/21					
Chlorobenzene	< 1	1	1	10/12/21					
Ethylbenzene	< 1	1	1	10/12/21					
mp-Xylene	< 1	1	1	10/12/21					
o-Xylene	< 1	1	1	10/12/21					
Styrene	< 1	1	1	10/12/21					
Bromoform	< 2	2	1	10/12/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	10/12/21					
1,3-Dichlorobenzene	< 1	1	1	10/12/21					
1,4-Dichlorobenzene	< 1	1	1	10/12/21					
1,2-Dichlorobenzene	< 1	1	1	10/12/21					

Acrolein, Styrene, and Vinyl acetate exhibited recovery below acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).



LABORATORY REPORT

EAI ID#: 233431

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 233431.02
Matrix: aqueous
Date Sampled: 10/11/21
Date Received: 10/11/21

Date of Preparation:
Method: 624.1
Analyst: JAK
Units: ug/L

	Result	Dilution RL	Date Factor Analyzed		Result	Dilution RL	Date Factor Analyzed
Chloromethane	< 2	2	1	10/12/21	4-Bromofluorobenzene (surr)	96 %R	10/12/21
Vinyl chloride	< 1	1	1	10/12/21	1,2-Dichlorobenzene-d4	94 %R	10/12/21
Bromomethane	< 2	2	1	10/12/21	Toluene-d8 (surr)	98 %R	10/12/21
Chloroethane	< 2	2	1	10/12/21			
Trichlorofluoromethane	< 2	2	1	10/12/21			
Acrolein	< 50	50	1	10/12/21			
Acetone	< 10	10	1	10/12/21			
1,1-Dichloroethene	< 0.5	0.5	1	10/12/21			
Methylene chloride	< 1	1	1	10/12/21			
Acrylonitrile	< 50	50	1	10/12/21			
Methyl-t-butyl ether(MTBE)	< 1	1	1	10/12/21			
trans-1,2-Dichloroethene	< 1	1	1	10/12/21			
Vinyl acetate	< 10	10	1	10/12/21			
1,1-Dichloroethane	< 1	1	1	10/12/21			
cis-1,2-Dichloroethene	< 1	1	1	10/12/21			
2-Butanone(MEK)	< 10	10	1	10/12/21			
Chloroform	< 1	1	1	10/12/21			
1,1,1-Trichloroethane	< 1	1	1	10/12/21			
Carbon tetrachloride	< 1	1	1	10/12/21			
Benzene	< 1	1	1	10/12/21			
1,2-Dichloroethane	< 1	1	1	10/12/21			
Trichloroethene	< 1	1	1	10/12/21			
1,2-Dichloropropane	< 1	1	1	10/12/21			
Bromodichloromethane	< 0.5	0.5	1	10/12/21			
2-Chloroethylvinylether	< 2	2	1	10/12/21			
4-Methyl-2-pentanone(MIBK)	< 10	10	1	10/12/21			
cis-1,3-Dichloropropene	< 0.5	0.5	1	10/12/21			
Toluene	< 1	1	1	10/12/21			
trans-1,3-Dichloropropene	< 0.5	0.5	1	10/12/21			
1,1,2-Trichloroethane	< 1	1	1	10/12/21			
2-Hexanone	< 10	10	1	10/12/21			
Tetrachloroethene	< 1	1	1	10/12/21			
Dibromochloromethane	< 1	1	1	10/12/21			
Chlorobenzene	< 1	1	1	10/12/21			
Ethylbenzene	< 1	1	1	10/12/21			
mp-Xylene	< 1	1	1	10/12/21			
o-Xylene	< 1	1	1	10/12/21			
Styrene	< 1	1	1	10/12/21			
Bromoform	< 2	2	1	10/12/21			
1,1,2,2-Tetrachloroethane	< 1	1	1	10/12/21			
1,3-Dichlorobenzene	< 1	1	1	10/12/21			
1,4-Dichlorobenzene	< 1	1	1	10/12/21			
1,2-Dichlorobenzene	< 1	1	1	10/12/21			

Acrolein, Styrene, and Vinyl acetate exhibited recovery below acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).



QC REPORT

EAI ID#: 233431

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637695-70559/A101121V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	28 (140 %R)	26 (131 %R) (7 RPD)	10/12/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	28 (141 %R)	27 (133 %R) (6 RPD)	10/12/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	25 (126 %R)	26 (128 %R) (2 RPD)	10/12/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	24 (122 %R)	23 (116 %R) (5 RPD)	10/12/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	28 (141 %R)	27 (134 %R) (5 RPD)	10/12/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	* < 50 (34 %R)	* < 50 (38 %R) (9 RPD)	10/12/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	23 (113 %R)	22 (112 %R) (1 RPD)	10/12/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	24 (118 %R)	22 (112 %R) (5 RPD)	10/12/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	22 (110 %R)	21 (105 %R) (4 RPD)	10/12/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (123 %R)	< 50 (121 %R) (2 RPD)	10/12/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	22 (109 %R)	21 (106 %R) (3 RPD)	10/12/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	23 (117 %R)	22 (111 %R) (5 RPD)	10/12/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	* < 10 (19 %R)	* < 10 (18 %R) (2 RPD)	10/12/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	23 (117 %R)	23 (113 %R) (4 RPD)	10/12/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	24 (118 %R)	23 (113 %R) (4 RPD)	10/12/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	21 (107 %R)	21 (107 %R) (0 RPD)	10/12/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	23 (114 %R)	22 (110 %R) (4 RPD)	10/12/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	23 (115 %R)	22 (110 %R) (5 RPD)	10/12/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	23 (114 %R)	22 (109 %R) (4 RPD)	10/12/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	24 (122 %R)	23 (117 %R) (4 RPD)	10/12/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	22 (108 %R)	21 (105 %R) (2 RPD)	10/12/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	23 (114 %R)	22 (109 %R) (4 RPD)	10/12/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	24 (121 %R)	23 (117 %R) (3 RPD)	10/12/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	24 (118 %R)	23 (114 %R) (3 RPD)	10/12/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	13 (67 %R)	14 (68 %R) (1 RPD)	10/12/2021	ug/L	1 - 225	71	624.1
1,4-Dioxane	< 50	<	< 50 (138 %R)	< 50 (139 %R) (1 RPD)	10/12/2021	ug/L	40 - 160	20	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	22 (112 %R)	23 (114 %R) (1 RPD)	10/12/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	24 (122 %R)	23 (117 %R) (4 RPD)	10/12/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	25 (126 %R)	24 (120 %R) (5 RPD)	10/12/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	24 (118 %R)	23 (114 %R) (4 RPD)	10/12/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	25 (123 %R)	24 (119 %R) (3 RPD)	10/12/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	21 (104 %R)	22 (108 %R) (4 RPD)	10/12/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	24 (119 %R)	23 (113 %R) (5 RPD)	10/12/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	24 (119 %R)	23 (114 %R) (4 RPD)	10/12/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	25 (123 %R)	24 (118 %R) (4 RPD)	10/12/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	27 (133 %R)	26 (128 %R) (4 RPD)	10/12/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	45 (113 %R)	43 (109 %R) (4 RPD)	10/12/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	26 (129 %R)	25 (124 %R) (4 RPD)	10/12/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	* 11 (53 %R)	* 11 (54 %R) (2 RPD)	10/12/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	25 (125 %R)	24 (121 %R) (3 RPD)	10/12/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	23 (115 %R)	23 (113 %R) (2 RPD)	10/12/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	24 (118 %R)	23 (113 %R) (4 RPD)	10/12/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	23 (114 %R)	22 (110 %R) (4 RPD)	10/12/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	23 (116 %R)	22 (111 %R) (4 RPD)	10/12/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	75 %R		102 %R	102 %R	10/12/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	115 %R		95 %R	96 %R	10/12/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	99 %R		103 %R	103 %R	10/12/2021	% Rec	70 - 130		624.1

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



LABORATORY REPORT

EAI ID#: 233431

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 233431.01
Matrix: aqueous
Date Sampled: 10/11/21
Date Received: 10/11/21

	Result	Dilution		Units	Date / Time		Method	Analyst
		RL	Factor		Analyzed			
Phenol	< 1	1	1	ug/L	10/12/21	18:41	625.1	JMR
2-Fluorophenol (surr)	36 %R			%	10/12/21	18:41	625.1	JMR
Phenol-d6 (surr)	24 %R			%	10/12/21	18:41	625.1	JMR
2,4,6-Tribromophenol (surr)	68 %R			%	10/12/21	18:41	625.1	JMR



LABORATORY REPORT

EAI ID#: 233431

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 233431.02
Matrix: aqueous
Date Sampled: 10/11/21
Date Received: 10/11/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	10/12/21 19:04	625.1	JMR
2-Fluorophenol (surr)	37 %R			%	10/12/21 19:04	625.1	JMR
Phenol-d6 (surr)	24 %R			%	10/12/21 19:04	625.1	JMR
2,4,6-Tribromophenol (surr)	67 %R			%	10/12/21 19:04	625.1	JMR



QC REPORT

EAI ID#: 233431

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637696-21430/A101221E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	17 (68 %R)	15 (61 %R) (11 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	12 (24 %R)	10 (21 %R) (16 RPD)	10/12/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	29 (58 %R)	24 (48 %R) (19 RPD)	10/12/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	34 (68 %R)	29 (59 %R) (14 RPD)	10/12/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	34 (68 %R)	32 (63 %R) (7 RPD)	10/12/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	34 (68 %R)	31 (62 %R) (9 RPD)	10/12/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	32 (64 %R)	31 (62 %R) (3 RPD)	10/12/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	33 (66 %R)	28 (56 %R) (16 RPD)	10/12/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	14 (29 %R)	14 (29 %R) (0 RPD)	10/12/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	11 (23 %R)	25 (50 %R) (74 RPD)	10/12/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	28 (55 %R)	23 (46 %R) (17 RPD)	10/12/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	26 (53 %R)	23 (45 %R) (15 RPD)	10/12/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	33 (65 %R)	29 (57 %R) (13 RPD)	10/12/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	34 (68 %R)	31 (63 %R) (8 RPD)	10/12/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	32 (65 %R)	35 (70 %R) (8 RPD)	10/12/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	* < 50 (9 %R)	* < 50 (11 %R) (16 RPD)	10/12/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	9.7 (39 %R)	8.3 (33 %R) (15 RPD)	10/12/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	15 (62 %R)	13 (54 %R) (14 RPD)	10/12/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	17 (68 %R)	16 (66 %R) (4 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	15 (60 %R)	12 (49 %R) (19 RPD)	10/12/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	15 (59 %R)	12 (49 %R) (19 RPD)	10/12/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	16 (65 %R)	14 (57 %R) (14 RPD)	10/12/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	13 (52 %R)	10 (42 %R) (22 RPD) !	10/12/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	15 (61 %R)	13 (52 %R) (16 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	13 (52 %R)	10 (41 %R) (22 RPD) !	10/12/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	13 (54 %R)	11 (43 %R) (22 RPD) !	10/12/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	14 (57 %R)	12 (48 %R) (17 RPD)	10/12/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	16 (63 %R)	* 14 (57 %R) (11 RPD)	10/12/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	17 (68 %R)	16 (64 %R) (6 RPD)	10/12/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	18 (70 %R)	17 (67 %R) (4 RPD)	10/12/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	13 (54 %R)	11 (43 %R) (22 RPD)	10/12/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	14 (56 %R)	12 (46 %R) (18 RPD)	10/12/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	9.8 (39 %R)	8.4 (33 %R) (16 RPD)	10/12/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	18 (71 %R)	17 (68 %R) (4 RPD)	10/12/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	17 (69 %R)	16 (63 %R) (10 RPD)	10/12/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	16 (65 %R)	15 (60 %R) (9 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	18 (71 %R)	17 (69 %R) (4 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	18 (73 %R)	18 (72 %R) (1 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	19 (75 %R)	18 (74 %R) (2 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	14 (57 %R)	12 (49 %R) (14 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	14 (56 %R)	12 (49 %R) (13 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	16 (63 %R)	13 (54 %R) (16 RPD)	10/12/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	17 (69 %R)	16 (62 %R) (10 RPD)	10/12/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	19 (74 %R)	18 (73 %R) (1 RPD)	10/12/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	18 (74 %R)	18 (71 %R) (3 RPD)	10/12/2021	ug/L	50 - 158	48	625.1
Benzidine (estimated)	< 5	< .41	13 (53 %R)	13 (50 %R) (6 RPD)	10/12/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 233431

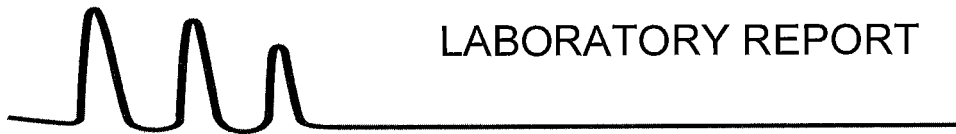
Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637696-21430/A101221E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	17 (69 %R)	16 (65 %R) (5 RPD)	10/12/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	9 (36 %R)	7.9 (32 %R) (13 RPD)	10/12/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	17 (69 %R)	16 (66 %R) (4 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	18 (72 %R)	18 (71 %R) (2 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	17 (67 %R)	16 (65 %R) (4 RPD)	10/12/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	17 (69 %R)	17 (68 %R) (2 RPD)	10/12/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	18 (73 %R)	18 (73 %R) (0 RPD)	10/12/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	17 (70 %R)	17 (68 %R) (3 RPD)	10/12/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	18 (71 %R)	17 (68 %R) (4 RPD)	10/12/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	16 (64 %R)	16 (62 %R) (2 RPD)	10/12/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	16 (65 %R)	15 (61 %R) (7 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	15 (61 %R)	13 (51 %R) (16 RPD)	10/12/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	16 (65 %R)	14 (57 %R) (14 RPD)	10/12/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	17 (67 %R)	15 (58 %R) (13 RPD)	10/12/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	17 (66 %R)	15 (61 %R) (8 RPD)	10/12/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	16 (66 %R)	16 (65 %R) (1 RPD)	10/12/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	17 (67 %R)	16 (63 %R) (6 RPD)	10/12/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	17 (69 %R)	17 (67 %R) (3 RPD)	10/12/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	17 (70 %R)	17 (68 %R) (3 RPD)	10/12/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	18 (71 %R)	18 (70 %R) (2 RPD)	10/12/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	17 (68 %R)	16 (65 %R) (5 RPD)	10/12/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	17 (67 %R)	16 (65 %R) (4 RPD)	10/12/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	18 (71 %R)	17 (69 %R) (3 RPD)	10/12/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	18 (70 %R)	17 (67 %R) (5 RPD)	10/12/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	18 (70 %R)	17 (70 %R) (1 RPD)	10/12/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	17 (68 %R)	16 (66 %R) (3 RPD)	10/12/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	16 (66 %R)	16 (63 %R) (5 RPD)	10/12/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	17 (68 %R)	17 (66 %R) (3 RPD)	10/12/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	16 (64 %R)	15 (61 %R) (4 RPD)	10/12/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	12 (47 %R)	* 9.3 (37 %R) (23 RPD) !	10/12/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	18 (71 %R)	17 (70 %R) (3 RPD)	10/12/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	34 %R		33 %R	27 %R	10/12/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	24 %R		24 %R	20 %R	10/12/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	68 %R		74 %R	69 %R	10/12/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	66 %R		64 %R	53 %R	10/12/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	65 %R		62 %R	53 %R	10/12/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	69 %R		70 %R	66 %R	10/12/2021	% Rec	30 - 130		625.1

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



LABORATORY REPORT

EAI ID#: **233431**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 233431.01 233431.02

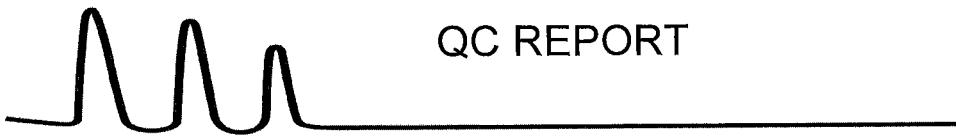
Matrix: aqueous aqueous

Date Sampled: 10/11/21 10/11/21

Date Received: 10/11/21 10/11/21

Solids Suspended	< 5	< 5
Chloride	1900	2000
Cyanide Total	< 5	< 5
Cyanide Free	< 5	< 5
Ammonia-N	< 0.05	< 0.05

	RL	Units	Analysis		Method	Analyst
			Date	Time		
	5	mg/L	10/13/21	14:25	2540D-11	CF
	1000	ug/L	10/15/21	5:39	300.0	LLG
	5	ug/L	10/15/21	17:02	ASTM D7511-09	KD
	5	ug/L	10/12/21	15:51	OIA-1677-09	KD
	0.05	mg/L	10/13/21	10:40	TM NH3-001	SEL



QC REPORT

EAI ID#: 233431

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	97 (102 %R)	93 (98 %R) (4 RPD)	mg/L	10/13/21	90 - 110	20	2540D-11
Chloride	< 1	20 (98 %R)	19 (94 %R) (4 RPD)	ug/L	10/15/21	90 - 110	20	300.0
Cyanide Total	< 5	100 (105 %R)	100 (105 %R) (0 RPD)	ug/L	10/15/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	230 (92 %R)	230 (93 %R) (1 RPD)	ug/L	10/12/21	84 - 116	20	OIA-1677-09
Ammonia-N	< 0.05	1.9 (96 %R)	1.9 (93 %R) (3 RPD)	mg/L	10/13/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: **233431**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 233431.01 233431.02

Matrix: aqueous aqueous

Date Sampled: 10/11/21 10/11/21

Date Received: 10/11/21 10/11/21

	Analytical			Analysis	
	RL	Matrix	Units	Date	Method Analyst
Chromium (VI)	< 10	< 10	10	AqTot ug/L	10/11/21 7196A RJ
Antimony	< 0.5	< 0.5	0.5	AqTot ug/L	10/13/21 200.8 DS
Arsenic	< 0.5	< 0.5	0.5	AqTot ug/L	10/13/21 200.8 DS
Cadmium	< 0.1	< 0.1	0.1	AqTot ug/L	10/13/21 200.8 DS
Chromium	< 0.5	< 0.5	0.5	AqTot ug/L	10/13/21 200.8 DS
Copper	1.4	0.11	0.5	AqTot ug/L	10/13/21 200.8 DS
Iron	460	< 50	50	AqTot ug/L	10/13/21 200.8 DS
Lead	< 0.1	< 0.1	0.1	AqTot ug/L	10/13/21 200.8 DS
Mercury	< 0.1	< 0.1	0.1	AqTot ug/L	10/13/21 200.8 DS
Nickel	0.56	0.18	0.1	AqTot ug/L	10/13/21 200.8 DS
Selenium	< 0.5	< 0.5	0.5	AqTot ug/L	10/13/21 200.8 DS
Silver	< 0.1	< 0.1	0.1	AqTot ug/L	10/13/21 200.8 DS
Zinc	1.5	1.8	1	AqTot ug/L	10/13/21 200.8 DS
Chromium (III)	< 10	< 10	10	AqTot ug/L	10/13/21 200.8 DS



QC REPORT

EAI ID#: 233431

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (111 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.1 (108 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.0 (102 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (108 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Copper	< 0.0001	1.1 (108 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Iron	< 0.05	11 (104 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Lead	< 0.0001	1.1 (106 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (109 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Nickel	< 0.0001	1.1 (107 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Selenium	< 0.0005	1.0 (104 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Silver	< 0.0001	0.010 (104 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Zinc	< 0.001	1.1 (106 %R)		NA mg/L	10/13/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.30 (97 %R)		NA mg/L	10/11/21	85 - 115	20	7196A

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

October 22, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 233431 10/11
Pace Project No.: 70191231

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on October 15, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 233431 10/11
Pace Project No.: 70191231

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
Connecticut Certification #: PH-0435
Delaware Certification # NY 10478
Maryland Certification #: 208
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

New Jersey Certification #: NY158
New York Certification #: 10478 Primary Accrediting Body
Pennsylvania Certification #: 68-00350
Rhode Island Certification #: LAO00340
Virginia Certification # 460302

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 233431 10/11
Pace Project No.: 70191231

Sample: SYSTEM INFLUENT		Lab ID: 70191231001	Collected: 10/11/21 11:10	Received: 10/15/21 10:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		10/20/21 13:58	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	87	%	77-101	1		10/20/21 13:58	17060-07-0	
4-Bromofluorobenzene (S)	97	%	80-110	1		10/20/21 13:58	460-00-4	
Toluene-d8 (S)	108	%	94-117	1		10/20/21 13:58	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 233431 10/11
Pace Project No.: 70191231

Sample: SYSTEM EFFLUENT		Lab ID: 70191231002	Collected: 10/11/21 11:25	Received: 10/15/21 10:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		10/20/21 13:37	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	77-101	1		10/20/21 13:37	17060-07-0	
4-Bromofluorobenzene (S)	93	%	80-110	1		10/20/21 13:37	460-00-4	
Toluene-d8 (S)	106	%	94-117	1		10/20/21 13:37	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 233431 10/11
Pace Project No.: 70191231

QC Batch: 230115 Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B Analysis Description: 1624B MSV
Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70191231001, 70191231002

METHOD BLANK: 1160662 Matrix: Water
Associated Lab Samples: 70191231001, 70191231002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	10/20/21 11:48	
1,2-Dichloroethane-d4 (S)	%	96	77-101	10/20/21 11:48	
4-Bromofluorobenzene (S)	%	94	80-110	10/20/21 11:48	
Toluene-d8 (S)	%	103	94-117	10/20/21 11:48	

LABORATORY CONTROL SAMPLE: 1160663

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.053	107	20-200	
1,2-Dichloroethane-d4 (S)	%			86	77-101	
4-Bromofluorobenzene (S)	%			108	80-110	
Toluene-d8 (S)	%			104	94-117	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 233431 10/11
Pace Project No.: 70191231

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 233431 10/11
Pace Project No.: 70191231

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70191231001	SYSTEM INFLUENT	EPA 1624B	230115		
70191231002	SYSTEM EFFLUENT	EPA 1624B	230115		

REPORT OF LABORATORY ANALYSIS

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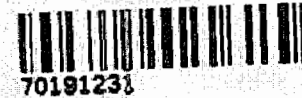
CHAIN-OF-CUSTODY RECORD

EAI ID# **233431**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	10/11/2021 11:10	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	10/11/2021 11:25	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

WO#: 70191231



EAI ID# **233431**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 VOC Acetone Only

PO #: 55934

EAI ID# **233431**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

<i>[Signature]</i>	10/14/21	1500 UPS
Relinquished by	Date/Time	Received by
<i>[Signature]</i>	10/15/21 10:15	B-L-PAUL LI
Relinquished by	Date/Time	Received by

Eastern Analytical, Inc. 25 Chenell Dr. 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



Sample Condition Upon Receipt

WO#: 70191231

Client Name: EASTA

Project: _____

PM: KMM

Due Date: 10/22/21

CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 1E 246 699 01 9075 1834

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No N/A

Packing Material: Bubble Wrap Bubble Bags Ziploc Ice Other

Thermometer Used: ~~TH091~~ TH170 Correction Factor: +0.1

Cooler Temperature[°C]: 3.1 Cooler Temperature Corrected[°C]: 3.2

Temp should be above freezing to 6.0°C

USDA Regulated Soil (N/A, water sample)

Date and Initials of person examining contents: KW 10/15/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC,

Did samples originate from a foreign source

NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

including Hawaii and Puerto Rico? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/CDC paperwork.

		COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: <u>SL WT OIL</u>		
All containers needing preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #		Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NaOH>12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Initial when completed: _____ Lot # of added preservative: _____ Date/Time preservative added: _____
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis		
Samples checked for dechlorination: KI starch test strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
Residual chlorine strips Lot #		
SM 4500 CN samples checked for sulfide? Lead Acetate Strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15. Positive for Sulfide? Y N
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if applicable): _____		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

* PM (Project Manager) review is documented electronically in LIMS.



Friday, October 22, 2021

Attn: Front Office
Eastern Analytical
51 Antrim Ave
Concord, NH 03301

Project ID: 233431
SDG ID: GCJ54634
Sample ID#s: CJ54634 - CJ54635

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

October 22, 2021

SDG I.D.: GCJ54634

Project ID: 233431

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CJ54634	WATER
SYSTEM EFFLUENT	CJ54635	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
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Analysis Report

October 22, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55933

Custody Information

Collected by:
 Received by: LB
 Analyzed by: see "By" below

Date	Time
10/11/21	11:10
10/13/21	11:00

Laboratory Data

SDG ID: GCJ54634
 Phoenix ID: CJ54634

Project ID: 233431
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	27	0.20	ug/l	1	10/18/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	99		%	1	10/18/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				10/15/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

October 22, 2021

Reviewed and Released by: Ethan Lee, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

October 22, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 55933

Custody Information

Collected by:
 Received by: LB
 Analyzed by: see "By" below

Date Time
 10/11/21 11:25
 10/13/21 11:00

Laboratory Data

SDG ID: GCJ54634
 Phoenix ID: CJ54635

Project ID: 233431
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	10/20/21	AW	EPA522
QA/QC Surrogates							
% 1,4-dioxane-d8	83		%	1	10/20/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				10/19/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

October 22, 2021

Reviewed and Released by: Ethan Lee, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

October 22, 2021

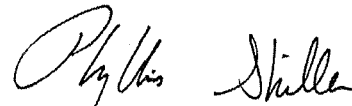
QA/QC Data

SDG I.D.: GCJ54634

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 596450 (ug/l), QC Sample No: CJ52563 (CJ54634)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	109	116	6.2	114			70 - 130	20
% 1,4-dioxane-d8	99	%	100	95	5.1	97			70 - 130	20
QA/QC Batch 596857 (ug/l), QC Sample No: CJ59016 (CJ54635)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	83	88	5.8	88	93	5.5	70 - 130	20
% 1,4-dioxane-d8	81	%	99	85	15.2	80	85	6.1	70 - 130	20

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
 October 22, 2021

Friday, October 22, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCJ54634 - EASTANAL-NH

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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance 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

October 22, 2021

SDG I.D.: GCJ54634

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

1.6 ⁰⁰⁰
10

 **Eastern Analytical, Inc.**
professional laboratory and drilling services

EAI ID# **233431**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
* System Influent	10/11/2021 11:10	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	54634
* System Effluent	10/11/2021 11:25	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	54635

* 8oz Amber bottle w/ N/AHSCH mgp

EAI ID# **233431**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 55933

EAI ID# **233431**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

Chris Jones 10/12/21 10:00 CPS
Relinquished by Date/Time Received by
UPS 10/13/21 11:00 [Signature]
Relinquished by Date/Time Received by

Eastern Analytical, Inc. 25 Chenell Dr. 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



Date/Time
Composites need start
and stop dates/times

Matrix

Parameters and Sample Notes

of containers

System Influent	10-11-21 11:10	aqueous Grab or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13
-----------------	-------------------	-------------------------	--	----

Sampler confirms ID and parameters are accurate Circle preservative/s: (HCL) (HNO₃) (H₂SO₄) (NaOH) MEOH Na₂S₂O₃ (ICE) Dissolved Sample Field Filtered

System Effluent	10-11-21 11:25	aqueous Grab or Comp	AqTot/V624/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni. Se.Ag.Zn/Cr6/Cr3/CyanFree	13
-----------------	-------------------	-------------------------	--	----

Sampler confirms ID and parameters are accurate Circle preservative/s: (HCL) (HNO₃) (H₂SO₄) (NaOH) MEOH Na₂S₂O₃ (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 4965
Project Name Rennie Farm RGP / 04.0190030.02

State NH
Client (Pro Mgr) Jim Wieck
Customer GZA GeoEnvironmental, Inc. (NH)
Address 5 Commerce Park North, Suite 201
City Bedford NH 03110
Phone 623-3600 Fax 624-9463 (37)

Email: James.Wieck@gza.com
Direct 232-8732

Results Needed by: Preferred date _____
Notes:

1624 Acetone Only

QC deliverables

A A+ B B+ C MA MCP

Reporting Options

<input checked="" type="checkbox"/> HC	<input type="checkbox"/> NO FAX	PO# verbal
<input checked="" type="checkbox"/> EDD PDF	<input type="checkbox"/> Partial FAX	Quote#:
<input checked="" type="checkbox"/> EDD email	<input checked="" type="checkbox"/> PDF Invoice	Temp 3.1 °C
<input checked="" type="checkbox"/> PDF prelim, NO FAX	<input type="checkbox"/> EQUIS	Ice <input checked="" type="checkbox"/> <input type="checkbox"/> N
<input checked="" type="checkbox"/> e-mail Login Confirmation		

Samples Collected by: AVJ
al Jacobsen 10-11-21 1500 (in journal)
 Relinquished by _____ Date/Time _____ Received by _____

Relinquished by _____ Date/Time _____ Received by _____

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 233920
Client Identification: Rennie Farm | 04.0190030.02
Date Received: 10/20/2021

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

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

10.26.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 233920

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02

Temperature upon receipt (°C): 10.9

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
233920.01	System Influent	10/20/21	10/18/21 09:35	aqueous		Adheres to Sample Acceptance Policy
233920.02	System Mid	10/20/21	10/18/21 09:40	aqueous		Adheres to Sample Acceptance Policy
233920.03	LGAC In	10/20/21	10/19/21 08:41	aqueous		Adheres to Sample Acceptance Policy
233920.04	LGAC Mid	10/20/21	10/19/21 08:38	aqueous		Adheres to Sample Acceptance Policy
233920.05	LGAC Out	10/20/21	10/19/21 08:35	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#: 233920

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 233920.01
Matrix: aqueous
Date Sampled: 10/18/21
Date Received: 10/20/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	27	2	10	ug/L	10/21/21 17:42	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	10/21/21 17:42	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	10/21/21 17:42	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 233920.02
Matrix: aqueous
Date Sampled: 10/18/21
Date Received: 10/20/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	10/21/21 16:08	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	10/21/21 16:08	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	10/21/21 16:08	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 233920

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm | 04.0190030.02**

Client Sample ID: LGAC In
Lab Sample ID: 233920.03
Matrix: aqueous
Date Sampled: 10/19/21
Date Received: 10/20/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3500	100	500	ug/L	10/21/21 18:13	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	10/21/21 18:13	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	10/21/21 18:13	8260B SIM	AM

Client Sample ID: LGAC Mid
Lab Sample ID: 233920.04
Matrix: aqueous
Date Sampled: 10/19/21
Date Received: 10/20/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.1	0.2	1	ug/L	10/21/21 16:40	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	10/21/21 16:40	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	10/21/21 16:40	8260B SIM	AM

Client Sample ID: LGAC Out
Lab Sample ID: 233920.05
Matrix: aqueous
Date Sampled: 10/19/21
Date Received: 10/20/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.81	0.2	1	ug/L	10/21/21 17:11	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	10/21/21 17:11	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	10/21/21 17:11	8260B SIM	AM



QC REPORT

EAI ID#: **233920**

Client: **GZA GeoEnvironmental, Inc. (NH)**

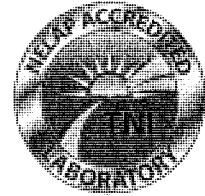
Batch ID: 637704-20219/A102121DIOX1

Client Designation: **Rennie Farm | 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.7 (94 %R)	4.8 (96 %R) (2 RPD)	10/21/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	101 %R	100 %R	100 %R	10/21/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	98 %R	98 %R	98 %R	10/21/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 235037
Client Identification: Rennie Farm | 04.0190030.02 Task 22 ST-1
Date Received: 11/9/2021

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.

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- > : "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.

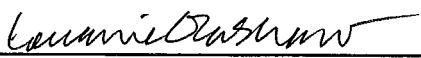
References:

- 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

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

11/18/21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 235037

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Temperature upon receipt (°C): 14.1

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
235037.01	System Influent	11/9/21	11/8/21 09:35	aqueous		Adheres to Sample Acceptance Policy
235037.02	System Mid	11/9/21	11/8/21 09:40	aqueous		Adheres to Sample Acceptance Policy
235037.03	LGAC In	11/9/21	11/9/21 09:55	aqueous		Adheres to Sample Acceptance Policy
235037.04	LGAC Mid	11/9/21	11/9/21 09:50	aqueous		Adheres to Sample Acceptance Policy
235037.05	LGAC Out	11/9/21	11/9/21 09:45	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#: **235037**

Client: **GZA GeoEnvironmental, Inc. (NH)**

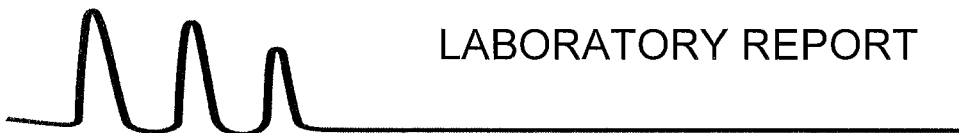
Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Client Sample ID: System Influent
Lab Sample ID: 235037.01
Matrix: aqueous
Date Sampled: 11/8/21
Date Received: 11/9/21

	Result	Dilution		Units	Date / Time Analyzed	Method	Analyst
		RL	Factor				
1,4-Dioxane	25	2	10	ug/L	11/13/21 2:25	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	11/13/21 2:25	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/13/21 2:25	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 235037.02
Matrix: aqueous
Date Sampled: 11/8/21
Date Received: 11/9/21

	Result	Dilution		Units	Date / Time Analyzed	Method	Analyst
		RL	Factor				
1,4-Dioxane	< 0.2	0.2	1	ug/L	11/13/21 2:56	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	11/13/21 2:56	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	11/13/21 2:56	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **235037**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Client Sample ID: LGAC In
 Lab Sample ID: 235037.03
 Matrix: aqueous
 Date Sampled: 11/9/21
 Date Received: 11/9/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	3300	200	1000	ug/L	11/15/21 22:25	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	11/15/21 22:25	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	11/15/21 22:25	8260B SIM	AM

Client Sample ID: LGAC Mid
 Lab Sample ID: 235037.04
 Matrix: aqueous
 Date Sampled: 11/9/21
 Date Received: 11/9/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	1.4	0.2	1	ug/L	11/13/21 3:59	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	11/13/21 3:59	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	11/13/21 3:59	8260B SIM	AM

Client Sample ID: LGAC Out
 Lab Sample ID: 235037.05
 Matrix: aqueous
 Date Sampled: 11/9/21
 Date Received: 11/9/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.62	0.2	1	ug/L	11/13/21 4:31	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	11/13/21 4:31	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	11/13/21 4:31	8260B SIM	AM



QC REPORT

EAI ID#: **235037**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637725-61490/A111221DIOX2

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.7 (94 %R)	4.6 (92 %R) (2 RPD)	11/12/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	98 %R	98 %R	11/12/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	96 %R	96 %R	96 %R	11/12/2021	% 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#: **235037**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637725-82981/A111521DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.7 (94 %R)	4.7 (93 %R) (1 RPD)	11/15/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	99 %R	99 %R	100 %R	11/15/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	97 %R	97 %R	97 %R	11/15/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 235560
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 11/18/2021

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

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

12.2.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 235560

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 0.1

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)
235560.01	System Influent	11/18/21	11/18/21 07:45	aqueous		Adheres to Sample Acceptance Policy
235560.02	System Effluent	11/18/21	11/18/21 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#: 235560

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
 Lab Sample ID: 235560.01
 Matrix: aqueous
 Date Sampled: 11/18/21
 Date Received: 11/18/21

Date of Preparation:
 Method: 624.1
 Analyst: SG
 Units: ug/L

	Result	RL	Dilution Factor	Date Analyzed		Result	RL	Dilution Factor	Date Analyzed
Chloromethane	< 2	2	1	11/18/21	4-Bromofluorobenzene (surr)	103 %R			11/18/21
Vinyl chloride	< 1	1	1	11/18/21	1,2-Dichlorobenzene-d4	96 %R			11/18/21
Bromomethane	< 2	2	1	11/18/21	Toluene-d8 (surr)	107 %R			11/18/21
Chloroethane	< 2	2	1	11/18/21					
Trichlorofluoromethane	< 2	2	1	11/18/21					
Acrolein	< 50	50	1	11/18/21					
Acetone	< 10	10	1	11/18/21					
1,1-Dichloroethene	< 0.5	0.5	1	11/18/21					
Methylene chloride	< 1	1	1	11/18/21					
Acrylonitrile	< 50	50	1	11/18/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	11/18/21					
trans-1,2-Dichloroethene	< 1	1	1	11/18/21					
Vinyl acetate	< 10	10	1	11/18/21					
1,1-Dichloroethane	< 1	1	1	11/18/21					
cis-1,2-Dichloroethene	< 1	1	1	11/18/21					
2-Butanone(MEK)	< 10	10	1	11/18/21					
Chloroform	< 1	1	1	11/18/21					
1,1,1-Trichloroethane	< 1	1	1	11/18/21					
Carbon tetrachloride	< 1	1	1	11/18/21					
Benzene	< 1	1	1	11/18/21					
1,2-Dichloroethane	< 1	1	1	11/18/21					
Trichloroethene	< 1	1	1	11/18/21					
1,2-Dichloropropane	< 1	1	1	11/18/21					
Bromodichloromethane	< 0.5	0.5	1	11/18/21					
2-Chloroethylvinylether	< 2	2	1	11/18/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	11/18/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	11/18/21					
Toluene	< 1	1	1	11/18/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	11/18/21					
1,1,2-Trichloroethane	< 1	1	1	11/18/21					
2-Hexanone	< 10	10	1	11/18/21					
Tetrachloroethene	< 1	1	1	11/18/21					
Dibromochloromethane	< 1	1	1	11/18/21					
Chlorobenzene	< 1	1	1	11/18/21					
Ethylbenzene	< 1	1	1	11/18/21					
mp-Xylene	< 1	1	1	11/18/21					
o-Xylene	< 1	1	1	11/18/21					
Styrene	< 1	1	1	11/18/21					
Bromoform	< 2	2	1	11/18/21					
1,1,1,2-Tetrachloroethane	< 1	1	1	11/18/21					
1,3-Dichlorobenzene	< 1	1	1	11/18/21					
1,4-Dichlorobenzene	< 1	1	1	11/18/21					
1,2-Dichlorobenzene	< 1	1	1	11/18/21					



LABORATORY REPORT

EAI ID#: 235560

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 235560.02
Matrix: aqueous
Date Sampled: 11/18/21
Date Received: 11/18/21

Date of Preparation:
Method: 624.1
Analyst: SG
Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	11/18/21	4-Bromofluorobenzene (surr)	104 %R			11/18/21
Vinyl chloride	< 1	1	1	11/18/21	1,2-Dichlorobenzene-d4	96 %R			11/18/21
Bromomethane	< 2	2	1	11/18/21	Toluene-d8 (surr)	101 %R			11/18/21
Chloroethane	< 2	2	1	11/18/21					
Trichlorofluoromethane	< 2	2	1	11/18/21					
Acrolein	< 50	50	1	11/18/21					
Acetone	< 10	10	1	11/18/21					
1,1-Dichloroethene	< 0.5	0.5	1	11/18/21					
Methylene chloride	< 1	1	1	11/18/21					
Acrylonitrile	< 50	50	1	11/18/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	11/18/21					
trans-1,2-Dichloroethene	< 1	1	1	11/18/21					
Vinyl acetate	< 10	10	1	11/18/21					
1,1-Dichloroethane	< 1	1	1	11/18/21					
cis-1,2-Dichloroethene	< 1	1	1	11/18/21					
2-Butanone(MEK)	< 10	10	1	11/18/21					
Chloroform	< 1	1	1	11/18/21					
1,1,1-Trichloroethane	< 1	1	1	11/18/21					
Carbon tetrachloride	< 1	1	1	11/18/21					
Benzene	< 1	1	1	11/18/21					
1,2-Dichloroethane	< 1	1	1	11/18/21					
Trichloroethene	< 1	1	1	11/18/21					
1,2-Dichloropropane	< 1	1	1	11/18/21					
Bromodichloromethane	< 0.5	0.5	1	11/18/21					
2-Chloroethylvinylether	< 2	2	1	11/18/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	11/18/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	11/18/21					
Toluene	< 1	1	1	11/18/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	11/18/21					
1,1,2-Trichloroethane	< 1	1	1	11/18/21					
2-Hexanone	< 10	10	1	11/18/21					
Tetrachloroethene	< 1	1	1	11/18/21					
Dibromochloromethane	< 1	1	1	11/18/21					
Chlorobenzene	< 1	1	1	11/18/21					
Ethylbenzene	< 1	1	1	11/18/21					
mp-Xylene	< 1	1	1	11/18/21					
o-Xylene	< 1	1	1	11/18/21					
Styrene	< 1	1	1	11/18/21					
Bromoform	< 2	2	1	11/18/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	11/18/21					
1,3-Dichlorobenzene	< 1	1	1	11/18/21					
1,4-Dichlorobenzene	< 1	1	1	11/18/21					
1,2-Dichlorobenzene	< 1	1	1	11/18/21					



QC REPORT

EAI ID#: 235560

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637728-32132/A111821V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	24 (121 %R)	25 (123 %R) (2 RPD)	11/18/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	27 (133 %R)	26 (132 %R) (1 RPD)	11/18/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	23 (114 %R)	23 (113 %R) (1 RPD)	11/18/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	22 (109 %R)	22 (109 %R) (1 RPD)	11/18/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	22 (112 %R)	21 (103 %R) (8 RPD)	11/18/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (99 %R)	< 50 (104 %R) (5 RPD)	11/18/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	16 (79 %R)	17 (83 %R) (6 RPD)	11/18/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethene	< 0.5	< .37	23 (113 %R)	22 (111 %R) (1 RPD)	11/18/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	21 (107 %R)	22 (109 %R) (1 RPD)	11/18/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (89 %R)	< 50 (92 %R) (4 RPD)	11/18/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	19 (97 %R)	20 (101 %R) (4 RPD)	11/18/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	21 (103 %R)	21 (105 %R) (2 RPD)	11/18/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	24 (118 %R)	25 (123 %R) (4 RPD)	11/18/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	23 (114 %R)	23 (115 %R) (1 RPD)	11/18/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	23 (116 %R)	23 (115 %R) (1 RPD)	11/18/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	17 (85 %R)	18 (89 %R) (6 RPD)	11/18/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	21 (105 %R)	21 (107 %R) (2 RPD)	11/18/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	22 (111 %R)	22 (111 %R) (0 RPD)	11/18/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	21 (107 %R)	21 (105 %R) (2 RPD)	11/18/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	21 (106 %R)	22 (108 %R) (1 RPD)	11/18/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	23 (116 %R)	24 (118 %R) (2 RPD)	11/18/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	20 (101 %R)	21 (103 %R) (2 RPD)	11/18/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	22 (111 %R)	23 (113 %R) (2 RPD)	11/18/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	23 (113 %R)	23 (115 %R) (2 RPD)	11/18/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	20 (101 %R)	21 (106 %R) (5 RPD)	11/18/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	17 (86 %R)	18 (91 %R) (5 RPD)	11/18/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	22 (109 %R)	22 (111 %R) (2 RPD)	11/18/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	21 (104 %R)	21 (106 %R) (2 RPD)	11/18/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	23 (113 %R)	24 (118 %R) (4 RPD)	11/18/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	21 (103 %R)	21 (106 %R) (3 RPD)	11/18/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	18 (91 %R)	19 (97 %R) (7 RPD)	11/18/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	19 (94 %R)	19 (95 %R) (0 RPD)	11/18/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	19 (97 %R)	20 (101 %R) (4 RPD)	11/18/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	21 (104 %R)	21 (106 %R) (2 RPD)	11/18/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	22 (109 %R)	22 (111 %R) (2 RPD)	11/18/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	43 (108 %R)	44 (110 %R) (1 RPD)	11/18/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	22 (110 %R)	22 (112 %R) (2 RPD)	11/18/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	22 (109 %R)	22 (111 %R) (2 RPD)	11/18/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	19 (93 %R)	20 (98 %R) (5 RPD)	11/18/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	19 (97 %R)	20 (100 %R) (3 RPD)	11/18/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	20 (102 %R)	21 (104 %R) (2 RPD)	11/18/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	20 (102 %R)	21 (104 %R) (2 RPD)	11/18/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	20 (101 %R)	21 (103 %R) (2 RPD)	11/18/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	106 %R		105 %R	105 %R	11/18/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	98 %R		97 %R	98 %R	11/18/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	101 %R		101 %R	101 %R	11/18/2021	% Rec	70 - 130		624.1

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



LABORATORY REPORT

EAI ID#: 235560

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 235560.01
Matrix: aqueous
Date Sampled: 11/18/21
Date Received: 11/18/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	11/22/21 17:20	625.1	JMR
2-Fluorophenol (surr)	36 %R			%	11/22/21 17:20	625.1	JMR
Phenol-d6 (surr)	25 %R			%	11/22/21 17:20	625.1	JMR
2,4,6-Tribromophenol (surr)	80 %R			%	11/22/21 17:20	625.1	JMR



LABORATORY REPORT

EAI ID#: 235560

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 235560.02
Matrix: aqueous
Date Sampled: 11/18/21
Date Received: 11/18/21

	Result	Dilution		Units	Date / Time Analyzed	Method	Analyst
		RL	Factor				
Phenol	< 1	1	1	ug/L	11/22/21 17:42	625.1	JMR
2-Fluorophenol (surr)	36 %R			%	11/22/21 17:42	625.1	JMR
Phenol-d6 (surr)	24 %R			%	11/22/21 17:42	625.1	JMR
2,4,6-Tribromophenol (surr)	80 %R			%	11/22/21 17:42	625.1	JMR



QC REPORT

EAI ID#: 235560

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637731-65101/A112221E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
alpha-Terpineol	< 5	< .17	17 (68 %R)	21 (85 %R) (22 RPD) !	11/22/2021	ug/L	40 - 140	20	625.1
Phenol	< 1	< .12	12 (23 %R)	15 (29 %R) (22 RPD)	11/22/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	27 (54 %R)	33 (66 %R) (20 RPD)	11/22/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	36 (72 %R)	45 (89 %R) (21 RPD)	11/22/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	37 (73 %R)	43 (87 %R) (17 RPD)	11/22/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	35 (71 %R)	43 (85 %R) (18 RPD)	11/22/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	37 (74 %R)	41 (83 %R) (11 RPD)	11/22/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	36 (71 %R)	45 (90 %R) (24 RPD)	11/22/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	16 (31 %R)	17 (34 %R) (10 RPD)	11/22/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	30 (60 %R)	47 (94 %R) (44 RPD)	11/22/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	27 (54 %R)	34 (68 %R) (22 RPD) !	11/22/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	26 (52 %R)	33 (65 %R) (22 RPD) !	11/22/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	33 (67 %R)	41 (82 %R) (20 RPD)	11/22/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	38 (77 %R)	46 (91 %R) (17 RPD)	11/22/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	47 (94 %R)	55 (110 %R) (15 RPD)	11/22/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (17 %R)	< 50 (31 %R) (56 RPD) !	11/22/2021	ug/L	15 - 130	50	625.1
N-Nitrosodimethylamine	< 1	< .11	9.2 (37 %R)	11 (45 %R) (19 RPD)	11/22/2021	ug/L	15 - 140	20	625.1
n-Nitroso-di-n-propylamine	< 0.5	< .22	16 (63 %R)	20 (79 %R) (23 RPD)	11/22/2021	ug/L	1 - 230	87	625.1
n-Nitrosodiphenylamine	< 1	< .068	20 (80 %R)	22 (88 %R) (9 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
bis(2-Chloroethyl)ether	< 1	< .11	14 (54 %R)	17 (67 %R) (21 RPD)	11/22/2021	ug/L	12 - 158	108	625.1
bis(2-chloroisopropyl)ether	< 1	< .13	12 (49 %R)	15 (60 %R) (21 RPD)	11/22/2021	ug/L	36 - 166	76	625.1
bis(2-Chloroethoxy)methane	< 1	< .2	17 (67 %R)	21 (85 %R) (24 RPD)	11/22/2021	ug/L	33 - 184	54	625.1
1,3-Dichlorobenzene	< 1	< .15	11 (46 %R)	14 (56 %R) (19 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
Acetophenone	< 10	< 8.8	15 (61 %R)	19 (76 %R) (23 RPD) !	11/22/2021	ug/L	40 - 140	20	625.1
1,4-Dichlorobenzene	< 1	< .11	11 (46 %R)	14 (55 %R) (19 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
1,2-Dichlorobenzene	< 1	< .13	12 (48 %R)	15 (58 %R) (20 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
1,2,4-Trichlorobenzene	< 1	< .09	14 (58 %R)	18 (71 %R) (20 RPD)	11/22/2021	ug/L	44 - 142	50	625.1
2-Chloronaphthalene	< 1	< .11	16 (64 %R)	20 (78 %R) (20 RPD)	11/22/2021	ug/L	60 - 120	24	625.1
4-Chlorophenyl-phenylether	< 1	< .059	19 (75 %R)	22 (86 %R) (14 RPD)	11/22/2021	ug/L	25 - 158	61	625.1
4-Bromophenyl-phenylether	< 1	< .14	21 (83 %R)	23 (93 %R) (11 RPD)	11/22/2021	ug/L	53 - 127	43	625.1
Hexachloroethane	< 1	< .15	12 (46 %R)	14 (57 %R) (21 RPD)	11/22/2021	ug/L	40 - 120	52	625.1
Hexachlorobutadiene	< 1	< .073	14 (55 %R)	17 (68 %R) (21 RPD)	11/22/2021	ug/L	24 - 120	62	625.1
Hexachlorocyclopentadiene	< 5	< .21	8.4 (34 %R)	11 (44 %R) (26 RPD) !	11/22/2021	ug/L	15 - 140	20	625.1
Hexachlorobenzene	< 1	< .12	22 (87 %R)	24 (95 %R) (9 RPD)	11/22/2021	ug/L	1 - 152	55	625.1
4-Chloroaniline	< 1	< .13	18 (73 %R)	23 (90 %R) (21 RPD) !	11/22/2021	ug/L	15 - 140	20	625.1
2,3-Dichloroaniline	< 1	< .11	17 (69 %R)	21 (85 %R) (20 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
2-Nitroaniline	< 5	< .18	18 (71 %R)	21 (82 %R) (14 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
3-Nitroaniline	< 5	< .13	21 (84 %R)	24 (94 %R) (12 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
4-Nitroaniline	< 5	< .23	23 (91 %R)	24 (98 %R) (7 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
Aniline	< 1	< .13	13 (52 %R)	16 (64 %R) (20 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
Benzyl alcohol	< 10	< .35	14 (56 %R)	17 (70 %R) (22 RPD) !	11/22/2021	ug/L	40 - 140	20	625.1
Nitrobenzene	< 1	< .21	16 (63 %R)	19 (77 %R) (21 RPD)	11/22/2021	ug/L	35 - 180	62	625.1
Isophorone	< 1	< .16	18 (71 %R)	22 (88 %R) (22 RPD)	11/22/2021	ug/L	21 - 196	93	625.1
2,4-Dinitrotoluene	< 2	< .14	23 (91 %R)	25 (100 %R) (9 RPD)	11/22/2021	ug/L	39 - 139	42	625.1
2,6-Dinitrotoluene	< 2	< .14	22 (87 %R)	25 (99 %R) (13 RPD)	11/22/2021	ug/L	50 - 158	48	625.1
Benidine (estimated)	< 5	< .41	< 5 (12 %R)	5.9 (24 %R) (65 RPD) !	11/22/2021	ug/L	1 - 200	50	625.1



QC REPORT

EAI ID#: 235560

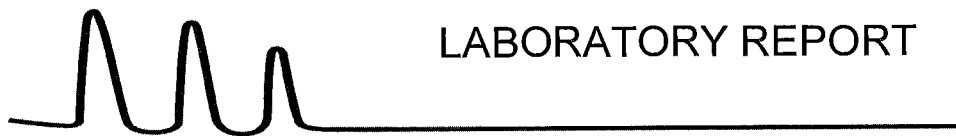
Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637731-65101/A112221E6251

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
3,3'-Dichlorobenzidine	< 1	< .27	19 (77 %R)	21 (83 %R) (7 RPD)	11/22/2021	ug/L	1 - 262	108	625.1
Pyridine	< 5	< .18	8.4 (34 %R)	10 (42 %R) (21 RPD) !	11/22/2021	ug/L	15 - 140	20	625.1
Azobenzene	< 1	< .14	17 (70 %R)	20 (79 %R) (12 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
Carbazole	< 1	< .12	21 (84 %R)	22 (89 %R) (6 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
Dimethylphthalate	< 1	< .11	19 (75 %R)	21 (84 %R) (11 RPD)	11/22/2021	ug/L	1 - 120	183	625.1
Diethylphthalate	< 5	< .11	19 (77 %R)	21 (84 %R) (8 RPD)	11/22/2021	ug/L	1 - 120	100	625.1
Di-n-butylphthalate	< 5	< .64	20 (79 %R)	21 (83 %R) (5 RPD)	11/22/2021	ug/L	1 - 120	47	625.1
Butylbenzylphthalate	< 5	< .14	19 (77 %R)	20 (79 %R) (4 RPD)	11/22/2021	ug/L	1 - 152	60	625.1
bis(2-Ethylhexyl)phthalate	< 5	< .27	19 (78 %R)	20 (80 %R) (3 RPD)	11/22/2021	ug/L	8 - 158	82	625.1
Di-n-octylphthalate	< 5	< .2	18 (72 %R)	19 (75 %R) (5 RPD)	11/22/2021	ug/L	4 - 146	69	625.1
Dibenzofuran	< 1	< .11	18 (70 %R)	21 (83 %R) (16 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
Naphthalene	< 1	< .088	15 (59 %R)	18 (73 %R) (21 RPD)	11/22/2021	ug/L	21 - 133	65	625.1
2-Methylnaphthalene	< 1	< .11	17 (68 %R)	21 (83 %R) (21 RPD)	11/22/2021	ug/L	40 - 140	65	625.1
1-Methylnaphthalene	< 1	< .12	17 (69 %R)	21 (85 %R) (21 RPD)	11/22/2021	ug/L	40 - 140	65	625.1
Acenaphthylene	< 1	< .11	17 (68 %R)	20 (82 %R) (18 RPD)	11/22/2021	ug/L	33 - 145	74	625.1
Acenaphthene	< 1	< .11	17 (68 %R)	20 (81 %R) (18 RPD)	11/22/2021	ug/L	47 - 145	48	625.1
Fluorene	< 1	< .093	18 (73 %R)	21 (83 %R) (14 RPD)	11/22/2021	ug/L	59 - 121	38	625.1
Phenanthrene	< 1	< .11	20 (79 %R)	21 (86 %R) (8 RPD)	11/22/2021	ug/L	54 - 120	39	625.1
Anthracene	< 1	< .13	20 (81 %R)	22 (86 %R) (7 RPD)	11/22/2021	ug/L	27 - 133	66	625.1
Fluoranthene	< 1	< .12	21 (83 %R)	22 (89 %R) (6 RPD)	11/22/2021	ug/L	26 - 137	66	625.1
Pyrene	< 1	< .11	19 (76 %R)	20 (79 %R) (3 RPD)	11/22/2021	ug/L	52 - 120	49	625.1
Benzo[a]anthracene	< 1	< .17	19 (77 %R)	20 (80 %R) (4 RPD)	11/22/2021	ug/L	33 - 143	53	625.1
Chrysene	< 1	< .14	20 (81 %R)	21 (84 %R) (4 RPD)	11/22/2021	ug/L	17 - 168	87	625.1
Benzo[b]fluoranthene	< 1	< .095	21 (84 %R)	21 (85 %R) (1 RPD)	11/22/2021	ug/L	24 - 159	71	625.1
Benzo[k]fluoranthene	< 1	< .14	20 (82 %R)	22 (88 %R) (7 RPD)	11/22/2021	ug/L	11 - 162	63	625.1
Benzo[a]pyrene	< 1	< .058	20 (80 %R)	21 (84 %R) (4 RPD)	11/22/2021	ug/L	17 - 163	72	625.1
Indeno[1,2,3-cd]pyrene	< 1	< .13	21 (84 %R)	22 (88 %R) (4 RPD)	11/22/2021	ug/L	1 - 171	99	625.1
Dibenz[a,h]anthracene	< 1	< .16	21 (85 %R)	22 (89 %R) (5 RPD)	11/22/2021	ug/L	1 - 227	126	625.1
Benzo[g,h,i]perylene	< 1	< .14	21 (85 %R)	22 (88 %R) (4 RPD)	11/22/2021	ug/L	1 - 219	97	625.1
n-Decane	< 5	< .16	* 9.7 (39 %R)	12 (47 %R) (20 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
n-Octadecane	< 5	< .5	18 (73 %R)	20 (80 %R) (9 RPD)	11/22/2021	ug/L	40 - 140	20	625.1
2-Fluorophenol (surr)	28 %R		30 %R	36 %R	11/22/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	22 %R		23 %R	29 %R	11/22/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	77 %R		87 %R	96 %R	11/22/2021	% Rec	15 - 110		625.1
Nitrobenzene-D5 (surr)	58 %R		64 %R	78 %R	11/22/2021	% Rec	30 - 130		625.1
2-Fluorobiphenyl (surr)	64 %R		65 %R	79 %R	11/22/2021	% Rec	30 - 130		625.1
p-Terphenyl-D14 (surr)	80 %R		83 %R	83 %R	11/22/2021	% Rec	30 - 130		625.1

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



LABORATORY REPORT

EAI ID#: 235560

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 235560.01 235560.02

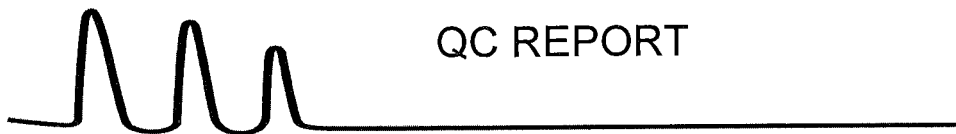
Matrix: aqueous aqueous

Date Sampled: 11/18/21 11/18/21

Date Received: 11/18/21 11/18/21

Solids Suspended	< 5	< 5
Chloride	2500	2400
Cyanide Total	< 5	< 5
Cyanide Free	< 5	< 5
Ammonia-N	< 0.05	< 0.05

		Analysis			
	RL	Units	Date	Time	Method Analyst
	5	mg/L	11/22/21	15:40	2540D-11 CF
	1000	ug/L	11/23/21	15:11	4500CIE-11 LLG
	5	ug/L	12/01/21	14:02	ASTM D7511-09 KD
	5	ug/L	11/22/21	12:11	OIA-1677-09 KD
	0.05	mg/L	11/23/21	9:22	TM NH3-001 SEL



QC REPORT

EAI ID#: 235560

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	99 (105 %R)	99 (105 %R) (0 RPD)	mg/L	11/22/21	90 - 110	20	2540D-11
Chloride	< 1000	24000 (97 %R)	25000 (98 %R) (1 RPD)	ug/L	11/23/21	90 - 110	20	4500CIE-11
Cyanide Total	< 5	110 (111 %R)	110 (108 %R) (3 RPD)	ug/L	12/1/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 5	240 (97 %R)	230 (94 %R) (4 RPD)	ug/L	11/22/21	84 - 116	20	OIA-1677-09
Ammonia-N	< 0.05	1.9 (94 %R)	1.9 (93 %R) (1 RPD)	mg/L	11/23/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: **235560**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 235560.01 235560.02

Matrix: aqueous aqueous

Date Sampled: 11/18/21 11/18/21

Date Received: 11/18/21 11/18/21

	Analytical			Analysis	
	RL	Matrix	Units	Date	Method Analyst
Chromium (VI)	10	AqTot	ug/L	11/18/21	7196A HEH
Antimony	0.5	AqTot	ug/L	11/22/21	200.8 DS
Arsenic	0.5	AqTot	ug/L	11/22/21	200.8 DS
Cadmium	0.1	AqTot	ug/L	11/22/21	200.8 DS
Chromium	0.5	AqTot	ug/L	11/22/21	200.8 DS
Copper	0.1	AqTot	ug/L	11/22/21	200.8 DS
Iron	50	AqTot	ug/L	11/22/21	200.8 DS
Lead	0.1	AqTot	ug/L	11/22/21	200.8 DS
Mercury	0.1	AqTot	ug/L	11/22/21	200.8 DS
Nickel	0.1	AqTot	ug/L	11/22/21	200.8 DS
Selenium	0.5	AqTot	ug/L	11/22/21	200.8 DS
Silver	0.1	AqTot	ug/L	11/22/21	200.8 DS
Zinc	1	AqTot	ug/L	11/22/21	200.8 DS
Chromium (III)	10	AqTot	ug/L	11/22/21	200.8 DS

Chromium (VI)	< 10	< 10
Antimony	< 0.5	< 0.5
Arsenic	< 0.5	< 0.5
Cadmium	< 0.1	< 0.1
Chromium	< 0.5	< 0.5
Copper	1.2	< 0.1
Iron	510	< 50
Lead	< 0.1	< 0.1
Mercury	< 0.1	< 0.1
Nickel	0.74	0.25
Selenium	< 0.5	< 0.5
Silver	< 0.1	< 0.1
Zinc	1.6	2.2
Chromium (III)	< 10	< 10



QC REPORT

EAI ID#: **235560**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.001	1.1 (115 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.1 (109 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Cadmium	< 0.001	1.0 (105 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Chromium	< 0.001	1.1 (108 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Copper	< 0.001	1.1 (105 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Iron	< 0.05	12 (106 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Lead	< 0.001	1.0 (102 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (109 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Nickel	< 0.001	1.0 (104 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Selenium	< 0.001	1.1 (110 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Silver	< 0.001	0.010 (104 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Zinc	< 0.005	1.1 (110 %R)		NA	ug/L 11/22/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (96 %R)		NA	ug/L 11/18/21	85 - 115	20	7196A

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



November 29, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 235560
Pace Project No.: 70195291

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on November 19, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 235560
Pace Project No.: 70195291

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
Connecticut Certification #: PH-0435
Delaware Certification # NY 10478
Maryland Certification #: 208
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

New Jersey Certification #: NY158
New York Certification #: 10478 Primary Accrediting Body
Pennsylvania Certification #: 68-00350
Rhode Island Certification #: LAO00340
Virginia Certification # 460302

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 235560
Pace Project No.: 70195291

Sample: SYSTEM INFLUENT		Lab ID: 70195291001	Collected: 11/18/21 07:45	Received: 11/19/21 10:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		11/22/21 12:57	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	85	%	75-109	1		11/22/21 12:57	17060-07-0	
4-Bromofluorobenzene (S)	88	%	80-112	1		11/22/21 12:57	460-00-4	
Toluene-d8 (S)	100	%	94-121	1		11/22/21 12:57	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 235560
Pace Project No.: 70195291

Sample: SYSTEM EFFLUENT		Lab ID: 70195291002	Collected: 11/18/21 07:30	Received: 11/19/21 10:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV		Analytical Method: EPA 1624B Pace Analytical Services - Melville						
Acetone	<0.010	mg/L	0.010	1		11/22/21 12:35	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	85	%	75-109	1		11/22/21 12:35	17060-07-0	
4-Bromofluorobenzene (S)	86	%	80-112	1		11/22/21 12:35	460-00-4	
Toluene-d8 (S)	103	%	94-121	1		11/22/21 12:35	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 235560
Pace Project No.: 70195291

QC Batch: 234690 Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B Analysis Description: 1624B MSV
Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70195291001, 70195291002

METHOD BLANK: 1183792 Matrix: Water

Associated Lab Samples: 70195291001, 70195291002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	11/22/21 11:51	
1,2-Dichloroethane-d4 (S)	%	90	75-109	11/22/21 11:51	
4-Bromofluorobenzene (S)	%	88	80-112	11/22/21 11:51	
Toluene-d8 (S)	%	105	94-121	11/22/21 11:51	

LABORATORY CONTROL SAMPLE: 1183793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.044	87	20-200	
1,2-Dichloroethane-d4 (S)	%			83	75-109	
4-Bromofluorobenzene (S)	%			95	80-112	
Toluene-d8 (S)	%			96	94-121	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: 235560
Pace Project No.: 70195291

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 235560
Pace Project No.: 70195291

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70195291001	SYSTEM INFLUENT	EPA 1624B	234690		
70195291002	SYSTEM EFFLUENT	EPA 1624B	234690		

REPORT OF LABORATORY ANALYSIS

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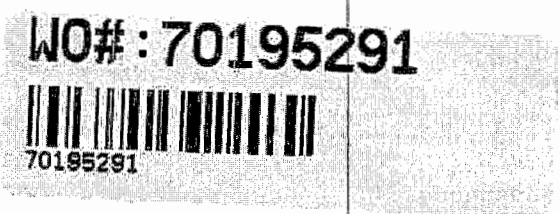
CHAIN-OF-CUSTODY RECORD

EAI ID# **235560**

Page 1

Page 21 of 31

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	11/18/2021 07:45	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	11/18/2021 07:30	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	



EAI ID# **235560**

Project State: NH

Project ID: 4965

Company **PACE ANALYTICAL**

Address **575 BROAD HOLLOW ROAD**

Address **MELVILLE, NY 11747**

Account #

Phone # **(631)694-3040**

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.

1624 Acetone Only

PO #: 56260

EAI ID# **235560**

Data Deliverable (circle)

Excel NH EMD **EquIS** ME EGAD

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

Samples Collected by:

Chris Roman 11/18/21 1600 UPS

Relinquished by

Date/Time

Received by

Relinquished by

Date/Time

Received by

10:20

Page 8 of 99

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



Sample Condition Upon Receipt

WO#: 70195291

Client Name: FAST A

Project

PM: KMM

Due Date: 11/30/21

CLIENT: ERSTA

Courier: Fed Ex UPS USPS Client Commercial Pace OtherTracking #: 1E X 46 57A 01 9219 9823Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No N/APacking Material: Bubble Wrap Bubble Bags Ziploc Ione OtherThermometer Used: ~~TH001~~ TH170 Correction Factor: +0.1Cooler Temperature(°C): 2.1 Cooler Temperature Corrected(°C): 2.2

Temp should be above freezing to 6.0°C

USDA Regulated Soil N/A, water sampleDate and Initials of person examining contents: VW 11/19/21Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes NoDid samples originate from a foreign source including Hawaii and Puerto Rico? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

	COMMENTS:		
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	3.
Sampler Name & Signature on CDC:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for I):	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Sample Labels match CDC:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	12.
-Includes date/time/ID, Matrix: <u>SL (WT) OIL</u>			
All containers needing preservation have been checked? pH paper Lot #	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NaOH>12 Cyanide)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis			
Samples checked for dechlorination: KI starch test strips Lot # Residual chlorine strips Lot #	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
SM 4500 CN samples checked for sulfide?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Lead Acetate Strips Lot #			
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Trip Blank Present:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Pace Trip Blank Lot # (if applicable):			
			13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
			Sample #
	Initial when completed:	Lot # of added preservative:	Date/Time preservative added:
			14. Positive for Res. Chlorine? Y N
			15. Positive for Sulfide? Y N
			16.
			17.

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted:

Date/Time:

Comments/ Resolution:



Wednesday, December 01, 2021

Attn: Front Office
Eastern Analytical
51 Antrim Ave
Concord, NH 03301

Project ID: 235560
SDG ID: GCJ82493
Sample ID#s: CJ82493 - CJ82494

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

December 01, 2021

SDG I.D.: GCJ82493

Project ID: 235560

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CJ82493	WATER
SYSTEM EFFLUENT	CJ82494	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report
 December 01, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 56261

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 11/18/21 7:45
 11/19/21 16:01

Laboratory Data

SDG ID: GCJ82493
 Phoenix ID: CJ82493

Project ID: 235560
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	19	0.20	ug/l	1	11/29/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	90		%	1	11/29/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				11/29/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

December 01, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

December 01, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 56261

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time

11/18/21 7:30
 11/19/21 16:01

Laboratory Data

SDG ID: GCJ82493
 Phoenix ID: CJ82494

Project ID: 235560
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	ND	0.20	ug/l	1	11/29/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	87		%	1	11/29/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				11/29/21	G/G	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

December 01, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

December 01, 2021

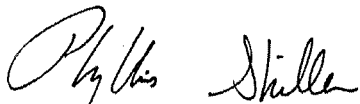
QA/QC Data

SDG I.D.: GCJ82493

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 602244 (ug/l), QC Sample No: CJ81627 (CJ82493, CJ82494)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	80	92	14.0	94			70 - 130	20
% 1,4-dioxane-d8	86	%	79	90	13.0	94			70 - 130	20

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
 December 01, 2021

Wednesday, December 01, 2021

Criteria: None

State: NH

Sample No Acode

Phoenix Analyte

Criteria

Result

RL

Criteria

RL
Criteria

Analysis
Units

*** No Data to Display ***

Sample Criteria Exceedances Report

GCJ82493 - EASTANAL-NH

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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance 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

December 01, 2021

SDG I.D.: GCJ82493

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

1-g
wsp

EAI ID# **235560**

Page 1

Sample ID	Date Sampled	Matrix	Parameters	Sample Notes
System Influent	11/18/2021 07:45	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	# 82493
System Effluent	11/18/2021 07:30	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	# 82494 (LA)

1 x 802 amber

EAI ID# **235560**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 56261

EAI ID# **235560**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by: John Johnson 11/19/21 7:52 Gayle Blood

Relinquished by Gayle Blood Date/Time 11/19/21 12:50 Received by [Signature]

Relinquished by [Signature] Date/Time 11/19/21 Received by [Signature] 10:01

customerservice@easternanalytical.com

Eastern Analytical, Inc. 51 Antrim Ave Concord, NH 03301

Phone: (603)228-0525 1-800-287-0525

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers	
System Influent	11/18/21 0745	aqueous Grab or Comp	AqTot/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni.Se.Ag. Zn/Cr6/Cr3/CyanFree/V624	13	
<input checked="" type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCl</u> , <u>HNO₃</u> , <u>H₂SO₄</u> , <u>NaOH</u> , <u>MeOH</u> , <u>Na₂S₂O₈</u> , <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	11/18/21 0730	aqueous Grab or Comp	AqTot/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni.Se.Ag. Zn/Cr6/Cr3/CyanFree/V624	13	
<input checked="" type="checkbox"/> Sampler confirms ID and parameters are accurate		Circle preservative/s: <u>HCl</u> , <u>HNO₃</u> , <u>H₂SO₄</u> , <u>NaOH</u> , <u>MeOH</u> , <u>Na₂S₂O₈</u> , <u>ICE</u>			Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date _____
 Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options

- HC
- EDD PDF
- EDD email
- PDF prelim, NO FAX
- e-mail Login Confirmation
- NO FAX
- Partial FAX
- PDF Invoice
- EQUIS
- PO# verbal
- Quote#:
- Temp 0-1 °C
- Ice YES NO

Samples Collected by: Greg Sereni
 Relinquished by: *[Signature]* Date/Time: 11/18/21 Received by: *[Signature]*
 Relinquished by: _____ Date/Time: _____ Received by: _____

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 235851
Client Identification: Rennie Farm | 04.0190030.02 Task 22 ST-1
Date Received: 11/24/2021

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

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

12.2.21

Date



SAMPLE CONDITIONS PAGE

EAI ID#: 235851

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Temperature upon receipt (°C): 2.9

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
235851.01	System Influent	11/24/21	11/22/21 09:35	aqueous		Adheres to Sample Acceptance Policy
235851.02	System Mid	11/24/21	11/22/21 09:40	aqueous		Adheres to Sample Acceptance Policy
235851.03	LGAC In	11/24/21	11/23/21 08:59	aqueous		Adheres to Sample Acceptance Policy
235851.04	LGAC Mid	11/24/21	11/23/21 08:57	aqueous		Adheres to Sample Acceptance Policy
235851.05	LGAC Out	11/24/21	11/23/21 08:55	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.



LABORATORY REPORT

EAI ID#: 235851

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task 22 ST-1

Client Sample ID: System Influent
 Lab Sample ID: 235851.01
 Matrix: aqueous
 Date Sampled: 11/22/21
 Date Received: 11/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	19	2	10	ug/L	11/29/21 23:07	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	11/29/21 23:07	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	11/29/21 23:07	8260B SIM	AM

Client Sample ID: System Mid
 Lab Sample ID: 235851.02
 Matrix: aqueous
 Date Sampled: 11/22/21
 Date Received: 11/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	11/29/21 16:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	11/29/21 16:52	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	11/29/21 16:52	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 235851

Client: GZA GeoEnvironmental, Inc. (NH)

Client Designation: Rennie Farm | 04.0190030.02 Task 22 ST-1

Client Sample ID: LGAC In
 Lab Sample ID: 235851.03
 Matrix: aqueous
 Date Sampled: 11/23/21
 Date Received: 11/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2200	200	1000	ug/L	11/29/21 23:38	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	11/29/21 23:38	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	11/29/21 23:38	8260B SIM	AM

Client Sample ID: LGAC Mid
 Lab Sample ID: 235851.04
 Matrix: aqueous
 Date Sampled: 11/23/21
 Date Received: 11/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	5.5	0.2	1	ug/L	11/29/21 17:23	8260B SIM	AM
4-Bromofluorobenzene (surr)	97 %R			%	11/29/21 17:23	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	11/29/21 17:23	8260B SIM	AM

Client Sample ID: LGAC Out
 Lab Sample ID: 235851.05
 Matrix: aqueous
 Date Sampled: 11/23/21
 Date Received: 11/24/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.29	0.2	1	ug/L	11/29/21 17:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	11/29/21 17:54	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	11/29/21 17:54	8260B SIM	AM



QC REPORT

EAI ID#: 235851

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637738-67773/A112921DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task 22 ST-1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.9 (97 %R)	4.6 (91 %R) (7 RPD)	11/29/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	97 %R	97 %R	98 %R	11/29/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	98 %R	98 %R	99 %R	11/29/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 236354
Client Identification: Rennie Farm | 04.0190030.02 Task 22 ST-1
Date Received: 12/8/2021

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

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

12.16.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 236354

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Temperature upon receipt (°C): 11.8

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
236354.01	System Influent	12/8/21	12/7/21 10:35	aqueous		Adheres to Sample Acceptance Policy
236354.02	System Mid	12/8/21	12/7/21 10:30	aqueous		Adheres to Sample Acceptance Policy
236354.03	LGAC Effluent	12/8/21	12/8/21 08:20	aqueous		Adheres to Sample Acceptance Policy
236354.04	LGAC Mid	12/8/21	12/8/21 08:25	aqueous		Adheres to Sample Acceptance Policy
236354.05	LGAC Influent	12/8/21	12/8/21 08:30	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#: 236354

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Client Sample ID: System Influent
Lab Sample ID: 236354.01
Matrix: aqueous
Date Sampled: 12/7/21
Date Received: 12/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	19	2	10	ug/L	12/9/21 19:02	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	12/9/21 19:02	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/9/21 19:02	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 236354.02
Matrix: aqueous
Date Sampled: 12/7/21
Date Received: 12/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/9/21 15:21	8260B SIM	AM
4-Bromofluorobenzene (surr)	88 %R			%	12/9/21 15:21	8260B SIM	AM
Toluene-d8 (surr)	96 %R			%	12/9/21 15:21	8260B SIM	AM



LABORATORY REPORT

EAI ID#: 236354

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Client Sample ID: LGAC Effluent
Lab Sample ID: 236354.03
Matrix: aqueous
Date Sampled: 12/8/21
Date Received: 12/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/9/21 15:52	8260B SIM	AM
4-Bromofluorobenzene (surr)	98 %R			%	12/9/21 15:52	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/9/21 15:52	8260B SIM	AM

Client Sample ID: LGAC Mid
Lab Sample ID: 236354.04
Matrix: aqueous
Date Sampled: 12/8/21
Date Received: 12/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	36	2	10	ug/L	12/14/21 16:38	8260B SIM	AM
4-Bromofluorobenzene (surr)	99 %R			%	12/14/21 16:38	8260B SIM	AM
Toluene-d8 (surr)	98 %R			%	12/14/21 16:38	8260B SIM	AM

Client Sample ID: LGAC Influent
Lab Sample ID: 236354.05
Matrix: aqueous
Date Sampled: 12/8/21
Date Received: 12/8/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2600	200	1000	ug/L	12/9/21 19:34	8260B SIM	AM
4-Bromofluorobenzene (surr)	96 %R			%	12/9/21 19:34	8260B SIM	AM
Toluene-d8 (surr)	97 %R			%	12/9/21 19:34	8260B SIM	AM



QC REPORT

EAI ID#: **236354**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637746-48600/A120921DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.8 (96 %R)	4.9 (99 %R) (3 RPD)	12/9/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	100 %R	98 %R	98 %R	12/9/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	98 %R	99 %R	12/9/2021	% Rec	70 - 130	50	8260B

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



QC REPORT

EAI ID#: 236354

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637750-97251/A121421DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task 22 ST-1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.5 (89 %R)	4.7 (94 %R) (5 RPD)	12/14/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	101 %R	100 %R	98 %R	12/14/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	99 %R	99 %R	99 %R	12/14/2021	% 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.

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 236597
Client Identification: Rennie Farm RGP / 04.0190030.02
Date Received: 12/13/2021

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.

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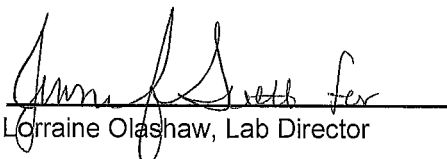
References:

- 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

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

12.27.21
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 236597

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Temperature upon receipt (°C): 0.5

Acceptable temperature range (°C): 0-6

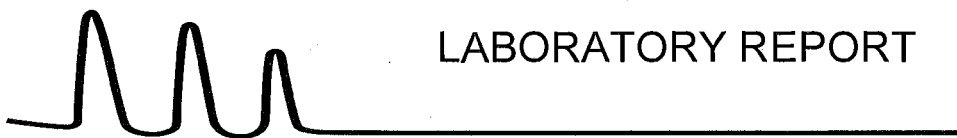
Received on ice or cold packs (Yes/No): Y

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
236597.01	System Influent	12/13/21	12/13/21 12:30	aqueous		Adheres to Sample Acceptance Policy
236597.02	System Effluent	12/13/21	12/13/21 12:45	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

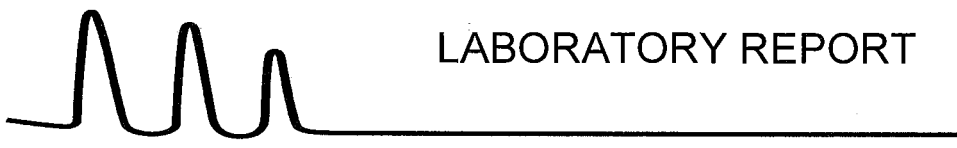
EAI ID#: 236597

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 236597.01
Matrix: aqueous
Date Sampled: 12/13/21
Date Received: 12/13/21

Date of Preparation:
Method: 624.1
Analyst: SG
Units: ug/L

	Result	Dilution		Date Analyzed		Result	Dilution		Date Analyzed
		RL	Factor				RL	Factor	
Chloromethane	< 2	2	1	12/14/21	4-Bromofluorobenzene (surr)	98 %R			12/14/21
Vinyl chloride	< 1	1	1	12/14/21	1,2-Dichlorobenzene-d4	98 %R			12/14/21
Bromomethane	< 2	2	1	12/14/21	Toluene-d8 (surr)	98 %R			12/14/21
Chloroethane	< 2	2	1	12/14/21					
Trichlorofluoromethane	< 2	2	1	12/14/21					
Acrolein	< 50	50	1	12/14/21					
Acetone	< 10	10	1	12/14/21					
1,1-Dichloroethene	< 0.5	0.5	1	12/14/21					
Methylene chloride	< 1	1	1	12/14/21					
Acrylonitrile	< 50	50	1	12/14/21					
Methyl-t-butyl ether(MTBE)	< 1	1	1	12/14/21					
trans-1,2-Dichloroethene	< 1	1	1	12/14/21					
Vinyl acetate	< 10	10	1	12/14/21					
1,1-Dichloroethane	< 1	1	1	12/14/21					
cis-1,2-Dichloroethene	< 1	1	1	12/14/21					
2-Butanone(MEK)	< 10	10	1	12/14/21					
Chloroform	< 1	1	1	12/14/21					
1,1,1-Trichloroethane	< 1	1	1	12/14/21					
Carbon tetrachloride	< 1	1	1	12/14/21					
Benzene	< 1	1	1	12/14/21					
1,2-Dichloroethane	< 1	1	1	12/14/21					
Trichloroethene	< 1	1	1	12/14/21					
1,2-Dichloropropane	< 1	1	1	12/14/21					
Bromodichloromethane	< 0.5	0.5	1	12/14/21					
2-Chloroethylvinylether	< 2	2	1	12/14/21					
4-Methyl-2-pentanone(MIBK)	< 10	10	1	12/14/21					
cis-1,3-Dichloropropene	< 0.5	0.5	1	12/14/21					
Toluene	< 1	1	1	12/14/21					
trans-1,3-Dichloropropene	< 0.5	0.5	1	12/14/21					
1,1,2-Trichloroethane	< 1	1	1	12/14/21					
2-Hexanone	< 10	10	1	12/14/21					
Tetrachloroethene	< 1	1	1	12/14/21					
Dibromochloromethane	< 1	1	1	12/14/21					
Chlorobenzene	< 1	1	1	12/14/21					
Ethylbenzene	< 1	1	1	12/14/21					
mp-Xylene	< 1	1	1	12/14/21					
o-Xylene	< 1	1	1	12/14/21					
Styrene	< 1	1	1	12/14/21					
Bromoform	< 2	2	1	12/14/21					
1,1,2,2-Tetrachloroethane	< 1	1	1	12/14/21					
1,3-Dichlorobenzene	< 1	1	1	12/14/21					
1,4-Dichlorobenzene	< 1	1	1	12/14/21					
1,2-Dichlorobenzene	< 1	1	1	12/14/21					



LABORATORY REPORT

EAI ID#: 236597

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 236597.02
Matrix: aqueous
Date Sampled: 12/13/21
Date Received: 12/13/21

Date of Preparation:
Method: 624.1
Analyst: SG
Units: ug/L

	Result	Dilution			Date Analyzed		Result	Dilution			Date Analyzed
		RL	Factor					RL	Factor		
Chloromethane	< 2	2	1	12/14/21	4-Bromofluorobenzene (surr)	97 %R				12/14/21	
Vinyl chloride	< 1	1	1	12/14/21	1,2-Dichlorobenzene-d4	97 %R				12/14/21	
Bromomethane	< 2	2	1	12/14/21	Toluene-d8 (surr)	98 %R				12/14/21	
Chloroethane	< 2	2	1	12/14/21							
Trichlorofluoromethane	< 2	2	1	12/14/21							
Acrolein	< 50	50	1	12/14/21							
Acetone	< 10	10	1	12/14/21							
1,1-Dichloroethene	< 0.5	0.5	1	12/14/21							
Methylene chloride	< 1	1	1	12/14/21							
Acrylonitrile	< 50	50	1	12/14/21							
Methyl-t-butyl ether(MTBE)	< 1	1	1	12/14/21							
trans-1,2-Dichloroethene	< 1	1	1	12/14/21							
Vinyl acetate	< 10	10	1	12/14/21							
1,1-Dichloroethane	< 1	1	1	12/14/21							
cis-1,2-Dichloroethene	< 1	1	1	12/14/21							
2-Butanone(MEK)	< 10	10	1	12/14/21							
Chloroform	< 1	1	1	12/14/21							
1,1,1-Trichloroethane	< 1	1	1	12/14/21							
Carbon tetrachloride	< 1	1	1	12/14/21							
Benzene	< 1	1	1	12/14/21							
1,2-Dichloroethane	< 1	1	1	12/14/21							
Trichloroethene	< 1	1	1	12/14/21							
1,2-Dichloropropane	< 1	1	1	12/14/21							
Bromodichloromethane	< 0.5	0.5	1	12/14/21							
2-Chloroethylvinylether	< 2	2	1	12/14/21							
4-Methyl-2-pentanone(MIBK)	< 10	10	1	12/14/21							
cis-1,3-Dichloropropene	< 0.5	0.5	1	12/14/21							
Toluene	< 1	1	1	12/14/21							
trans-1,3-Dichloropropene	< 0.5	0.5	1	12/14/21							
1,1,2-Trichloroethane	< 1	1	1	12/14/21							
2-Hexanone	< 10	10	1	12/14/21							
Tetrachloroethene	< 1	1	1	12/14/21							
Dibromochloromethane	< 1	1	1	12/14/21							
Chlorobenzene	< 1	1	1	12/14/21							
Ethylbenzene	< 1	1	1	12/14/21							
mp-Xylene	< 1	1	1	12/14/21							
o-Xylene	< 1	1	1	12/14/21							
Styrene	< 1	1	1	12/14/21							
Bromoform	< 2	2	1	12/14/21							
1,1,2,2-Tetrachloroethane	< 1	1	1	12/14/21							
1,3-Dichlorobenzene	< 1	1	1	12/14/21							
1,4-Dichlorobenzene	< 1	1	1	12/14/21							
1,2-Dichlorobenzene	< 1	1	1	12/14/21							



QC REPORT

EAI ID#: 236597

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637750-86669/A121421V6241

Client Designation: Rennie Farm RGP / 04.0190030.02

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 2	< .876	28 (138 %R)	26 (132 %R) (5 RPD)	12/14/2021	ug/L	1 - 205	60	624.1
Vinyl chloride	< 1	< .34	25 (123 %R)	23 (117 %R) (4 RPD)	12/14/2021	ug/L	5 - 195	66	624.1
Bromomethane	< 2	< .554	28 (141 %R)	27 (137 %R) (3 RPD)	12/14/2021	ug/L	15 - 185	61	624.1
Chloroethane	< 2	< .232	25 (126 %R)	24 (121 %R) (4 RPD)	12/14/2021	ug/L	40 - 160	78	624.1
Trichlorofluoromethane	< 2	< .375	26 (129 %R)	23 (117 %R) (10 RPD)	12/14/2021	ug/L	50 - 150	84	624.1
Acrolein	< 50	< .548	< 50 (82 %R)	< 50 (73 %R) (11 RPD)	12/14/2021	ug/L	60 - 140	60	624.1
Acetone	< 10	< 2.387	15 (73 %R)	13 (65 %R) (13 RPD)	12/14/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 0.5	< .37	19 (95 %R)	18 (92 %R) (3 RPD)	12/14/2021	ug/L	50 - 150	32	624.1
Methylene chloride	< 1	< .545	20 (101 %R)	20 (100 %R) (1 RPD)	12/14/2021	ug/L	60 - 140	28	624.1
Acrylonitrile	< 50	< .302	< 50 (88 %R)	< 50 (79 %R) (11 RPD)	12/14/2021	ug/L	60 - 140	60	624.1
Methyl-t-butyl ether(MTBE)	< 1	< .519	18 (89 %R)	17 (84 %R) (5 RPD)	12/14/2021	ug/L	70 - 130	20	624.1
trans-1,2-Dichloroethene	< 1	< .298	21 (103 %R)	21 (103 %R) (0 RPD)	12/14/2021	ug/L	70 - 130	45	624.1
Vinyl acetate	< 10	< .557	19 (96 %R)	18 (89 %R) (8 RPD)	12/14/2021	ug/L	40 - 160	20	624.1
1,1-Dichloroethane	< 1	< .085	20 (98 %R)	20 (98 %R) (0 RPD)	12/14/2021	ug/L	70 - 130	40	624.1
cis-1,2-Dichloroethene	< 1	< .238	19 (96 %R)	20 (98 %R) (2 RPD)	12/14/2021	ug/L	70 - 130	20	624.1
2-Butanone(MEK)	< 10	< .206	16 (78 %R)	14 (69 %R) (13 RPD)	12/14/2021	ug/L	40 - 160	20	624.1
Chloroform	< 1	< .36	18 (89 %R)	18 (90 %R) (1 RPD)	12/14/2021	ug/L	70 - 135	54	624.1
1,1,1-Trichloroethane	< 1	< .227	20 (100 %R)	20 (99 %R) (1 RPD)	12/14/2021	ug/L	70 - 130	36	624.1
Carbon tetrachloride	< 1	< .261	20 (100 %R)	19 (97 %R) (3 RPD)	12/14/2021	ug/L	70 - 130	41	624.1
Benzene	< 1	< .312	20 (102 %R)	20 (102 %R) (1 RPD)	12/14/2021	ug/L	65 - 135	61	624.1
1,2-Dichloroethane	< 1	< .21	18 (91 %R)	18 (88 %R) (3 RPD)	12/14/2021	ug/L	70 - 130	49	624.1
Trichloroethene	< 1	< .359	20 (100 %R)	20 (100 %R) (0 RPD)	12/14/2021	ug/L	65 - 135	48	624.1
1,2-Dichloropropane	< 1	< .285	20 (99 %R)	20 (99 %R) (1 RPD)	12/14/2021	ug/L	35 - 165	55	624.1
Bromodichloromethane	< 0.5	< .079	20 (100 %R)	20 (99 %R) (1 RPD)	12/14/2021	ug/L	65 - 135	56	624.1
2-Chloroethylvinylether	< 2	< .493	21 (104 %R)	19 (96 %R) (8 RPD)	12/14/2021	ug/L	1 - 225	71	624.1
4-Methyl-2-pentanone(MIBK)	< 10	< .411	18 (88 %R)	16 (79 %R) (11 RPD)	12/14/2021	ug/L	40 - 160	20	624.1
cis-1,3-Dichloropropene	< 0.5	< .101	20 (100 %R)	20 (99 %R) (1 RPD)	12/14/2021	ug/L	25 - 175	58	624.1
Toluene	< 1	< .19	19 (97 %R)	20 (99 %R) (1 RPD)	12/14/2021	ug/L	70 - 130	41	624.1
trans-1,3-Dichloropropene	< 0.5	< .08	20 (98 %R)	19 (96 %R) (2 RPD)	12/14/2021	ug/L	50 - 150	86	624.1
1,1,2-Trichloroethane	< 1	< .203	19 (93 %R)	18 (90 %R) (3 RPD)	12/14/2021	ug/L	70 - 130	45	624.1
2-Hexanone	< 10	< .28	16 (82 %R)	14 (72 %R) (13 RPD)	12/14/2021	ug/L	40 - 160	20	624.1
Tetrachloroethene	< 1	< .371	20 (100 %R)	20 (100 %R) (0 RPD)	12/14/2021	ug/L	70 - 130	39	624.1
Dibromochloromethane	< 1	< .225	18 (89 %R)	17 (87 %R) (2 RPD)	12/14/2021	ug/L	70 - 135	50	624.1
Chlorobenzene	< 1	< .247	20 (101 %R)	20 (102 %R) (1 RPD)	12/14/2021	ug/L	65 - 135	53	624.1
Ethylbenzene	< 1	< .213	20 (101 %R)	20 (101 %R) (0 RPD)	12/14/2021	ug/L	60 - 140	63	624.1
mp-Xylene	< 1	< .476	40 (99 %R)	40 (99 %R) (0 RPD)	12/14/2021	ug/L	70 - 130	20	624.1
o-Xylene	< 1	< .298	20 (102 %R)	21 (103 %R) (0 RPD)	12/14/2021	ug/L	70 - 130	20	624.1
Styrene	< 1	< .727	21 (105 %R)	21 (105 %R) (1 RPD)	12/14/2021	ug/L	70 - 130	20	624.1
Bromoform	< 2	< .282	19 (96 %R)	18 (90 %R) (6 RPD)	12/14/2021	ug/L	70 - 130	42	624.1
1,1,2,2-Tetrachloroethane	< 1	< .381	18 (88 %R)	17 (83 %R) (6 RPD)	12/14/2021	ug/L	60 - 140	61	624.1
1,3-Dichlorobenzene	< 1	< .426	20 (101 %R)	21 (104 %R) (3 RPD)	12/14/2021	ug/L	70 - 130	43	624.1
1,4-Dichlorobenzene	< 1	< .375	20 (99 %R)	20 (101 %R) (2 RPD)	12/14/2021	ug/L	65 - 135	57	624.1
1,2-Dichlorobenzene	< 1	< .218	20 (98 %R)	20 (99 %R) (1 RPD)	12/14/2021	ug/L	65 - 135	57	624.1
4-Bromofluorobenzene (surr)	97 %R		100 %R	97 %R	12/14/2021	% Rec	70 - 130		624.1
1,2-Dichlorobenzene-d4 (surr)	98 %R		100 %R	98 %R	12/14/2021	% Rec	70 - 130		624.1
Toluene-d8 (surr)	98 %R		96 %R	97 %R	12/14/2021	% Rec	70 - 130		624.1

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



LABORATORY REPORT

EAI ID#: **236597**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Influent
Lab Sample ID: 236597.01
Matrix: aqueous
Date Sampled: 12/13/21
Date Received: 12/13/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	12/14/21 19:22	625.1	AR
2-Fluorophenol (surr)	39 %R			%	12/14/21 19:22	625.1	AR
Phenol-d6 (surr)	25 %R			%	12/14/21 19:22	625.1	AR
2,4,6-Tribromophenol (surr)	83 %R			%	12/14/21 19:22	625.1	AR



LABORATORY REPORT

EAI ID#: **236597**

Client: **GZA GeoEnvironmental, Inc. (NH)**
 Client Designation: **Rennie Farm RGP / 04.0190030.02**

Client Sample ID: System Effluent
Lab Sample ID: 236597.02
Matrix: aqueous
Date Sampled: 12/13/21
Date Received: 12/13/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
Phenol	< 1	1	1	ug/L	12/14/21 19:45	625.1	AR
2-Fluorophenol (surr)	30 %R			%	12/14/21 19:45	625.1	AR
Phenol-d6 (surr)	19 %R			%	12/14/21 19:45	625.1	AR
2,4,6-Tribromophenol (surr)	74 %R			%	12/14/21 19:45	625.1	AR



QC REPORT

EAI ID#: **236597**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637750-68013/A121421625A1

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank (RL)	Blank (MDL)	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Phenol	< 1	< .12	14 (28 %R)	13 (27 %R) (5 RPD)	12/14/2021	ug/L	5 - 120	64	625.1
2-Chlorophenol	< 1	< .2	33 (66 %R)	31 (62 %R) (5 RPD)	12/14/2021	ug/L	23 - 134	61	625.1
2,4-Dichlorophenol	< 1	< .31	40 (80 %R)	37 (74 %R) (8 RPD)	12/14/2021	ug/L	39 - 135	50	625.1
2,4,5-Trichlorophenol	< 1	< .33	43 (86 %R)	39 (79 %R) (9 RPD)	12/14/2021	ug/L	30 - 130	20	625.1
2,4,6-Trichlorophenol	< 1	< .48	43 (85 %R)	39 (79 %R) (8 RPD)	12/14/2021	ug/L	37 - 144	58	625.1
Pentachlorophenol	< 5	< 1.1	38 (76 %R)	34 (69 %R) (10 RPD)	12/14/2021	ug/L	14 - 176	86	625.1
2-Nitrophenol	< 5	< .44	38 (75 %R)	35 (71 %R) (6 RPD)	12/14/2021	ug/L	29 - 182	55	625.1
4-Nitrophenol	< 5	< .22	16 (33 %R)	15 (29 %R) (12 RPD)	12/14/2021	ug/L	1 - 132	131	625.1
2,4-Dinitrophenol	< 10	< 1.5	44 (88 %R)	40 (80 %R) (9 RPD)	12/14/2021	ug/L	1 - 191	132	625.1
2-Methylphenol	< 1	< .4	32 (64 %R)	30 (61 %R) (6 RPD)	12/14/2021	ug/L	30 - 130	20	625.1
3/4-Methylphenol	< 1	< .42	33 (66 %R)	31 (62 %R) (7 RPD)	12/14/2021	ug/L	30 - 130	20	625.1
2,4-Dimethylphenol	< 5	< 1.4	39 (77 %R)	36 (72 %R) (8 RPD)	12/14/2021	ug/L	32 - 120	58	625.1
4-Chloro-3-methylphenol	< 1	< .26	41 (82 %R)	37 (75 %R) (9 RPD)	12/14/2021	ug/L	22 - 147	73	625.1
4,6-Dinitro-2-methylphenol	< 5	< 3.3	43 (86 %R)	39 (79 %R) (9 RPD)	12/14/2021	ug/L	1 - 181	203	625.1
Benzoic Acid	< 50	< 5.7	< 50 (23 %R)	< 50 (18 %R) (25 RPD)	12/14/2021	ug/L	15 - 130	50	625.1
2-Fluorophenol (surr)	34 %R		35 %R	33 %R	12/14/2021	% Rec	15 - 110		625.1
Phenol-d6 (surr)	26 %R		27 %R	25 %R	12/14/2021	% Rec	15 - 110		625.1
2,4,6-Tribromophenol (surr)	84 %R		92 %R	84 %R	12/14/2021	% Rec	15 - 110		625.1

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



LABORATORY REPORT

EAI ID#: 236597

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 236597.01 236597.02

Matrix: aqueous aqueous

Date Sampled: 12/13/21 12/13/21

Date Received: 12/13/21 12/13/21

Solids Suspended < 5 < 5

Chloride **2200** **2700**

Cyanide Total < 5 < 5

Cyanide Free < 5 < 5

Ammonia-N < 0.05 < 0.05

		Analysis			
	RL	Units	Date	Time	Method Analyst
Solids Suspended	5	mg/L	12/15/21	12:05	2540D-11 CF
Chloride	1000	ug/L	12/14/21	10:25	4500CIE-11 LLG
Cyanide Total	5	ug/L	12/22/21	14:49	ASTM D7511-09 KD
Cyanide Free	5	ug/L	12/15/21	16:02	OIA-1677-09 KD
Ammonia-N	0.05	mg/L	12/17/21	11:30	TM NH3-001 SEL



QC REPORT

EAI ID#: 236597

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	920 (97 %R)	890 (93 %R) (3 RPD)	mg/L	12/15/21	90 - 110	20	2540D-11
Chloride	< 1	25 (98 %R)	25 (99 %R) (1 RPD)	ug/L	12/14/21	90 - 110	20	4500CIE-11
Cyanide Total	< 0.005	0.11 (110 %R)	0.11 (109 %R) (0 RPD)	ug/L	12/22/21	84 - 116	20	ASTM D7511-09
Cyanide Free	< 0.005	0.24 (96 %R)	0.26 (104 %R) (8 RPD)	ug/L	12/15/21	84 - 116	20	OIA-1677-09
Ammonia-N	< 0.05	2.0 (99 %R)	2.0 (100 %R) (1 RPD)	mg/L	12/17/21	87 - 104	20	TM NH3-001

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



LABORATORY REPORT

EAI ID#: **236597**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Sample ID: System Influent System Effluent

Lab Sample ID: 236597.01 236597.02

Matrix: aqueous aqueous

Date Sampled: 12/13/21 12/13/21

Date Received: 12/13/21 12/13/21

	Analytical			Analysis		Method	Analyst
	RL	Matrix	Units	Date			
Chromium (VI)	< 10	< 10	10	AqTot	ug/L	12/14/21	7196A HEH
Antimony	< 0.5	< 0.5	0.5	AqTot	ug/L	12/14/21	200.8 DS
Arsenic	< 0.5	< 0.5	0.5	AqTot	ug/L	12/14/21	200.8 DS
Cadmium	< 0.1	< 0.1	0.1	AqTot	ug/L	12/14/21	200.8 DS
Chromium	< 0.5	0.50	0.5	AqTot	ug/L	12/14/21	200.8 DS
Copper	1.2	< 0.1	0.1	AqTot	ug/L	12/14/21	200.8 DS
Iron	570	< 50	50	AqTot	ug/L	12/14/21	200.8 DS
Lead	< 0.1	< 0.1	0.1	AqTot	ug/L	12/14/21	200.8 DS
Mercury	< 0.1	< 0.1	0.1	AqTot	ug/L	12/14/21	200.8 DS
Nickel	0.74	0.30	0.1	AqTot	ug/L	12/14/21	200.8 DS
Selenium	< 0.5	< 0.5	0.5	AqTot	ug/L	12/14/21	200.8 DS
Silver	< 0.1	< 0.1	0.1	AqTot	ug/L	12/14/21	200.8 DS
Zinc	1.4	1.5	1	AqTot	ug/L	12/14/21	200.8 DS
Chromium (III)	< 10	< 10	10	AqTot	ug/L	12/14/21	200.8 DS



QC REPORT

EAI ID#: 236597

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm RGP / 04.0190030.02**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Antimony	< 0.0005	1.1 (108 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Arsenic	< 0.0005	1.1 (106 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Cadmium	< 0.0001	1.1 (111 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Chromium	< 0.0005	1.1 (108 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Copper	< 0.0001	1.0 (103 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Iron	< 0.05	11 (103 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Lead	< 0.0001	1.0 (102 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Mercury	< 0.0001	0.0011 (109 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Nickel	< 0.0001	1.0 (105 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Selenium	< 0.0005	1.1 (106 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Silver	< 0.0001	0.010 (104 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Zinc	< 0.001	1.1 (107 %R)		NA	mg/L 12/14/21	85 - 115	20	200.8
Chromium (VI)	< 0.01	0.29 (96 %R)		NA	mg/L 12/14/21	85 - 115	20	7196A

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

December 27, 2021

Alison Blay
Eastern Analytical
25 Chenell Dr.
Concord, NH 03301

RE: Project: 236597 12/13
Pace Project No.: 70198389

Dear Alison Blay:

Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack
kimberley.mack@pacelabs.com
(631)694-3040
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 236597 12/13
Pace Project No.: 70198389

Pace Analytical Services Long Island

575 Broad Hollow Rd, Melville, NY 11747
Connecticut Certification #: PH-0435
Delaware Certification # NY 10478
Maryland Certification #: 208
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

New Jersey Certification #: NY158
New York Certification #: 10478 Primary Accrediting Body
Pennsylvania Certification #: 68-00350
Rhode Island Certification #: LAO00340
Virginia Certification # 460302

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 236597 12/13
Pace Project No.: 70198389

Sample: SYSTEM INFLUENT		Lab ID: 70198389001	Collected: 12/13/21 12:30	Received: 12/17/21 10:10	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		12/20/21 12:42	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%	75-109	1		12/20/21 12:42	17060-07-0	
4-Bromofluorobenzene (S)	97	%	80-112	1		12/20/21 12:42	460-00-4	
Toluene-d8 (S)	115	%	94-121	1		12/20/21 12:42	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 236597 12/13
Pace Project No.: 70198389

Sample: SYSTEM EFFLUENT		Lab ID: 70198389002	Collected: 12/13/21 12:45	Received: 12/17/21 10:10	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1624B MSV	Analytical Method: EPA 1624B Pace Analytical Services - Melville							
Acetone	<0.010	mg/L	0.010	1		12/20/21 12:20	67-64-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%	75-109	1		12/20/21 12:20	17060-07-0	
4-Bromofluorobenzene (S)	97	%	80-112	1		12/20/21 12:20	460-00-4	
Toluene-d8 (S)	112	%	94-121	1		12/20/21 12:20	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 236597 12/13
Pace Project No.: 70198389

QC Batch: 237766	Analysis Method: EPA 1624B
QC Batch Method: EPA 1624B	Analysis Description: 1624B MSV
	Laboratory: Pace Analytical Services - Melville

Associated Lab Samples: 70198389001, 70198389002

METHOD BLANK: 1200834 Matrix: Water

Associated Lab Samples: 70198389001, 70198389002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetone	mg/L	<0.010	0.010	12/20/21 11:22	
1,2-Dichloroethane-d4 (S)	%	98	75-109	12/20/21 11:22	
4-Bromofluorobenzene (S)	%	102	80-112	12/20/21 11:22	
Toluene-d8 (S)	%	111	94-121	12/20/21 11:22	

LABORATORY CONTROL SAMPLE: 1200835

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetone	mg/L	0.05	0.048	95	20-200	
1,2-Dichloroethane-d4 (S)	%			94	75-109	
4-Bromofluorobenzene (S)	%			109	80-112	
Toluene-d8 (S)	%			112	94-121	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 236597 12/13
Pace Project No.: 70198389

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 236597 12/13
Pace Project No.: 70198389

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70198389001	SYSTEM INFLUENT	EPA 1624B	237766		
70198389002	SYSTEM EFFLUENT	EPA 1624B	237766		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY RECORD

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	12/13/2021 12:30	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	
System Effluent	12/13/2021 12:45	aqueous	Subcontract - EPA Method 1624 Isotope Dilution	

WO#: 70198389



EAI ID# **236597**

Project State: NH

Project ID: 4965

Company PACE ANALYTICAL

Address 575 BROAD HOLLOW ROAD

Address MELVILLE, NY 11747

Account #

Phone # (631)694-3040

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.

ACETONE ONLY

PO #: 56402

EAI ID# **236597**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

William V. ... 12/16/21 10:30 APS

Relinquished by	Date/Time	Received by
<i>APS</i>	<i>12/17/21 10:10</i>	<i>[Signature]</i>

Relinquished by	Date/Time	Received by
-----------------	-----------	-------------

Page 1 of 1



Sample Condition Upon Receipt

WO#: 70198389

Client Name: Eastern Analytical

Project:

PM: KMM Due Date: 12/27/21
CLIENT: EASTA

Courier: Fed Ex UPS USPS Client Commercial Pace Other
 Tracking #: 12465990199013788
 Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No N/A
 Packing Material: Bubble Wrap Bubble Bags Ziploc None Other
 Thermometer Used: TH091 Correction Factor: 0.00
 Cooler Temperature(°C): 2.6 Cooler Temperature Corrected(°C): 2.6
 Temp should be above freezing to 6.0°C
 USDA Regulated Soil (N/A, water sample)

Temperature Blank Present: Yes No
 Type of Ice: Wet Blue None
 Samples on ice, cooling process has begun
 Date/Time 5035A kits placed in freezer

Date and Initials of person examining contents: KW 12/17/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No
 Did samples originate from a foreign source including Hawaii and Puerto Rico)? Yes No
 If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for I)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No	12.
-Includes date/time/ID/ Matrix: <u>SL WT DIL</u>		
All containers needing preservation have been checked? pH paper Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with method recommendation? (HNO ₃ , H ₂ SO ₄ , HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/BO15 (water). Per Method, VOA pH is checked after analysis	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Sample #
Samples checked for dechlorination: KI starch test strips Lot # Residual chlorine strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Initial when completed: Lot # of added preservative: Date/Time preservative added:
SM 4500 CN samples checked for sulfide? Lead Acetate Strips Lot #	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15. Positive for Sulfide? Y N
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	17.
Pace Trip Blank Lot # (if applicable):		

Client Notification/ Resolution: _____ Field Data Required? Y / N
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

* PM (Project Manager) review is documented electronically in LIMS.



Tuesday, December 21, 2021

Attn: Front Office
Eastern Analytical
51 Antrim Ave
Concord, NH 03301

Project ID: 236597
SDG ID: GCJ98568
Sample ID#s: CJ98568 - CJ98569

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.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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
UT Lab Registration #CT00007
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



Sample Id Cross Reference

December 21, 2021

SDG I.D.: GCJ98568

Project ID: 236597

Client Id	Lab Id	Matrix
SYSTEM INFLUENT	CJ98568	WATER
SYSTEM EFFLUENT	CJ98569	WATER



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report
 December 21, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 56401

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 12/13/21 12:30
 12/15/21 14:52

Laboratory Data

SDG ID: GCJ98568
 Phoenix ID: CJ98568

Project ID: 236597
 Client ID: SYSTEM INFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	22	0.20	ug/l	1	12/17/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	106		%	1	12/17/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				12/17/21	DT/DT	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

December 21, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report
 December 21, 2021

FOR: Attn: Front Office
 Eastern Analytical
 51 Antrim Ave
 Concord, NH 03301

Sample Information

Matrix: WATER
 Location Code: EASTANAL-NH
 Rush Request: Standard
 P.O.#: 56401

Custody Information

Collected by:
 Received by: CP
 Analyzed by: see "By" below

Date Time
 12/13/21 12:45
 12/15/21 14:52

Laboratory Data

SDG ID: GCJ98568
 Phoenix ID: CJ98569

Project ID: 236597
 Client ID: SYSTEM EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
<u>1,4-dioxane</u>							
1,4-dioxane	ND	0.20	ug/l	1	12/17/21	AW	EPA522
<u>QA/QC Surrogates</u>							
% 1,4-dioxane-d8	109		%	1	12/17/21	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				12/17/21	DT/DT	EPA522

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 (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

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

December 21, 2021

Reviewed and Released by: Rashmi Makol, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823



QA/QC Report

December 21, 2021

QA/QC Data

SDG I.D.: GCJ98568

Parameter	Blk		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
	Blank	RL								
QA/QC Batch 605029 (ug/l), QC Sample No: CJ98568 (CJ98568, CJ98569)										
<u>1,4dioxane - Water</u>										
1,4-dioxane	ND	0.20	87	90	3.4	NC			70 - 130	20
% 1,4-dioxane-d8	103	%	108	111	2.7	107			70 - 130	20

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
 December 21, 2021

Tuesday, December 21, 2021

Criteria: None

State: NH

Sample Criteria Exceedances Report

GCJ98568 - EASTANAL-NH

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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.



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Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Comments

December 21, 2021

SDG I.D.: GCJ98568

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

EAI ID# **236597**

Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
System Influent	12/13/2021 12:30	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	2.3 weiq 98568
System Effluent	12/13/2021 12:45	aqueous	Subcontract - 1,4 Dioxane EPA Method 522	98569

EAI ID# **236597**

Project State: NH

Project ID: 4965

Company Phoenix Environmental Labs

Address 587 East Middle Turnpike

Address Manchester, CT 06040

Account #

Phone # (860) 645-1102

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.

PO #: 56401

EAI ID# **236597**

Data Deliverable (circle)

Excel NH EMD EQUIS ME EGAD

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

Samples Collected by:

[Signature] 12/15/21 7:51 *Shelly*

Relinquished by Date/Time Received by

Shelly 12/15/21 12:25 *[Signature]*

Relinquished by Date/Time Received by

[Signature] 12/15/21 1452 *[Signature]*

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

Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers
System Influent	12-13-21 12:30	aqueous <input checked="" type="checkbox"/> Grab or Comp	AqTot/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni.Se.Ag. Zn/Cr6/Cr3/CyanFree/V624	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate			Circle preservative/s: <u>HCL</u> <u>HNO₃</u> <u>H₂SO₄</u> <u>NaOH</u> MEOH Na ₂ S ₂ O ₃ <u>ICE</u>	Dissolved Sample Field Filtered <input type="checkbox"/>
System Effluent	12-13-21 12:45	aqueous <input checked="" type="checkbox"/> Grab or Comp	AqTot/14Diox522SubPEL/1624AqSubPACNY/625A/TSS/CI/NH3/CyanT/ICPMets.Sb.As.Cd.Cr.Cu.Fe.Hg.Pb.Ni.Se.Ag. Zn/Cr6/Cr3/CyanFree/V624	13
<input type="checkbox"/> Sampler confirms ID and parameters are accurate			Circle preservative/s: <u>HCL</u> <u>HNO₃</u> <u>H₂SO₄</u> <u>NaOH</u> MEOH Na ₂ S ₂ O ₃ <u>ICE</u>	Dissolved Sample Field Filtered <input type="checkbox"/>

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

EAI Project ID 4965
 Project Name Rennie Farm RGP / 04.0190030.02
 State NH
 Client (Pro Mgr) Jim Wieck
 Customer GZA GeoEnvironmental, Inc. (NH)
 Address 5 Commerce Park North, Suite 201
 City Bedford NH 03110
 Phone 623-3600 Fax 624-9463 (37)
 Email: James.Wieck@gza.com
 Direct 232-8732

Results Needed by: Preferred date _____
 Notes:

1624 Acetone Only

QC deliverables
 A A+ B B+ C MA MCP

Reporting Options

- HC
- EDD PDF
- EDD email
- PDF prelim, NO FAX
- e-mail Login Confirmation
- NO FAX
- Partial FAX
- PDF Invoice
- EQUIS
- PO# verbal
- Quote#:
- Temp 0-5°C
- Ice Y N

Samples Collected by: AYJ
al Jacobson 12-13-21 [Signature]
 Relinquished by Date/Time 1000 Received by

Relinquished by Date/Time Received by

Jim Wieck
GZA GeoEnvironmental, Inc. (NH)
5 Commerce Park North, Suite 201
Bedford, NH 03110



Laboratory Report for:

Eastern Analytical, Inc. ID: 237079
Client Identification: Rennie Farm | 04.0190030.02 Task 22 ST-1
Date Received: 12/22/2021

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

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

1.3.22
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 237079

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Temperature upon receipt (°C): 9.2

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

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
237079.01	System Influent	12/22/21	12/20/21 09:40	aqueous		Adheres to Sample Acceptance Policy
237079.02	System Mid	12/22/21	12/20/21 09:45	aqueous		Adheres to Sample Acceptance Policy
237079.03	LGAC In	12/22/21	12/21/21 09:44	aqueous		Adheres to Sample Acceptance Policy
237079.04	LGAC Mid	12/22/21	12/21/21 09:39	aqueous		Adheres to Sample Acceptance Policy
237079.05	LGAC Out	12/22/21	12/21/21 09:35	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#: 237079

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Client Sample ID: System Influent
Lab Sample ID: 237079.01
Matrix: aqueous
Date Sampled: 12/20/21
Date Received: 12/22/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	21	2	10	ug/L	12/23/21 20:06	8260B SIM	AM
4-Bromofluorobenzene (surr)	100 %R			%	12/23/21 20:06	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 20:06	8260B SIM	AM

Client Sample ID: System Mid
Lab Sample ID: 237079.02
Matrix: aqueous
Date Sampled: 12/20/21
Date Received: 12/22/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	< 0.2	0.2	1	ug/L	12/23/21 15:22	8260B SIM	AM
4-Bromofluorobenzene (surr)	103 %R			%	12/23/21 15:22	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/23/21 15:22	8260B SIM	AM



LABORATORY REPORT

EAI ID#: **237079**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Client Sample ID: LGAC In
Lab Sample ID: 237079.03
Matrix: aqueous
Date Sampled: 12/21/21
Date Received: 12/22/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	2100	200	1000	ug/L	12/23/21 21:09	8260B SIM	AM
4-Bromofluorobenzene (surr)	102 %R			%	12/23/21 21:09	8260B SIM	AM
Toluene-d8 (surr)	99 %R			%	12/23/21 21:09	8260B SIM	AM

Client Sample ID: LGAC Mid
Lab Sample ID: 237079.04
Matrix: aqueous
Date Sampled: 12/21/21
Date Received: 12/22/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	0.25	0.2	1	ug/L	12/29/21 15:17	8260B SIM	AM
4-Bromofluorobenzene (surr)	101 %R			%	12/29/21 15:17	8260B SIM	AM
Toluene-d8 (surr)	100 %R			%	12/29/21 15:17	8260B SIM	AM

Client Sample ID: LGAC Out
Lab Sample ID: 237079.05
Matrix: aqueous
Date Sampled: 12/21/21
Date Received: 12/22/21

	Result	RL	Dilution Factor	Units	Date / Time Analyzed	Method	Analyst
1,4-Dioxane	7.4	0.2	1	ug/L	12/23/21 15:54	8260B SIM	AM
4-Bromofluorobenzene (surr)	104 %R			%	12/23/21 15:54	8260B SIM	AM
Toluene-d8 (surr)	101 %R			%	12/23/21 15:54	8260B SIM	AM



QC REPORT

EAI ID#: **237079**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 637758-64484/A122321DIOX1

Client Designation: **Rennie Farm | 04.0190030.02 Task 22 ST-1**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	4.9 (98 %R)	5.1 (101 %R) (3 RPD)	12/23/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	103 %R	100 %R	102 %R	12/23/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	101 %R	101 %R	100 %R	12/23/2021	% 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#: 237079

Client: GZA GeoEnvironmental, Inc. (NH)

Batch ID: 637763-88632/A122921DIOX1

Client Designation: Rennie Farm | 04.0190030.02 Task 22 ST-1

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,4-Dioxane	< 0.2	5.0 (99 %R)	5.4 (109 %R) (9 RPD)	12/29/2021	ug/L	70 - 130	20	8260B
4-Bromofluorobenzene (surr)	98 %R	98 %R	101 %R	12/29/2021	% Rec	70 - 130	50	8260B
Toluene-d8 (surr)	98 %R	100 %R	100 %R	12/29/2021	% 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.



Appendix D – Charts

Chart 1 1,4-dioxane Concentration Trends Monitoring Wells GZ-2 and GZ-3

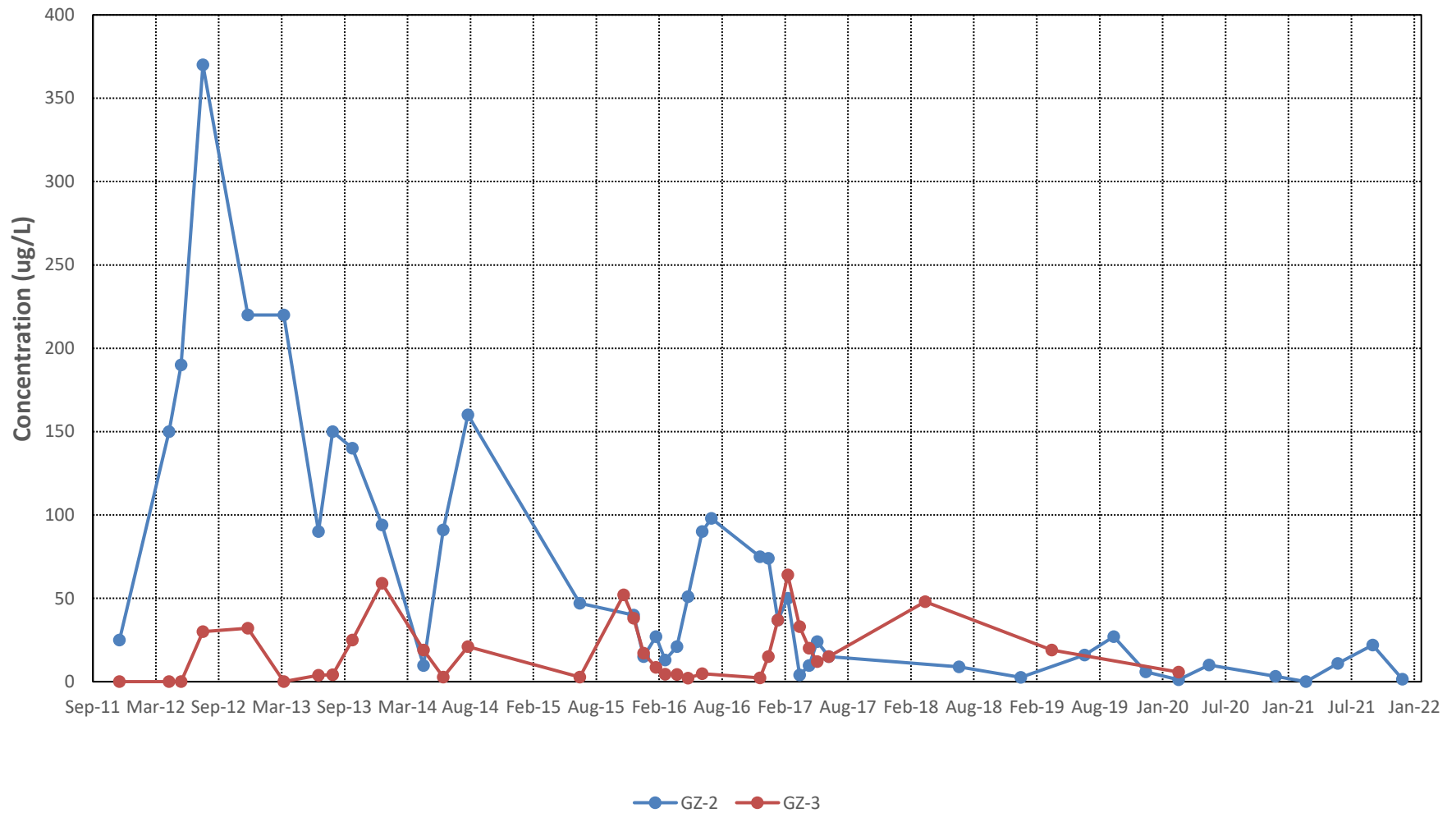


Chart 2

1,4-dioxane Concentration Trends

Monitoring Wells GZ-10L and GZ-17L and Dug Well

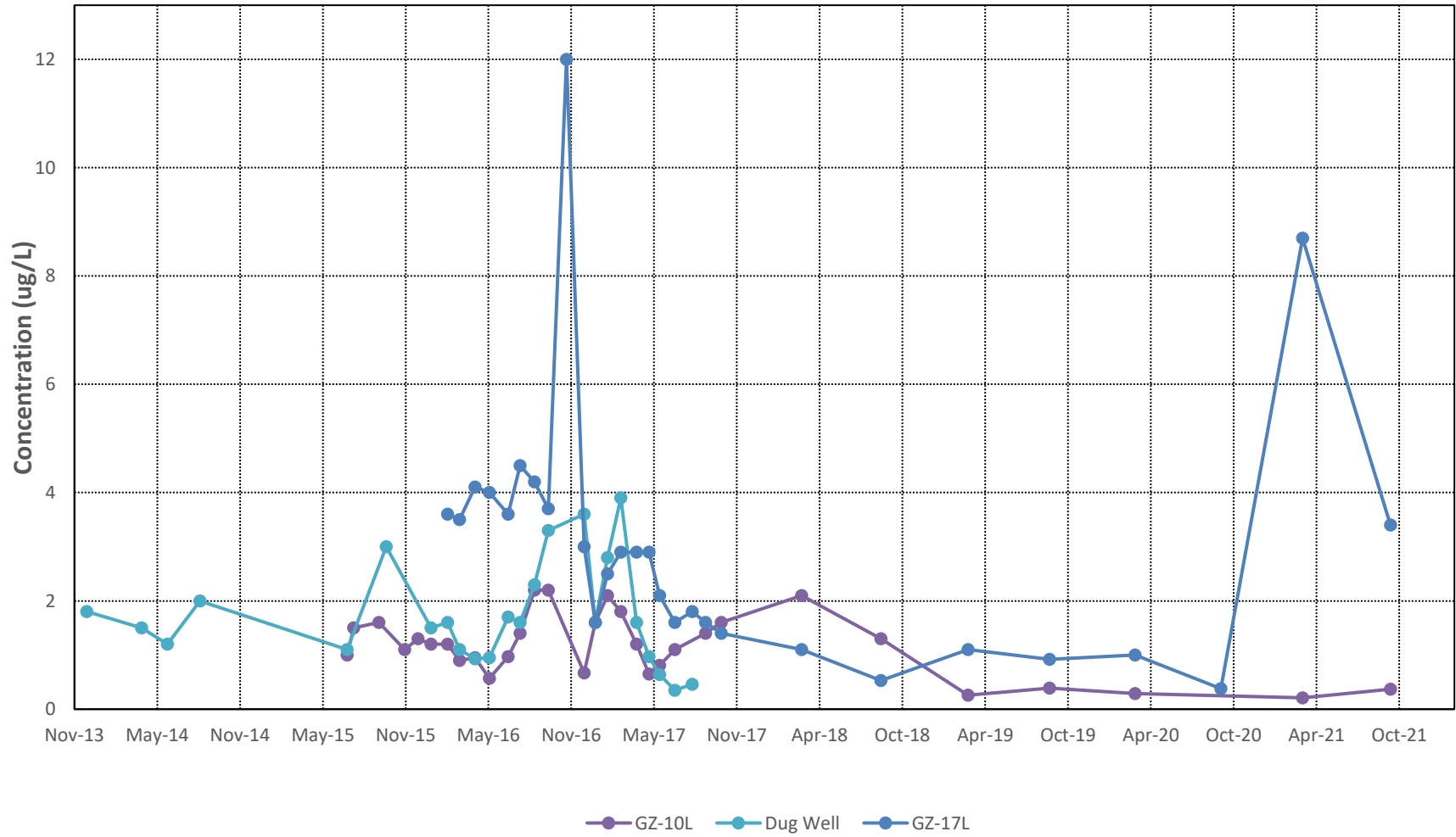
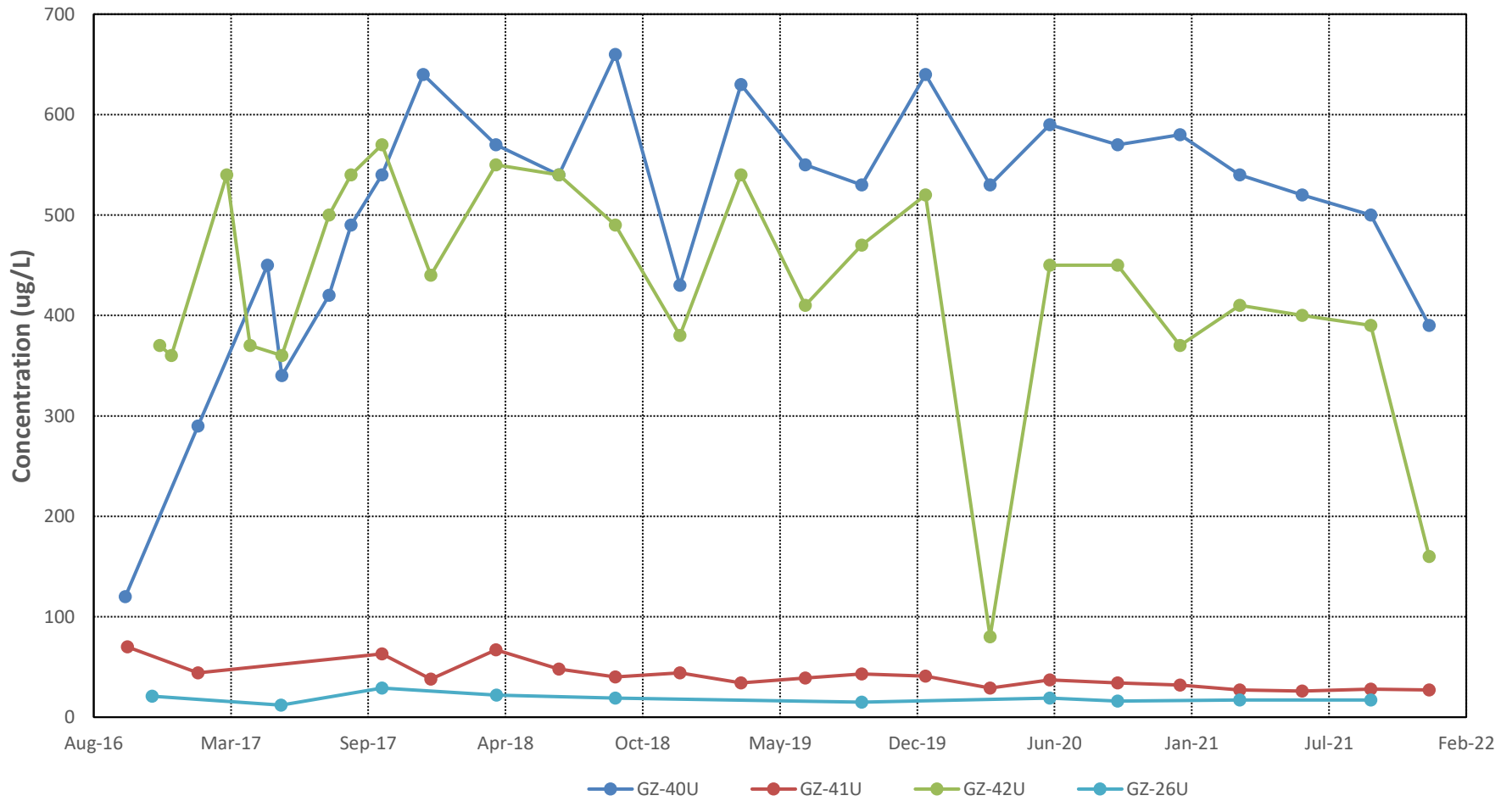
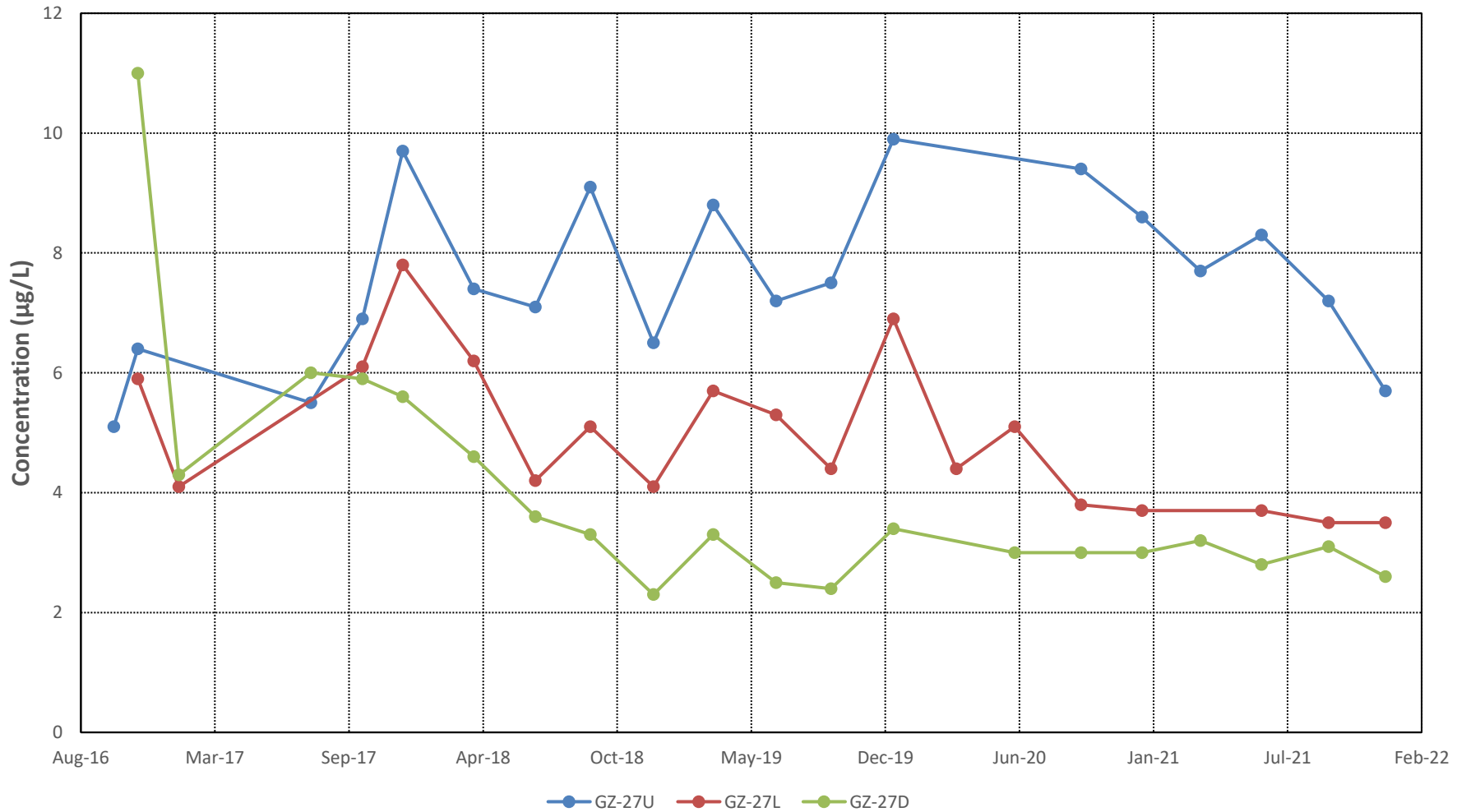


Chart 4
1,4-dioxane Concentration Trends
Monitoring Wells GZ-26U, GZ-40U, GZ-41U and GZ-42U



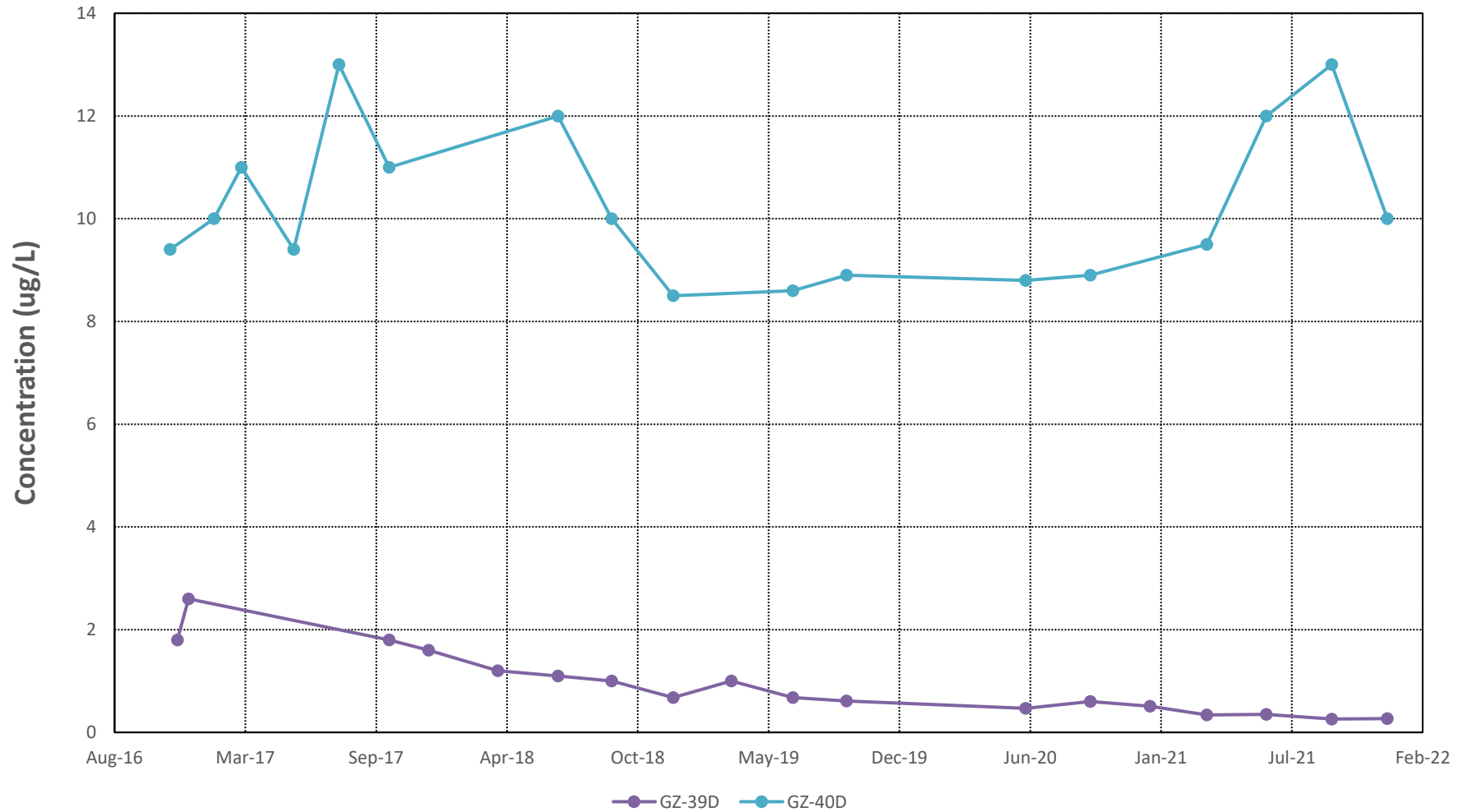
Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
Des Site #201111109, DES Project #27737

Chart 5
1,4-dioxane Concentration Trends
Monitoring Locations GZ-27U, GZ-27L and GZ-27D



Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
Des Site #201111109, DES Project #27737

Chart 6
1,4-dioxane Concentration Trends
Monitoring Wells GZ-39D and GZ-40D



Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
Des Site #201111109, DES Project #27737

Chart 7

1,4-dioxane Concentration Trends

Monitoring Wells GZ-25D and GZ-37D

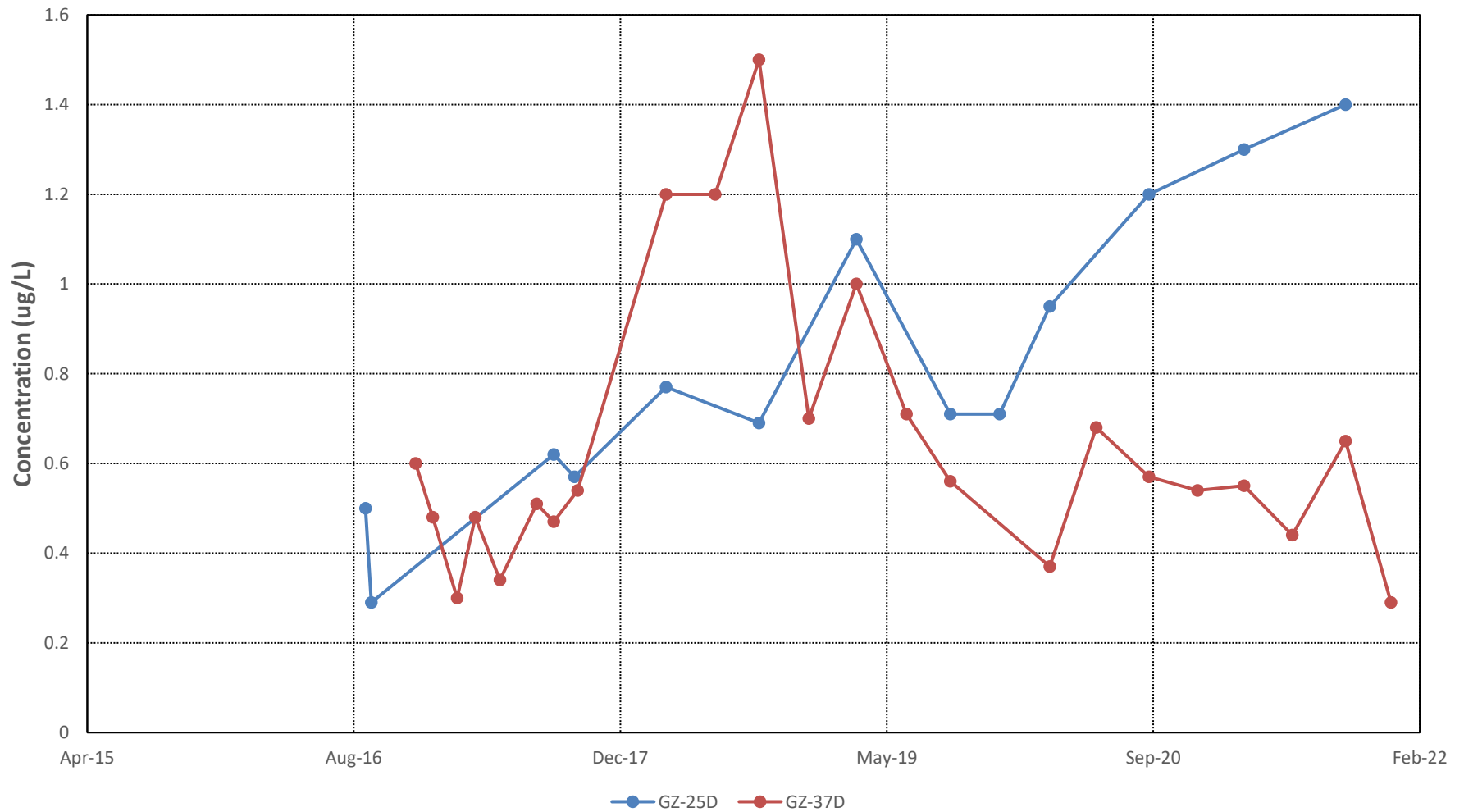
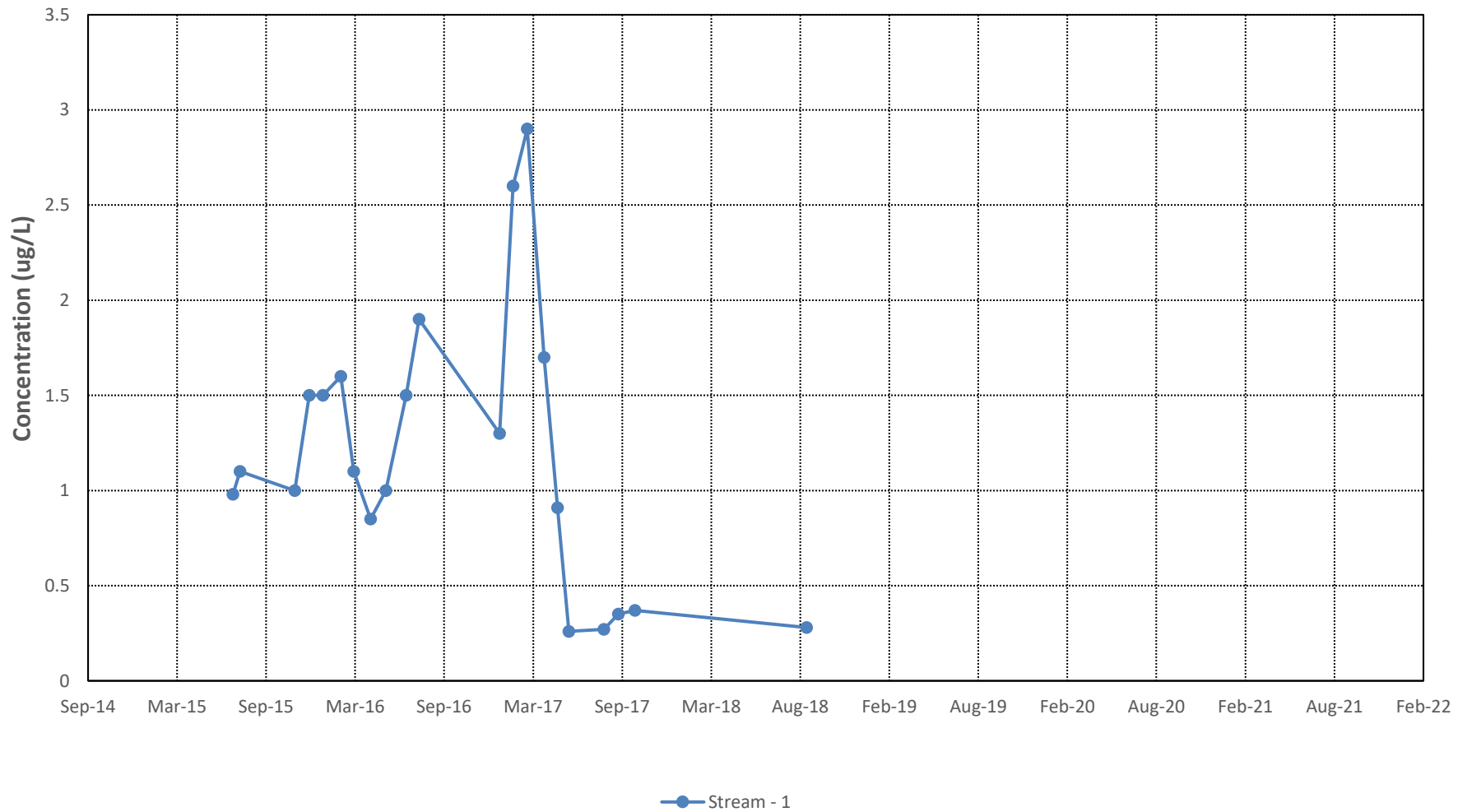


Chart 8
1,4-dioxane Concentration Trends
Surface Water Location Stream-1



Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Chart 9 1,4-Dioxane Concentration Trend Water Supply Well 9 Rennie Road

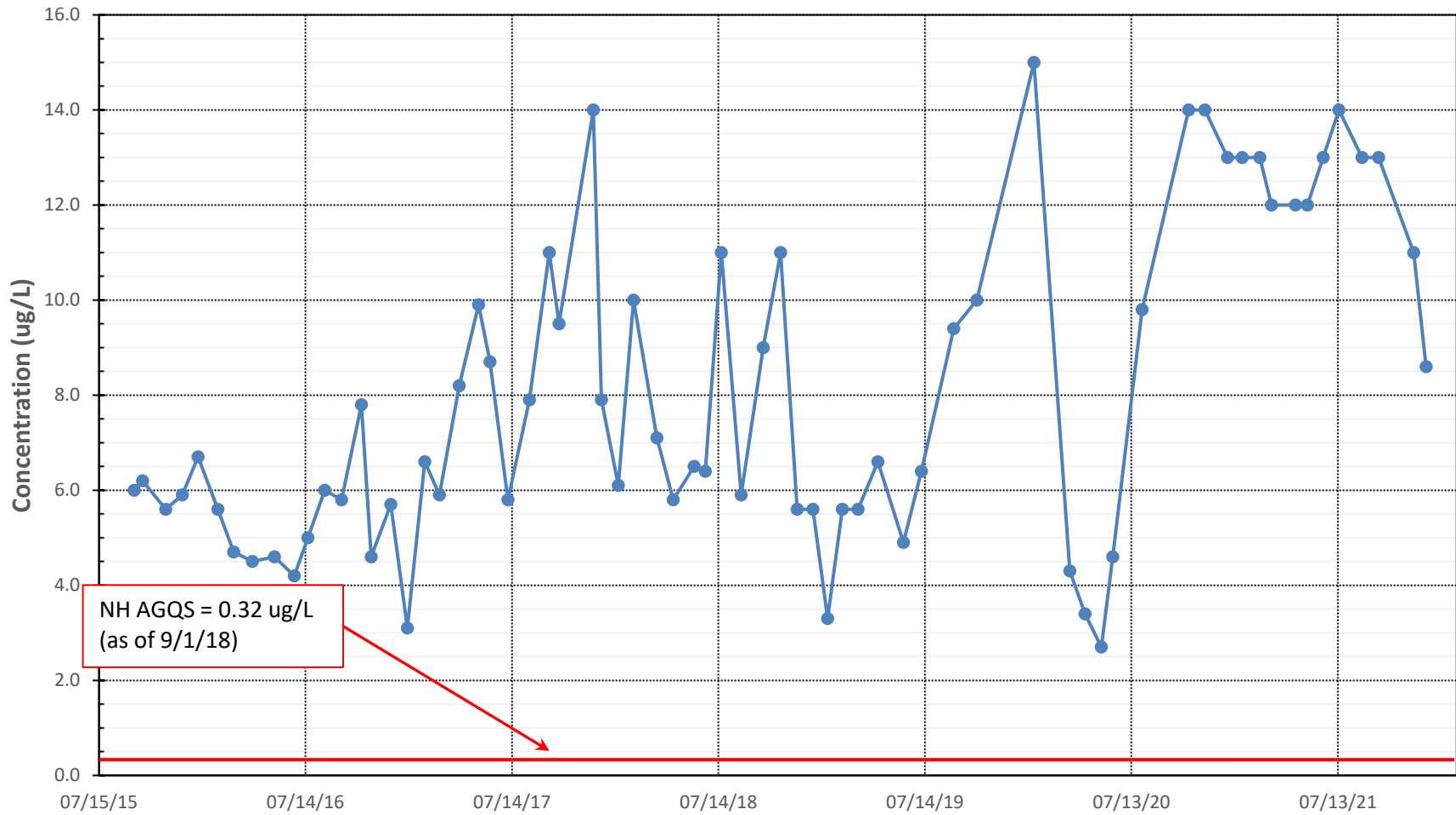
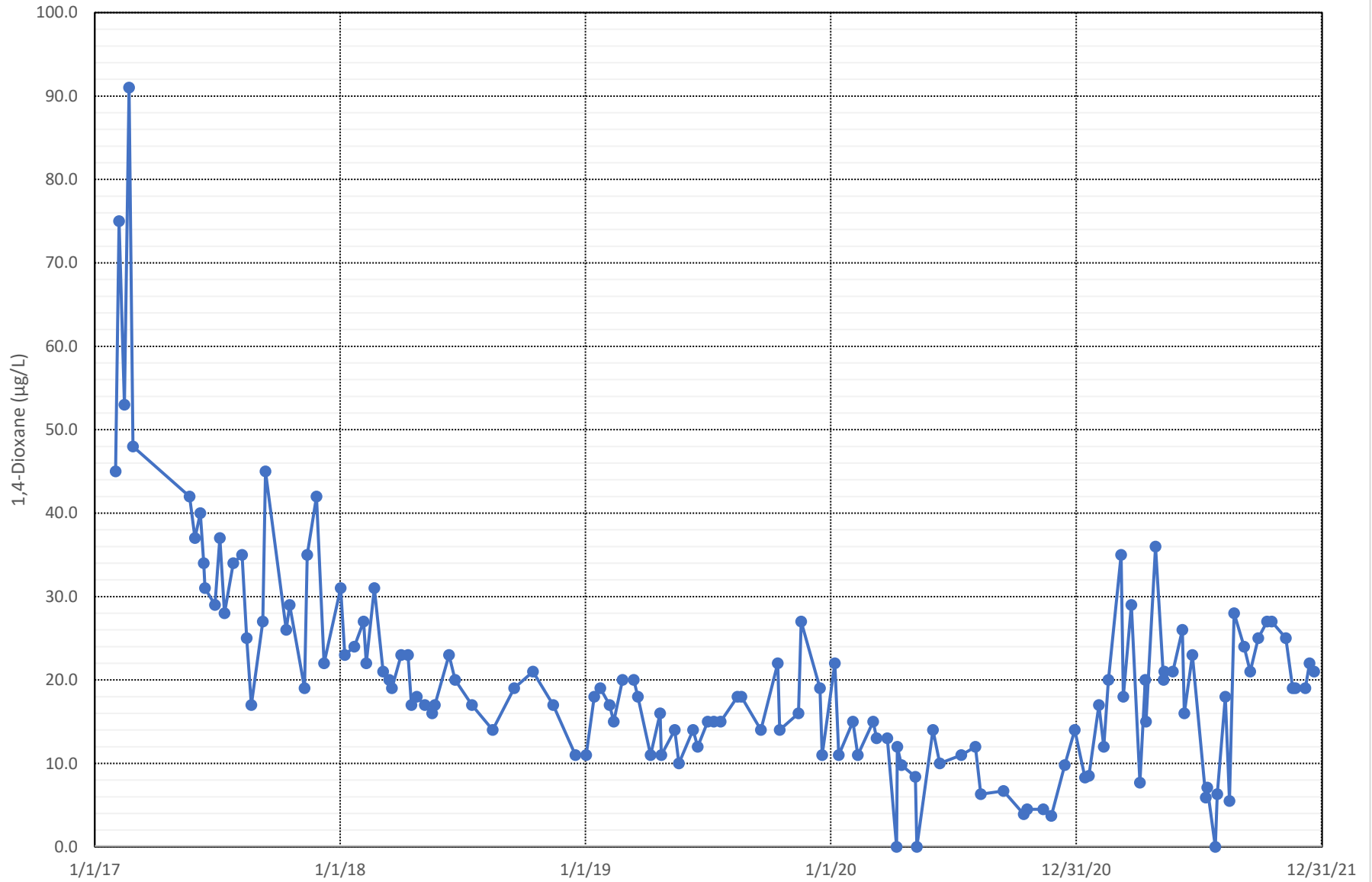


Chart 10 System Influent Concentration Trend



Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Chart 11A

Average Daily Flows of Treatment System vs. Precipitation

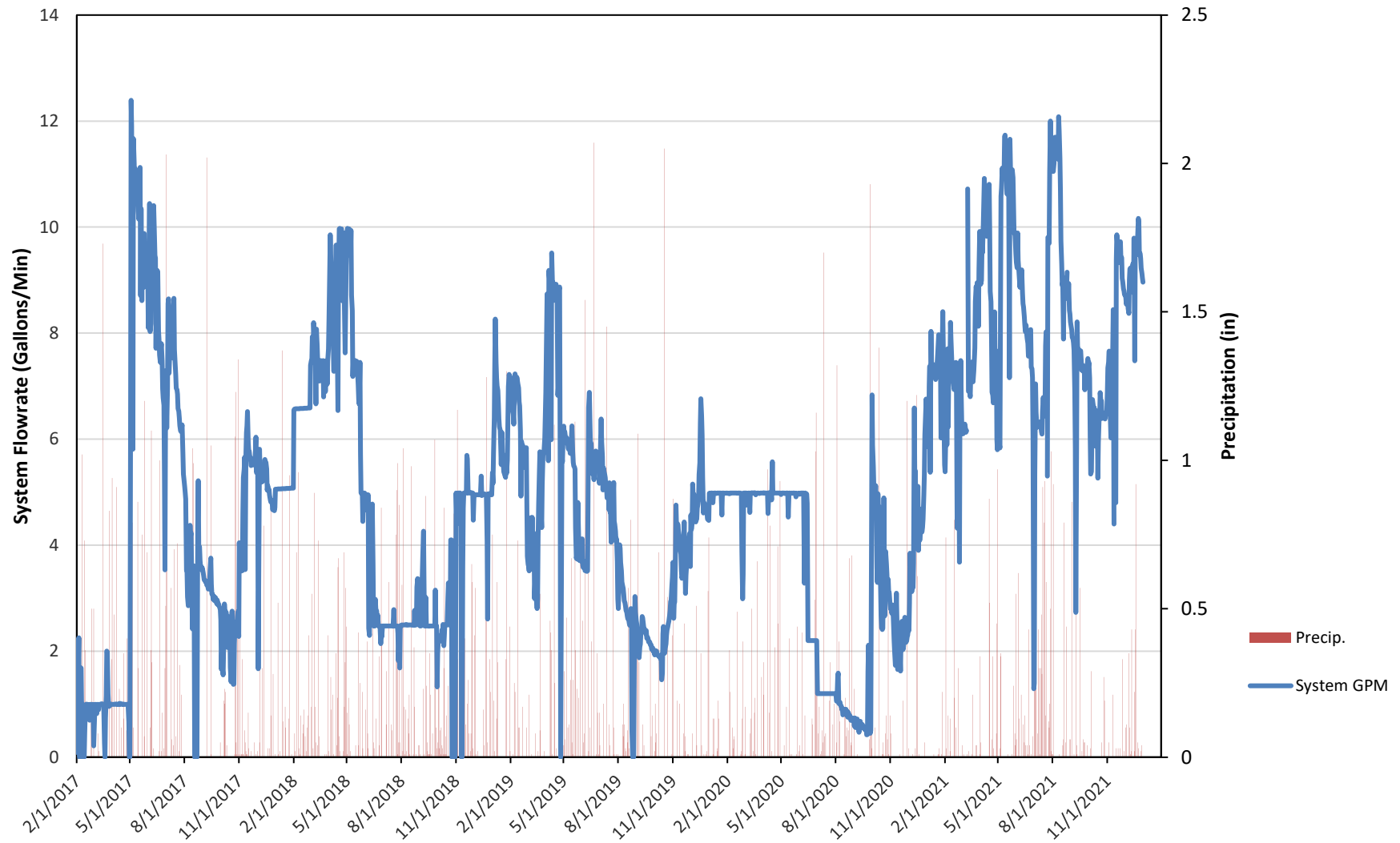


Chart 11B

Average Daily Flows of Treatment System vs. Precipitation

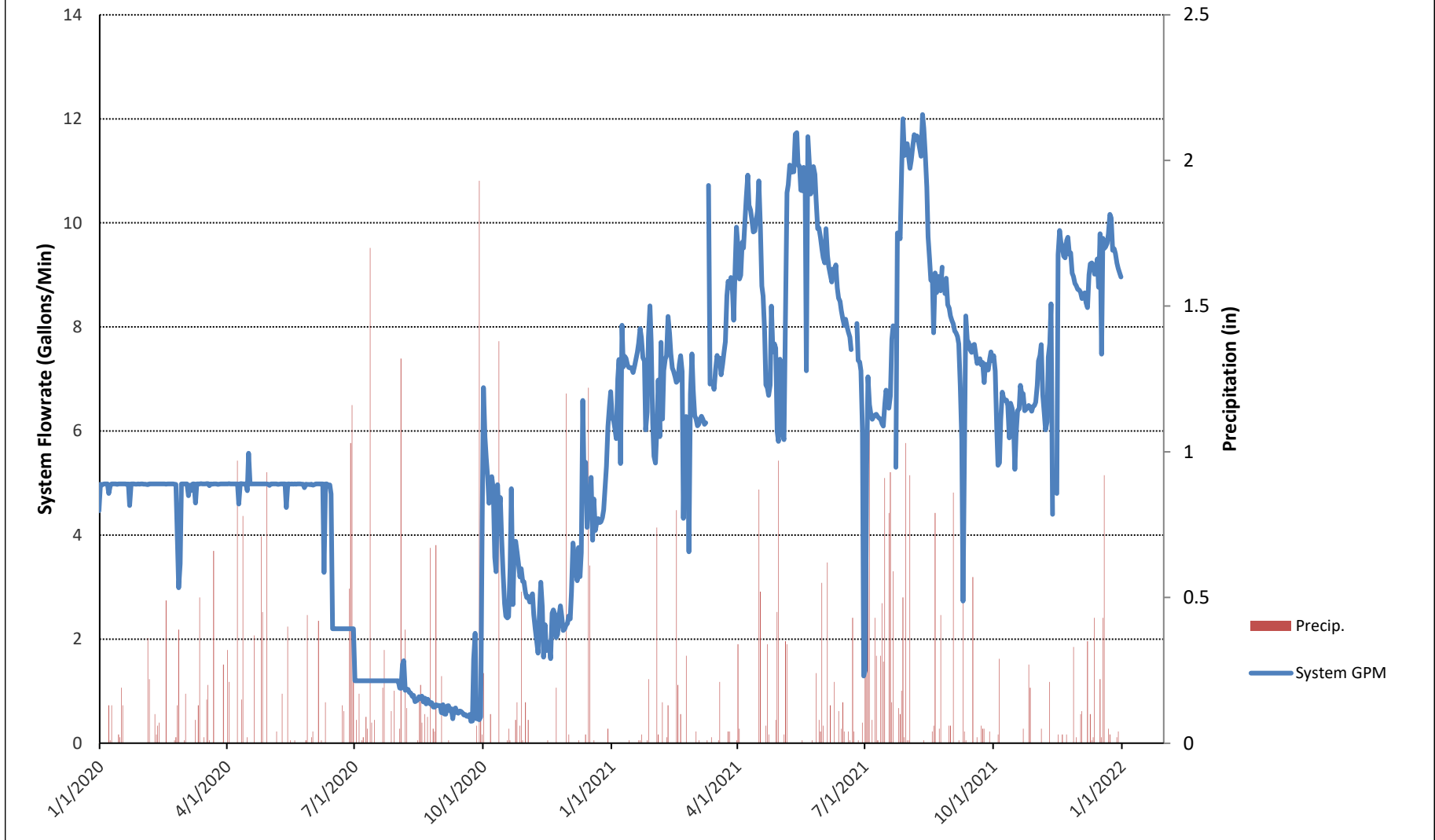


Chart 12
Groundwater Elevation Data Summary
Source Area - Overburden Monitoring Wells

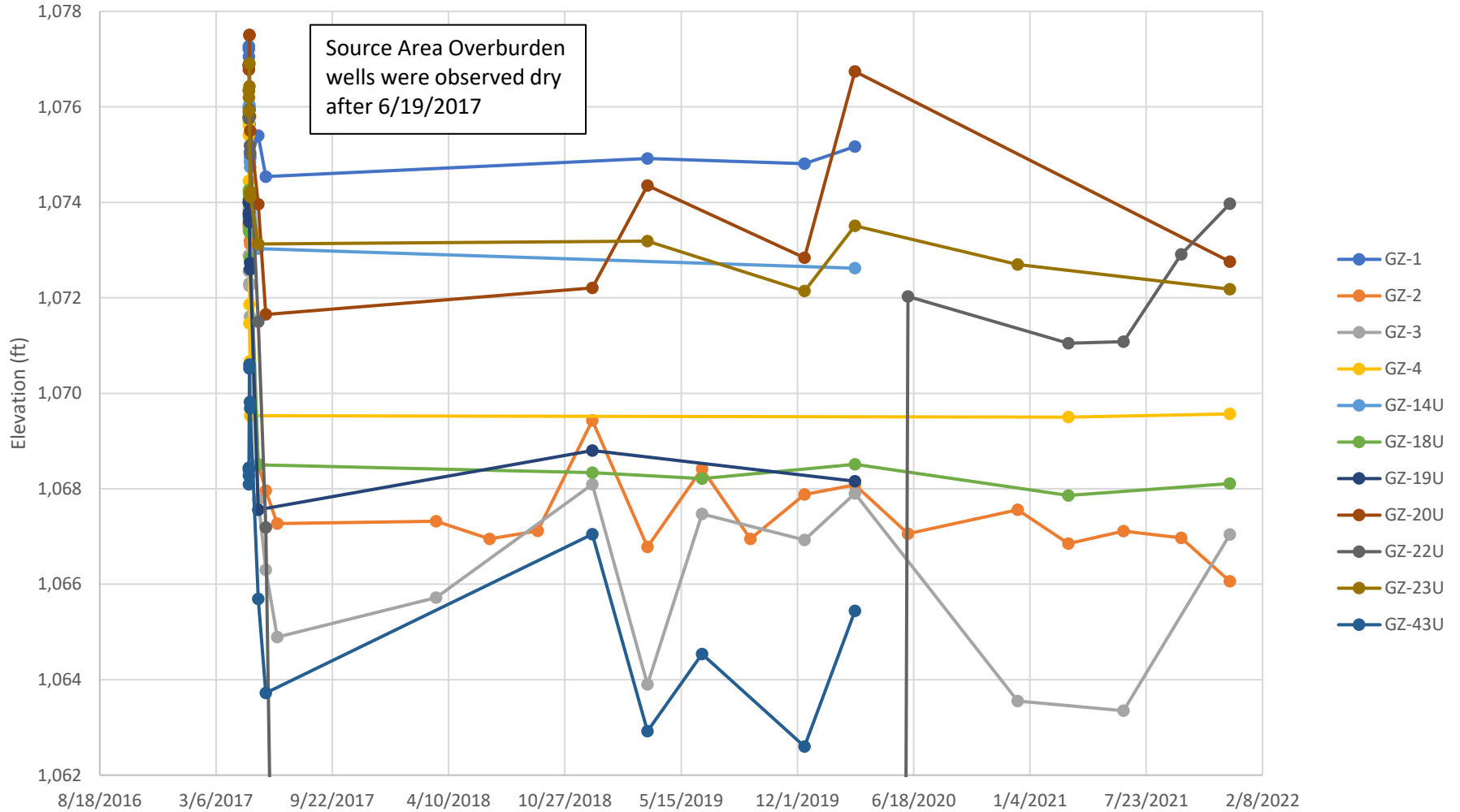
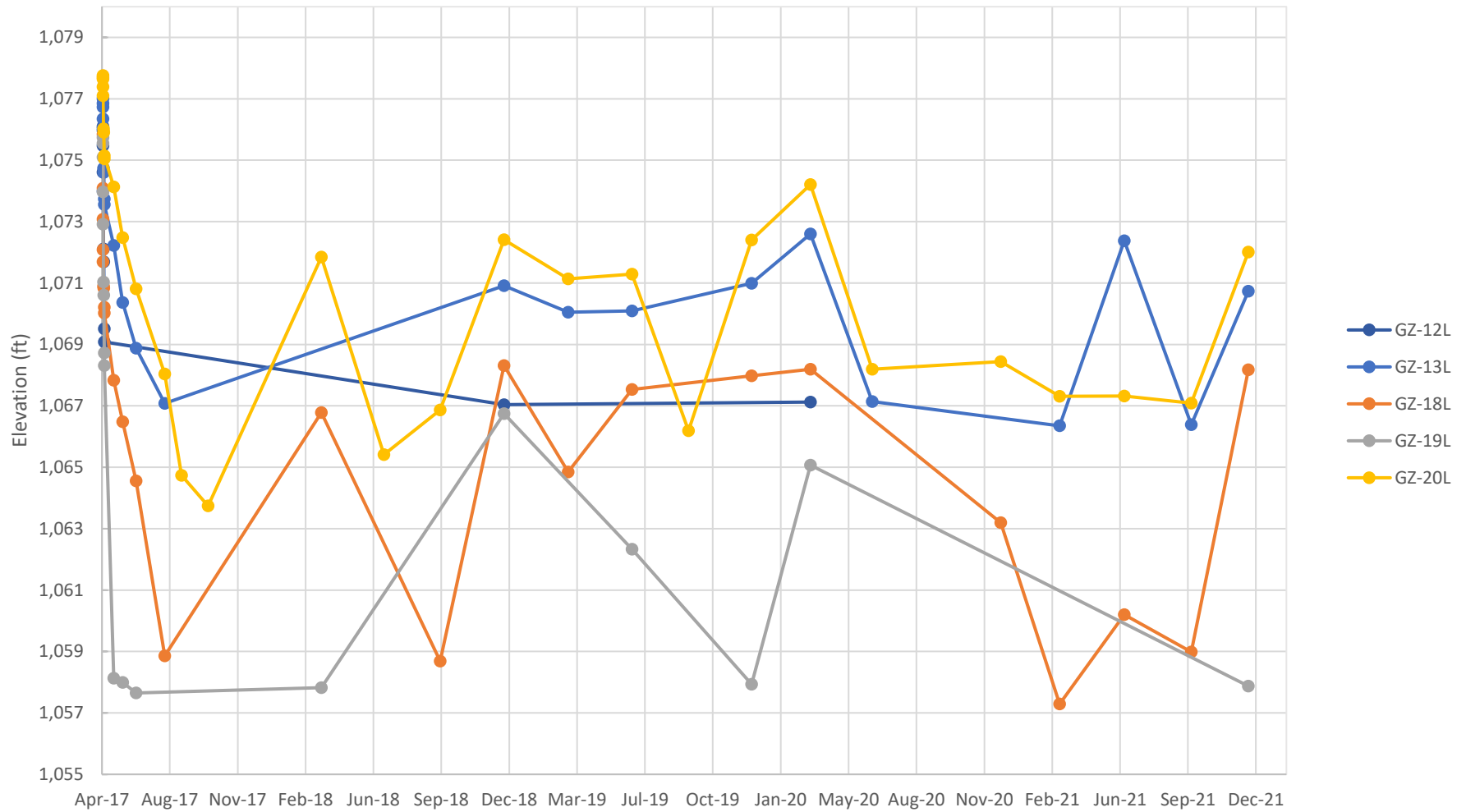


Chart 13

Groundwater Elevation Data Summary

Source Area - Bedrock Monitoring Wells



Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
Des Site #201111109, DES Project #27737

Chart 14

Groundwater Elevation Data Summary

Down-Gradient On-Site Monitoring Wells

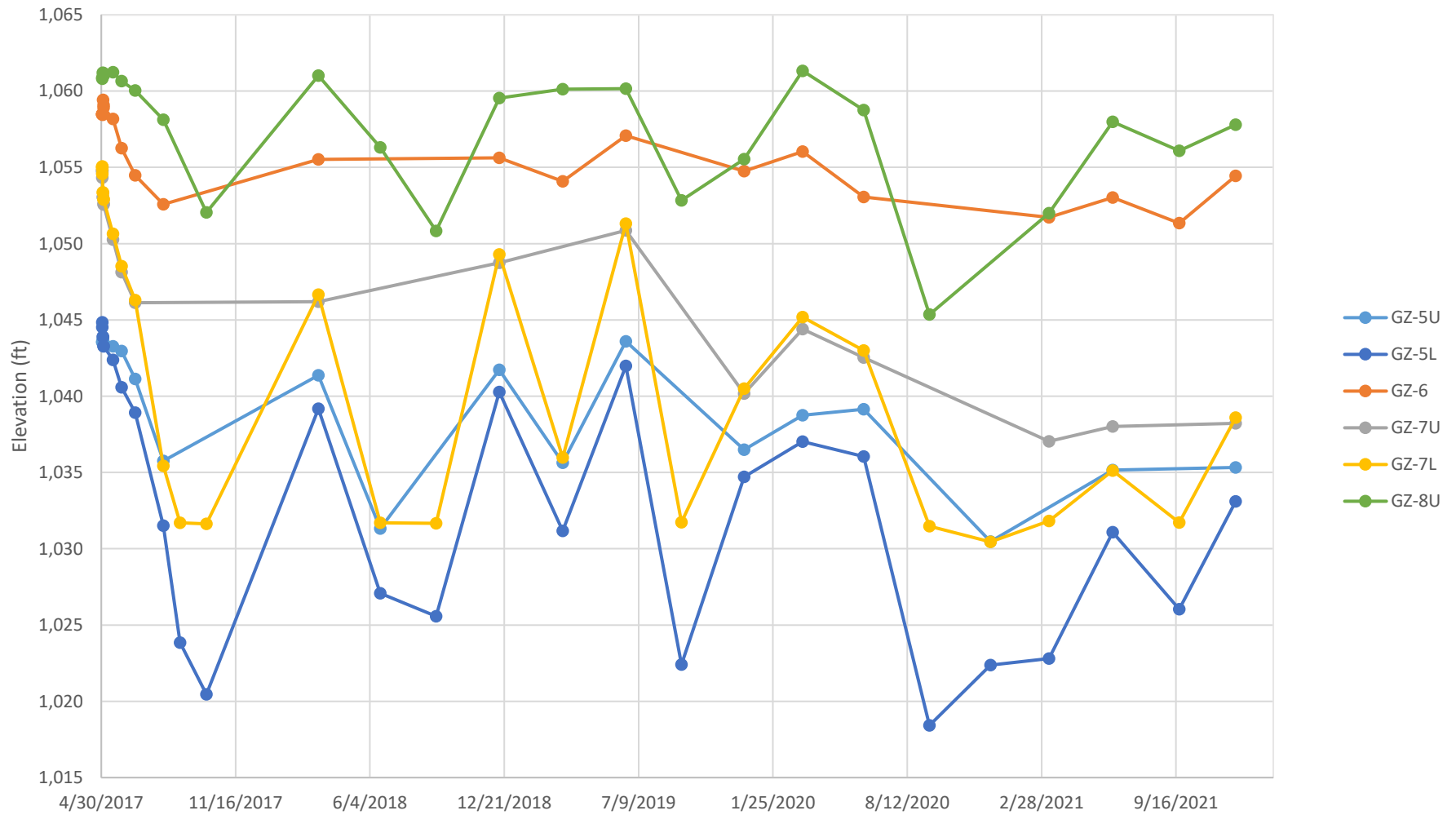
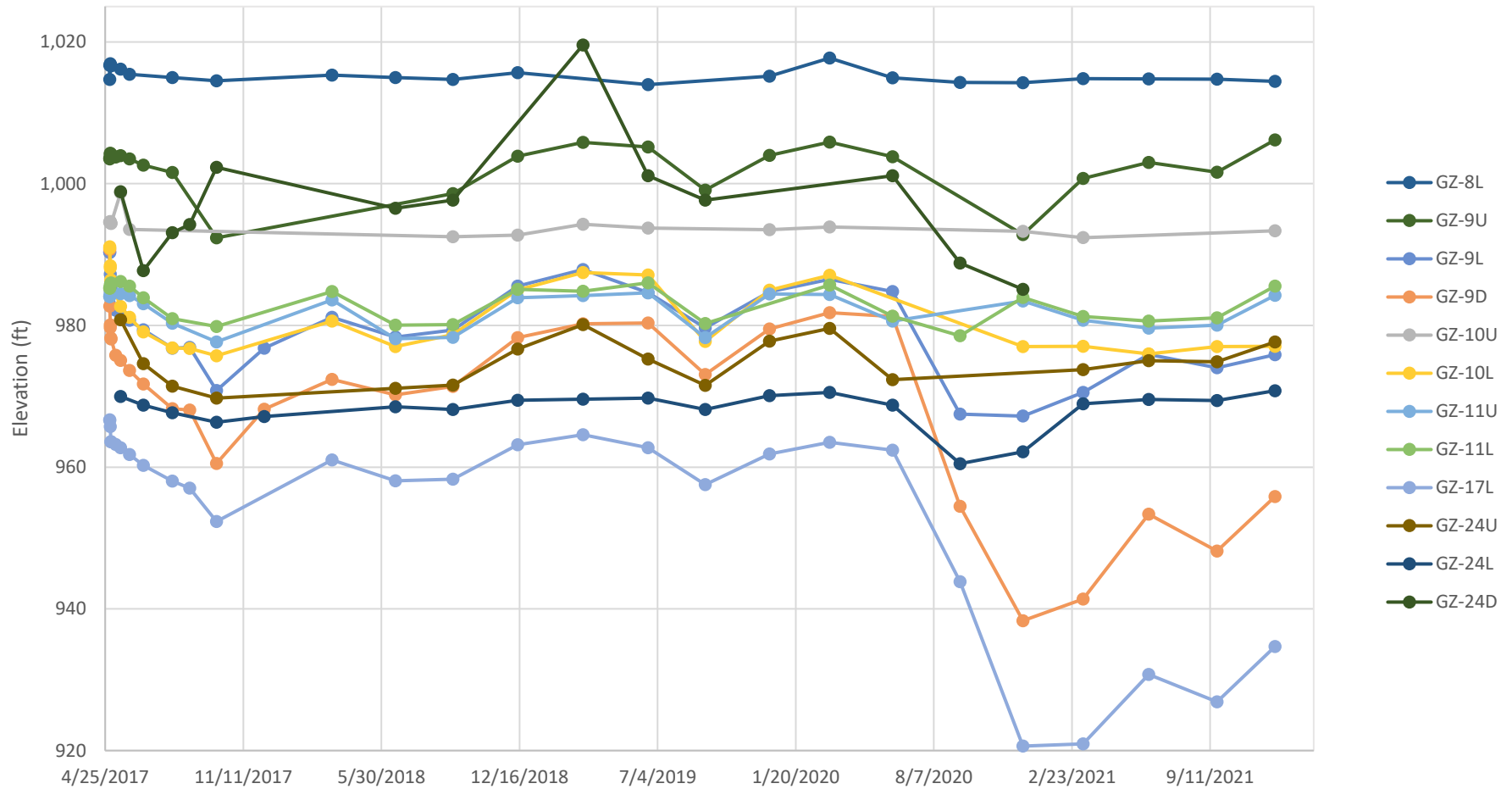


Chart 15 Groundwater Elevation Data Summary Downgradient On-Site Monitoring Wells



Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
Des Site #201111109, DES Project #27737

Chart 16

Groundwater Elevation Data Summary

Side-Gradient On-Site Monitoring Wells

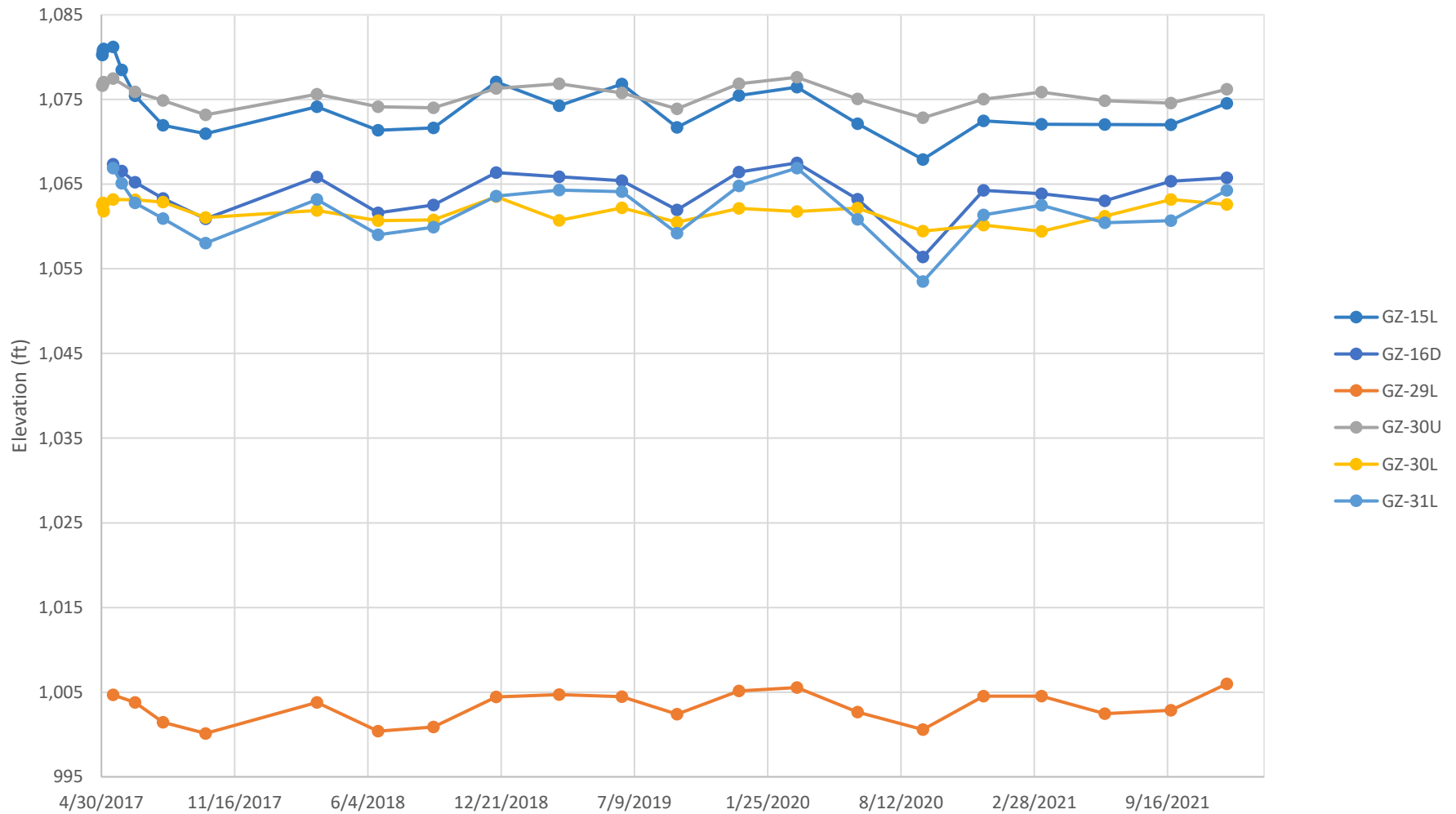


Chart 18

Groundwater Elevation Data Summary

Off-Site Monitoring Wells

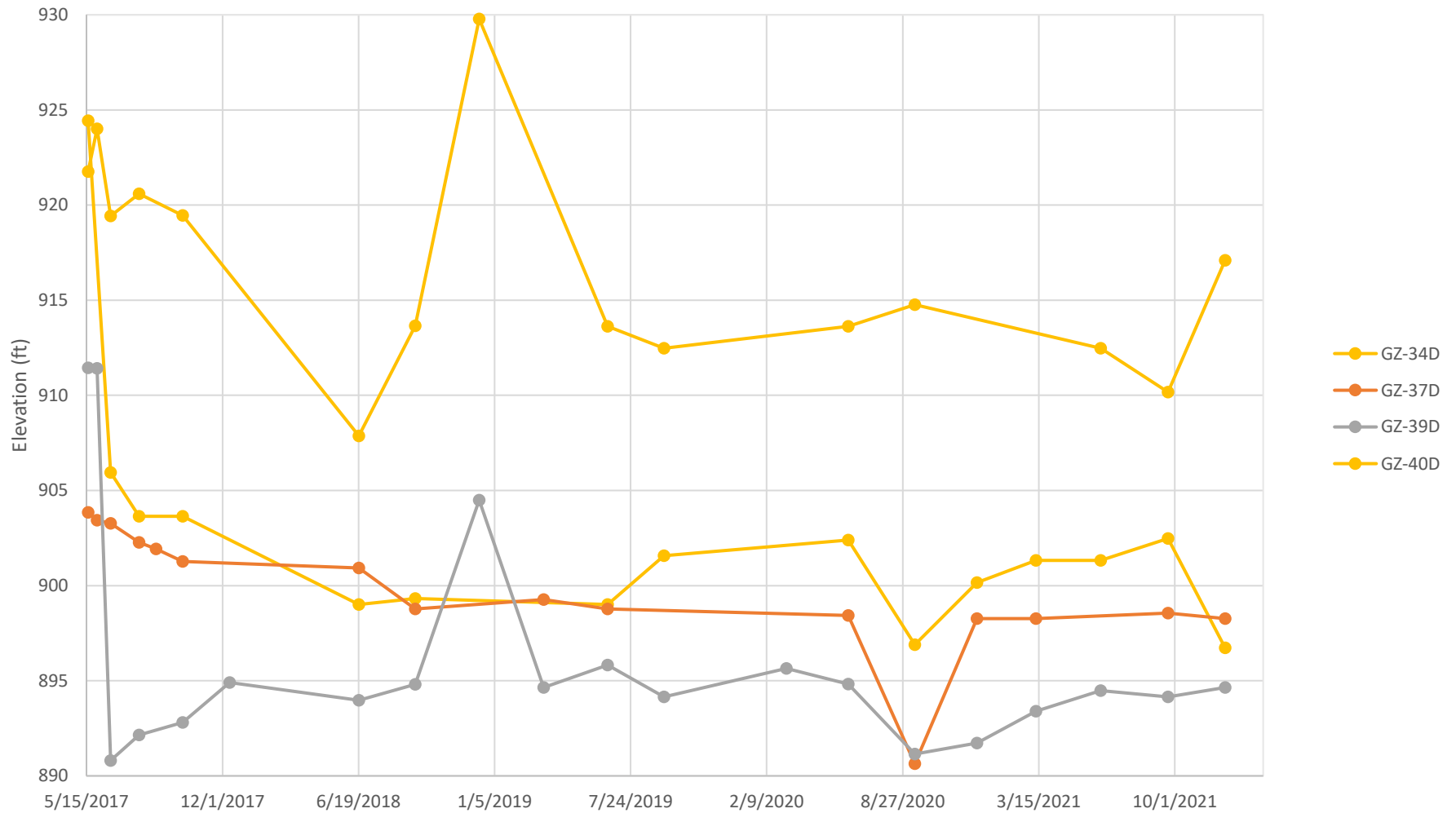


Chart 19
Groundwater Elevation Data Summary
Off-Site Monitoring Wells

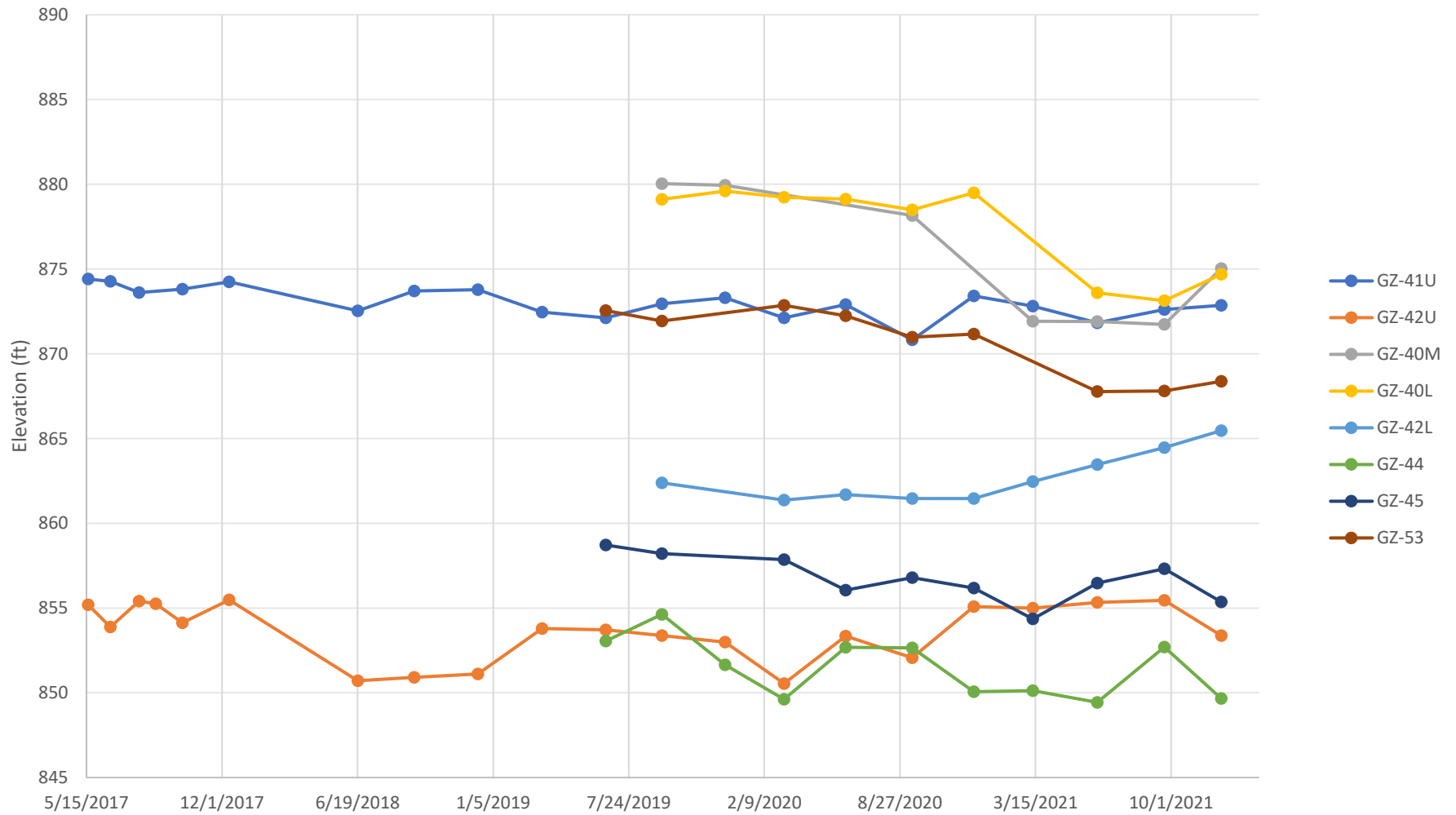


Chart 20

Groundwater Elevation Data Summary

Performance Monitoring Wells

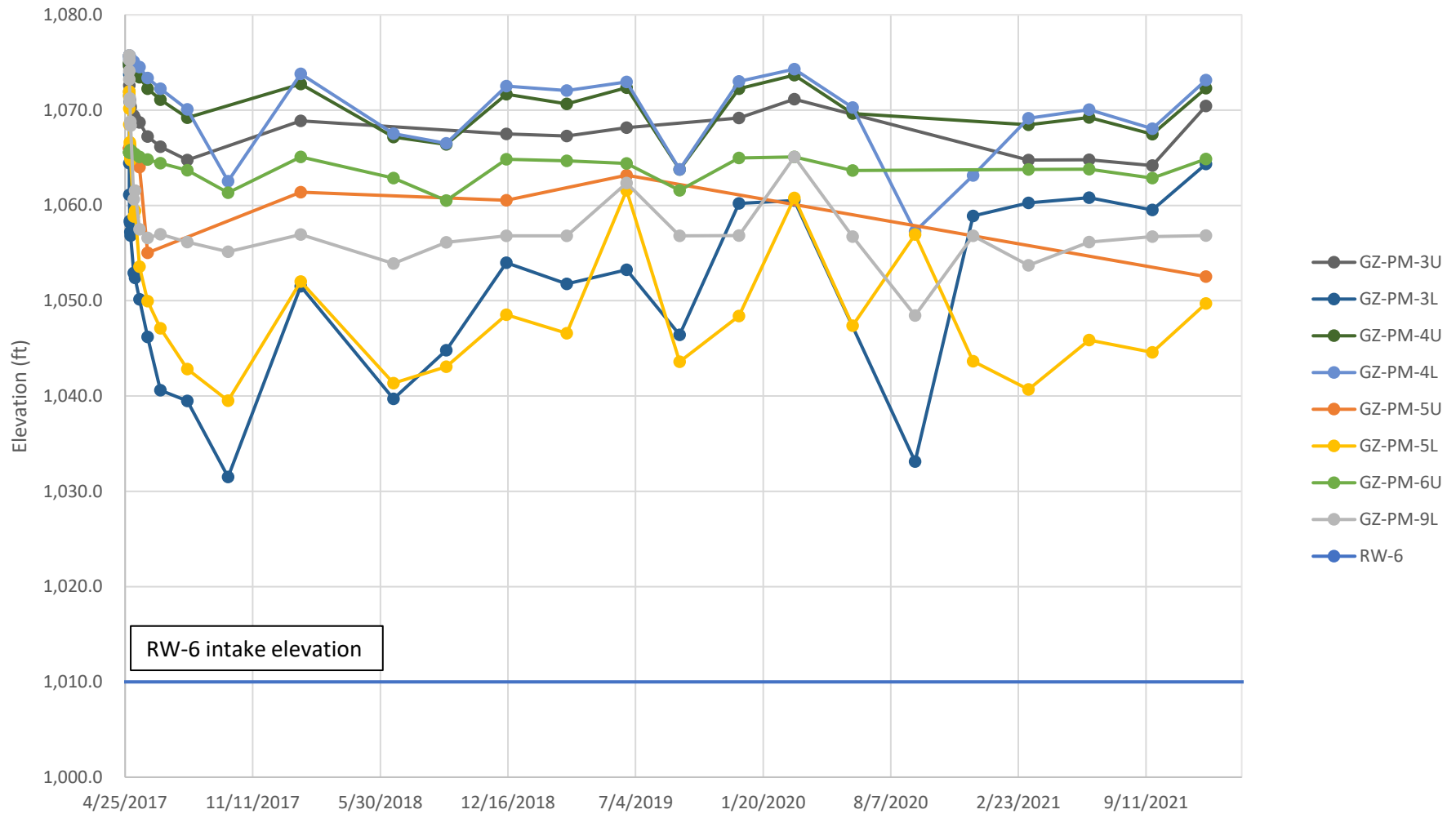
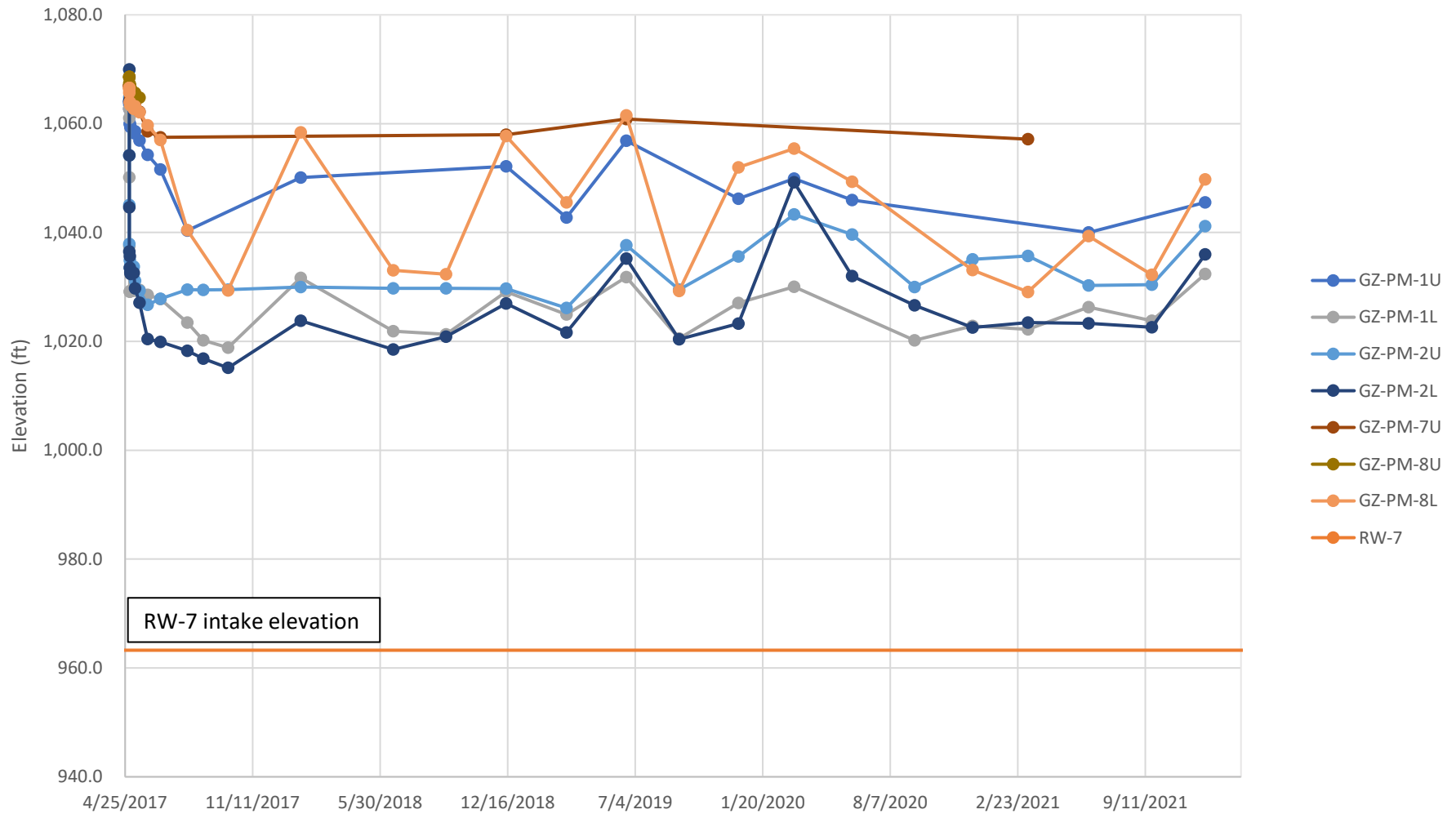


Chart 21

Groundwater Elevation Data Summary

Performance Monitoring Wells





Appendix E – Treatment System Documents

Rennie Farm
Hanover, New Hampshire
Mann-Kendall Analysis for 1,4-dioxane
(Pre-Off-Site System Startup)


Date	1,4-Dioxane Conc. (ug/l)
2/2/2017	45
2/16/2017	35
2/16/2017	33
2/22/2017	48
3/2/2017	42
3/9/2017	37
4/7/2017	40
6/12/2017	34
6/14/2017	31
6/29/2017	29
7/26/2017	37
7/19/2017	28
7/26/2017	34
8/8/2017	35
8/13/2017	26
8/22/2017	17
8/28/2017	27
9/12/2017	45
9/19/2017	26
10/18/2017	29
11/8/2017	18
11/13/2017	35
11/27/2017	42
1/8/2018	31
1/8/2018	23
1/22/2018	24
2/9/2018	27
2/9/2018	22
2/12/2018	31
3/16/2018	21
3/15/2018	20
3/19/2018	19
4/2/2018	23
4/12/2018	23
4/17/2018	17
4/19/2018	18
5/7/2018	17
5/18/2018	16
5/22/2018	17
6/12/2018	23
6/21/2018	20
7/19/2018	17
8/16/2018	14
8/17/2018	19
10/12/2018	21
11/14/2018	17
12/17/2018	11
1/7/2019	11
1/14/2019	18
2/12/2019	19
2/26/2019	17
3/12/2019	15
3/25/2019	20
3/26/2019	18
4/9/2019	11
4/22/2019	16
4/24/2019	11
5/14/2019	14
5/20/2019	10
6/10/2019	14
6/17/2019	12
7/2/2019	15
7/21/2019	15
7/21/2019	15
8/1/2019	18
8/21/2019	18
9/10/2019	14
10/14/2019	14
10/17/2019	14
11/14/2019	16
11/18/2019	27
12/18/2019	19
1/12/2020	11
1/17/2020	22
1/19/2020	11
2/19/2020	15
3/10/2020	11
3/14/2020	15
3/19/2020	13
3/25/2020	13
4/9/2020	12
4/15/2020	9.8
4/16/2020	8.4
6/1/2020	14
6/11/2020	10
6/13/2020	11
8/3/2020	12
8/11/2020	6.9
8/14/2020	6.7

Number of Rounds (n)	92
Non-detect samples	0
Minimum Value	6
Maximum Value	51
Average	22.4
Standard Deviation	13.5
Coefficient of Variation(CV)	0.608
Adjustment for tied groups	0
Mann-Kendall Statistic (S)	2814
Confidence Level	0.95
Z _{α/2}	1.645

1,4-Dioxane	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
45	35	33	48	42	37	40	34	31	29	37	38	34	35	25	17	27	45	36	29	19	35	42	22	31	23	24	27	22	31	21	20	19	23	23	17	18	17	16	17	21	20	17	14	19	21	17	11	11	18	19	17	15	20	20	18	11	18	11	14	10	14	12	15	15	15	18	18	14	22	14	16	27	19	11	22	11	15	11	15	13	13	12	9.8	8.4	14	10	11	12	6.3	6.7	10.0	
35	33	48	42	37	40	34	31	29	37	38	34	35	25	17	27	45	36	29	19	35	42	22	31	23	24	27	22	31	21	20	19	23	23	17	18	17	16	17	21	20	17	14	19	21	17	11	11	18	19	17	15	20	20	18	11	18	11	14	10	14	12	15	15	15	18	18	14	22	14	16	27	19	11	22	11	15	11	15	13	13	12	9.8	8.4	14	10	11	12	6.3	6.7	10.0		
35	33	48	42	37	40	34	31	29	37	38	34	35	25	17	27	45	36	29	19	35	42	22	31	23	24	27	22	31	21	20	19	23	23	17	18	17	16	17	21	20	17	14	19	21	17	11	11	18	19	17	15	20	20	18	11	18	11	14	10	14	12	15	15	15	18	18	14	22	14	16	27	19	11	22	11	15	11	15	13	13	12	9.8	8.4	14	10	11	12	6.3	6.7	10.0		
35	33	48	42	37	40	34	31	29	37	38	34	35	25	17	27	45	36	29	19	35	42	22	31	23	24	27	22	31	21	20	19	23	23	17	18	17	16	17	21	20	17	14	19	21	17	11	11	18	19	17	15	20	20	18	11	18	11	14	10	14	12	15	15	15	18	18	14	22	14	16	27	19	11	22	11	15	11	15	13	13	12	9.8	8.4	14	10	11	12	6.3	6.7	10.0		
35	33	48	42	37	40	34	31	29	37	38	34	35	25	17	27	45	36	29	19	35	42	22	31	23	24	27	22	31	21	20	19	23	23	17	18	17	16	17	21	20	17	14	19	21	17	11	11	18	19	17	15	20	20	18	11	18	11	14	10	14	12	15	15	15	18	18	14	22	14	16	27	19	11	22	11	15	11	15	13	13	12	9.8	8.4	14	10	11	12	6.3	6.7	10.0		
35	33	48	42	37	40	34	31	29	37	38	34	35	25	17	27	45	36	29	19	35	42	22	31	23	24	27	22	31	21	20	19	23	23	17	18	17	16	17	21	20	17	14	19	21	17	11	11	18	19	17	15	20	20	18	11	18	11	14	10	14	12	15	15	15	18	18	14	22	14	16	27	19	11	22	11	15	11	15	13	13	12	9.8	8.4	14	10	11	12	6.3	6.7	10.0		
35	33	48	42	37	40	34	31	29	37	38	34	35	25	17	27	45	36	29	19	35	42	22	31	23	24	27	22	31	21	20	19	23	23	17	18	17	16	17	21	20	17	14	19	21	17	11	11	18	19	17	15	20	20	18	11	18	11	14	10	14	12	15	15	15	18	18	14	22	14	16	27	19	11	22	11	15	11	15	13	13	12	9.8	8.4	14	10	11	12	6.3	6.7	10.0		
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Carbon Disposal Documentation

NRC FORM 540		U.S. NUCLEAR REGULATORY COMMISSION	
 <p>UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER</p> <p>See NUREG/BR-0204 for detailed instructions for completing this form: http://www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0204/</p>		<p>5. Shipper - Name and Facility Chase for Dartmouth College Rennie Farm 572 Hanover Center Road Hanover, NH 03755</p>	
<p>1. Emergency Telephone Number (Include Area Code) (800) 424-9300</p>		<p>Shipper ID Number C1803014-001</p> <p><input type="checkbox"/> Collector <input type="checkbox"/> Processor <input checked="" type="checkbox"/> Generator Type (Specify) A</p>	
<p>Organization CHEMTREC (Customer #4385)</p>		<p>7. NRC Form 540 and 540A Page 1 of <u>1</u> Page(s) <i>Electronic</i> NRC Form 541 and 541A <u>1</u> Page(s) NRC Form 542 and 542A <u>None</u> Page(s) Additional Information <u>None</u> Page(s)</p>	
<p>2. Is this an "Exclusive Use" Shipment? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p>		<p>8. Manifest Number C1803014-001</p>	
<p>3. Total Number of packages identified on this manifest? 1</p>		<p>9. Consignee - Name and Facility Address US Ecology Wayne Disposal, Inc. 49350 N. I-94 Service Drive Belleville, MI 48111</p>	
<p>4. Does EPA regulated waste requiring a manifest accompany this shipment? If "Yes," provide Manifest Number <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>		<p>Contact Dan Jordan</p>	
<p>EPA Manifest Number NA</p>		<p>Phone No (Include Area Code) (804) 384-8081</p>	
<p>11. U.S. Department of Transportation Description (Including UN ID number, proper shipping name, hazard class, and any additional information) DOT Exempt 49CFR173.436 (Activated Carbon, Filter Media, PPE, Profile G210200WDI)</p>		<p>6. Carrier - Name and Address Horwith Trucks, Inc 1449 Nor-Bath Blvd Route 329 Northampton, PA 18067</p>	
<p>12. DOT Labels NA</p>		<p>EPA I.D. Number P40146 744578</p>	
<p>13. Transport Index NA</p>		<p>Shipping Date 09/15/2021</p>	
<p>14. Physical and Chemical Form Solid TENORM</p>		<p>Phone No (Include Area Code) (610) 261-2220</p>	
<p>15. Individual Radionuclides Pb-210 Ra-226 Ra-228</p>		<p>Signature - Authorized carrier acknowledging waste receipt <i>[Signature]</i> 9/15/21</p>	
<p>16. Maximum Package Activity in SI Units 6.0706E+00 MBq</p>		<p>Signature - Authorized consignee acknowledging waste receipt <i>[Signature]</i></p>	
<p>17. Total Weight or Volume (Use appropriate units) Estimated Weight 16789 LBS; 540 FT3</p>		<p>Date 9-17-21</p>	
<p>18. Identification Number of Package Dartmouth-001</p>		<p>10. CERTIFICATION "This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, the Commission, and equivalent state regulations. For materials that are consigned to a land disposal facility or waste collector, this certifies that the materials are classified per the applicable requirements of 10 CFR Part 61, meet the land disposal facility's waste acceptance criteria, and are in proper condition for disposal as described in accordance with the applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations. A collector in signing the certification is certifying that nothing has been done to the collected waste which would invalidate the waste generator's certification."</p>	
<p>FOR CONSIGNEE USE ONLY</p>		<p>Authorized Signature and Title <i>[Signature]</i> D. Jordan Project Manager</p>	
		<p>Date 9/8/21</p>	

Wayne Disposal, Inc.
49350 N I-94 SERVICE DRIVE, BELLEVILLE , MI 48111 USA

Customer Account:

CHASE ENVIRONMENTAL GROUP, INC.
11450 WATTERSON COURT
LOUISVILLE, KY 40299, USA

Weight Ticket

Receipt ID: 1355574

Customer ID: 2621

Manifest / BOL: C1803014-001

Transporter: HORWITH TRUCKS, INC.

Transporter EPA ID: PAD146714878

Truck#: 442

Date: 09/17/2021

Time In: 9:45 AM

Time Out: 12:53 PM

Generator Site Address:

NHCESQG, CHASE ENVIRONMENTAL FOR DARTMOU
570 HANOVER CENTER ROAD
HANOVER, NH, 03755, USA

Line	Description Generator	Qty. Unit
1	G210200WDI - WATER TREATMENT WASTE	7.750 TONS

NHCESQG CHASE ENVIRONMENTAL FOR DARTMOUTH CO

Gross: 60,100 lbs. **Tare:** 44,600 lbs. **Net:** 15,500 lbs.



USECology CERTIFICATE OF DISPOSAL

This certificate is to verify the wastes specified on Manifest # C1803014-001
have been properly disposed of in accordance with all local, state and federal regulation.

"Disposed of" means either: 1) Burial or 2) Processed as specified in 40CFR et sea.

FACILITY NAME:
(Please check one)


Michigan Disposal Waste Treatment Plant
(EPA I.D. # MID000724831)

Wayne Disposal, Inc.
(EPA I.D. # MID048090633)

ADDRESS: 49350 N. I-94 Service Drive
Bellville, Michigan 48111

PHONE NUMBER: 1-800-592-5489

FAX NUMBER: 1-800-593-5329

Authorized Signature: 



EPA and NHDES Authorization to Discharge Under the USEPA Region One RGP



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 1

**5 Post Office Square, Suite 100
BOSTON, MA 02109-3912**

VIA EMAIL

April 19, 2017

James M. Wieck, P.G.
GZA GeoEnvironmental, Inc.
5 Commerce Park North, Suite 201
Bedford, NH 03110
james.wieck@gza.com

Re: Authorization to discharge under the Remediation General Permit (RGP) – Authorization # NHG910071, for the Rennie Farm site located in Hanover, NH

Dear Mr. Wieck:

Based on the review of a Notice of Intent (NOI) that was submitted by GZA GeoEnvironmental, Inc. (GZA) dated April 7, 2017 for the site referenced above, the U.S. Environmental Protection Agency, Region 1 (EPA) hereby authorizes GZA, as a named operator and co-permittee with Dartmouth College, to discharge in accordance with the provisions of the RGP from this site via Outfall 001 to an unnamed tributary to Hewes Brook. The authorization number is listed above. The effective date of coverage is the date of this authorization letter.

Enclosed with this RGP authorization to discharge is a summary of the applicable parameters and effluent limitations for your activity category II, non-petroleum-related remediation discharge. A dilution factor of zero (i.e., 1:1) was used in calculating effluent limits applicable to the proposed discharge from this site. Please note that this summary does not represent the complete requirements of the RGP. Operators must comply with all of the applicable requirements of the RGP, including influent and effluent monitoring, record keeping, and reporting requirements. Please ensure that sufficiently sensitive test methods are used for all sample analyses conducted for this permit. For the complete general permit, see EPA's RGP website.¹

This EPA general permit and authorization to discharge will expire on **April 8, 2022**, or upon Notice of Termination (NOT), whichever occurs first. However, in accordance with Part 5.3 of the general permit, your permit coverage will be administratively continued until issuance of a new RGP. Please note that you must submit a NOT within thirty (30) days of the termination of the discharge. You have reported your discharges were expected to last twelve (12) months or more. Because your discharge is expected to last twelve (12) months or more, you are subject to discharge monitoring requirements that begin **May 1, 2018**. See Part 5.2 of the RGP and Appendix IV, Part 3 for more information.

¹ <http://www.epa.gov/region1/npdes/rgp.html>.

Your authorization to discharge includes the following additional conditions: 1) An effluent limitation of 3.0 µg/L for 1,4-dioxane; and 2) An effluent limitation of 54.8 µg/L for total recoverable zinc. These additional conditions are being required by the New Hampshire Department of Environmental Services (NHDES) accordance with Part 2.4.3.g of the RGP. This letter provides these additional conditions in writing.

In accordance with Part 2.2.4 of the RGP, your authorization to discharge also includes an additional monitor-only requirement for methylene chloride. The reason for this additional monitoring requirement is because the minimum level(s) for the data submitted with your NOI, 5.0 µg/L, exceeds the effluent limitation in Part 2.1.1 of the RGP, 4.6 µg/L. This monitoring requirement may be reduced or eliminated in the future in accordance with Part 5.1.2.a. of the RGP. Please ensure that sufficiently sensitive test methods are used for all sample analyses conducted for this permit. To be considered sufficiently sensitive, test methods must achieve MLs for a given parameter that is less than or equal to the effluent limitation for that parameter. Where no effluent limitation applies, EPA has provided the ML required with the enclosed summary.

Thank you in advance for your cooperation in this matter. Please contact Shauna Little at (617) 918-1989 or little.shauna@epa.gov, if you have any questions.

Sincerely,



Thelma Murphy, Chief
Storm Water and Construction Permits Section

Enclosure

cc: Michael Cimis, Dartmouth College, via email
Steven R. Lamb, P.G., C.G.W.P., GZA, via email
Ronald A. Breton, P.E., GZA, via email
Jeff Andrews, NHDES, via email

GENERAL PERMIT FOR REMEDIATION ACTIVITY DISCHARGES

Table 1: Authorization Information

Permit Number	NHG910071
Receiving Water	Unnamed tributary to Hewes Brook
Outfall Number	Outfall 001 at Latitude: 43.752099 Longitude: -72.175191
Monitoring Frequency	See Part 2.1.2 of the RGP
Reporting Requirement	See Part 4.6.1.a of the RGP; NetDMR requirement begins May 1, 2018

Table 2: Chemical-Specific Effluent Limitations and Monitor-Only Requirements¹

Parameter	Effluent Limitation
A. Inorganics	
Ammonia ²	Report mg/L
Chloride ³	Report µg/L
Total Suspended Solids	30 mg/L
Antimony	206 µg/L
Arsenic	10 µg/L
Cadmium	10.2 µg/L
Chromium III	323 µg/L
Chromium VI	323 µg/L
Copper	9.8 µg/L
Iron	5,000 µg/L
Lead	3.43 µg/L
Mercury	0.739 µg/L
Nickel	1,450 µg/L
Selenium	235.8 µg/L
Silver	35.1 µg/L
Zinc	54.8 µg/L
Cyanide	5.2 µg/L
B. Non-Halogenated Volatile Organic Compounds	
Total BTEX	100 µg/L
Benzene	5.0 µg/L
1,4 Dioxane	3.0 µg/L
Acetone	7.97 mg/L
Phenol	1,080 µg/L
C. Halogenated Volatile Organic Compounds	
Methylene Chloride	4.6 µg/L

Table 2 Notes:

¹ The following abbreviations are used in Table 2, above:

^a mg/L = milligrams per liter

^b µg/L = micrograms per liter

²The minimum level (ML) for analysis of ammonia must be less than or equal to 0.1 mg/L.

³The ML for analysis of chloride must be less than or equal to 230 mg/L.

Table 3: Effluent Flow Limitation¹

Effluent Flow	Effluent Limitation
	0.036 MGD

Table 3 Notes

¹ The following abbreviations are used in Table 3, above:

^a MGD = million gallons per day

Table 4: pH Limitations for Discharges in New Hampshire¹

Receiving Water Class	Effluent Limitation
Freshwater	6.5 to 8.3 SU

Table 4 Notes

¹ The following abbreviations are used in Table 4, above:

^a SU = standard units



The State of New Hampshire
Department of Environmental Services



Clark B. Freise, Assistant Commissioner

April 21, 2017

Steven R. Lamb, Principal
GZA GeoEnvironmental, Inc.
5 Commerce Park North, Suite 201
Bedford, NH 03110

CERTIFIED MAIL # 7011 1570 0003 6778 3994

Michael Cimis, CIH, CHMM, Associate Director
Environmental Health and Safety
Dartmouth College
37 Dewey Field Road, Room 124
Hanover, NH 03755

CERTIFIED MAIL # 7012 0470 0001 6069 7286

Subject: Rennie Farm Site, Hanover, NH
State Discharge Permit – NHG910071

Dear Messrs. Lamb and Cimis:

Please reference the letters to you from Thelma Murphy of the U.S. Environmental Protection Agency (EPA) dated April 19, 2017. In those letters, EPA approved the coverage of the discharge from the groundwater treatment facility at the Rennie Farm Site, which you both operate, under the Remediation General (NPDES) Permit (RGP)(see attached). See <https://www3.epa.gov/region1/npdes/rgp.html> to download the RGP attachments and other important information including corrections to the final permit. The letter also contained an attachment that lists pollutants that are discharged that must be monitored and their limits. The limits are also contained in Parts 2.1 and 2.4 of the RGP.

The purpose of this letter is to inform you that the RGP, including the permit limitations and monitoring requirements described above (applicable parameter monitoring list attached), is considered your State Discharge Permit that is required in RSA 485-A:13,I(a).

Be advised that you are also responsible for the notification provisions found in RSA 485-A:13,I(c) (see attached).

Should you have any questions relative to your new State discharge permit please call me at 271-3308 or Jeff Andrews at 271-2984.

Sincerely,

Eugene J. Forbes, P.E., Director
Water Division

cc: Tracy Wood, P.E., Administrator, DES-WEB

Attachments

P:/Jeff/17LTR04.doc



N.H. Department of Environmental Services

29 Hazen Drive, Concord, NH 03301
(603) 271-3503
www.des.nh.gov

Permit Process Questionnaire

The N.H. Department of Environmental Services continually strives to improve its permit processing system. Your response to this questionnaire will assist in this effort. Please answer the following questions by checking the response closest to your experience. We welcome your written comments as well.

Permit type _____ Program _____
Permit # _____ Today's Date _____

1. Staff Performance

- a. Did you have any direct contact with our staff? Yes No
- b. Did you find the staff professional, courteous and helpful? Yes Somewhat No N/A
- c. Were you able to communicate to the proper person quickly? Yes Somewhat No N/A
- d. Name of staff person _____

2. Process and Procedure

- a. Was the procedure to process the application clearly explained to you? Yes Somewhat No N/A
- b. Was your application accepted as complete when first submitted? Yes No
- c. From the date your application was accepted as complete, did you receive an answer in the time-frame promised? Yes Somewhat No

3. Application

- a. Were the questions simple and easy to understand? Yes Somewhat No
- b. Did you understand what information you needed to provide, and were you able to provide that information in the application for the proposed project? Yes Somewhat No
- c. Did you require professional assistance in filling out the application? Yes No
If DES, name of person _____

4. Application Decision

- a. If your application was conditionally approved, do you feel the conditions on your permit were reasonable and clear? Yes Somewhat No N/A
- b. If your application was denied, did the denial letter clearly state what was denied and why? Yes Somewhat No N/A
- c. Did your denial letter clearly inform you of your options to request reconsideration or appeal? Yes Somewhat No N/A

Comments:

From _____



Public Information & Permitting Unit
N.H. Dept. of Environmental Services
PO Box 95
Concord, NH 03302-0095

**NEW HAMPSHIRE DEPARTMENT OF
ENVIRONMENTAL SERVICES**
committed to helping sustain a high quality of life for
all citizens by protecting and restoring the
environment and public health in New Hampshire.



**Visit our website at
www.des.nh.gov**

Additional comments:

When you have completed this questionnaire, please fold it so that the return address is facing out. Seal with tape, attach postage and mail, or hand deliver to DES at 29 Hazen Drive, Concord. We appreciate your willingness to assist us to improve our permit process.

TITLE L

WATER MANAGEMENT AND PROTECTION

CHAPTER 485-A

WATER POLLUTION AND WASTE DISPOSAL

Enforcement

Section 485-A:13

485-A:13 Water Discharge Permits. –

I. (a) It shall be unlawful for any person or persons to discharge or dispose of any sewage or waste to the surface water or groundwater of the state without first obtaining a written permit from the department of environmental services. Applications for permits shall be made upon forms prescribed by the department of environmental services and shall contain such relevant information as the department of environmental services may require. The department of environmental services shall include in such permits effluent limitations, which may be based upon economic and technological factors, upon the classification enacted by the legislature, upon the projected best use of the surface water downstream or upon the requirements of the Federal Water Pollution Control Act as amended from time to time, and all regulations, guidelines and standards promulgated thereunder, whichever provides the most effective means to abate pollution. The department of environmental services may also prescribe such other reasonable conditions as may be necessary or desirable in order to fulfill the purpose of this chapter or applicable federal law. Such permits may contain, in the case of sources not in compliance with such effluent limitations at the time the permit is issued, compliance schedules, including interim requirements necessary or desirable in order to fulfill the purposes or requirements of this chapter, and any such compliance schedules may be imposed without regard to the time limits for abatement of pollution referred to in RSA 485-A:12, II and shall be consistent with the purposes and requirements of applicable federal law. The department of environmental services may prescribe a monitoring program to be performed by the applicant with periodic reports to the department of environmental services, including, where appropriate in terms of the nature of the effluent, continuous monitoring. Permits shall be issued for a fixed term, not to exceed 5 years. The department of environmental services may revise, modify or suspend in whole or in part or terminate any permit, following hearing, upon a finding that just cause exists for such action. Further, whenever in its judgment the purposes of this chapter will be best served, the department of environmental services may require as a condition to the granting of such permits that either the ownership and operation of the collection and treatment facilities involved be vested in the municipality or any subdivision thereof in which the system is located, if said municipality by legal action agrees thereto, or such other reasonable conditions as will ensure continuous and continuing operation and maintenance of the facilities. No permit shall be granted to utilize the entire assets of the surface water, or in any other case in which the department of environmental services determines that the grant of a permit would be inconsistent with the purposes of this chapter. Any determination by the department of environmental services under this paragraph shall be subject to appeal as provided for in RSA 485-A:19.

(b) Notwithstanding any other provision of law, no permit to discharge sewage or waste shall be

issued authorizing any of the following discharges:

(1) The discharge of any radiological, chemical or biological warfare agent or high level radioactive waste.

(2) Any discharge into navigable waters which the secretary of the army of the United States acting through the chief of engineers determines would substantially impair anchorage and navigation.

(3) Any discharge to which the regional administrator of the United States Environmental Protection Agency, or his successor in jurisdiction, has objected in writing pursuant to any right to object each provided such official in section 402(d) of the Federal Water Pollution Control Act, as amended from time to time; provided, that this subparagraph and subparagraph (2) above shall not preclude the department of environmental services or any other person from availing itself of the judicial review of any such objection, or any determination by the secretary of the army, available under applicable federal law.

(4) Any discharge from a point source which is in conflict with a plan or amendment to such plan approved pursuant to section 208(b) of the Federal Water Pollution Control Act, as amended from time to time.

(c) Any person responsible for a bypass or upset at a wastewater facility shall give immediate notice of the bypass or upset to all public or privately owned water systems drawing water from the same receiving water and located within 20 miles downstream of the point of discharge. The permittee shall maintain a list of persons, and their telephone numbers, who are to be notified immediately by telephone. In addition, written notification, which shall be postmarked within 3 days of the bypass or upset, shall be sent to such persons.

II. On application of the department of environmental services, the superior court or any justice of such court, in term time, or in vacation may enjoin any act in violation of any lawful order of the department of environmental services.

III. In the interim between the effective date of classification legislation hereafter enacted affecting any surface water of the state or section of such water, and the time limit for abatement of pollution set thereafter either by the department of environmental services under RSA 485-A:12, II or by the legislature, it shall be unlawful for person or persons to dispose of any sewage or waste into said surface water of the state in excess of the maximum quantity or of a different character, than that being disposed of during the period of one year prior to the effective date of such legislative classification without first obtaining written permission from the department of environmental services.

Source. 1989, 339:1. 1990, 248:3. 1996, 228:108, eff. July 1, 1996.

Rennie Farm Site Groundwater Treatment Facility, Hanover
NHG910071

GENERAL PERMIT FOR REMEDIATION ACTIVITY DISCHARGES

Table 1: Authorization Information

Permit Number	NHG910071
Receiving Water	Unnamed tributary to Hewes Brook
Outfall Number	Outfall 001 at Latitude: 43.752099 Longitude: -72.175191
Monitoring Frequency	See Part 4.1.2 of the RGP
Reporting Requirement	See Part 4.6.1.a of the RGP; NetDMR requirement begins May 1, 2018

Table 2: Chemical-Specific Effluent Limitations and Monitor-Only Requirements¹

Parameter	Effluent Limitation
A. Inorganics	
Ammonia ²	Report mg/L
Chloride ³	Report µg/L
Total Suspended Solids	30 mg/L
Antimony	206 µg/L
Arsenic	10 µg/L
Cadmium	10.2 µg/L
Chromium III	323 µg/L
Chromium VI	323 µg/L
Copper	9.8 µg/L
Iron	5,000 µg/L
Lead	3.43 µg/L
Mercury	0.739 µg/L
Nickel	57.8 µg/L
Selenium	235.8 µg/L
Silver	35.1 µg/L
Zinc	420 µg/L
Cyanide	5.2 µg/L
B. Non-Halogenated Volatile Organic Compounds	
Total BTEX	100 µg/L
Benzene	5.0 µg/L
1,4 Dioxane	3.0 µg/L
Acetone	7.97 mg/L
Phenol	1,080 µg/L
C. Halogenated Volatile Organic Compounds	
Methylene Chloride	4.6 µg/L

Table 2 Notes:

¹ The following abbreviations are used in Table 2, above:

^a mg/L = milligrams per liter

^b µg/L = micrograms per liter

² The minimum level (ML) for analysis of ammonia must be less than or equal to 0.1 mg/L.

³ The ML for analysis of chloride must be less than or equal to 230 mg/L.

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Effluent Flow	Effluent Limitation
	0.036 MGD

Table 3 Notes

¹ The following abbreviations are used in Table 3, above:

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Table 4: pH Limitations for Discharges in New Hampshire¹

Receiving Water Class	Effluent Limitation
Freshwater	6.5 to 8.3 SU

Table 4 Notes

¹ The following abbreviations are used in Table 4, above:

^a SU = standard units

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR REMEDIATION ACTIVITY DISCHARGES**

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APPENDICES

Appendix I: Endangered Species Act Guidance and Eligibility Criteria

Appendix II: Summary of Endangered Species Act Listings and Essential Fish Habitat Designations

Appendix III: National Historic Preservation Act Review and Requirements

Appendix IV:

Part 1 – Notice of Intent (NOI) Instructions and Suggested Format

Part 2 – Notice of Change (NOC) Instructions and Suggested Format

Part 3 – Notice of Termination (NOT) Instructions and Suggested Format

Appendix V: Dilution Factor and Effluent Limitation Calculations for Massachusetts

Appendix VI: Dilution Factor and Effluent Limitation Calculations for New Hampshire

Appendix VII: Test Methods and Minimum Levels

Appendix VIII: Discharge Monitoring Data Instructions and Suggested Formats

Appendix IX: Standard Conditions and Definitions

ATTACHMENTS

Attachment A: Whole Effluent Toxicity Test Procedure and Protocol for Freshwater and Marine Discharges

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR REMEDIATION ACTIVITY DISCHARGES**

Massachusetts General Permit, Permit No. MAG910000

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 *et seq.*; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53), the following permit authorizes discharges from eight general remediation activity categories, including:

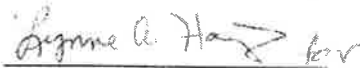
- I. Petroleum-related site remediation;¹
- II. Non-petroleum-related site remediation;¹
- III. Contaminated site dewatering;
- IV. Pipeline and tank dewatering;
- V. Aquifer pump testing;
- VI. Well development/rehabilitation;
- VII. Collection structure remediation/dewatering; and
- VIII. Dredge-related dewatering.


Such discharges are authorized at sites located in Massachusetts to all classes of waters designated in the Massachusetts Water Quality Standards, 314 CMR 4.00 *et seq.*, unless otherwise restricted, in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

This Remediation General Permit (RGP) shall become effective thirty (30) days from the date of signature.

This general permit and the authorization to discharge supersede the previous Remediation General Permit which expired on September 9, 2015. This general permit will expire at midnight, 5 years from the effective date.

Signed this 7th day of March 2017.


Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Region I
Boston, MA


Douglas E. Fine, Assistant Commissioner
Bureau of Water Resources
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

¹ For discharges that are subject to the Massachusetts Contingency Plan (310 CMR 40.0000), this general permit applies as a matter of federal, but not state, law. For all other discharges, this general permit applies as a matter of both.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR REMEDIATION ACTIVITY DISCHARGES**

New Hampshire General Permit, Permit No. NHG910000

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), the following permit authorizes discharges from eight general remediation activity categories, including:

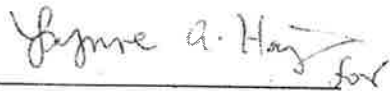
- I. Petroleum-related site remediation;
- II. Non-petroleum-related site remediation;
- III. Contaminated site dewatering;
- IV. Pipeline and tank dewatering;
- V. Aquifer pump testing;
- VI. Well development/rehabilitation;
- VII. Collection structure remediation/dewatering, and
- VIII. Dredge-related dewatering.

Such discharges are authorized to all waters located in New Hampshire, unless otherwise restricted by the New Hampshire Water Quality Standards,² in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

This Remediation General Permit (RGP) shall become effective thirty (30) days from the date of signature.

This general permit and the authorization to discharge supersede the previous Remediation General Permit which expired on September 9, 2015. This general permit will expire at midnight, 5 years from the effective date.

Signed this 9th day of March 2017.



Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Region 1
Boston, MA

² 50 RSA §485-A:8 and the N.H. Code of Administrative Rules, Chapter Env-Wq 1700 Surface Water Quality Regulations.

PART 1 APPLICABILITY AND COVERAGE OF THE RGP

For purposes of this general permit, the owner or operator (hereinafter referred to as the “operator”), as defined by 40 CFR §122.2, of any “facility or activity” (hereinafter referred to as “site”) subject to regulation under the NPDES program is responsible for applying for coverage under this general permit. As required by 40 CFR §122.21(b), “[w]hen a facility or activity is owned by one person but is operated by another person, it is the operator’s duty to obtain a permit.” For the purposes of this general permit, this can include residential owners treating contaminated groundwater released from heating oil tanks.

1.1 Subject Discharges

Existing, emergency, and new discharges from the following remediation, dewatering and dewatering/remediation-related activities are eligible for coverage under this general permit:

1. Petroleum-related site remediation includes remediation of groundwater contaminated by petroleum products (e.g., gasoline, fuel oil, jet fuel, fuel additives and oxygenates, waste oil) and related activities.
2. Non-petroleum-related site remediation includes remediation of groundwater contaminated by volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), or inorganics (e.g., metals) and related activities.
3. Contaminated site dewatering includes dewatering conducted at former remediation sites, sites with no known source of contamination, or sites where pollutants are naturally occurring and related activities.
4. Pipeline and tank dewatering includes dewatering of pipelines, tanks, and similar structures and appurtenances that store or convey petroleum products, non-petroleum products, potable water, groundwater, and certain surface waters during construction of new structures or repair or maintenance of existing structures.
5. Aquifer pump testing includes short or long-term testing of a distinct contaminated or formerly contaminated aquifer(s), including when contamination is naturally occurring.
6. Well development/rehabilitation includes the development or rehabilitation of groundwater monitoring, groundwater extraction, and water supply wells at contaminated or formerly contaminated sites, including when contamination is naturally occurring.
7. Collection structure dewatering/remediation includes dewatering/remediation of structures utilized for collecting miscellaneous sources of water from contaminated or formerly contaminated sites or sources (e.g., sumps and dikes), including when contamination is naturally occurring or a result of the infiltration of contaminated groundwater or storm water.

- 8. Dredge-related dewatering includes certain short-term dredging-related activities such as a short-term pilot study or similar activity associated with dredging, dredge material dewatering, including drain back waters and dewatering of contaminated solids.

Table 1: Activities Covered by the Remediation General Permit

Activity Category	Contamination Type	
I. Petroleum-Related Site Remediation II. Non-Petroleum-Related Site Remediation	A. Inorganics B. Non-Halogenated Volatile Organic Compounds C. Halogenated Volatile Organic Compounds D. Non-Halogenated Semi-Volatile Organic Compounds E. Halogenated Semi-Volatile Organic Compounds F. Fuels Parameters	
Activity Category	Contamination Type	
III. Contaminated Site Dewatering IV. Pipeline and Tank Dewatering V. Aquifer Pump Testing VI. Well Development/Rehabilitation VII. Collection Structure Dewatering/Remediation VIII. Dredge-Related Dewatering	G. Sites with Known Contamination	A. Inorganics B. Non-Halogenated Volatile Organic Compounds C. Halogenated Volatile Organic Compounds D. Non-Halogenated Semi-Volatile Organic Compounds E. Halogenated Semi-Volatile Organic Compounds F. Fuels Parameters
	H. Sites with Unknown Contamination	

For the purposes of this general permit, remediation and dewatering discharges are those that contain only the pollutants included in the Contamination Type Categories in this general permit at levels that do not exceed the effluent limitations in this general permit (see Part 2), unless otherwise authorized on a case-by-case basis. Minimum treatment requirements, including as Best Management Practices (BMPs), are found in Part 2.5 of this general permit. The term “existing discharge” refers to a discharge in accordance with the Remediation General Permit that expired on September 9, 2015. The term “emergency discharge” refers to a discharge that is a result of remediation or dewatering activities conducted in response to a public emergency and the discharge requires immediate authorization to avoid imminent endangerment to human health, public safety, or the environment, or to reestablish essential public services. The term “new discharge” refers to any discharge that is not an existing or emergency discharge. The term “known” used in Contamination Type G, above, refers to sites with fully characterized and/or specific contamination type categories, where pollutants have been quantified in environmental samples, and such data meet minimum data validation requirements.³ Activity Categories III-G through VIII-G must select all Contamination Type Categories A through F, that are present. The term “unknown” used in Contamination Type H, above, refers to sites broadly associated with

³ For sites located in Massachusetts, operators may refer to Massachusetts Policy #WSC-07-350, *MCP Representativeness Evaluations and Data Usability Assessments* for guidance on data usability assessments. For sites located in New Hampshire, operators may refer to EPA Region 1 guidance for data validation.

contamination that may or may not be fully characterized, including, but not limited to sites where pollutants may be present, but all potential pollutants have not been quantified, or pollutants have been quantified, but such data do not meet minimum data validation requirements. For Activity Categories III-H through VIII-H, Contamination Type Categories A through F apply. For the purposes of this general permit, a pollutant is “known present” if measured above the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and “believed present” if a pollutant has not been measured in an environmental sample but will be added or generated prior to discharge, such as through a treatment process. Consequently, a pollutant is “known absent” if measured as non-detect relative to the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and “believed absent” if a pollutant has not been measured in an environmental sample but will not be added or generated prior to discharge and is not a parameter that applies to the applicable activity category for a site. See Part 2.1.1 for parameter applicability and Part 4.1.4 for additional definitions.

1.2 Geographic Coverage Area

1. Sites located in Massachusetts

All of the discharges to be authorized by this general NPDES permit in the Commonwealth of Massachusetts are into all waters of the Commonwealth unless otherwise restricted by the Massachusetts Surface Water Quality Standards, 314 CMR 4.00 (or as revised), including 314 CMR 4.04(3), Protection of Outstanding Resource Waters.

2. Sites located in New Hampshire

All of the discharges to be authorized by this general NPDES permit in the State of New Hampshire are into all waters of the State of New Hampshire unless otherwise restricted by the New Hampshire Surface Water Quality Regulations, New Hampshire Code of Administrative Rules, Chapter Env-Wq 1700 (or as revised), including 50 RSA §485-A:8-11, Classification of Waters.

1.3 Limitations on Coverage

The following discharges are ineligible for coverage under this general permit:

1. Discharges to Outstanding Resource Waters in Massachusetts and New Hampshire:
 - a. as defined in Massachusetts by 314 CMR 4.06, including Public Water Supplies (314 CMR 4.06(1)(d)1) which have been designated by the State as Class A waters, unless an authorization is granted by the Massachusetts Department of Environmental Protection (MassDEP) by 314 CMR 4.04(3)(b); or
 - b. as defined in New Hampshire under Env-Wq 1708.05(a), unless allowed by the New Hampshire Department of Environmental Services (NHDES) under Env-Wq 1708.05(b).
2. Discharges to Class A waters in New Hampshire, in accordance with RSA 485A:8, I. and Env-Wq 1708.06. To determine if the proposed receiving water is a Class A waterbody, contact NHDES as listed in Part 4.6 of this general permit.

3. Discharges that are likely to adversely affect any species listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of critical habitat under ESA. See Appendix I of this general permit for additional ESA requirements, and Appendix II of this general permit for additional ESA information.
4. Discharges whose direct or indirect impacts do not prevent or minimize adverse effects on any designated Essential Fish Habitat (EFH). See Appendix II of this general permit for additional EFH information.
5. Discharges of pollutants identified as the cause of an impairment to receiving water segments identified on the Commonwealth of Massachusetts or the State of New Hampshire approved 303(d) lists, unless the pollutant concentration is at or below a concentration that meets water quality standards.⁴
6. Discharges to Ocean Sanctuaries in Massachusetts, as defined at 302 CMR 5.00.
7. Discharges to territorial seas, as defined by Section 502 of the CWA.
8. Discharges to a river designated as a Wild and Scenic River, except in accordance with 16 U.S.C. 1271 *et seq.* See <http://www.rivers.gov/> for additional information.
9. Discharges which adversely affect properties listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966 (NHPA), 16 USC §470 *et seq.* See Appendix III of this general permit for additional NHPA requirements.
10. Remediation or dewatering discharges resulting from on-site response action conducted pursuant to §§104, 106, 120, 121 or 122 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
11. Discharges of uncontaminated effluent authorized or allowable under other United States Environmental Protection Agency (EPA) permits.
12. Discharges to a Publicly Owned Treatment Works (POTW) which is permitted under Section 402 of the CWA.

⁴ The discharge would be eligible if a segment is impaired due to a pollutant which is not expected in the discharge covered by this general permit. Similarly, the discharge would be eligible if the discharge contains the pollutants for which a segment is impaired (e.g., metals) but meets the limitations in this general permit for those pollutants, as these limitations are equal to the water quality standards with no allowable dilution. See Massachusetts' integrated list of waters (CWA 303(d) and 305(b)) at <http://www.mass.gov> and New Hampshire's integrated list of waters (CWA 303(d) and 305(b)) at <http://des.nh.gov>.

13. Discharges directly or indirectly to the ground subject to other program authority, including the Underground Injection Control (UIC) Program under authority of the Safe Drinking Water Act, a State groundwater discharge permit program, or a similar program authority.
14. Discharge of dredge-related waters where the United States Army Corps of Engineers (ACE) intends to authorize the discharge under a CWA §404 permit.⁵
15. New Sources, as defined in 40 CFR §122.2.
16. Discharges covered by an individual NPDES permit unless:
 - a. The discharges are separate from the currently permitted discharges; or
 - b. The discharges covered by an individual NPDES permit are eligible for this general permit.
17. Discharges for which the Director makes a determination that an individual permit is required. See Part 3 of this general permit.

1.4 Special Eligibility Determinations

Sites located in Massachusetts and New Hampshire that are seeking coverage under this general permit must certify compliance with the requirements of this permit related to threatened and endangered species and critical habitat under the Endangered Species Act (i.e., ESA and EFH) and to historic properties under the National Historical Preservation Act, where applicable (i.e., NHPA).

1. Endangered and Threatened Species and/or Critical Habitat⁶

Sites that are located in areas in which listed species may be present are not automatically covered under this general permit. Operators must demonstrate permit eligibility following the eligibility requirements in Appendix I and include this determination in the Notice of Intent (NOI). See Appendix II of this general permit for additional information.

2. National Historic Preservation Act

Sites that are located on or near properties listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966, 16 USC §470 *et seq.* are not automatically covered under this permit. Prior to submitting a NOI, operators must meet the requirements of Appendix III pertaining to historic places, which requires *the operator* to determine whether discharges have the potential to affect a property that is listed or eligible for

⁵ Dredge-related discharges may be covered under the RGP provided the ACE does not intend to issue a general or individual permit under 33 USC §1344 for the activities. If authorized to discharge under the RGP, this general permit does not authorize dredging or disposal of dredge material. This general permit also does not constitute authorization under §404 of any dredging or filling operations. See 33 CFR §330.5 and §§401 and 404 of the CWA.

⁶ Several listed species may apply to operators under this general permit, including, but not limited to: the shortnose sturgeon, Atlantic sturgeon, dwarf wedge mussel, bog turtle, northern redbelly cooter, and northern long-eared bat. The shortnose sturgeon and Atlantic sturgeon are listed under the jurisdiction of the National Marine Fisheries Service (NMFS) and the dwarf wedgemussel, bog turtle, northern redbelly cooter, and northern long-eared bat are listed under the jurisdiction of the United States Fish and Wildlife Service (FWS).

listing on the National Register of Historic Places. If the potential exists, the operator must consult with the appropriate agencies. Operators must submit the results of any consultations with the NOI.

Operators must also comply with applicable State and local laws concerning the protection of historic properties and places. Where a discharge(s) has the potential to affect a property that is either listed or eligible for listing on the National Register of Historic Places, an operator must coordinate with the appropriate State Historic Preservation Officer (SHPO) regarding effects of their discharges.⁷ In the event there is an inadvertent discovery of a historic property on the site, the operator must immediately stop the remediation activity, contact EPA, and coordinate with the appropriate official(s) consistent with the steps outlined in 36 CFR §800.13 of the NHPA regulations.

1.5 Coverage under the RGP

Under this general permit, operators in Massachusetts and New Hampshire may request authorization to discharge into waters of the respective States. To obtain authorization to discharge under this general permit, an operator must:

1. Have a discharge type described in Part 1.1 of this general permit;
2. Have a discharge located in the areas listed in Part 1.2 of this general permit;
3. Meet the eligibility requirements in Part 1.3 and Part 1.4 of this general permit;
4. Submit a complete and accurate Notice of Intent in accordance with the requirements of Part 3 of this general permit; and
5. Receive a written authorization to discharge from EPA.⁸

To maintain coverage under this general permit, the discharge must meet applicable water quality standards and all effluent limitations and requirements included in Part 2 and Part 6, and, if applicable, Part 7 of this general permit. The operator must also meet the requirements included in Part 4 and 5 of this general permit.

PART 2 GENERAL PERMIT FOR REMEDIATION ACTIVITY DISCHARGES

2.1 Effluent Limitations and Monitor-Only Requirements

⁷ For sites located in Massachusetts, the SHPO is currently within the Massachusetts Historical Commission. For sites located in New Hampshire, the SHPO is currently the Director of Cultural Resources within the Department of Cultural Resources.

⁸ Where the RGP refers to correspondence in writing from EPA, such correspondence may be by mail, email and/or facsimile transmittal. An emergency discharge is considered provisionally covered under the RGP immediately upon the initiation of discharges on the condition that: 1) A complete and accurate NOI is submitted in accordance with Part 3.3 within fourteen (14) days after the emergency discharges commence; 2) Notification is provided to EPA in accordance with Part 4.6.3.b and c prior to commencing an emergency discharge when feasible, but no later than twenty-four (24) hours after such discharges commence; and 3) Monitoring proceeds in accordance with the monitoring requirements specified in Part 4.4. as for short-term discharges for the duration of provisional coverage. Provisional coverage is authorized for up to fourteen (14) days, after which the operator must either: 1) Received written authorization to discharge from EPA, unless EPA notifies the operator that their authorization has been delayed or denied; or 2) Submitted a NOT to EPA.

1. Chemical-Specific Effluent Limitations in Massachusetts and New Hampshire
During the period beginning on the effective date and lasting through the expiration date, EPA will authorize the discharges under Part 1.1 of this general permit to receiving waters in Massachusetts and New Hampshire. The effective date of authorization for each discharge covered under this general permit is the date indicated in EPA's written authorization to discharge, lasting through the expiration date of this general permit or written termination of coverage, whichever occurs first. Each discharge shall be limited and monitored as specified in Table 2, below. The applicability of effluent limitations for each Activity Category listed in Table 1 is included in footnote 2, below. Additional limitations and monitoring requirements are specified in Parts 2.2 through 2.5 and Part 4, below.

Table 2: Chemical-Specific Effluent Limitations and Monitor-Only Requirements¹

Parameter ²	Effluent Limitation ^{3,4}	
	TBEL ⁵	WQBEL ⁶
A. Inorganics		
Ammonia ⁷		Report mg/L
Chloride ⁸		Report µg/L
Total Residual Chlorine ⁹	0.2 mg/L	FW= 11 µg/L SW= 7.5 µg/L
Total Suspended Solids		30 mg/L
Antimony ¹⁰	206 µg/L	640 µg/L in MA 4.3 mg/L in NH
Arsenic ¹⁰	104 µg/L	FW= 10 µg/L SW= 36 µg/L
Cadmium ^{11,12}	10.2 µg/L	FW= 0.25 µg/L SW= 8.8 µg/L in MA SW= 9.3 µg/L in NH
Chromium III ^{11,12}	323 µg/L	FW= 74 µg/L SW= 100 µg/L
Chromium VI ^{11,13}	323 µg/L	FW= 11 µg/L SW= 50 µg/L
Copper ^{11,12}	242 µg/L	FW= 9 µg/L SW= 3.1 µg/L
Iron ¹⁰	5,000 µg/L	FW = 1,000 µg/L
Lead ^{11,12}	160 µg/L	FW= 2.5 µg/L SW= 8.1 µg/L
Mercury ¹¹	0.739 µg/L	FW= 0.77 µg/L SW= 0.94 µg/L
Nickel ^{11,12}	1,450 µg/L	FW= 52 µg/L SW= 8.2 µg/L
Selenium	235.8 µg/L	FW= 5.0 µg/L ¹⁰ SW= 71 µg/L ¹¹
Silver ^{11,12}	35.1 µg/L	FW= 3.2 µg/L SW= 1.9 µg/L
Zinc ^{11,12}	420 µg/L	FW= 120 µg/L SW= 81 µg/L

Parameter ²	Effluent Limitation ^{3,4}	
	TBEL ⁵	WQBEL ⁶
Cyanide ¹⁴	178 mg/L	FW = 5.2 µg/L SW = 1.0 µg/L
B. Non-Halogenated Volatile Organic Compounds		
Total BTEX ¹⁵	100 µg/L	
Benzene ¹⁵	5.0 µg/L	
1,4 Dioxane ¹⁶	200 µg/L	
Acetone	7.97 mg/L	
Phenol	1,080 µg/L	300 µg/L
C. Halogenated Volatile Organic Compounds		
Carbon Tetrachloride	4.4 µg/L	1.6 µg/L in MA
1,2 Dichlorobenzene	600 µg/L	
1,3 Dichlorobenzene	320 µg/L	
1,4 Dichlorobenzene	5.0 µg/L	
Total dichlorobenzene	763 µg/L in NH	
1,1 Dichloroethane	70 µg/L	
1,2 Dichloroethane	5.0 µg/L	
1,1 Dichloroethylene	3.2 µg/L	
Ethylene Dibromide ¹⁷	0.05 µg/L	
Methylene Chloride	4.6 µg/L	
1,1,1 Trichloroethane	200 µg/L	
1,1,2 Trichloroethane	5.0 µg/L	
Trichloroethylene	5.0 µg/L	
Tetrachloroethylene	5.0 µg/L	3.3 µg/L in MA
cis-1,2 Dichloroethylene	70 µg/L	
Vinyl Chloride	2.0 µg/L	
D. Non-Halogenated Semi-Volatile Organic Compounds		
Total Phthalates ¹⁸	190 µg/L	FW = 3.0 µg/L in NH SW = 3.4 µg/L in NH
Diethylhexyl phthalate ¹⁸	101 µg/L	2.2 µg/L in MA 5.9 µg/L in NH
Total Group I Polycyclic Aromatic Hydrocarbons ¹⁹	1.0 µg/L	As Individual PAHs
Benzo(a)anthracene ¹⁹	As Total Group I PAHs	0.0038 µg/L
Benzo(a)pyrene ¹⁹		0.0038 µg/L
Benzo(b)fluoranthene ¹⁹		0.0038 µg/L
Benzo(k)fluoranthene ¹⁹		0.0038 µg/L
Chrysene ¹⁹		0.0038 µg/L
Dibenzo(a,h)anthracene ¹⁹		0.0038 µg/L
Indeno(1,2,3-cd)pyrene ¹⁹		0.0038 µg/L
Total Group II Polycyclic Aromatic Hydrocarbons ²⁰	100 µg/L	
Naphthalene ²⁰	20 µg/L	
E. Halogenated Semi-Volatile Organic Compounds		
Total Polychlorinated Biphenyls ²¹	0.000064 µg/L	
Pentachlorophenol	1.0 µg/L	

Parameter ²	Effluent Limitation ^{3,4}	
	TBEL ⁵	WQBEL ⁶
F. Fuels Parameters		
Total Petroleum Hydrocarbons ²²	5.0 mg/L	
Ethanol ²³	Report mg/L	
Methyl-tert-Butyl Ether ²⁴	70 µg/L	20 µg/L in MA
tert-Butyl Alcohol	120 µg/L in MA 40 µg/L in NH	
tert-Amyl Methyl Ether ²⁴	90 µg/L in MA 140 µg/L in NH	

Table 2 Footnotes:

¹ The following abbreviations are used in Table 2, above:

^a TBEL = technology-based effluent limitation

^b WQBEL = water quality-based effluent limitation

^c mg/L = milligrams per liter

^d avg = average

^e µg/L = micrograms per liter

^f FW = freshwater

^g SW = saltwater

² The sample type required for all parameters is grab. Grab samples must be analyzed individually and cannot be composited. See Appendix IX for additional definitions.

³ The effluent limitation and/or monitor-only requirement for any parameter listed applies to any site if the given parameter is present at that site. The effluent limitations and monitor-only requirements also apply to Activity Categories as follows:

^a Activity Category I:

all parameters in contamination type A. Inorganics;
any present in contamination type B. non-halogenated VOCs;
if present in contamination type C. halogenated VOCs;
any present in contamination type D. non-halogenated SVOCs;
if present in contamination type E. halogenated SVOCs; and
any present in contamination type F. fuels parameters.

^b Activity Category II:

all parameters in contamination type A. Inorganics;
any present in contamination type B. non-halogenated VOCs;
any present in contamination type C. halogenated VOCs;
any present in contamination type D. non-halogenated SVOCs;
if present in contamination type E. halogenated SVOCs; and
if present in contamination type F. fuels parameters.

^c Activity Category III-G:
all parameters in contamination type A. Inorganics; and
if present in contamination type B through F.

^d Activity Category IV-G, V-G, VI-G, VII-G, VIII-G:
if present in contamination type A through F.

^e Activity Category III-H, IV-H, V-H, VI-H, VII-H, VIII-H:
all parameters in contamination type A through F apply.

^f When “if present” is noted above, the effluent limitation and/or monitor-only requirement for a parameter in the Contamination Type applies to a site only if the given parameter is known or believed present at that site. When “any present” is noted above, the effluent limitations and/or monitor-only requirements for all parameters in the Contamination Type apply to a site when at least one parameter in that Contamination Type is known or believed present at that site, unless otherwise specified below. See Part 1.1 for additional definitions.

⁴ The limitation type for all parameters is monthly average. See Appendix IX for additional definitions.

⁵ For any parameter with a single effluent limitation, that effluent limitation applies to a site if that parameter is applicable to that site. For any parameter with both a TBEL and a QBEL, the TBEL applies to a site, at a minimum, if that parameter is applicable to that site.

⁶ For any parameter with both a TBEL and a QBEL, the QBEL applies to a site if: 1) *The operator* determines that the QBEL for a parameter calculated in accordance with Appendix V or VI applies; or 2) EPA or the appropriate State determines that a QBEL is necessary to meet water quality standards. The calculation of QBELs shall be as follows: 1) A dilution factor may be used to calculate the QBEL for a parameter, if allowable and approved by the appropriate State prior to the submission of the NOI to EPA; 2) The calculations are completed in accordance with the instructions provided in Appendix V for sites located in Massachusetts or Appendix VI for sites located in New Hampshire; 3) The QBEL calculations are included in the NOI submitted to EPA; and 4) The calculated QBEL is confirmed by EPA in writing. In the event of a calculation error, the operator will be informed of any corrected QBEL when notified of permit coverage by EPA. Operators are encouraged to use the additional resources provided by EPA at <https://www.epa.gov/region1/npdes/rgp.html> to follow the calculation methodologies for effluent limitations in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.

⁷ This parameter is expressed as ammonia nitrogen. The minimum level (ML) for analysis must be less than or equal to 0.1 µg/L. See Appendix VII for additional definitions.

⁸ Sites located in Massachusetts must report concentrations of chloride. Sites located in New Hampshire may be subject to §401 certification requirements by the State of New Hampshire, including a numeric effluent limitation for chloride.

⁹ Effluent limitations for TRC only apply if TRC is present or if discharges are likely to contain residual chlorine (e.g., potable water is in use or chlorine is a chemical used for and/or byproduct of treatment). The TBEL applies to all discharges subject to a TRC effluent limitation. The QBELs are shown with zero dilution. The FW or SW QBELs are calculated as follows:

^a $11 \mu\text{g/L} \times \text{approved dilution factor for discharges to freshwater waterbodies}$

^b $7.5 \mu\text{g/L} \times \text{approved dilution factor for discharges to saltwater waterbodies}$

If the FW or SW limitation for TRC as calculated above is less than the TBEL for TRC, the FW or SW limitation for TRC applies. The compliance level for TRC is $50 \mu\text{g/L}$.

¹⁰ The TBEL and QBEL for this parameter is expressed on the basis of total recoverable metal in the water column. The QBEL is shown with zero dilution. For the antimony QBEL in NH, EPA anticipates that the applicable revised WQC found in Env-Wq 1700 shall be incorporated into the RGP for sites in New Hampshire, once final. Based on the proposed revision for this value, $640 \mu\text{g/L}$, EPA expects to change the QBEL from $4.3 \mu\text{g/L}$ to $640 \mu\text{g/L}$.

¹¹ The QBEL for this parameter is expressed on the basis of dissolved metal in the water column. The QBEL is shown with zero dilution. The QBEL shall apply in the form of total recoverable metal in the water column. The QBEL must be adjusted using the calculation methodology included in Appendix V for sites located in Massachusetts or Appendix VI for sites located in New Hampshire. For the saltwater cadmium QBEL in NH, EPA anticipates that the applicable revised WQC found in Env-Wq 1700 shall be incorporated into the RGP for sites in New Hampshire, once final. Based on the proposed revision for this value, $7.9 \mu\text{g/L}$, EPA expects to change the QBEL from $9.3 \mu\text{g/L}$ to $7.9 \mu\text{g/L}$.

¹² This parameter is hardness-dependent in freshwater. The QBEL shown assumes a hardness of 100 mg/L CaCO_3 . Hardness-dependent metals QBELs must be adjusted for actual hardness using the calculation methodology included in Appendix V for sites located in Massachusetts or Appendix VI for sites located in New Hampshire. The hardness-dependent calculation requirement does not apply to saltwater discharges.

¹³ The effluent limitations for chromium VI assume this metal is reduced to chromium III as a result of treatment. This metal is not hardness-dependent in freshwater.

¹⁴ The effluent limitations for cyanide only applies if this parameter is present. The TBEL is shown as total cyanide. The QBEL is shown as free cyanide per liter. However, total cyanide must be reported. The compliance level for total cyanide is $5 \mu\text{g/L}$.

¹⁵ Total BTEX is the sum of: benzene (CAS No. 71432); toluene (CAS No. 108883); ethylbenzene (CAS No. 100-41-4); and (m,p,o) xylenes (CAS Nos. 108-88-3, 106-42-3, 95-47-6, and 1330-20-7). The Volatile Petroleum Hydrocarbon (VPH) method cannot be used for analysis of this parameter.

¹⁶ The effluent limitation for 1,4-dioxane only applies if this parameter and/or 1,1,1 trichloroethane is present. 1,4-dioxane analysis must achieve a ML less than or equal to 50 µg/L. See Appendix VII for additional definitions.

¹⁷ The effluent limitation for EDB only applies if this parameter is present.

¹⁸ Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present. For the diethylhexyl phthalate WQBEL in NH, EPA anticipates that the applicable revised WQC found in Env-Wq 1700 shall be incorporated into the RGP for sites in New Hampshire, once final. Based on the proposed revision for this value, 2.2 µg/L, EPA expects to change the WQBEL from 5.9 µg/L to 2.2 µg/L.

¹⁹ Total Group I PAHs is the sum of: benzo(a)anthracene (CAS No. 56-55-3); benzo(a)pyrene (CAS No. 50-32-8); benzo(b)fluoranthene (CAS No. 205-99-2); benzo(k)fluoranthene (CAS No. 207-08-9); chrysene (CAS No. 218-01); dibenzo(a,h)anthracene (CAS No. 53-70-3); indeno(1,2,3-cd)pyrene (CAS No. 193-39-5). The compliance level for each individual PAH is 0.1 µg/L using a test method in 40 CFR §136 with selected ion monitoring. The extractable petroleum hydrocarbon (EPH) method cannot be used for analysis of this parameter.

²⁰ Total Group II PAHs is the sum of: acenaphthene (CAS No. 83-32-9); acenaphthylene (CAS No. 208-96-8); anthracene (CAS No. 120-12-7); benzo(g,h,i)perylene (CAS No. 191-24-2); fluoranthene (CAS No. 206-44-0); fluorene (CAS No. 86-73-7); naphthalene (CAS No. 91-20-3); phenanthrene (CAS No. 85-01-8); pyrene (CAS No. 129-00-0). The EPH method cannot be used for analysis of this parameter.

²¹ Total PCBs is the sum of the following aroclors: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260. The compliance level for total PCBs is 0.5 µg/L. The effluent limitation for total PCBs only applies if one or more of these parameters are present.

²² The VPH and EPH methods cannot be used for TPH analysis.

²³ The monitor-only requirement for ethanol only applies if ethanol is present (e.g., discharges are likely to contain ethanol at a site where a release of a petroleum product that contains ethanol or where ethanol has been used or stored). Ethanol analysis must achieve a ML less than or equal to 0.4 mg/L. See Appendix VII for additional definitions.

²⁴ The effluent limitation for this parameter only applies if this fuel additive/oxygenate is present (e.g., discharges are likely to contain this fuel additive/oxygenate at a site where a release of a petroleum product that contained this additive/oxygenate occurred or where oxygenates/additives have been used or stored).

2. Effluent Flow Limitations

Effluent flow shall be limited and monitored as specified below.

Table 3: Effluent Flow Limitations¹

Effluent Flow ²	Effluent Limitations	
	Design Flow BMP ³	1.0 MGD ⁴

Table 3 Footnotes

¹ Effluent flow limitations apply to all discharges. The limitation type for effluent flow is daily maximum. Effluent flow shall be the sum of the recorded discharge volume for each day (i.e., 24 hours) that effluent is discharged.

² Effluent flow shall be measured after treatment using a continuous measurement flow meter (i.e., a device that records the instantaneous gallons per minute (gpm) and total gallons discharged). If an operator demonstrates that use of a meter is infeasible and such a change is provided to the operator in writing, effluent flow shall be based on an estimate. An estimate of effluent flow shall be determined by the operation time and design flow of the treatment system in use at a site, or the flow rate and dimensions of the outfall at a site, if no treatment system is in use, unless otherwise instructed by EPA and/or the appropriate State. An operator must provide justification in the NOI or through a subsequent Notice of Change (NOC) submitted to EPA for a site if the use of a meter is infeasible.

³ Effluent flow shall not exceed the design flow rate of any treatment system in use at a site, determined by the component of the treatment system with the most restricted flow and as reported in the NOI submitted to EPA for that site. Additional Design Flow BMP requirements are included in Part 2.5.2, below.

⁴ Effluent flow shall not exceed 1.0 MGD, unless an effluent flow limitation greater than 1.0 MGD is approved by EPA and the appropriate State on a case-by-case basis. Effluent flow shall not exceed the flow of receiving water, or alter the structural characteristics of the receiving water. Flow control measures must be used if necessary to dissipate energy and control erosion or scouring during discharge.

2.2 Water Quality-Based Effluent Limitations and Requirements

1. The discharge shall not cause a violation of the water quality standards of the receiving water.
2. The discharge shall be adequately treated to ensure that the receiving water(s) remain free from:
 - a. Pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum, form a visible sheen or other visible pollutants.
 - b. Color, odor, taste, or turbidity in concentrations that would render them unsuitable for their designated use, unless such concentrations are naturally occurring.
 - c. Oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or become toxic to aquatic life.

3. Toxics Control
 - a. The discharge shall not contain any pollutant or combination of pollutants in toxic amounts or in concentrations or combinations which are toxic to humans, aquatic life, or wildlife, or which would impair the uses designated by the classification of the receiving waters;
 - b. The discharge shall not contain any pollutant or combination of pollutants in concentrations or combinations which violate any applicable water quality standard; and
 - c. If a discharge contains any pollutant which is not limited by this general permit and the operator is otherwise eligible for coverage under this general permit, the operator must specifically disclose the pollutant and concentration in the Notice of Intent to request authorization to discharge that pollutant. EPA and the applicable State may authorize the discharge of additional pollutants on a case-by-case basis, including effluent limitations when necessary, provided that such a discharge does not violate Section 307 or 311 of the CWA or applicable State water quality standards.

4. EPA may impose additional effluent limitations on a case-by-case basis, or require an operator to obtain coverage under an individual permit, if information in the NOI, required reports, or from other sources indicates that the discharges are not controlled as necessary to meet water quality standards. If additional effluent limitations, including monitor-only requirements, are required, EPA will state the reasons for the additional effluent limitations, and will specify the monitoring and reporting requirements.

2.3 Massachusetts General Permit Limitations and Conditions

In addition to the Effluent Limitations and Monitor-Only Requirements included in Part 2.1 and Part 2.2, above, each outfall shall be limited and monitored as specified below.

1. pH Limitations for Discharges in Massachusetts

Table 4: pH Limitations for Discharges in Massachusetts¹

Receiving Water Class ²	Effluent Limitations ³
Freshwater ⁴	6.5 to 8.3 SU
Saltwater ⁵	6.5 to 8.5 SU

Table 4 Footnotes

¹ pH effluent limitations apply to all discharges.

² There shall be no change from natural background conditions that would impair any use assigned to the class of the receiving water.

³ The limitation type for pH is range. The sample type required for pH is grab. Grab samples shall be analyzed using EPA Method 4500-H⁺-B 2000 or other EPA-approved methods in 40 CFR §136.

⁴ The pH of the effluent shall be in the range of 6.5 to 8.3 standard units (SU) and not more than 0.5 SU outside of the naturally occurring range for freshwater classes.

⁵ The pH of the effluent shall be in the range of 6.5 to 8.5 SU and not more than 0.2 SU outside of the naturally occurring range for saltwater classes.

2. Temperature Limitations for Discharges in Massachusetts

Table 5: Temperature Limitations for Discharges in Massachusetts¹

Receiving Water Class		Effluent Limitation ^{2,3}	ΔT Limitation ⁴
Class A	Warm Water Fishery	83°F	≤ 1.5°F
	Cold Water Fishery	68°F	≤ 1.5°F
Class B	Warm Water Fishery	83°F	≤ 5°F
	Cold Water Fishery	68°F	≤ 3°F
	Lakes and Ponds	83°F Warm Water Fishery 68°F Cold Water Fishery	≤ 3°F in epilimnion
Class SA	---	85°F 80°F (mean)	≤ 1.5°F
Class SB	July to September	85°F 80°F (mean)	≤ 1.5°F
	October to June	85°F 80°F (mean)	≤ 4°F

Table 5 Footnotes

¹ Temperature effluent limitations apply on a case-by-case basis if heat is indicated as a pollutant in the NOI submitted to EPA, or if EPA and/or the State determine a discharge is likely to contain residual heat.

² The limitation type for temperature is daily maximum. The sample type required for temperature is grab. Grab samples shall be analyzed using EPA Method 2550-B-2000 or other EPA-approved methods in 40 CFR §136.

³ The effluent shall not exceed the maximum temperature noted in Table 5, above for the class of the receiving water. There shall be no change from natural background that would impair any uses assigned to this class including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms.

⁴ The rise due to a discharge shall not exceed the change in temperature (ΔT) noted for each class in Table 5, above. Change in temperature from background shall be determined by subtracting the temperature of the effluent from the temperature of the receiving water measured a point immediately upstream of a discharge(s) zone of influence at a reasonably accessible location.

3. Massachusetts State Permit Conditions

- a. This discharge permit is issued jointly by the EPA and the MassDEP under Federal and State law, respectively. As such, all the terms and conditions of this permit are

hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chapter 21 §43, except where exempted under 310 CMR 40.0042(2) of the Massachusetts Contingency Plan. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event that any portion of this permit is declared invalid, illegal or otherwise issued in violation of State law, such permit shall remain in full force and effect under federal law as an NPDES permit issued by the EPA. In the event that this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts, except where exempted under 310 CMR 40.0042(2) of the Massachusetts Contingency Plan.

- b. An authorization to discharge under this General Permit, where the activity discharges to a municipal or private storm drain owned by another party, does not convey any rights or authorization to connect to that drain. If the storm sewer system is within an urbanized area, the applicant must notify the MS4 operator of the proposed discharge.
- c. At any time MassDEP determines that additional requirements are necessary to protect water quality and in lieu of requiring a discharger covered under a general permit to obtain an individual permit (314 CMR 3.06(8)), MassDEP may require a discharger to undertake additional control measures, BMPs, or other actions. MassDEP may exercise its authority to require the discharger to take these actions by imposing a condition in the general permit to that effect, or by taking an enforcement action against the discharger, or by any other means. Any such conditions shall be supplied to the permittee in writing.

2.4 New Hampshire General Permit Limitations and Conditions

In addition to the Effluent Limitations and Monitoring Requirements included in Part 2.1 and Part 2.2, above, each outfall shall be limited and monitored as specified below.

1. pH Limitations for Discharges in New Hampshire

Table 6: pH Limitations for Discharges in New Hampshire¹

Receiving Water Class	Effluent Limitations ^{2,3}
Class B	6.5 to 8.0 SU

Table 6 Footnotes

¹ pH effluent limitations apply to all discharges.

² The limitation type for pH is range. The sample type required for pH is grab. Grab samples shall be analyzed using EPA Method 4500-H⁺-B 2000 or other EPA-approved methods in 40 CFR §136.

³ The pH of the effluent shall be in the range of 6.5 to 8.0 standard units unless a different range is allowed in accordance with Part 2.4.3.b and 5.1.2.c.

2. Temperature Limitations for Discharges in New Hampshire

Table 7: Temperature Limitations in New Hampshire¹

Receiving Water Class		Effluent Limitation ^{2,3}
Class B	Warm Water Fishery	83°F
	Cold Water Fishery	68°F

Table 7 Footnotes

¹ Temperature effluent limitations apply on a case-by-case basis if heat is indicated as a pollutant in the NOI submitted to EPA, or if EPA and/or the State determine a discharge is likely to contain residual heat.

² The limitation type for temperature is daily maximum. The sample type required for temperature is grab. Grab samples shall be analyzed using EPA Method 2550-B-2000 or other EPA-approved methods in 40 CFR §136.

³ The effluent shall not exceed the maximum temperature noted in Table 7, above for the class of the receiving water. Any stream temperature increase associated with the discharge(s) shall not be such as to appreciably interfere with the uses assigned to the receiving water.

3. New Hampshire State Permit Conditions

a. This NPDES permit is issued by the EPA under Federal law. Upon final issuance by the EPA, the NHDES may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of the permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal, or otherwise issued in violation of State law, such permit shall remain in full force and effect under federal law as a NPDES permit issued by the EPA.

b. An operator may request a change in the permitted pH range of 6.5-8.0 standard units (SU) if the operator can demonstrate to NHDES: 1) that the range should be widened due to naturally occurring conditions in the receiving water; or 2) that the naturally occurring receiving water pH is not significantly altered by the authorized discharge. The scope of any demonstration project must receive prior approval from NHDES. The upstream or background sampling location identified by the operator shall be approved by NHDES prior to the initiation of sampling. In addition, the upstream and effluent sampling is to occur as close in time as possible, but not greater than 1 hour

- apart. In no case, shall the above procedure result in pH limits less restrictive than 6.0–9.0 SU. Written approval from NHDES must be submitted to EPA for consideration of this change (see Part 5.1, below).
- c. The operator shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:13).
 - d. Pursuant to New Hampshire Statute RSA 485-A:13I(c), any person responsible for a bypass or upset at a wastewater facility shall give immediate notice of a bypass or upset to all public or privately owned water systems drawing water from the same receiving water and located within 20 miles downstream of the point of discharge regardless of whether or not it is on the same receiving water or on another surface water to which the receiving water is tributary. Wastewater facility is defined at RSA 485-A:2XIX as the structures, equipment, and processes required to collect, convey, and treat domestic and industrial wastes, and dispose of the effluent and sludge. The operator shall maintain a list of persons, and their telephone numbers, who are to be notified immediately by telephone. In addition, written notification, which shall be postmarked within 3 days of the bypass or upset, shall be sent to such persons.
 - e. An authorization to discharge under this general permit, where the activity discharges to a municipal or private storm drain owned by another party, does not convey any rights or authorization to connect to that drain.
 - f. Persons filing a NOI for a new discharge that will last for one year or more will be required to supply NHDES with additional water quality data for the discharge and the receiving water. The data must be collected during both low flow and high flow (spring/autumn) conditions in accordance with an approved Scope of Work and Sampling/Analysis Plan. NHDES recommends that applicants meet with staff of the Wastewater Engineering Bureau at least one year prior to the date of the commencement of the discharge.
 - g. At any time that NHDES determines that additional water quality certification requirements are necessary to protect water quality, an individual discharger may be required to meet additional conditions to obtain coverage or to continue coverage under this general permit. Any such conditions shall be supplied to the operator in writing.

2.5 Special Conditions

1. Best Management Practices Plan (BMPP)

Operators must develop, implement, and maintain a BMPP for the discharges covered under this general permit.

- a. The BMPP shall provide a plan for compliance with the terms of this general permit and must document the implementation of control measures, including best management practices (BMPs), to meet the following non-numeric technology-based effluent limitations:
 - i. Minimize the potential for violations of the terms of this general permit, taking corrective actions, when necessary;

- ii. Minimize the number and quantity of pollutants and/or the toxicity generated, discharged, or potentially discharged at the site;
 - iii. Minimize discharges of pollutants from the remediation activities, including: material storage areas, on-site control measures and materials, treatment and material handling areas, loading and unloading operations, and accidental leaks or spills, including implementation of material compatibility and good housekeeping practices; and
 - iv. Use pollution control technologies when necessary to meet the effluent limitations and requirements in this general permit, including the proper operation and maintenance of any treatment system.
- b. The BMPP must include the following information, at a minimum:
- i. Name and location of the site;
 - ii. Any necessary system schematics, drawings or maps, including up to date site plans with a detailed outfall diagram;
 - iii. Identification and contact information for the operator(s);
 - iv. Identification of potential sources of pollution;
 - v. Description of the specific control measures, including BMPs, the operator will take to reduce the pollutants associated with the following:
 - 1) Influent and effluent;
 - 2) Storage and handling areas;
 - 3) Site runoff;
 - 4) On-site transfer;
 - 5) Loading or unloading operations;
 - 6) Spillage or leaks;
 - 7) Sludge and waste disposal; and
 - 8) Drainage from material storage and handling areas.
 - vi. Specific control measures, including BMPs, used to meet the requirements of this general permit and including the specific BMPs required for all discharges in Part 2.5.2, below.
- c. The BMPP must be prepared in accordance with good engineering practices and must be a written document (hardcopy or electronic). The BMPP may either be a stand-alone document or may be incorporated into any other BMPP, Pollution Prevention Plan, Spill Prevention Control and Counter Measures (SPCC) Plan, or other plan developed for the site as required under other permits or programs.⁹ Operators must provide BMPP certification in the NOI submitted to EPA for a site as follows:
- i. Operators with existing discharges without an existing BMPP seeking coverage under this general permit shall develop and implement the BMPP and shall certify as part of the NOI that a BMPP meeting the requirements of this general permit has been developed and implemented;
 - ii. Operators with existing discharges with an existing BMPP seeking coverage under this general permit shall revise the BMPP to meet the terms of this general permit and shall certify as part of the NOI that a BMPP meeting the requirements of this general permit has been developed and implemented;

⁹ Operators may refer to *Guidance Manual for Developing Best Management Practices (BMPs)* (EPA-833-B-93-004, 1993).

- iii. Operators with emergency discharges shall certify as part of the NOI that the BMP requirements included in Part 2.5.2 were met during provisional coverage and, if discharges will continue, shall certify as part of the NOI that a BMPP meeting the requirements of this general permit has been developed and implemented; and
 - iv. Operators initiating new discharges shall certify as part of the NOI that a BMPP meeting the requirements of this general permit will be developed and implemented upon initiation of discharge.
- d. The operator must certify the BMPP as follows:
- i. On or before January 15th each calendar year, or upon Notice of Termination (NOT) if a discharge lasts less than one year, the operator must prepare a statement certifying that the requirements of the BMPP were met for the previous calendar year, or for the duration of discharge if a discharge lasts less than a full calendar year;
 - ii. Each certification shall state whether the operation and maintenance activities were conducted, results recorded, and records maintained, and must indicate whether the discharges are in compliance with the requirements of the BMPP and meet the effluent limitations included in this general permit;
 - iii. The required certification statements must be maintained with a complete, up to date BMPP on site or at the location of the principal operator identified in the NOI and made available for inspection by EPA or the State;
 - iv. Any amendments to the BMPP resulting from any change which occurred at the site that increases the generation of pollutants, or the release or potential release of pollutants to the receiving water, or changes the operation and maintenance procedures covered by the BMPP must be explained in the certification for the reporting period in which the change(s) occurred;
 - v. Each certification must be signed in accordance with 40 CFR §122.22; and
 - vi. Failure to prepare the required certifications may result in permit termination and/or penalties imposed by EPA, the State, or both.

2. Best Management Practices (BMPs)

Operators must implement control measures, including the following best management practices (BMPs), to meet the effluent limitations and requirements in this general permit. The BMPs specified below are required for all operators.¹⁰

- a. An Effluent Flow BMP must include, at a minimum:
 - i. Flow control measures that prevent discharge(s) in exceedance of the design flow of the discharge (i.e., the maximum flow through the component with the lowest limiting capacity); and
 - ii. Documentation of the method(s) for measuring effluent flow.
- b. A Preventative Maintenance BMP must include, at a minimum:
 - i. Documented procedures and protocols that ensure all control measures, including all treatment system components and related appurtenances used to achieve the limitations in this general permit remain in effective operating condition and do not result in leaks, spills, and other releases of pollutants;

¹⁰ Additional guidance for BMPs can be found in *Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004).

- ii. A maintenance schedule for all treatment system components and related appurtenances used to meet the limitations of this general permit; and
 - iii. Records of the completion of regular maintenance activities.
- c. A Site Management BMP must include, at a minimum:
- i. Control measures that ensure proper management of solid and hazardous waste and prevent solids, sludge, or other pollutants removed in the course of treatment or control of water and wastewaters from entering Waters of the United States;
 - ii. Run-on and runoff management practices which divert, infiltrate, reuse, contain, or otherwise reduce extraneous uncontaminated waters and minimize the extent to which such uncontaminated waters commingle with remediation activity discharges; and
 - iii. Water quality control measures must ensure that the discharges covered by this general permit do not adversely affect existing water quality by preventing any erosion, stream scouring, or sedimentation, and/or any direct or indirect discharge which contributes additional pollutants.
- d. A Pollutant Minimization BMP must include, at a minimum:
- i. Identification and assessment of the type and quantity of pollutants, including their potential to impact receiving water quality;
 - ii. Water quality control measures must ensure dilution is not used as a form of treatment, or as a means to achieve the limitations and requirements in this general permit; and
 - iii. Selection, design, installation and proper operation and maintenance of pollution control technologies necessary to meet the limitations and requirements in this general permit. The treatment technologies may include, but are not limited to any combination of the following:¹¹
 - 1) Adsorption/Absorption
 - 2) Advanced Oxidation Processes
 - 3) Air Stripping
 - 4) Granulated Activated Carbon (GAC)/Liquid Phase Carbon Adsorption
 - 5) Ion Exchange
 - 6) Precipitation/Coagulation/Flocculation
 - 7) Separation/Filtration
- e. An Administrative Controls BMP must include, at a minimum:
- i. Documentation of the site security procedures appropriate for the treatment and other systems related to the NPDES discharge(s);
 - ii. Documentation of employee training conducted at least annually (or once, for discharges lasting less than one year) for site personnel who have direct or indirect responsibility for ensuring compliance with this general permit;
 - iii. Procedures for initiating corrective action and completing within a reasonable timeframe: evaluation, and revision (i.e., repair, modification, or replacement), if necessary, of any control measure used at the site if the control measure is identified as missing, installed incorrectly, or ineffective in

¹¹ Descriptions of these treatment technologies can be found in the Federal Remediation Technology Roundtable *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0 (2007)* available at <http://www.frtr.gov/scrntools.htm>.

ensuring the discharge meets applicable water quality standards and/or effluent limitations and requirements in this general permit. The following actions are required upon discovery of a violation of a permit limitation or requirement, at a minimum:

- 1) The discharge must stop immediately, unless the operator is otherwise instructed by EPA and/or the appropriate State;
 - 2) The operator must immediately take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is achieved;
 - 3) Notification must be provided to EPA and to the appropriate State via telephone, e-mail or other verbal or written means in accordance with Part 4.6.3.b or c within twenty-four (24) hours; and
 - 4) The cause of the permit violation must be identified and corrective action must be initiated within seventy-two (72) hours, if necessary, prior to resuming discharge in accordance with Part 4.3, or Part 4.1.2 when a treatment system is not in use, unless otherwise instructed by EPA and/or the appropriate State.
- iv. A schedule for and record of routine inspections conducted at least monthly by site personnel who have direct knowledge of the remediation activity at the site, the control measure(s) in use at the site, and the ability to assess the effectiveness of any control measure(s) in use at the site to meet the limitations and requirements of this general permit. Routine inspections must, at a minimum:
- 1) Assess the influent, effluent, treatment system, and remediation activity areas, including the outfall, where practicable;
 - 2) Identify any uncontrolled leaks, spills or discharges; and
 - 3) Conduct visual inspection for indicators of pollution, including, but not limited to: objectionable aesthetic properties including color, odor, clarity, floating solids, settled solids, suspended solids, foam, and oil sheen.
- f. Quality Assurance/Quality Control (QA/QC) BMP must include, to the maximum extent practicable:
- i. A description of applicable monitoring requirements;
 - ii. A map and/or treatment system diagram indicating the location of each monitoring point with a geographic identifier (i.e., latitude and longitude coordinates);
 - iii. Specifications for the number of samples, type of sample containers, type of preservation, holding times, type and number of quality assurance field samples (i.e., matrix spiked and duplicate samples and sample blanks), sample preparation requirements (e.g., sampling equipment calibration, clean sampling procedures), and sample storage and shipping methods, including EPA QA/QC and chain-of-custody procedures;¹²
 - iv. Name(s), address(es), and telephone number(s) of the laboratories used by the operator;

¹² Described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5).

- v. Specifications for analytical methods, analytical detection and quantitation limits for each required parameter, and laboratory data delivery and documentation requirements;
 - vi. A schedule for review of sample results, which must be reviewed by the operator no more than seventy-two (72) hours from receipt of the results; and
 - vii. A description of data validation and data reporting processes.
- g. Materials Management BMP must include, at a minimum:
- i. Good housekeeping practices and/or control measures that maintain areas that are potential sources of pollutants, including, but not limited to: contaminated soil and groundwater and treatment system chemicals, additives, materials or appurtenances;
 - ii. Material compatibility practices and/or control measures must ensure safe handling, use and storage of materials including, but not limited to chemicals and additives (e.g., algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, surfactants and bioremedial agents, including microbes);
 - iii. For any chemical and/or additive used or stored at a site, operators must document, at a minimum:
 - 1) Product name, chemical formula, and manufacturer of the chemical or additive;
 - 2) Purpose or use of the chemical or additive;
 - 3) Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical or additive;
 - 4) The frequency (e.g., hourly, daily), duration (e.g., hours, days), magnitude (i.e., frequency as maximum and average concentration), and method of application for the chemical or additive;
 - 5) Any material compatibility risks for storage of the chemical or additive;
 - 6) If available, the vendor's reported aquatic toxicity (NOAEL and/or LC₅₀ for aquatic organism(s)); and
 - 7) A description of the material management control measures employed (e.g., inventory, containment devices, protected storage building(s) and/or cabinet(s)) and any measures taken to ensure material compatibility.
 - iv. Spill prevention practices and spill control measures, including other handling and collection methods, when necessary (e.g., containment devices), must reduce spills and leaks from the treatment system and the release of chemical and/or additives in use at a site. The following actions are required upon detection of a leak, spill, or other release containing a hazardous substance or oil, such as visual observation of a visible sheen, at a minimum:
 - 1) The discharge must stop immediately;
 - 2) Notification must be provided to EPA in accordance with Part 4.6.3.b or c within twenty-four (24) hours;¹³

¹³ State, tribal, or local requirements may necessitate additional notification to local emergency response, public health, and/or drinking water supply agencies.

- 3) The source of the leak, spill or other release must be identified and corrective action must be taken in accordance with Part 2.5.2.e, above, if necessary, prior to resuming discharge, unless instructed otherwise by EPA and/or the appropriate State; and
- 4) When a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs, the operator must document a description of the release, the circumstances leading to the release, the date of the release, a description of any corrective actions taken and the date such corrective actions are completed.

3. Conditions for Discharges of Chemicals & Additives

- a. An operator shall not discharge any chemical or additive, including, but not limited to: algacides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, surfactants and bioremedial agents, including microbes, which was not reported in the NOI submitted to EPA for a site or provided through a subsequent NOC submitted to EPA.
- b. Upon authorization to discharge, chemicals and/or additives which have been disclosed to EPA and the appropriate State may be discharged up to the frequency and level disclosed, provided that such discharge does not violate Section 307 or 311 of the CWA or applicable state water quality standards.
- c. EPA and/or the appropriate State may request additional information to provide authorization to discharge chemicals and/or additives, including but not limited to: WET testing.
- d. To request authorization to discharge chemicals and/or additives in the NOI submitted to EPA for a site, or in a subsequent NOC, an operator must submit the following information in writing, at a minimum, in accordance with Appendix IV, Part 2 of this general permit:
 - i. All information required in Part 2.5.2.g.iii, above;
 - ii. An explanation which demonstrates that the addition of such chemicals:
 - 1) Will not add any pollutants in concentrations which exceed permit effluent limitations;
 - 2) Will not exceed any applicable water quality standard; and
 - 3) Will not add any pollutants that would justify the application of permit conditions that are different from or absent in this permit; or
 - 4) An operator may demonstrate through sampling and analysis using sufficiently sensitive test methods that each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the chemicals and/or additives.

4. Conditions for Pipeline and Tank Dewatering

In addition to meeting the BMP requirements for all discharges, above, discharges from pipeline and tank dewatering must meet the following requirements:

- a. Discharges of tank bottom water are prohibited;

- b. Pipeline(s), tank(s) or similar structures and appurtenances must be pre-cleaned to remove scale, solids, and residues unless these structures are used only for water storage;¹⁴
- c. Water quality control measures must be implemented if potable water, groundwater or surface waters other than the receiving water will be discharged that prevent lower quality waters being transferred to higher quality waters;
- d. Discharges of chemicals and/or additives used for tank or pipeline cleaning, repair or installation are prohibited unless in accordance with Part 2.5.3, above; and
- e. Discharges of sludge generated in the dewatering of the pipelines or tanks is prohibited.

PART 3 NOTICE OF INTENT (NOI)

3.1 Obtaining Coverage under this General Permit

1. To obtain authorization to discharge under this general permit, an operator must:
 - a. Have a discharge type described in Part 1.1, above;
 - b. Have a discharge located in the areas listed in Part 1.2, above;
 - c. Meet the eligibility requirements in Part 1.3 and Part 1.4, above;
 - d. Submit a complete and accurate Notice of Intent (NOI) in accordance with the requirements of this part, below; and
 - e. Receive a written authorization to discharge from EPA.¹⁵
2. Operators with one or more discharges eligible for coverage under this general permit must submit a NOI to EPA prior to the initiation of such discharge(s), except emergency discharges, as noted in Part 1.5, above. The NOI must be complete (i.e., contain all of the information required in the suggested NOI format included in Appendix IV, Part 1), accurate (i.e., prepared in accordance with the instructions provided in Appendix IV, Part 1), and signed by the operator in accordance with the signatory requirements of 40 CFR §122.22. In the event EPA and/or the appropriate State determines a NOI is incomplete, EPA will notify the operator of the information required for completeness and specify a timeframe for submission of the information. EPA may request additional information, including analytical data, as authorized under CWA §308(a), 33 U.S.C. §1318(a), when the information is necessary to adequately review the NOI and make a determination of coverage.

3.2 NOI Options

For purposes of this general permit, the NOI consists of either the suggested NOI format in Appendix IV, Part 1 of this permit or another form of official correspondence containing all of the information required in the NOI instructions in Appendix IV, Part 1 of this general permit. All NOIs submitted after **December 21, 2020** must be submitted electronically.

¹⁴ Discharges resulting from the hydrostatic testing of pipelines or tanks must follow the procedures detailed in the American Petroleum Institute 653 Standard and/or applicable State regulations.

¹⁵ See footnote 7, above.

1. Under 310 CMR 40.0000, as a matter of *state law*, this general permit only applies to discharges that are not subject to the Massachusetts Contingency Plan (MCP). Therefore, sites subject to the MCP are not required to submit a copy of the NOI to MassDEP, the State form (BRPWM12, or as revised), or pay an application fee for this general permit. Any operator with a site that is not subject to the MCP must submit the State form and fee to MassDEP when submitting a copy of the NOI to MassDEP. Municipalities are fee-exempt, but must send a copy of the transmittal form to MassDEP.¹⁶ EPA's suggested NOI format is found in Appendix IV, Part 1.
2. The State of New Hampshire does not have a State application form. Operators of sites located in New Hampshire are encouraged to submit EPA's suggested NOI format, found in Appendix IV, Part 1, to NHDES.

3.3 NOI Timeframes

1. **Existing Discharges:** For any existing discharge (i.e., discharges in accordance with the 2010 Remediation General Permit that expired on September 9, 2015), the following applies:
 - a. Operators of existing discharges must submit a NOI to EPA, and the appropriate State, when required, for coverage under this general permit **no later than ninety (90) days after the effective date of this general permit**. For operators with authorization to discharge under the 2010 Remediation General Permit that submit a complete NOI under this general permit within the 90-day period, coverage under the 2010 Remediation General Permit remains administratively continued until EPA authorizes the discharge under this general permit, or notifies the operator of permit termination. For enforcement purposes, failure to submit a NOI within 90 days of the effective date of this general permit for an existing discharge will be considered to be discharging without a permit. A NOI is not required if the operator submits a NOT before the 90-day period expires. See Appendix IV, Part 1 and/or Part 3.
2. **Emergency Discharges:** For any emergency discharge, including discharges conducted in response to a public emergency (e.g., natural disaster, which includes, but is not limited to: tornadoes/hurricanes/tropical storms, earthquakes, mud slides, or extreme flooding conditions; or widespread disruption in essential public services), the following applies:
 - a. Operators of emergency discharges must submit a NOI to EPA, and the appropriate State, when required, **no later than fourteen (14) days after the discharges commence**. An operator is required to provide documentation in the NOI submitted to EPA to substantiate the occurrence of a public emergency.
3. **New Discharges:** For any discharge not considered an existing or emergency discharge, including sites that received authorization to discharge under the 2010 Remediation General Permit but subsequently submitted a NOT or sites covered under other discharge permits that wish to seek coverage under this general permit, the following applies:

¹⁶ For State forms, see <http://www.mass.gov/eca/agencies/massdep/>.

- a. Operators of new discharges must submit a NOI to EPA, the appropriate State, when required, and the municipality in which the proposed discharge is located **at least seven (7) days prior to the commencement of discharge.**
4. EPA will post NOIs received for a minimum of seven (7) days on EPA's RGP website.¹⁷

3.4 NOI Requirements

1. For each eligible discharge, the NOI submitted to EPA for a site must include, in writing, all information required in the suggested NOI format, found in Appendix IV, Part 1, including:
 - a. General site information;
 - b. Receiving water information;
 - c. Source water information;
 - d. Discharge information;
 - e. Treatment system information;
 - f. Treatment chemical/additive information;
 - g. Determination of Endangered Species Act Eligibility;
 - h. Documentation of National Historic Preservation Act Requirements;
 - i. Supplemental Information; and
 - j. Signature Requirements.
2. The NOI must meet the monitoring requirements specified in Part 4, including monitoring locations, test methods and minimum level and detection limit requirements, Appendix VII, and Appendix IX, Standard Conditions, for the parameters required for the applicable activity category or categories.
3. Additional NOI monitoring is required, as specified in Part 4.2, below and Appendix IV, Part 1.
4. All operators must meet the requirements of Appendix I, regarding obligations under the Endangered Species Act, and Appendix III, regarding obligations under the National Historic Preservation Act.
5. The NOI must be signed by the operator(s) of the site, as defined in Part 1, above, in accordance with the signatory requirements of 40 CFR §122.22.
6. All operators must submit a NOI to the appropriate State in accordance with Part 4.6, when required, as noted in Appendix IV, Part 1, prior to the initiation of discharges.
7. The operator must provide certification that the following notifications have been given prior to the initiation of such discharge(s):
 - a. All operators must notify the municipality in which the proposed discharge will be located. The operator must provide a copy of the NOI to the municipality, if

¹⁷ Available at: <https://www.epa.gov/region1/npdes/rgp.html>.

- requested. Authorization to discharge under this general permit does not convey any authorization from a municipality.
- b. All operators intending to discharge to a municipal or non-municipal storm sewer system must notify the owner of this system, and must obtain permission to discharge to this system prior to initiating discharges. An operator must include a description of any requirements imposed by the owner of the municipal or non-municipal storm sewer system to which they are proposing discharge and certify that these conditions will be complied with. Authorization to discharge under this general permit does not convey any rights or authorization to connect to a municipal or non-municipal storm sewer system.
 - c. Where there is separate ownership and/or different operators of the area where discharges to be covered under this general permit will occur and the area associated with discharges covered by other discharge permit(s) (e.g., EPA's Construction General Permit and EPA's Multi-Sector General Permit), the operator seeking authorization to discharge under this general permit must certify that notification has been given to the owner/operator of the area associated with the activities covered by the other discharge permit(s) in the NOI submitted to EPA for that site.

3.5 When the Director May Require Application for an Individual NPDES Permit

The Director may require any operator authorized by or requesting coverage under this general permit to apply for and obtain an individual NPDES permit. Any interested person may petition the Director to take such action. Instances where an individual permit may be required include the following:

1. A determination under 40 CFR §122.28(b)(3), including:
 - a. A change has occurred in the availability of the demonstrated technology of practices for the control or abatement of pollutants applicable to the point source(s);
 - b. Effluent limitation guidelines are promulgated for the point source(s) covered by this permit;
 - c. A Water Quality Management Plan or Total Maximum Daily Load containing requirements applicable to such point source(s) is approved and inconsistent with this permit;
 - d. Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary; and
 - e. The discharge(s) is a significant contributor of pollutants.
2. The discharger is not in compliance with the conditions of this general permit.
3. The discharge(s) is in violation of State water quality standards for the receiving water.
4. Actual or imminent harm to aquatic organisms, including ESA or human health, is identified.

5. The discharge adversely impacts any federally-managed species for which critical habitat (under ESA) or EFH has been designated.
6. The point source(s) covered by this general permit no longer:
 - a. Involves the same or substantially similar types of operations;
 - b. Discharges the same types of wastes;
 - c. Requires the same effluent limitations or operating conditions; or
 - d. Requires the same or similar monitoring.
7. In the opinion of the Director, is more appropriately controlled under an individual or alternate general permit.

If the Director requires that an individual permit be issued, the operator will be notified in writing that an individual permit is required, and will be given a brief explanation of the reasons for this decision. When an individual NPDES permit is issued to an operator otherwise subject to this general permit, the applicability of this permit to that operator is automatically terminated upon the effective date of the individual permit.

3.6 When an Individual Permit May Be Requested

Any operator may request to be excluded from the coverage under this general permit by applying for an individual NPDES permit. When an individual NPDES permit is issued to an operator otherwise subject to this general permit, the applicability of this permit to that owner or operator is automatically terminated on the effective date of the individual permit.

3.7 EPA Determination of Coverage

Any operator may request to be covered under this general permit but the final authority rests with EPA. Coverage under this general permit will not be effective until EPA has reviewed the NOI, made a determination that coverage under this general permit is authorized, and has notified the operator in writing of its determination. The effective date of coverage will be the date indicated in the authorization to discharge provided by EPA in writing. Any additional State conditions will be provided in writing.

Any operator authorized to discharge under the RGP will receive written notification from EPA. Failure to submit to EPA a NOI to be covered and/or failure to receive from EPA written notification of permit coverage means that the operator is not authorized to discharge under this general permit. An operator that is denied permit coverage by EPA is not authorized under this general permit to discharge to Waters of the United States.

PART 4 MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

In addition to any monitoring, record-keeping and reporting requirements specified in Parts 1, 2 and 3, above, and in the Standard Conditions of this general permit (Appendix IX), the following monitoring, record-keeping and reporting requirements apply to discharges covered under this general permit. EPA may notify the operator of additional monitoring requirements. Any such

notice will briefly state the reasons for the monitoring and will specify the monitoring and reporting requirements.

4.1 Monitoring Requirements

Sampling of the influent, effluent and/or receiving water must yield data representative of the discharge under authority of Section 308(a) in accordance with 40 CFR §122.41(j), §122.44(i), and §122.48. The sample type for all monitoring locations is grab. Each grab sample must be analyzed and cannot be composited.

1. Monitoring Locations

- a. **Influent** (i.e., the untreated influent) samples shall be taken at a consistent point defined by geographic coordinates in the NOI (i.e., latitude and longitude), immediately prior to treatment of the water, before entering any treatment system component. If the influent sampling location as defined has not been established prior to submittal of the NOI, the operator must provide a detailed description of the sample location(s) selected such that an inspector from EPA or the State could replicate the sample upon site inspection. The following requirements apply:
 - i. Influent samples must be collected from areas of contamination, when known;
 - ii. The influent sample must ensure that the highest concentrations of pollutants that may be treated and/or discharged are represented;
 - iii. If a monitoring well is used as the sampling location for the influent, the monitoring well must be located within the maximum extent of contamination.
 - iv. If influent is generated from multiple areas of a site across which contamination types and/or concentrations can vary, the operator must collect additional samples such that the data provided are representative of the expected influent characteristics, and each location must be defined;¹⁸
 - v. If the influent concentrations are unknown or vary widely across a site, additional samples must be collected that are representative of the expected variability, and each location must be defined.¹⁹
- b. **Effluent** (i.e., the treated effluent) samples shall be taken at a consistent point defined by geographic coordinates in the NOI (i.e., latitude and longitude), following all treatment, immediately prior to discharge to the receiving water, private or municipal separate storm sewer system, or, if the treated effluent is commingled with another discharge, prior to such commingling.
- c. **Receiving water** samples shall be taken at a consistent point defined by geographic coordinates in the NOI (i.e., latitude and longitude), from a reasonably accessible location, upstream or otherwise immediately outside of the zone of influence of the discharge or other site activities that could affect water quality.

¹⁸ Operators of such sites are encouraged to contact EPA in accordance with Part 4.6.3 for assistance in influent sample design.

¹⁹ See footnote 18, above.

2. Monitoring Frequency

- a. The routine monitoring frequency for discharges covered under this general permit is **monthly** (i.e. at least one sample per each calendar month) for both **influent and effluent**, as follows:
 - i. Beginning no more than thirty (30) days from the effective date of permit coverage for existing discharges, no more than thirty (30) days following the end of provisional coverage for emergency discharges, and no more than thirty (30) days following completion of the treatment system startup monitoring requirements for new discharges (Part 4.3.2) or treatment system interruption or shutdown monitoring requirements for discharges that have been interrupted (Parts 4.3.3 and 4.3.4);
 - ii. Continuing a minimum of six (6) months and ten (10) samples, prior to submission of any request for modification of this monitoring frequency in accordance with Part 5.1 below; and
 - iii. Continuing thereafter for the term of this general permit, or until Notice of Termination, whichever occurs first, unless modified by EPA in writing.
- b. The monitoring frequency specified applies to all discharges covered under this general permit unless sampling would not otherwise be required (e.g., during a treatment system interruption as in 4.3.2, below), or unless otherwise specified (e.g., certain short-term discharges as in Part 4.4, below).
- c. Changes to the specified monitoring frequency must be approved by EPA in writing through a Notice of Change. See Appendix IV, Part 2.

3. Test Methods

- a. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative test methods approved by EPA, in accordance with the procedures in 40 CFR §136, unless specifically prohibited in this general permit. Test methods which can be used for analysis of the parameters included in this general permit are summarized in Appendix VII.
- b. All analyses must be conducted using a sufficiently sensitive test method in accordance with 40 CFR §122.44(i)(1)(iv) and as specified in Part 4.1.4, below.

4. Minimum Levels and Detection Limits

- a. For the purposes of this general permit, the minimum level (ML) for analysis is the lowest level at which the test equipment produces a recognizable signal and acceptable calibration point for a pollutant or pollutant parameter, representative of the lowest concentration at which a pollutant or pollutant parameter can be measured with a known level of confidence.
- b. For the purposes of this general permit, the detection limit (DL) is the lowest concentration that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method during routine laboratory operating conditions (i.e., the level above which an actual value is reported for an analyte, and the level below which an analyte is reported as non-detect).
- c. Operators must achieve the MLs for analysis specified in in Appendix VII of this general permit and the following requirements:

- i. Analysis of influent, effluent and/or receiving water samples shall use test methods with a ML at or below the level of the effluent limitation²⁰ for the given parameter, or the applicable water quality criterion for a parameter with a monitor-only requirement;
 - ii. The DL must be less than or equal to the ML for an analyte using a sufficiently sensitive test method. When an analyte is not detected, the operator must report results using the data qualifier signifying less than the DL reported for that analyte (i.e. <0.1 µg/L, if the DL reported for an analyte is 0.1 µg/L);
 - iii. Where the sample concentration of an analyte is above the ML, any of the test methods listed for that analyte in Appendix VII may be used, unless otherwise noted; and
 - iv. Where the ML for the approved test methods are above the permit effluent limitations, the test method that has the lowest ML of the analytical methods in 40 CFR §136 must be used.
- d. When a parameter is required to be reported as a total value, the total value must be calculated by adding the measured concentration of each individual compound noted for that parameter. If the measurement of an individual compound analyzed for a total value is less than the DL and the test method and minimum level meet the requirements in this Part and Appendix VII, the operator shall use a value of zero for that compound in the total value calculation.

5. Existing Data Substitution

Existing data substitution is allowed for the purposes of preparing a NOI and for the purposes of meeting the monitoring requirements included in this general permit if the following requirements are met:

- a. Sampling and analysis must have been conducted pursuant to: Massachusetts Regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (Chapter 21E); New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; the 2010 Remediation General Permit; or other existing data if allowed by EPA on a case-by-case basis;
- b. Sampling and analysis must meet the monitoring requirements specified in Part 2 and Parts 4.1.1 through 4.1.4, above, and, for data submitted with a NOI, Part 4.2, below;
- c. For data submitted with a NOI, the date of analysis for the existing data may not be greater than twelve (12) months for existing discharges or six (6) months for new discharges;
- d. For data submitted to meet reporting requirements, the date of analysis for the existing data must approximately coincide with other sampling and analysis conducted for the general permit; and
- e. Existing data must be submitted in accordance with Part 4.6.1, below, and meet the requirements specified in Part 2.5.2.f, above, and Part 4.6.2, below.

²⁰ When a compliance level is specified for an effluent limitation, the sufficiently sensitive test method ML shall be no greater than the compliance level.

6. Whole Effluent Toxicity (WET) Testing
 - a. Activity Categories I and II must conduct one (1) acute WET test:²¹
 - i. No later than thirty (30) days following authorization to discharge for existing discharges;
 - ii. No later than twelve (12) months following initiation of discharges for new discharges if discharges are expected to last twelve (12) months or more; and
 - iii. If requested by EPA and/or the appropriate State on a case-by-case basis for short-term discharges, including emergency discharges.
 - b. Activity Categories III, IV, V, VI, VII, and VIII must conduct WET testing if requested by EPA and/or the appropriate State on a case-by-case basis.
 - c. If the result of any WET test indicates toxicity (i.e., a $LC_{50} < 100\%$), notification must be provided within twenty-four (24) hours to EPA in accordance with Part 4.6.3.c and to the appropriate State via telephone, e-mail or other verbal or written means in accordance with Part 4.6.3.b or c.
 - d. If EPA and/or the appropriate State determine that a discharge may cause or contribute to an excursion above applicable water quality standards, EPA and/or the appropriate State may require additional WET testing, limitations and/or requirements as authorized at 40 CFR §122.44(d)(1)(v). If additional WET requirements apply, EPA will provide the reasons for the additional requirements to the operator in writing, and will specify the monitoring and reporting requirements and/or limitation.
 - e. Results of the WET requirements specified above must be submitted in accordance with Part 4.6.1, below, and must meet the QA/QC requirements specified in Part 2.5.2.f, above, and Part 4.6.2, below. The results of WET testing above its required frequency must also be submitted to EPA (see Appendix IX, Standard Conditions); and
 - f. If any parameter is analyzed in accordance with Attachment A for the requirement in this Part, the WET test result may be reported for any parameter for which monitoring is required in Part 4.1.2, above, or elsewhere in Part 4. A duplicate sample is not required.

4.2 NOI Monitoring Requirements

Samples collected and analyzed for the purposes of a NOI submitted for coverage under this general permit must be representative of the proposed discharge(s) and must meet the monitoring requirements specified in Part 2 and Part 4.1, above. Samples must be collected in accordance with the instructions included in Appendix IV, Part 1, and as required below.

1. Analysis for a minimum of one (1) **influent** sample is required for:
 - a. Activity Category I for:
 - i. all parameters in contamination type A. Inorganics;
 - ii. any present in contamination type B. non-halogenated VOCs;
 - iii. if present in contamination type C. halogenated VOCs;
 - iv. any present in contamination type D. non-halogenated SVOCs;

²¹ Acute Whole Effluent Toxicity Testing must be completed in accordance with USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol (February, 2011) for discharges to freshwater and Marine Acute Toxicity Test Procedure and Protocol (July 2012) for discharges to saltwater, including estuaries. See Attachment A.

- v. if present in contamination type E. halogenated SVOCs; and
 - vi. any present in contamination type F. fuels parameters.
 - b. Activity Category II for:
 - i. all parameters in contamination type A. Inorganics;
 - ii. any present in contamination type B. non-halogenated VOCs;
 - iii. any present in contamination type C. halogenated VOCs;
 - iv. any present in contamination type D. non-halogenated SVOCs;
 - v. if present in contamination type E. halogenated SVOCs; and
 - vi. if present in contamination type F. fuels parameters.
 - c. Activity Category III-G for:
 - i. all parameters in contamination type A. Inorganics; and
 - ii. if present in contamination type B through F
 - d. Activity Category IV-G, V-G, VI-G, VII-G, VIII-G for:
 - i. if present in contamination type A through F.
 - e. Activity Category III-H, IV-H, V-H, VI-H, VII-H, VIII-H for:
 - i. all parameters in contamination type A through F.
 - f. All Activity Categories:
 - i. pH, temperature, and hardness (freshwater receiving waters only);
 - ii. Any parameter listed in Part 2.1.1, if present, but not otherwise specified in this Part for the Activity Category that applies to a site;
 - iii. Any parameter listed in Part 2.1.1 if it is unknown whether the given parameter is present or absent; and
 - iv. Any parameter present that is not included in this general permit.
 - g. When “if present” is noted in Part 4.2.1, above, the monitoring requirement for a parameter in the Contamination Type applies to a site only if the given parameter is known or believed present at that site. When “any present” is noted in Part 4.2.1, above, the monitoring requirement for all parameters listed in the Contamination Type apply to a site when at least one parameter listed for that Contamination Type is known or believed present at that site.
- 2. Analysis is required for a minimum of one (1) **receiving water** sample for:
 - a. All activity categories: pH, temperature, hardness (freshwater receiving waters), salinity (saltwater receiving waters), and ammonia; and
 - b. All activity categories for total recoverable antimony, total recoverable arsenic, total recoverable cadmium, total recoverable chromium III and VI, total recoverable copper, total recoverable iron, total recoverable lead, total recoverable mercury, total recoverable nickel, total recoverable selenium, total recoverable silver, total recoverable zinc, if present and if a dilution factor applies.
- 3. Results of the NOI monitoring requirements specified above must be submitted to EPA as an attachment to the NOI in accordance with Appendix VIII, and must meet the QA/QC requirements specified in Part 2.5.2.f, above, and the reporting requirements specified in Part 4.6.2, below.
- 4. The results of sampling for any parameter above its required minimum must be submitted to EPA as an attachment to the NOI.

5. EPA and/or the appropriate State may require additional NOI monitoring on a case-by-case basis. If additional monitoring is required, EPA and/or the appropriate State will briefly state the reasons for the monitoring, and will specify the monitoring and reporting requirements.
6. Where an operator conducts any of the monitoring specified above prior to the submission of a NOI, additional samples are not required, so long as the monitoring requirements specified in Part 2.1 and elsewhere in Part 4, are met, including Part 4.1.5 for existing data substitution.

4.3 Treatment System Monitoring Requirements

All operators must perform treatment system monitoring when a treatment system is in use at a site. Treatment system monitoring requirements for startup, interruption and shutdown are specified below.

1. Treatment System Startup
 - a. The operator must perform the following sampling and analysis for all parameters required for the applicable activity category or categories as specified in Part 2.1, above, when a discharge is either initiated for the first time, or upon the re-initiation of discharge following a treatment system interruption lasting ninety (90) or more consecutive days, unless otherwise specified:
 - i. During the first week of discharge, operators must sample the **influent and effluent** two (2) times: one (1) sample of the influent and one (1) sample of the effluent must be collected on the first day of the discharge; and one (1) sample of the influent and one (1) sample of the effluent must be collected on one additional non-consecutive day within the first week of discharge;
 - ii. During the first week of discharge, samples must be analyzed in accordance with 40 CFR §136 unless otherwise specified in this general permit with a maximum five (5)-day turnaround time and results must be reviewed no more than forty-eight (48) hours from receipt of the results of each sampling event. After the first week, samples may be analyzed with up to a ten (10)-day turnaround time and results must be reviewed no more than seventy-two (72) hours from receipt of the results;
 - iii. If the treatment system is operating as designed and achieving the effluent limitations in this general permit, sampling of the **influent and effluent** shall be as follows, thereafter:
 - 1) 1/Week for three (3) additional weeks beginning no earlier than twenty-four hours following the sampling required in Part 4.3.2.a.ii, above;
 - 2) 1/Month in accordance with Part 4.1.2, above for the remaining term of the permit; and
 - 3) Adjusted for any monitoring frequency reduction approved by EPA in writing.
 - b. If the treatment system is shut down during startup or interrupted as a result of a problem, including when discharge concentrations for any parameter exceeds effluent

limitations, corrective actions must be taken in accordance with Part 2.5.2.e, above and as follows:

- i. Upon system restart and/or re-initiation of discharge, the operator shall collect one (1) sample with a maximum five (5)-day turnaround time and results must be reviewed no more than forty-eight (48) hours from receipt of the results of the sampling event;
- ii. If the problem has been corrected, the operator may resume with treatment system startup as specified in Part 4.3.1.a.iii, above, or routine monitoring specified in Part 4.1.2 following a treatment system interruption; and
- iii. If the problem persists, the operator must immediately halt discharge again and notify EPA and the appropriate State via telephone, e-mail or other verbal or written means in accordance with Part 4.6.3.b or c within twenty-four (24) hours of the need to cease discharge a second time; discharge may resume upon completion of corrective actions unless otherwise directed by EPA and/or the State contact.

2. Treatment System Interruption

- a. In addition to the requirements for certain upset and/or bypass conditions specified in Appendix IX, Standard Conditions, if the operator has any indication of treatment system upset or violation of effluent limitations, corrective actions must be taken in accordance with Part 2.5.2.e, above.
- b. If the discharge has been interrupted for ninety (90) or more consecutive days, the same monitoring requirements apply as specified in Part 4.3.1.a.i and Part 4.3.1.b, above, upon treatment system re-start.
- c. If the discharge has been interrupted less than ninety (90) consecutive days, the same monitoring requirements apply as specified in Part 4.3.1.b, above, upon treatment system re-start.

3. Treatment System Shutdown

- a. The operator must perform the following monitoring for all parameters required for the applicable activity category or categories as specified in Part 2.1.1, above, prior to permanent treatment system shutdown (i.e., termination), and must submit the results with the NOT, in accordance with Part 5.2, below, and Appendix IV, Part 3.:
 - i. During the final week of discharge, operators must sample the **influent and effluent** two (2) times: one (1) sample of the influent and one (1) sample of the effluent must be collected on the last day of the discharge; and one (1) sample of the influent and one (1) sample of the effluent must be collected on one additional non-consecutive day within the last week of discharge; and
 - ii. Samples must be analyzed in accordance with 40 CFR §136 unless otherwise specified in this general permit with up to a ten (10)-day turnaround time and results must be reviewed no more than seventy-two (72) hours from receipt of the results, or upon confirmation that additional sampling prior to treatment system shutdown is not necessary.
- b. Where an operator collects any portion of the information specified above no more than three (3) months prior to treatment system shutdown, an additional sample is not required, so long as the information was collected in accordance with the monitoring

- requirements of this general permit or otherwise meets the requirements for existing data substitution in Part 4.1.5, above; and
- c. In the event the treatment system has been interrupted for more than ninety (90) consecutive days prior to treatment system shutdown, existing data may be substituted for the data required for the submission of a NOT from equivalent monitoring conducted nearest in time to NOT submission, so long as the requirements in Part 4.1.5, above, are otherwise met.

4.4 Short-Term Discharge Monitoring Requirements

For the purposes of this general permit, discharges lasting twelve (12) months or less (e.g., emergency discharges, immediate response actions, pump tests, temporarily containerized waters and dewatering of pipelines and tanks), which are then terminated and will not be re-started are considered “short-term discharges”. The monitoring requirements for short-term discharges are as follows:

1. Discharges from Dewatering of Pipelines and Tanks
 - a. The operator must take a minimum of five (5) grab samples, including:
 - i. For **influent**, the operator must take one (1) sample of the source water during the fill process, except when infeasible. A representative sample the source water may be used for influent if sampling during the fill process is infeasible;
 - ii. For tanks, the operator shall take a minimum of one (1) **in-process** sample representative of the tank water following maintenance or testing, but before draining. If the tank contents are likely to undergo phase separation or stratification, multiple samples from multiple depths within the water column must be collected and composited. The operator shall analyze and review the in-process sample prior to discharge. If the analysis demonstrates that the tank water does not meet the effluent limitations in this general permit, the operator shall not discharge the tank water unless treatment reduces the pollutant levels below the effluent limitations established in this general permit;
 - iii. For pipelines, the operator shall take one (1) **in-process** sample of the pipeline water following depressurization. The operator shall analyze and review the in-process sample prior to discharge. If the analysis demonstrates that the pipeline water does not meet the effluent limitations in this general permit, the operator shall not discharge the pipeline water unless treatment reduces the pollutant levels below the effluent limitations established in this general permit; and
 - iv. For **effluent**, the operator must take one (1) sample of the discharge during the first 10% of discharge, one (1) sample of the discharge at the approximate midpoint of discharge, and one (1) sample of the discharge during the last 10% of discharge. If at any time the analysis demonstrates that the discharge does not meet the effluent limitations and requirements in this general permit, corrective action must be taken in accordance with Part 2.5.2.e, above prior to resuming discharge, unless instructed otherwise by EPA and/or the appropriate State.

2. Short-Term Discharges Other than Those from Dewatering of Pipelines and Tanks
 - a. For any short-term discharge lasting twenty-four (24) hours or less:
 - i. The operator must take a minimum of one (1) representative sample of the **influent and effluent**;
 - ii. Samples must be analyzed in accordance with 40 CFR §136 or by other methods authorized by this general permit with no more than a ten (10) day turnaround time and results must be reviewed within seventy-two (72) hours of the date of receipt of the sample results; and
 - iii. The monitoring frequencies specified in Part 4.1.2 and Part 4.3 do not apply.
 - b. For any short-term discharge lasting seven (7) days or less:
 - i. The operator must take a minimum of two (2) samples of the **influent and effluent**: one (1) sample of the influent and one (1) sample of the effluent must be collected on the first day of discharge; and one (1) sample of the influent and one (1) sample of the effluent must be collected on one additional non-consecutive day within the first week of discharge;
 - ii. Samples must be analyzed in accordance with 40 CFR §136 or by other methods authorized by this general permit with no more than a ten (10) day turnaround time and results must be reviewed within seventy-two (72) hours of the date of receipt of the sample results; and
 - iii. The monitoring frequencies specified in Part 4.1.2 and Part 4.3 do not apply.
 - c. For any short-term discharge lasting more than seven (7) calendar days but not more than twelve (12) months, sampling must proceed as follows:
 - i. Operators must perform treatment system monitoring in accordance with Part 4.3.1.a.i, above, when a treatment system is in use at a site;
 - ii. If a treatment system is not in use at a site, operators must perform monitoring as follows:
 - 1) The operator must take a minimum of two (2) representative samples of the **influent and effluent**: one (1) sample of the influent and one (1) sample of the effluent must be collected on the first day of discharge; and one (1) sample of the influent and one (1) sample of the effluent must be collected on one additional non-consecutive day within the first week of discharge;
 - 2) The operator must take a minimum of one (1) sample of the **influent and effluent** weekly for three (3) additional weeks beginning no earlier than twenty-four hours following the sampling required in Part 4.4.2.c.ii.1, above; and
 - 3) The operator must take a minimum of one (1) sample of the **influent and effluent** monthly in accordance with Part 4.1.2, above, until Notice of Termination, beginning no earlier than twenty-four hours following the sampling required in Part 4.4.2.c.ii.2, above.
 - iii. During the first week of discharge, samples must be analyzed in accordance with 40 CFR §136 unless otherwise specified in this general permit with a maximum five (5) day turnaround time and results must be reviewed no more than forty-eight (48) hours from receipt of the results of each sampling event. After the first week, samples may be analyzed with up to a ten (10) day turnaround time and results must be reviewed no more than seventy-two (72) hours from receipt of the results.

- d. Where the monitoring frequencies specified in Part 4.4, above, are duplicative of the monitoring required elsewhere in this general permit, duplicate sampling is not required; and
- e. The reporting requirements specified in Part 4.6.1.a do not apply.

4.5 Record-Keeping Requirements

1. Records Content: Operators must include the following records (hardcopy or electronic) pertaining to coverage under this general permit:
 - a. Data used to complete the NOI for this general permit;
 - b. Sample collection information, including: the date, exact location, and time of sampling or measurement; the name of the individual(s) who performed the sampling or measurement; and the sample chain of custody for each sample;
 - c. Analytical laboratory reports for each sample analysis, which: identifies the sample(s), the target analyte(s), the test method(s), the dates collected and analyzed, the analytical result(s), the detection limit for each analyte, and the names of the laboratory and individual that conducted the analysis; includes a legible copy of the signed sample chain of custody; and indicates if all appropriate QA/QC procedures were met and were within acceptable limits;
 - d. Documentation for the development, implementation and maintenance of the BMPP, including certifications;
 - e. Discharge monitoring data in the suggested format included in Appendix VIII, or other format containing all of the information included in Appendix VIII;
 - f. Any records of monitoring instrumentation, field monitoring, and visual observations (e.g. portable organic vapor monitoring, turbidity meter, visible sheen observations);
 - g. Any records of system operation and maintenance; and
 - h. Any records of site inspections and employee training.
2. On-Site Records: The following records (hardcopy or electronic) must be maintained on-site and/or with the operator to be made available upon inspection and/or request by EPA or the appropriate State:
 - a. A complete copy of this general permit;
 - b. A copy of EPA's authorization to discharge and any subsequent modifications, if applicable;
 - c. Copies of any information submitted to EPA, the appropriate State, and the municipality in which the site is located;
 - d. Copies of any correspondence received from EPA, the appropriate State, and the municipality in which the site is located regarding permit coverage; and
 - e. A copy of the BMPP.
3. Retention of Records: Operators must retain the records specified above for a minimum of three (3) years from the date of the sample, measurement, report or notice, whichever applies. This period may be extended at the request of EPA or the appropriate State.

4.6 Reporting Requirements

1. Discharge Monitoring Reports

a. **For discharges lasting twelve (12) months or more**, in addition to the reporting requirements found in Appendix IX, Standard Conditions, of this general permit, the operator shall submit the following information to EPA and the appropriate State:

i. Submittal of DMRs and the Use of NetDMR

- 1) **Beginning the effective date of the authorization to discharge** the operator must record all monitoring data collected to comply with this general permit;
- 2) **Beginning the first full calendar month following twelve (12) months after the effective date of the authorization to discharge**, the operator shall begin reporting monitoring data in DMRs to EPA and the State, due no later than the 15th day of the month following the completed reporting period; the reporting periods for this general permit consist of each calendar month, inclusive;
- 3) All DMRs must be submitted electronically using NetDMR, unless, in accordance with Part 4.6.1.a.iii, below, the operator is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs. NetDMR is a web-based tool that allows operators to electronically submit DMRs and other required reports via a secure internet connection;²² the operator must continue to use NetDMR after beginning to do so.
- 4) The operator must utilize an appropriate No Data Indicator (NODI) Code(s)²³ in instances where monitoring data have not been obtained or are otherwise not required. Commonly applicable NODI Codes for this general permit include, but are not limited to:
 - (A) "C" if no discharge occurs during a required sample frequency;
 - (B) "A" if an operator is exempted from the requirement to sample for a parameter, such as when EPA approves, in writing, sample frequency reduction and/or elimination;
 - (C) "2" if operation is shut down, such as during a treatment system interruption; and/or
 - (D) "9" if an effluent limitation is conditional and does not apply during a required sample frequency (e.g., TRC effluent limitation applies only if a discharge is likely to contain residual chlorine such as when a chemical additive containing chlorine is being used).

ii. Submittal of Reports as NetDMR Attachments

- 1) When the operator begins submitting DMR reports to EPA electronically using NetDMR, the operator shall electronically submit other reports to EPA as NetDMR attachments rather than as hard copies, unless otherwise specified in this general permit. Because the due dates for reports described in this general permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted

²² NetDMR is currently accessed from: <http://www.epa.gov/netdmr>.

²³ DMR instructions are currently accessed from: <http://www3.epa.gov/region1/npdes/dmr.html>.

to EPA using NetDMR with the next DMR due following the particular report due date specified in this general permit.

iii. Submittal of NetDMR Opt-Out Requests

- 1) NetDMR opt-out requests must be submitted in writing to EPA for written approval at least 60 days prior to the date a site would be required under this general permit to begin using NetDMR. This demonstration shall be valid for 12 months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the operator submits a renewed opt-out request and such request is approved by EPA. All opt-out requests should be sent to EPA at the following address:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

- b. **For discharges lasting less than twelve (12) months**, the operator is not subject to the DMR reporting requirements defined in Part 4.6.1.a, above, but remains subject to the monitoring requirements of this general permit, the reporting requirements in 4.6.2 through 4.6.6, below, the requirements found in Appendix IX, Standard Conditions, and the requirements of a NOI, NOC and NOT. Information that must be submitted with an operator's NOI, NOC and NOT is defined in Appendix IV, Part 1, Part 2 and Part 3 of this general permit, respectively. Also see and Part 3, above, and Part 5, below.

2. Analytical Reports

- a. Operators shall submit a copy of the laboratory analytical report(s) for each sampling event, concurrent with the submittal of discharge monitoring data in accordance with Part 4.6.1, as applicable. The laboratory case narrative shall include a copy of the laboratory analytical reports for each sample analysis, which: identifies the sample(s), the target analyte(s), the test method(s), the dates collected and analyzed, the analytical result(s), the detection limit for each analyte, and the names of the laboratory and individual(s) that conducted the analysis; includes a legible copy of the signed sample chain of custody; and indicates if all appropriate QA/QC procedures were met and were within acceptable limits.

3. Notification Requirements

- a. As required in 40 CFR §122.44(f), all operators must notify EPA as soon as they have reason to believe that any activity has occurred or will occur which would result in the discharge of any toxic pollutant (see 40 CFR §401.15) which is not limited in this general permit which exceeds:
 - i. The notification level of in 40 CFR §122.42; or
 - ii. Any other notification level established in accordance with 40 CFR §122.44(f) and State regulations.
- b. Written notifications required in this general permit, unless otherwise specified, shall be made to both EPA and to the appropriate State. Written notifications shall be made

in accordance with Part 4.6.4 and Part 4.6.5 or 4.6.6, as applicable, below, unless otherwise specified.

- c. Verbal notifications required in this general permit, unless otherwise specified, shall be made to both EPA and to the appropriate State. This includes verbal notifications which require reporting within 24 hours (e.g., see Appendix IX Parts B.4.c.(2), B.5.c.(3), and D.1.e). Verbal notifications shall be made to:
 - i. The EPA and appropriate State contacts listed on EPA's website for this general permit²⁴; and
 - ii. EPA's Office of Environmental Stewardship at: 617-918-1510 for Verbal Notifications required under Appendix IX, if Part 4.6.1.a applies.

4. EPA Region 1 Addresses

a. Submittal of Notifications and Reports to EPA/OEP

- i. The following notifications and reports described in this general permit shall be submitted to the EPA/OEP RGP Coordinator in the EPA Office Ecosystem Protection (OEP):²⁵
 - 1) Notice of Intent (NOI);
 - 2) Notice of Change (NOC);
 - 3) Notice of Termination (NOT);
 - 4) Written notifications required in this general permit; and
 - 5) Reports and DMRs in electronic format, if NetDMR is not required (i.e., if Part 4.6.1.a does not apply).
- ii. These notifications and reports shall be submitted to EPA/OEP electronically at NPDES.Generalpermits@epa.gov, or, where an operator is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes submittal in electronic format, in hard copy form:

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Coordinator
5 Post Office Square - Suite 100 (OEP06-01)
Boston, MA 02109-3912

b. Submittal of Notifications and Reports to EPA/OES

- i. The following notifications and reports shall be signed and dated originals, submitted in hard copy, with a cover letter describing the submission, if Net DMR is required (i.e., if Part 4.6.1.a applies):
 - 1) NetDMR Opt-Out Requests;
 - 2) DMRs and transmittal record of DMRs submitted, when a NetDMR Opt-Out Request has been approved; and
 - 3) Written notifications required under Appendix IX.
- ii. This information shall be submitted to EPA/OES at the following address:

U.S. Environmental Protection Agency

²⁴ See footnote 17.

²⁵ See footnote 17.

Office of Environmental Stewardship (OES)
Water Technical Unit
5 Post Office Square, Suite 100 (OES4-SMR)
Boston, MA 02109-3912

5. MassDEP Address

- a. Massachusetts sites must submit copies of all notifications and reports required in Part 4.6.4.a, above, to the MassDEP RGP Coordinator,²⁶ or, where an operator is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes submittal in electronic format, in hard copy form:

Massachusetts Department of Environmental Protection
Bureau of Water Resources
1 Winter St. 5th Floor
Boston, MA 02108

- b. Massachusetts sites must submit copies of all notifications and reports required in Part 4.6.4.b, above, to the appropriate regional office as follows:
- i. Massachusetts Department of Environmental Protection - Central Region
8 New Bond Street
Worcester, Massachusetts 01606
 - ii. Massachusetts Department of Environmental Protection - Northeast Region
205B Lowell Street
Wilmington, Massachusetts 01887
 - iii. Massachusetts Department of Environmental Protection - Southeast Region
20 Riverside Drive
Lakeville, MA 02347
 - iv. Massachusetts Department of Environmental Protection – Western Region
436 Dwight Street
Springfield, MA 01103

6. NHDES Address

- a. New Hampshire sites must submit copies of all notifications and reports to the NHDES RGP Coordinator,²⁷ or, where an operator is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes submittal in electronic format, in hard copy form:

New Hampshire Department of Environmental Services
Water Division, Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

²⁶ See footnote 17.

²⁷ See footnote 17.

PART 5 ADMINISTRATIVE REQUIREMENTS**5.1 Notice of Change (NOC)**

Operators covered under this general permit may request a change to certain conditions through submission of a NOC to EPA and the appropriate State, when required, prepared in accordance with the instructions provided in Appendix IV, Part 2, and signed in accordance with 40 CFR §122.22.

1. For the purposes of this general permit, a NOC may consist of either:
 - a. The suggested NOC format in Appendix IV, Part 2 of this general permit; or
 - b. Other form of official correspondence containing all of the information included in the NOC suggested format in Appendix IV, Part 2 of this general permit.

2. Eligible changes, which are not otherwise major permit modifications as provided for under 40 CFR §122.62, may consist of:
 - a. Request for reduction in monitoring requirements: Certain monitoring requirements may be reduced upon demonstration of compliance if the eligibility requirements for reduction are met. Written approval by EPA is required for this change to be effective. Prior to receiving written approval, the operator must continue to monitor the parameters required in this general permit at the frequency specified in this general permit. This request requires supporting rationale and monitoring data as follows:
 - i. To be eligible for a reduction in treatment system monitoring (Part 4.3) or short-term monitoring (Part 4.4) due to technical infeasibility, the operator must provide justification for each parameter for which reduction is being requested that must include a proposed monitoring frequency;
 - ii. To be eligible for a reduction in **influent** monitoring (Part 4.1.2), the operator must provide monitoring data for a minimum of six (6) consecutive months and ten (10) samples for each parameter for which reduction is being requested;
 - iii. To be eligible for a reduction in **effluent** monitoring (Part 4.1.2), the operator must provide monitoring data for a minimum of six (6) consecutive months and ten (10) samples for each parameter for which reduction is being requested;
 - iv. Monitoring data must be submitted in support of requests for reduction of monitoring frequency in Part 5.1.2.a.ii and iii, above. Monitoring data submitted in support of this request must be in compliance with the monitoring and reporting requirements of this general permit, including the QA/QC requirements specified in Part 2.5.2.f, above, and must be attached in accordance with the instructions in Appendix VIII;
 - v. The discharge must be in compliance with the effluent limitation for any parameter for which a reduction is requested in Part 5.1.2.a.ii and iii, above; and

- vi. A proposed monitoring frequency must be included for each parameter for which a reduction is requested in Part 5.1.2.a.ii and iii, which shall be no less than once per year for any parameter.
- b. Request for a change in the site-specific effluent flow limitation: A NOC must be submitted if effluent flow increases, a change in flow conditions will decrease the daily maximum effluent flow by more than 25 percent, or an operator believes use of a flow meter is infeasible. Written approval by EPA is required for this change to be effective. Prior to receiving written approval, the operator must continue to limit effluent flow as required in this general permit at the frequency specified in this general permit. Written rationale provided in the NOC for this request must indicate:
 - i. The effluent flow will not exceed 1.0 MGD;
 - ii. The design flow of the treatment system will not be exceeded;
 - iii. WQBEL calculations for any limited parameter that applies to the discharge that is based on effluent flow; and
 - iv. Certification that any revised effluent limitation or monitoring requirement will be complied with.
- c. Request for a change in pH range for sites in New Hampshire: A NOC must be submitted to request a change in pH range due to naturally occurring conditions in the receiving water or where the naturally occurring source water is unaltered by the remediation activities. An operator must request and receive approval from NHDES for a change in pH range prior to submitting a NOC to EPA. See Part 2.4.3.b, above. Supporting documentation from the State must be provided with the NOC. Written approval by EPA is required for this change to be effective.
- d. Request for a change in authorized pollutants or pollutant parameters: A NOC must be submitted if: 1) A parameter limited in this general permit that is not included in an operator's authorization to discharge is identified; 2) The concentration of any parameter present in the effluent differs significantly from the influent, once effluent sampling begins; and/or 3) a WQBEL change is required or is otherwise requested. Written approval by EPA is required for this change to be effective. Additional effluent limitations and/or monitoring requirements may apply. **Changes in a pollutant or pollutant parameter not limited in this general permit require a new NOI or an individual NPDES permit.**
- e. Request to discharge chemical(s) and/or additive(s): A NOC must be submitted when an operator intends to discharge a chemical or additive that was not disclosed in the NOI submitted for a site. Written approval by EPA is required for this change to be effective. Monitoring data submitted in support of this request must be in compliance with the monitoring and reporting requirements specified in this general permit, including the QA/QC requirements specified in Part 2.5.2.f, and must be attached in accordance with the instructions in Appendix VIII. Written rationale provided in the NOC for this request must include:
 - i. All information required in Part 2.5.2.g.iii, above; and
 - ii. An explanation as required in Part 2.5.3.b.i through iii, above; or
 - iii. Monitoring data that demonstrates that each of the 126 priority pollutants are non-detect in discharges with the addition of the requested chemicals and/or additives. All data submitted in support of this request must be in compliance with the monitoring and reporting requirements of this general permit,

- including the QA/QC requirements specified in Part 2.5.2.f, above, and must be attached in accordance with the instructions in Appendix VIII.
- f. Notification of change to administrative information: This includes, but is not limited to: expected date of initiation of discharge; a change in the address for an owner or operator; a change in contact information for an owner or operator; and a change in ownership, so long as the operator authorized to discharge under this general permit remains unchanged. A requested change to administrative information is automatic unless EPA notifies the operator otherwise. Examples of when EPA is likely to provide such notification is when EPA intends to revoke and reissue coverage under this general permit or intends to issue an individual permit. **For a change in operator, a new NOI is required.** For a change in ownership, the new owner must submit:
 - i. Written notification to EPA no more than thirty (30) days following the date of ownership change; and
 - ii. Written notification containing the new ownership information, the specific date for ownership change, and an acknowledgement of permit responsibility, coverage, and liability.
 - g. Notification of a change in discharge location: Notification may be provided in a NOC for a change in discharge location so long as the receiving water identified in the NOI remains unchanged. Supporting documentation for this notification must indicate the new discharge location. A change in discharge location is automatic unless EPA notifies the operator otherwise. **For a change in receiving water, a new NOI is required.**
 - h. Notification of a change in activity area: Notification may be provided in a NOC for a change in activity area so long as the receiving water identified in the NOI and the operator authorized to discharge under this general permit remain unchanged, and any change in treatment or discharge location are either included in the NOC, or are unchanged. Supporting documentation for this notification must indicate the new activity area. A change in activity area is automatic unless EPA notifies the operator otherwise. **For a change in receiving water and/or operator, a new NOI is required.**
 - i. Notification of a change to a treatment system or process: Notification may be provided in a NOC for a change to a treatment system or process that adds or removes any major component. Written rationale for this notification must indicate:
 - i. Why the addition or removal is necessary, including when necessary to meet an effluent limitation in this general permit, or to meet a State permit condition; and
 - ii. The discharge will meet the effluent limitations in this general permit with the addition or removal.
 - j. Notification of a discharge interruption planned or encountered which will extend greater than ninety (90) days. Written rationale for this notification must indicate:
 - i. The reason(s) for the interruption of discharge;
 - ii. When the discharge ceased or will cease;
 - iii. When the discharge will be re-initiated; and

- iv. An acknowledgment that the additional monitoring required for system re-start will be conducted and routine sampling will be resumed as specified in the RGP.
3. Attach a brief narrative statement that describes the change. Include any written rationale or supporting documentation for the change, if required, or if otherwise being provided.
4. Attach monitoring data, if required, or if otherwise being provided, in accordance with the instructions in Appendix VIII.

5.2 Notice of Termination (NOT)

All operators covered under this general permit must submit a written NOT to EPA, and the appropriate State, when required, in accordance with Part 4.6, above, signed in accordance with 40 CFR §122.22 and in accordance with the instructions provided in Appendix IV, Part 3.

1. A NOT is required when one or more of the following conditions have been met:
 - a. All discharges covered under the RGP have been terminated;
 - b. Coverage under an individual or other general NPDES permit has been obtained;
 - c. There is a change in operator; or
 - d. Authorization to discharge has expired and coverage under a new general permit will not be requested.
2. For purposes of this general permit, the NOT may consist of either:
 - a. The suggested NOT format in Appendix IV, Part 3 of this general permit, or
 - b. Another form of correspondence containing all of the information included in the NOT suggested format in Appendix IV, Part 3 of this general permit.
3. A NOT must be submitted no later than thirty (30) days following the identification of the condition(s) requiring a NOT.
4. A NOT must include the following general site information:
 - a. The NPDES permit number assigned by EPA;
 - b. The name of the site and the street address (or a description of location using approximate geographic coordinates if no street address is available) for which the notification is submitted;
 - c. The name, address and telephone number of the owner of the site;
 - d. The name, address and telephone number of the operator of the site, if different from the owner;
 - e. Discharge identification (i.e., the outfall number), the discharge location (i.e., longitude and latitude), and the receiving water(s).
5. A NOT must include the following discharge information:
 - a. Indicate that all discharges have been permanently terminated.
 - b. Indicate the reason for the termination (e.g., completion of construction project, remediation completion, termination of temporary discharge).

- c. Indicate the date of the initiation of discharge, the date of the termination of discharge, the daily maximum effluent flow, and frequency of discharge.
 - d. Attach a summary of all monitoring results from the initiation of discharge through termination, including the results of monitoring requirements included in Part 4.3 of the RGP, when required for treatment system start-up(s), interruption(s), and shutdown, in accordance with the instructions in Appendix VIII.
6. Failure to submit a NOT shall result in continuation of general permit coverage until expiration, including continuation of all monitoring, record-keeping and reporting requirements.

5.3 Continuation of this General Permit after Expiration

If this general permit is not reissued prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and in effect as to any individual operator. However, EPA cannot provide written notification of coverage under this general permit to any operator who submits a NOI to EPA after the permit's expiration date. Any operator who was granted general permit coverage prior to the expiration date will automatically remain covered by the continued general permit until the earlier of:

1. Reissuance of this general permit, at which time the operator must comply with the NOI requirements of the new general permit to maintain authorization to discharge;
2. The operator's submittal of a NOT;
3. Issuance of an individual permit for the operator's discharges; or
4. A formal decision by EPA not to reissue the general permit, at which time the operator must seek coverage under an individual permit or other general NPDES permit.

PART 6 STANDARD CONDITIONS

The Standard Conditions are included in Appendix IX.

PART 7 ADDITIONAL PERMIT CONDITIONS APPLICABLE TO SPECIFIC STATES

If required, this section is reserved and will be completed following the State certification process and the public notice period.



Mann-Kendall Analysis for MtBE



Table E.1 - Groundwater Treatment System Resin Regeneration Log

**TABLE E-1
SUMMARY OF TREATMENT SYSTEM RESIN REGENERATION DATES**

Dartmouth College, Rennie Farm Site
Hanover, New Hampshire
DES Site #201111109, DES Project #27737

Regeneration #	Start Date
1	5/23/2017
2	6/1/2017
3	6/7/2017
4	6/14/2017
5	6/21/2017
6	6/29/2017
7	7/12/2017
8	7/26/2017
9	8/15/2017
10	9/12/2017
11	10/18/2017
12	11/13/2017
13	11/27/2017
14	12/13/2017
15	1/2/2018
16	1/22/2018
17	2/5/2018
18	2/21/2018
19	3/6/2018
20	3/19/2018
21	4/2/2018
22	4/12/2018
23	4/25/2018
24	5/7/2018
25	5/22/2018
26	6/12/2018
27	7/18/2018
28	9/6/2018
29	10/18/2018
30	11/19/2018
31	12/13/2018
32	1/2/2019
33	1/21/2019
34	2/6/2019
35	2/25/2019
36	3/20/2019
37	4/8/2019
38	4/22/2019
39	5/13/2019

Regeneration #	Start Date
40	6/10/2019
41	7/1/2019
42	7/21/2019
43	8/21/2019
44	10/14/2019
45	11/18/2019
46	12/16/2019
47	1/7/2020
48	2/3/2020
49	3/4/2020
50	3/25/2020
51	4/15/2020
52	5/7/2020
53	6/1/2020
54	8/3/2020
55	10/13/2020
56	11/23/2020
57	12/29/2020
58	1/18/2021
59	2/3/2021
60	2/17/2021
61	3/8/2021
62	3/23/2021
63	4/5/2021
64	4/14/2021
65	4/28/2021
66	5/11/2021
67	5/24/2021
68	6/7/2021
69	6/22/2021
70	7/14/2021
71	7/29/2021
72	8/10/2021
73	8/23/2021
74	9/7/2021
75	9/27/2021
76	10/18/2021
77	11/8/2021
78	11/22/2021

Regeneration #	Start Date
79	12/7/2021
80	12/20/2021



Appendix F – Off-Site Groundwater Extraction System Documents

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-6A
SHEET: 1 of 1
PROJECT NO: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors
Foreman: M. Thompson
Logged By: E. Dyrness

Type of Rig: ATV
Rig Model: MD B-57
Drilling Method: Drive & Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 869.4
Final Boring Depth (ft.): 10
Date Start - Finish: 10/11/2021 - 10/11/2021

H. Datum:
V. Datum:

Auger/Casing Type: HW
I.D./O.D.: 4"/4-1/2"
Hmr Weight (lb.):
Hmr Fall (in.):
Other:

Sampler Type: SS
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lb
Sampler Hmr Fall: 30 in
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample						Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed		
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						FLUSH MOUNTED ROAD BOX		
5		S-1	0-2	24	13	2 5 4 6	9	S-1: Loose, gray/tan, fine to medium SAND, little Silt, trace Gravel, moist.	1	ND	4'	865.4'	Cuttings 0-1 feet	2" PVC 0-10 feet	
		S-2	4-6	24	12	6 3 2 3	5	S-2: Loose, gray, fine SAND and SILT, clayey Silt, trace Gravel, wet.	ND	ND			Bentonite 1-3 feet	Sand 3-10 feet	
		S-3	8-10	24	15	2 3 4 4	7	S-3: Loose, gray, fine SAND and SILT, Clayey Silt, trace Gravel, wet.	ND	ND			10'	859.4'	Slotted PVC 5-10 feet
								Bottom of boring at 10 feet.							

REMARKS
1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-6A

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-6B
SHEET: 1 of 1
PROJECT NO: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors
Foreman: M. Thompson
Logged By: E. Dyrness

Type of Rig: ATV
Rig Model: MD B-57
Drilling Method: Drive & Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 869.4
Final Boring Depth (ft.): 20
Date Start - Finish: 10/11/2021 - 10/11/2021

H. Datum:
V. Datum:

Auger/Casing Type: HW
I.D./O.D.: 4"/4-1/2"
Hmr Weight (lb.):
Hmr Fall (in.):
Other:

Sampler Type: SS
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lb
Sampler Hmr Fall: 30 in
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample No.	Sample		Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
			Depth (ft.)	Pen. (in)								Rec. (in)	FLUSH MOUNTED ROAD BOX
5		S-1	0-2	24	13	5 7 13 12	20	S-1: Medium dense, gray, fine to medium SAND, some Gravel, little Silt, wet.	1	ND	865.4'		
		S-2	4-6	24	0	3 2 3 2	5	S-2: No Recovery					
		S-3	9-11	24	5	6 6 5 4	11	S-3: Medium dense, gray, SILTY CLAY, trace Gravel, wet.		ND			
		S-4	14-16	24	6	2 5 4 4	9	S-4: Medium dense, gray, fine SAND and SILT, trace Gravel, wet.		ND			
		S-5	18-20	24	13	1 2 4 3	6	S-5: Loose, gray, fine SAND and SILT, trace Gravel, wet.		ND	849.4'		
								Bottom of boring at 20 feet.		20'			

REMARKS
1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-6B

04.0190030.02 RENNIE FARM.GPJ - STANDARD BORING W/E W/O SMP 2PG; 2/28/2022

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-6C
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors
Foreman: M. Thompson
Logged By: E. Dyrness

Type of Rig: ATV
Rig Model: MD B-57
Drilling Method: Drive & Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 869.2
Final Boring Depth (ft.): 10
Date Start - Finish: 10/11/2021 - 10/11/2021

H. Datum:
V. Datum:

Auger/Casing Type: HW
I.D./O.D.: 4"/4-1/2"
Hmr Weight (lb.):
Hmr Fall (in.):
Other:

Sampler Type: SS
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lb
Sampler Hmr Fall: 30 in
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample					SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							FLUSH MOUNTED ROAD BOX	
5		S-1	0-2	24	8	1 3 7 8	10	S-1: Medium dense, fine to medium SAND and GRAVEL, little Silt, moist.	1	ND	4'	865.2'	Cuttings 0-1 feet	2" PVC 0-10 feet
		S-2	4-6	24	12	4 3 2 7	5	S-2: Medium dense, gray, fine SAND and SILT, trace Gravel, moist.		ND			Bentonite 1-3 feet	Sand 3-5 feet
		S-3	8-10	24	5	5 9 11 8	20	S-3: Loose, tan/gray, fine SAND and SILT, little Gravel, wet.		ND			10'	859.2'
								Bottom of boring at 10 feet.						

REMARKS

1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-6C

TEST BORING LOG



**Dartmouth College
Rennie Farm
Hanover, New Hampshire**

**BORING NO.: OPM-6D
SHEET: 1 of 1
PROJECT NO: 04.0190030.02
REVIEWED BY: JMW**

Drilling Co.: New England Boring Contractors	Type of Rig: ATV	Boring Location: See Plan	H. Datum:
Foreman: M. Thompson	Rig Model: MD B-57	Ground Surface Elev. (ft.): 869.3	V. Datum:
Logged By: E. Dyrness	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 20	
		Date Start - Finish: 10/12/2021 - 10/12/2021	

Auger/Casing Type: HW	Sampler Type: SS	Groundwater Depth (ft.)		
I.D./O.D.: 4"/4-1/2"	I.D./O.D (in.): 1-3/8"/2"	Date	Time	Water Depth
Hmr Weight (lb.):	Sampler Hmr Wt: 140 lb			Casing
Hmr Fall (in.):	Sampler Hmr Fall: 30 in			Stab. Time
Other:	Other:			

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample				Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)								FLUSH MOUNTED ROAD BOX	
5		S-1	0-2	24	8	3 5 10 8	15	S-1: Medium dense, gray/tan, fine to medium SAND, and GRAVEL, little Silt, moist.	1	ND	4'	865.3'	Cuttings 0-3 feet	2" PVC 0-15 feet
		S-2	4-6	24	0	7 4 4 3	8	S-2: No Recovery					Bentonite 3-13 feet	
		S-3	9-11	24	14	5 6 8 6	14	S-3: Medium dense, gray, fine SAND and SILT, some Gravel, wet.		ND			Sand 13-20 feet	
		S-4	14-16	24	10	2 2 2 2	4	S-4: Very loose, gray, fine SAND and SILT, some Gravel, Silty Clay, wet.		ND			Slotted PVC 15-20 feet	
		S-5	18-20	24	9	WOR WOR 2 4	2	S-5: Very loose, fine SAND and SILT, some Gravel, Silty Clay, wet.		ND				
								Bottom of boring at 20 feet.			20'	849.3'		

REMARKS
1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

**Boring No.:
OPM-6D**

04.0190030.02 RENNIE FARM.GPJ; STANDARD BORING W/E W/O SMP 2PG; 2/28/2022

TEST BORING LOG



Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-11A
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors
Foreman: M. Thompson
Logged By: E. Dyrness

Type of Rig: ATV
Rig Model: MD B-57
Drilling Method: Drive & Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 869.4
Final Boring Depth (ft.): 10
Date Start - Finish: 10/13/2021 - 10/13/2021

H. Datum:
V. Datum:

Auger/Casing Type: HW
I.D./O.D.: 4"/4-1/2"
Hmr Weight (lb.):
Hmr Fall (in.):
Other:

Sampler Type: SS
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lb
Sampler Hmr Fall: 30 in
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample						Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed		
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						FLUSH MOUNTED ROAD BOX		
5		S-1	0-2	24	2	10 12 8 22	20	S-1: Medium dense, fine to medium SAND and GRAVEL, some Silt, dry.	1	ND	4'	865.4'	Cuttings 0-1.5 feet	2" PVC 0-10 feet	
		S-2	4-6	24	11	5 4 1 2	5	S-2: Top 0-5": Loose, gray, fine SAND and SILT and GRAVEL, wet. Bottom 5-11": Loose, gray/tan, CLAYEY SILT, trace Gravel.	2	ND			Bentonite 1.5-3 feet	Sand 3-10 feet	
		S-3	8-10	24	11	16 13 6 10	19	S-3: Medium dense, gray, fine SAND and SILT, trace Gravel, wet.		ND			10'	859.4'	Slotted PVC 5-10 feet
								Bottom of boring at 10 feet.							

REMARKS

- Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).
- Cobble 4-4.5

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-11A

TEST BORING LOG



Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-11B
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors	Type of Rig: ATV	Boring Location: See Plan	H. Datum:
Foreman: M. Thompson	Rig Model: MD B-57	Ground Surface Elev. (ft.): 869.3	V. Datum:
Logged By: E. Dyrness	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 20	
		Date Start - Finish: 10/13/2021 - 10/13/2021	

Auger/Casing Type: HW	Sampler Type: SS	Groundwater Depth (ft.)		
I.D./O.D.: 4"/4-1/2"	I.D./O.D (in.): 1-3/8"/2"	Date	Time	Water Depth
Hmr Weight (lb.):	Sampler Hmr Wt: 140 lb			Casing
Hmr Fall (in.):	Sampler Hmr Fall: 30 in			Stab. Time
Other:				

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample					SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							FLUSH MOUNTED ROAD BOX	
5		S-1	0-2	24	8	3 3 2 2	5	S-1: Loose, tan/gray, fine to medium SAND and GRAVEL, little Silt, wet.	1	6	865.3'	SAND & GRAVEL	FLUSH MOUNTED ROAD BOX	Cuttings 1-3 feet
		S-2	4-6	24	13	5 4 3 1	7	S-2: Loose, tan/gray, fine to medium SAND and SILT, little Gravel, wet.	ND	4'			2" PVC 0-10 feet	
		S-3	9-11	24	0	7 4 6 8	10	S-3: No Recovery					Bentonite 3-13 feet	
		S-4	14-16	24	9	1 2 5 4	7	S-4: Loose, gray, CLAYEY SILT, trace Gravel, wet.	ND				Sand 13-20 feet	
		S-5	18-20	24	2	1 3 3 3	6	S-5: Loose, gray, CLAYEY SILT, trace Gravel, wet.	ND				Slotted PVC 15-20 feet	
								Bottom of boring at 20 feet.		20'	849.3'			

REMARKS

1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-11B

04.0190030.02 RENNIE FARM.GPJ - STANDARD BORING W/E W/O SMP 2PG; 2/28/2022

TEST BORING LOG



Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-11D
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors	Type of Rig: ATV	Boring Location: See Plan	H. Datum:
Foreman: M. Thompson	Rig Model: MD B-57	Ground Surface Elev. (ft.): 869.1	V. Datum:
Logged By: E. Dyrness	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 20	
		Date Start - Finish: 10/12/2021 - 10/12/2021	

Auger/Casing Type: HW	Sampler Type: SS	Groundwater Depth (ft.)		
I.D./O.D.: 4"/4-1/2"	I.D./O.D (in.): 1-3/8"/2"	Date	Time	Water Depth
Hmr Weight (lb.):	Sampler Hmr Wt: 140 lb			Casing
Hmr Fall (in.):	Sampler Hmr Fall: 30 in			Stab. Time
Other:				

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample					SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							FLUSH MOUNTED ROAD BOX	
5		S-1	0-2	24	10	4 4 5 2	9	S-1: Loose, tan/gray, fine to coarse SAND and GRAVEL, trace Silt, moist.	1	ND	4'	865.1'	Cuttings 1-3 feet	2" PVC 0-15 feet
		S-2	4-6	24	17	3 3 5 5	8	S-2: Loose, gray, fine SAND and SILT, little Gravel, wet.		ND			Bentonite 3-13 feet	
		S-3	9-11	24	6	4 7 9 8	16	S-3: Medium dense, gray, fine SAND and SILT, trace Gravel, wet.		ND			Sand 13-20 feet	
		S-4	14-16	24	12	5 6 5 5	11	S-4: Top 0-6": Medium dense, fine SAND and SILT, trace Gravel, wet. Bottom 6-12": Medium dense, gray, SILTY CLAY, trace Gravel, wet.		ND			Slotted PVC 15-20 feet	
		S-5	18-20	24	24	WOR 1 2 2	3	S-5: Very loose, gray, SILTY CLAY, trace Gravel, wet.		ND				
								Bottom of boring at 20 feet.			20'	849.1'		

REMARKS

1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-11D

TEST BORING LOG



Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-14A
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors	Type of Rig: ATV	Boring Location: See Plan	H. Datum:
Foreman: M. Thompson	Rig Model: MD B-57	Ground Surface Elev. (ft.): 867.5	V. Datum:
Logged By: E. Dyrness	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 10	
		Date Start - Finish: 10/14/2021 - 10/14/2021	

Auger/Casing Type: HW	Sampler Type: SS	Groundwater Depth (ft.)			
I.D./O.D.: 4"/4-1/2"	I.D./O.D (in.): 1-3/8"/2"	Date	Time	Water Depth	Casing
Hmr Weight (lb.):	Sampler Hmr Wt: 140 lb				
Hmr Fall (in.):	Sampler Hmr Fall: 30 in				
Other:	Other:				

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample					SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							Stratum Description	Elev. (ft)
5		S-1	0-2	24	16	6 3 3 8	6	S-1: Top 0-6": Tan/gray, fine to coarse SAND and GRAVEL, some Gravel, moist. Bottom 6-16": Tan/gray, fine SAND and SILT, some Gravel, moist.	1	ND	2'	865.5'		
		S-2	4-6	24	18	3 2 3 3	5	S-2: Tan/gray, SILTY CLAY, little Gravel, wet.		ND				
		S-3	8-10	24	16	3 6 7 6	13	S-3: Gray, fine SAND and SILT, little Gravel, wet.		ND				
10								Bottom of boring at 10 feet.		10'	857.5'			
15														
20														
25														
30														

REMARKS

1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

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Boring No.:
OPM-14A

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-14B
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors
Foreman: M. Thompson
Logged By: E. Dyrness

Type of Rig: ATV
Rig Model: MD B-57
Drilling Method: Drive & Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 867.7
Final Boring Depth (ft.): 20
Date Start - Finish: 10/14/2021 - 10/14/2021

H. Datum:
V. Datum:

Auger/Casing Type: HW
I.D./O.D.: 4"/4-1/2"
Hmr Weight (lb.):
Hmr Fall (in.):
Other:

Sampler Type: SS
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lb
Sampler Hmr Fall: 30 in
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample				Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed			
		No.	Depth (ft.)	Pen. (in)	Rec. (in)								FLUSH MOUNTED ROAD BOX			
5		S-1	0-2	24	14	6 2 3 9	5	S-1: Top 0-5": Loose, tan/gray, SAND and GRAVEL. Middle 5-12": Brown, fine SAND and SILT, Organics, (mud). Bottom 12-14": Tan/gray, fine SAND and SILT, trace Gravel, moist.	1	ND	865.7'	2'	Cuttings 1-3 feet			
		S-2	4-6	24	10	3 2 2 3	4	S-2: Very loose, tan/gray, SILTY CLAY, little Gravel, wet.		ND				2" PVC 0-15 feet		
		S-3	9-11	24	19	6 10 10 11	20	S-3: Medium dense, gray, fine SAND and SILT, trace Gravel, wet.		ND					Bentonite 3-13 feet	
		S-4	14-16	24	12	1 1 2 2	3	S-4: Very loose, gray, SILTY CLAY, little Gravel, wet.		ND						Sand 5-20 feet
		S-5	18-20	24	24	WOR 1 WOR 1	1	S-5: Very loose, gray, SILTY CLAY, trace Gravel, wet.		ND						
							Bottom of boring at 20 feet.									
20										20'	847.7'					
5																
10																
15																
20																
25																
30																

REMARKS

1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-14B

04.0190030.02 RENNIE FARM.GPJ; STANDARD BORING W/E W/O SMP; 2/28/2022

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-14C
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors
Foreman: M. Thompson
Logged By: E. Dyrness

Type of Rig: ATV
Rig Model: MD B-57
Drilling Method: Drive & Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 867.5
Final Boring Depth (ft.): 10
Date Start - Finish: 10/14/2021 - 10/14/2021

H. Datum:
V. Datum:

Auger/Casing Type: HW
I.D./O.D.: 4"/4-1/2"
Hmr Weight (lb.):
Hmr Fall (in.):
Other:

Sampler Type: SS
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lb
Sampler Hmr Fall: 30 in
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample					SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							FLUSH MOUNTED ROAD BOX	
5		S-1	0-2	24	0	3 4 5 5	9	S-1: No Recovery	1		2'	865.5'	Cuttings 0-1 feet 2" PVC 0-10 feet Bentonite 1-3 feet Sand 3-5 feet	
		S-2	4-6	24	16	3 2 3 4	5	S-2: Loose, tan/gray, fine SAND and SILT, little Gravel, wet.		ND				
		S-3	8-10	24	17	3 6 5 7	11	S-3: Medium dense, gray, fine SAND and SILT, little Gravel, wet.		ND	10'	857.5'	Slotted PVC 5-10 feet	
								Bottom of boring at 10 feet.						

REMARKS

1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

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Boring No.:
OPM-14C

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Dartmouth College
Rennie Farm
Hanover, New Hampshire

BORING NO.: OPM-14D
SHEET: 1 of 1
PROJECT NO.: 04.0190030.02
REVIEWED BY: JMW

Drilling Co.: New England Boring Contractors
Foreman: M. Thompson
Logged By: E. Dyrness

Type of Rig: ATV
Rig Model: MD B-57
Drilling Method: Drive & Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 867.4
Final Boring Depth (ft.): 20
Date Start - Finish: 10/13/2021 - 10/13/2021

H. Datum:
V. Datum:

Auger/Casing Type: HW
I.D./O.D.: 4"/4-1/2"
Hmr Weight (lb.):
Hmr Fall (in.):
Other:

Sampler Type: SS
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lb
Sampler Hmr Fall: 30 in
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate Min/ft	Sample					SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							FLUSH MOUNTED ROAD BOX	
5		S-1	0-2	24	8	2 4 5 5	9	S-1: Loose, tan/gray, fine to coarse SAND and GRAVEL, little Silt, moist.	1	ND	865.4		FLUSH MOUNTED ROAD BOX	
		S-2	4-6	24	14	1 2 4 3	6	S-2: Loose, tan/gray, CLAYEY SILT, trace Gravel, wet.		ND				
		S-3	9-11	24	8	4 4 5 5	9	S-3: Loose, gray, CLAYEY SILT, trace Gravel, wet.		ND				
		S-4	14-16	24	10	3 4 3 10	7	S-4: Loose, gray, CLAYEY SILT, trace Gravel, wet.		ND				
		S-5	18-20	24	13	5 3 5 5	8	S-5: Loose, gray, CLAYEY SILT, trace Gravel, wet.		ND				
20								Bottom of boring at 20 feet.			847.4			

REMARKS
1. Field testing results represent total organic vapor levels, referenced to a isobutylene standard, measured in the headspace of sealed soil sample jars using a Ion Science - Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates not detected above instrument detection limit (<0.1 ppmv).

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
OPM-14D

04.0190030.02 RENNIE FARM.GPJ; STANDARD BORING W/E W/O SMP; 2/28/2022



GZA GeoEnvironmental, Inc.