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January 31, 2019

Mr. Andrew Koff
Drinking Water and Groundwater Bureau
New Hampshire Department of Environmental Services
29 Hazen Drive - P.O. Box 95
Concord, NH 03302-0095

Dear Mr. Koff,

Please find enclosed a copy of Emery & Garrett Groundwater Investigations (EGGI), a Division of GZA's summary report of the 2018 results for the groundwater monitoring program conducted to fulfill the requirement of the Large Groundwater Withdrawal Permit (#LGWP 2016-0001) for the City of Dover's Production Well DPH #1.

I hope you find the information contained herein responsive to your needs. If you have any questions, please do not hesitate to contact us.

Best regards,

James M. Wieck, P.G.
Senior Project Manager
Hydrogeologist

James M. Emery, P.G.
Principal

Cc: Mr. John Storer, Director of Dover Public Works
Mr. Dean Peschel, Peschel Consulting, LLC

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MONITORING PROGRAM FOR PRODUCTION WELL DPH #1

Results of 2018 Water Quality and Groundwater Level Monitoring

DOVER, NEW HAMPSHIRE

January 2019

I. INTRODUCTION

This report provides a summary of the results of Emery & Garrett Groundwater Investigations, a Division of GZA (EGGI's) Monitoring Program for the City of Dover, New Hampshire's DPH #1 Production Well during 2018. The Monitoring Program was performed as required by the New Hampshire Department of Environmental Services (NHDES) as part of the Large Groundwater Withdrawal Permit (LGWP) (# LGWP-2016-0001) issued for the DPH #1 Production Well in June of 2016[1]. The location of Well DPH #1 and other site features are depicted on **Figure 1**. The LGWP for Well DPH #1 allows withdrawals of up to 720,000 gallons over any 24-hour period or a total of 1,123,300 gallons over any 24-hour period from the combined pumping of Well DPH #1 and the Ireland Well.

As noted in the Project Narrative provided by the NHDES as part of the LGWP permit, the LGWP monitoring requirements for Well DPH #1 recommend that:

- Water levels in DPH #1 be monitored continuously so that water level fluctuations in nearby wells can be compared to the operation of the production well;
- Water levels in three on-site monitoring wells and one off-site well be monitored continuously to infer the extent of potential water level effects on nearby wells within the influence area of the production well under typical use conditions;
- Water levels in each of the wells used for the withdrawal testing program be monitored twice each year to infer the flow directions in the Aquifer; and,
- Water quality samples be collected from five on-site monitoring wells and one off-site monitoring well to assess for the presence of groundwater contamination."

Production Well DPH #1 was put on-line on July 10, 2017. This report focuses on summarizing water use, water level, and water quality data for 2018. Water level data for 2016 and 2017 are also presented if available for wells included in the Monitoring Program.

[1] The Large Groundwater Withdrawal Permit was approved based on the findings presented by EGGI (2012).

II. RESULTS OF THE 2018 GROUNDWATER MONITORING PROGRAM

A. Introduction

The City of Dover withdrew groundwater from the Pudding Hill Aquifer intermittently during the first approximately half of 2018.

- The Ireland Well was used during the periods from January 1 through March 18 and May 25 to June 27, 2018.
- Well DPH #1 was used during the periods from January 1 through February 2, 2018; April 19 to April 23; May 10 to May 24; June-20 to June 22; and July 2 to July 3, 2018.

The use of the Ireland Well and Well DPH #1 were limited by the City due to the concentrations of contaminants detected in the Ireland Well as summarized in **Section F**. Water levels in the Aquifer were influenced by the pumping of the Production Wells, ambient changes (e.g. precipitation), and the utilization of Artificial Recharge (AR).

EGGI conducted an extended Pilot Test to further evaluate the feasibility of artificially recharging the Aquifer (*i.e.*, AR) between May 4 and August 31, 2018. During this extended Pilot Test, water withdrawn from the Bellamy River was discharged into two temporary AR Basins to supply Artificial Recharge to the Pudding Hill Aquifer (**Figure 1**), as allowed by surface water levels/flow within the Bellamy River. A total of approximately 43.75 million gallons of AR was added to the Aquifer during the Pilot Test (**Table 1**).

B. Precipitation

In order to evaluate the impact of climatic variations on water levels within the Pudding Hill Aquifer, EGGI downloaded precipitation data from the NOAA National Climatic Data Center (NCDC) website for the Thompson Farm weather station in Durham, New Hampshire[2] (**Figure 2**). In addition, precipitation statistics were obtained from the NOAA Applied Climate Information System (ACIS) website[3] (see below).

The graph of precipitation in **Figure 2** shows that 15 rain events with a total rainfall greater than one inch in a day occurred during 2018. In addition, closely-spaced rain events with relatively large cumulative precipitation occurred, such as those during mid-July through mid-August and mid-October through the end of November. These individual and closely-spaced rain events collectively impacted groundwater levels in the wells monitored, as discussed below.

The historic average annual cumulative precipitation[4] is depicted by the brown line in the graph on **Figure 2**. The cumulative precipitation for each year, starting in 2011, is depicted by the green line and shading in the graph. The comparison illustrated by the combined graph

[2] Weather station: NH Durham 2 SSW. Website for Data: https://www.ncdc.noaa.gov/crn/station.htm?stationId=1040
[3] Website for Data: http://scacis.rcc-acis.org/
[4] Based on a 30-year period from 1981-2010.

shows that the total annual precipitation during 2018 (57.75 inches) was approximately 20 percent higher than each of the previous seven years, and higher than the historic average annual cumulative precipitation (48.04-inches). Through early July 2018, the cumulative precipitation was near the historic average; however, beginning during mid-July 2018 the cumulative total precipitation exceeds the average annual and remains above the cumulative total through the remainder of the year, due to the numerous precipitation events during the second half of 2108 depicted on the plot of precipitation data on **Figure 2**.

C. DPH #1 and Ireland Well Water Withdrawals and Water Levels

City water use data depicted on **Figure 3** indicate that groundwater was withdrawn from the Ireland Well at a maximum rate of approximately 534,000 gallons per day (gpd) during 2018. In comparison, during 2017 the maximum withdrawal rate ranged from 200,000 to 570,000 gpd. A total of approximately 31.50 million gallons of water were withdrawn from the Ireland Well from January 1, 2018 to December 31, 2018.

Groundwater was withdrawn from Well DPH #1 at a maximum rate of 559,000 gpd during 2018, in comparison to the maximum rate of 592,000 gpd during 2017 (**Figure 3**). The combined maximum withdrawal rate from both Production Wells during 2018 is 1,083,000 gpd. The daily pumping rate of Well DPH #1 and the combined pumping rate of DPH #1 and the Ireland Well were both below the respective permitted amounts of 720,000 and 1,123,000 gpd.

The pumping of Production Well DPH #1 during 2018 resulted in the withdrawal of approximately 32.76 million gallons of water from the Aquifer (**Figure 3**). Approximately 31.50 million gallons of water was withdrawn from the Ireland Well during the same time period. As a result, the total combined withdrawal from both Production Wells during 2018 is approximately 64.26 million gallons.

The relative water levels in Well DPH #1 and the Ireland Well are measured as head of water above the transducers in each of the Production Wells. Water levels in each of the Production Wells had been gradually decreasing during 2017, and had reached levels of approximately 8.3 feet and 24.3 feet above the transducers under pumping conditions, respectively, by January 31, 2018 in response to the pumping of the two Wells (**Figure 3**). The water levels in both Production Wells gradually increased throughout the year in response to the limited use of the wells and increased precipitation and use of AR during the second half of the year. The non-pumping water levels in the Ireland Well and Well DPH #1 at the end of 2018 are approximately 56.5 feet and 43.5 feet, respectively. The water levels within the Ireland Well and Well DPH #1 had therefore increased by 32.2 feet and 35.2 feet, respectively. For the Ireland Well water level data for December 12, 2018 were used rather than data for December 31, 2018 due to the effects of an approximate 9-day withdrawal test performed on the Ireland well from December 12 to December 21, 2018.

D. Water Level Variations in Monitoring Wells

Water levels were recorded at minimum 2-hour intervals in Wells DPH-MW2d, DPH-B5[5], DP-105, and DPH-MW6 using automated transducers (**Appendix A** and **Appendix C**[6]). These automated water levels were supplemented with manual measurements obtained periodically throughout the monitoring program. Automated and manual water levels measurement collection methods each have an estimated accuracy of ± 0.01 foot. Water level elevations (in feet above sea level) calculated based on the water level measurements have an estimated accuracy of ± 0.1 foot due to the accuracy of the methods used to establish the level elevation reference points at each monitoring location.

During 2018 the water level in Monitoring Well DPH-MW2D rose approximately 19.5 feet (from 64.5 feet to 84 feet) in response to precipitation, aquifer recovery during the periods when the Ireland Well was not pumped, and the addition of artificial recharge to the Aquifer[7] (**Appendix A**). The water level appears to generally stabilize at an elevation of approximately 80 feet during May through July, and then increase relatively rapidly during August. This increase coincides with both the largest period of AR (**Table 1**) and an increase in the frequency of precipitation events (**Figure 2**).

Water levels in Well DPH-B5 behaved similarly to the water levels in Well DPH-MW2D, increasing approximately 18.5 feet (from elevation 66 feet to 84.5 feet). The water level in Well DPH-B5 also appears to generally stabilize at an elevation of approximately 80 feet during May through July, and then increase relatively rapidly during August, coincident with the largest period of AR and an increase in the frequency of precipitation events.

The water level in Monitoring Well DP-105 increased continuously during 2018 from an elevation of approximately 86 feet to approximately 92.5 feet (*i.e.*, an increase of approximately 6.5 feet). The increase is anticipated to be largely in response to the continued recovery of water levels after turning off the Griffin Well in December 2015 and reduced use of the Ireland Well and Well DPH #1, and likely to a lesser extent, precipitation events and AR. Relatively rapid increases in water level of approximately one to two feet appear to coincide with precipitation events. These increases generally appear to be shorter term deviations from the general increasing water level trend.

Similar to the water level trends for the other wells, the water level within Monitoring Well DPH-MW6 increases throughout 2018. The water level in this well increased approximately six feet, from elevation 86.5 feet to elevation 92.5 feet. The water level trend is most similar to the water level trend for Monitoring Well DP-105 and interpreted by EGGI similarly.

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[5] Well DPH-B5 was monitored instead of Monitoring Well DPH-MW10, per agreement with NHDES.
[6] Data in **Appendix C** is included on a Compact Disk for hard copies of the report and as an Excel file for submittal to the NHDES.
[7] A detailed report on hydraulic impacts related to withdrawals from the Ireland and DPH #1 Production Wells, recharge from precipitation, and Artificial Recharge is currently being prepared for presentation to the City of Dover and NHDES.

E. Interpreted Groundwater Flow Directions

Groundwater elevation contour maps were prepared to evaluate the effects of the groundwater withdrawals on groundwater flow directions within the Pudding Hill Aquifer. Groundwater hydraulic head contours based on depth to groundwater level data collected from 38 groundwater monitoring wells on April 25 and 26 and August 28 through 30, 2018 are depicted on **Figure 4** and **Figure 5**, respectively. Groundwater elevations used to prepare the contour maps were obtained for available monitoring wells, including wells utilized during the pumping test conducted for the permitting of Well DPH #1 and from 21 Monitoring Wells, five Existing Wells, and 10 wells installed as part of EGGI's ongoing contaminant assessment of the Pudding Hill Aquifer[8]. Groundwater elevation data are summarized in **Table 2**.

The Ireland Well and Well DPH #1 were not in continuous use at the time the data used in the preparation of the estimated groundwater contours depicted in **Figure 4** were collected. However, as can be seen in **Figure 4**, the effects of the pumping of the Ireland Well and Well DPH #1 are present within the Aquifer. In general, groundwater flow within the aquifer is interpreted as toward the Ireland Well and Well DPH #1, as the collective cone of depression associated with the Production Wells is filled.

The estimated groundwater hydraulic contours depicted on **Figure 5** show the effects of limited use of the Production Wells and use of AR during the summer of 2018. Notably, the contours indicate the presence of groundwater mounding beneath and surrounding AR Basin 1 and AR Basin 2. During the period between the April and August groundwater gauging rounds, the hydraulic head near AR Basin 1 and AR Basin 2 increases by approximately seven feet and nine feet, respectively. The hydraulic head contours depicted on **Figure 5** also suggest that, while the overall head in the aquifer may increase further due to the limited use of the Production Wells, the effects of the groundwater withdrawals from the Production Wells on the direction of the direction of the head gradient has largely dissipated (*i.e.*, the cone of depression has largely been filled). Continued collection and evaluation of hydraulic head data is needed to confirm this conclusion.

F. Results of Water Quality Sampling and Analyses

In accordance with the water quality monitoring program in the Large Groundwater Withdrawal Permit issued by the NHDES for Production Well DPH #1, EGGI collected groundwater samples for laboratory analysis during 2018 from the following wells:

- **Monitoring Wells DP-MW6, DPH-B5[9], and DP-105**: Volatile organic compounds (VOCs), 1,4-Dioxane, per- and poly-fluoroalkyl substance (PFAS), RCRA 8 metals, iron, and manganese.
- **Monitoring Well DPH-MW2D:** VOCs and 1,4-Dioxane.
- **Monitoring Wells DPH-4 and DPH-6:** Nitrite, nitrate, chloride, sodium,

[8] Monitoring Wells DPH-MW1-17 through DPH-MW10-17 were installed as part of EGGI's ongoing evaluation of contaminants that is being conducted for the City of Dover.
[9] Well DPH-B5 was sampled instead of Monitoring Well DPH-MW10, as approved by the NHDES.

arsenic, zinc, and VOCs.

Water quality samples collected by EGGI were submitted to Eastern Analytical, Inc. (EAI) of Concord, New Hampshire for analyses of the required water quality parameters. EAI subcontracted the analysis of groundwater samples for analyses of PFAS to Vista Analytical Laboratory (Vista) in El Dorado Hills, California. EAI's and Vista's laboratory reports are presented in **Appendix B**.

The water quality monitoring requirements included in the LGWP permit for Production Well DPH #1 includes two sampling events (conducted annually between April 15 and May 15 and between August 15 and September 15). During 2018, the permit-required sampling rounds were performed on May 15, 2018 and August 29, 2018[10]. Results of the water quality analyses are summarized in **Table 3**. The following subsections further summarize the results of the laboratory analyses.

1) VOCs, 1,4-Dioxane, and PFAS

The analyses of VOCs, 1,4-Dioxane, and PFAS indicate the following:

- M*t*BE is the only VOC detected in samples submitted for VOC analyses. M*t*BE was detected in samples collected from Wells DPH-B5 and DP-105 during both 2018 sampling rounds at concentrations ranging from 3.7 micrograms per liter (ug/l) (BPH-B5; August 29, 2018) to 8.3 ug/L (DP-105; April 24, 2018). The detected concentrations of M*t*BE are below the New Hampshire Ambient Groundwater Quality Standard (NH AGQS; 13 ug/L).
- 1,4-Dioxane was detected in each of the samples collected from Wells DP-105 and DPH-B5 at concentrations ranging from 1.9 ug/L (DP-105) to 3.9 ug/L (DPH-B5). The detected concentrations of 1,4-Dioxane exceed the NH AGQS; 0.32 ug/L.
- 1,4-Dioxane was not detected above the laboratory reporting limit (RL) in the groundwater samples collected from Wells DPH-MW-2D and DPH-MW-6.
- PFAS were detected in both rounds of groundwater samples collected from Wells DPH-B5 and DP-105.
    - The detected concentrations of perfluorooctanoic acid (PFOA) range from 154 nanograms per liter (ng/L) (DPH-B5; August 29, 2108) to 317 ng/L (DP-105; July 24, 2018).
    - The detected concentrations of perfluoro-octane-sulfonate (PFOS) range from 200 nanograms per liter (ng/L) (DPH-B5; August 29, 2108) to 579 ng/L (DP-105; April 25, 2018).
    - PFAS were not detected above the laboratory RL in the samples collected from Well DPH-MW-6.

[10] Well DPH-4 and well DPH-B5 were sampled for one or more of the required parameters on July 24, 2018. These Wells were not resampled for the respective parameters during the August 29, 2018 sampling round, as indicated on **Table 3**.

- The detected concentrations of PFOA and PFOS (*i.e.*, concentrations detected in samples collected from wells DPH-B5 and DP-105) exceed their combined and individual NH AGQS of 70 ppt for individual and the combined total for these two PFAS compounds.

- Overall, concentrations of M*t*BE, 1,4-dioxane, and PFAS decreased towards the east within the Aquifer (*i.e.*, towards Production Well DPH #1 and the Ireland Well), as reflected by the concentrations detected in the samples collected from Wells DP-105, DPH-B5, and DPH-MW2d.

2) Other Water Quality Parameter Results

The results of the analyses indicate the following:

a. Analytical results for Groundwater Samples from Wells DPH-MW6, DP-105, and DPH-B5:

- Cadmium, lead, mercury, selenium, and silver were not detected above the laboratory RLs in either of the samples collected from the referenced wells.
- Arsenic was detected in one or both samples collected from the referenced wells at concentrations ranging from 0.001 mg/L (DPH-MW6, August; and DPH-5, May) to 0.004 mg/l (DPH-6, May). The detected concentrations of arsenic do not exceed the NH AGQS for arsenic (0.005 mg/L).
- Barium was detected in each of the samples collected from the referenced wells at concentrations ranging from 0.003 mg/L (DPH-MW6, May) to 0.058 mg/l (DP-105, May). The detected concentrations of barium do not exceed the NH AGQS for barium (2 mg/L).
- Total chromium was only detected above the laboratory RL in the samples collected from DPH-MW6 (0.002 mg/L to 0.0023 mg/L). The detected concentrations of chromium do not exceed the NH AGQS for total chromium (0.100 mg/L).
- Iron was detected in the samples collected from Wells DP-105 and DPH-B5 at concentrations ranging from 1.1 mg/L (DPH-B5, May) to 1.8 mg/l (DP-105, August). The detected concentrations of iron exceed the Secondary Maximum Contaminant Level (SMCL) for iron (0.3 mg/L).
- Manganese was detected in the samples collected from Wells DP-105 and DPH-B5 at concentrations ranging from 0.28 mg/L (DPH-B5, May) to 0.52 mg/L (DP-105, May). The detected concentrations of manganese exceed the SMCL for manganese (0.05 mg/L), but do not exceed the NH AGQS for manganese (0.840 mg/L).

b. Analytical results for Groundwater Samples from Wells DPH-4 and DPH-6:

- Arsenic was detected in each of the samples collected from the referenced wells at concentrations ranging from 0.0011 mg/L (DPH-4, August) to 0.004 mg/l (DPH-6, May). The detected concentrations of arsenic do not exceed the NH AGQS for arsenic (0.005 mg/L).
- Nitrate was detected in each of the samples collected from the referenced wells at concentrations ranging from 0.057 mg/L (DPH-6, August) to 0.98 mg/L (DPH-6, May). The detected concentrations of nitrate are below the NH AGQS for nitrate (10 mg/L).
- Nitrite was not detected above the laboratory RL in the samples collected from each of the referenced wells.
- Chloride was detected in each of the samples collected from the referenced wells at concentrations ranging from 13 mg/L (DPH-6, August) to 59 mg/L (DPH-6, May). The detected concentrations of chloride are below the SMCL for chloride (250 mg/L).
- Sodium was detected in each of the samples collected from the referenced wells at concentration ranging from 10 mg/L (DPH-6, August) to 26 mg/L (DPH-4, May).
- Zinc was only detected above the laboratory RL in the samples collected from well DPH-6. The detected concentrations of zinc are 0.0058 mg/L (August) and 0.031mg/L (May). The detected concentrations of zinc are below the SMCL for zinc (5 mg/L).

III. SUMMARY AND RECOMMENDATIONS

Results of groundwater level and quality monitoring during 2018 indicate the following:

- The City of Dover withdrew groundwater resources from the Ireland Well and Well DPH #1 from January 1, 2018 through March 18 and February 2, 2018, respectively. After these dates withdrawals from the Production Wells was intermittent, with the last use of the Ireland Well and Well DPH #1 on June 27 and July 3, respectively. Use of the Ireland Well and Well DPH #1 were voluntarily limited based on groundwater quality data collected within the Aquifer and from the Ireland Well to limit the potential for further contamination of the Ireland Well and contamination of Well DPH #1. The decision to limit the use the Production Wells was based on water quality data collected as required by the LGWP and data collected under other programs, including data for samples collected from the Ireland Well and DPH #1. Non-LGWP-related data will be summarized separately.
- Total groundwater withdrawals during 2018 from Well DPH #1 and the Ireland Well were approximately 31.5 and 32.8 million gallons, respectively.
- During calendar year 2018, the maximum withdrawal rate from Well DPH #1

was 559,000 gpd, and the maximum combined withdrawal rate from Well DPH #1 and the Ireland Well was 1,083, 000 gpd. These withdrawal rates comply with the maximum daily withdrawals allowed under the LGWP (Well DPH #1 720,000 and combined 1,123,000 gpd).

- Water levels within the monitoring wells and Production Wells increased significantly during 2018 due to the combined effects of precipitation, aquifer recovery during the periods when the Ireland Well was not pumped, and the addition of Artificial Recharge to the Aquifer. Continued collection and evaluation of hydraulic head data is needed to assess whether the August 2018 water level data are generally representative of static non-pumping aquifer conditions.
- General flow directions within the central and eastern portion of the Pudding Hill Aquifer converge on Well DPH #1 and/or the Ireland Well at the time of the April 2018 groundwater gauging round, reflecting the effects of withdrawals from these wells. However, at the time of the August 2018 groundwater gauging round the effects of the groundwater withdrawals from the Production Wells on the direction of the direction of the head gradient has largely dissipated (*i.e.*, the cone of depression has largely been filled). The overall direction of groundwater flow inferred based on the August estimated hydraulic head contours indicate that groundwater flow within the aquifer is generally toward the north convergent at depth beneath the Bellamy River. This interpretation is based on EGGI's understanding of Site hydrogeology and should be further evaluated as additional water level data potentially representative of static aquifer conditions are collected.
- Groundwater contaminants and naturally occurring metals and inorganic parameters were detected in certain Permit-required groundwater quality samples collected during 2018. The concentrations of 1,4-Dioxane, PFOA and PFOS detected in certain groundwater samples collected under the Permit exceed their respective NH AGQS but are consistent with the results of water quality monitoring during 2017.
- Overall, concentrations of VOCs, 1,4-Dioxane, and PFAS decrease from west to east in the monitoring wells sampled.
- The concentrations of iron and manganese detected in certain samples exceed their respective SMCLs and are consistent with the results of water quality monitoring during 2017.
- Arsenic was detected in samples collected from each of the monitoring wells sampled at concentrations that are below the MCL and NH AGQS.
- Chloride and sodium detected in Monitoring Wells DPH-4 and DPH-6 may be due to salt use within the light industrial complex to the west of the project site or use along Stonewall Road.

The continued long-term monitoring of water levels within the Pudding Hill Aquifer during 2019 will provide further insights into the hydrology and water quality of the Aquifer in relation to the pumping of Production Well DPH #1 (and the Ireland Well). This information will form the basis for managing withdrawals from Production Well DPH #1 to maximize withdrawals to benefit the City of Dover, while at the same time preventing adverse hydrological and water quality impacts to the Pudding Hill Aquifer.

IV. LIMITATIONS

EGGI has collected and evaluated the available technical data according to professionally accepted scientific standards. It is to be recognized that the monitoring program is limited to that which is presented in this report and occurred during a specific climatic period. The interpretations provided herein represent EGGI's professional opinion based upon the data collected. Nothing stated or inferred in this report constitutes a warranty written or implied.

V. REFERENCES

Emery & Garrett Groundwater Investigations, LLC, 2016, Final Hydrogeologic Investigation, City of Dover, Pudding Hill Aquifer Groundwater Development, Production Well DPH #1, Dover, New Hampshire.

FIGURES

FIGURE 1

Production Wells and Monitoring Sites
DPH #1 Large Groundwater Withdrawal
Permit Monitoring Program

Pudding Hill Aquifer
Dover, New Hampshire

Bellamy River
DPH-MW2D
DPH-MW3
DPH-MW2-17
DPH-EX4
DPH-B5
Ireland well
DSK-2
DPH-MW19
DPH-MW18
DPH-MW1
DPH-MW8-17
DPH-MW1-17
DSK-3
DPH #1 Production Well and DPH-7
DPH-B7
DPH-MW20D
DPH-MW5-17
DPH-MW14
DPH-MW10
DPH-MW15D
DPH-MW10-17
DPH-MW11
DPH-6
DPH-MW4-17
DPH-MW4
DPH-MW17
DPH-MW13
AR Basin 1
DP-105
DPH-MW3-17
DPH-MW6-17
DPH-5
DPH-4
DPH-MW9-17
DPH-MW12d
DPH-MW9
DPH-1
DPH-MW5
AR Basin 2
DPH-MW6
DPH-MW7-17
DPH-MW8
Griffin Well
DPH-MW7
MW-1

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Dover Pudding Hill Production Well

Long-Term Monitoring Well

- Water Level and Water Quality
- Water Quality

Well used for Water Level Contouring

- Monitoring Well

Well not used for Water Level Contouring

- Monitoring Well - no contouring data
- Location of AR Basin

N

1:4,800

1 inch = 400 feet

0 200 400 800 Feet

FIGURE 1

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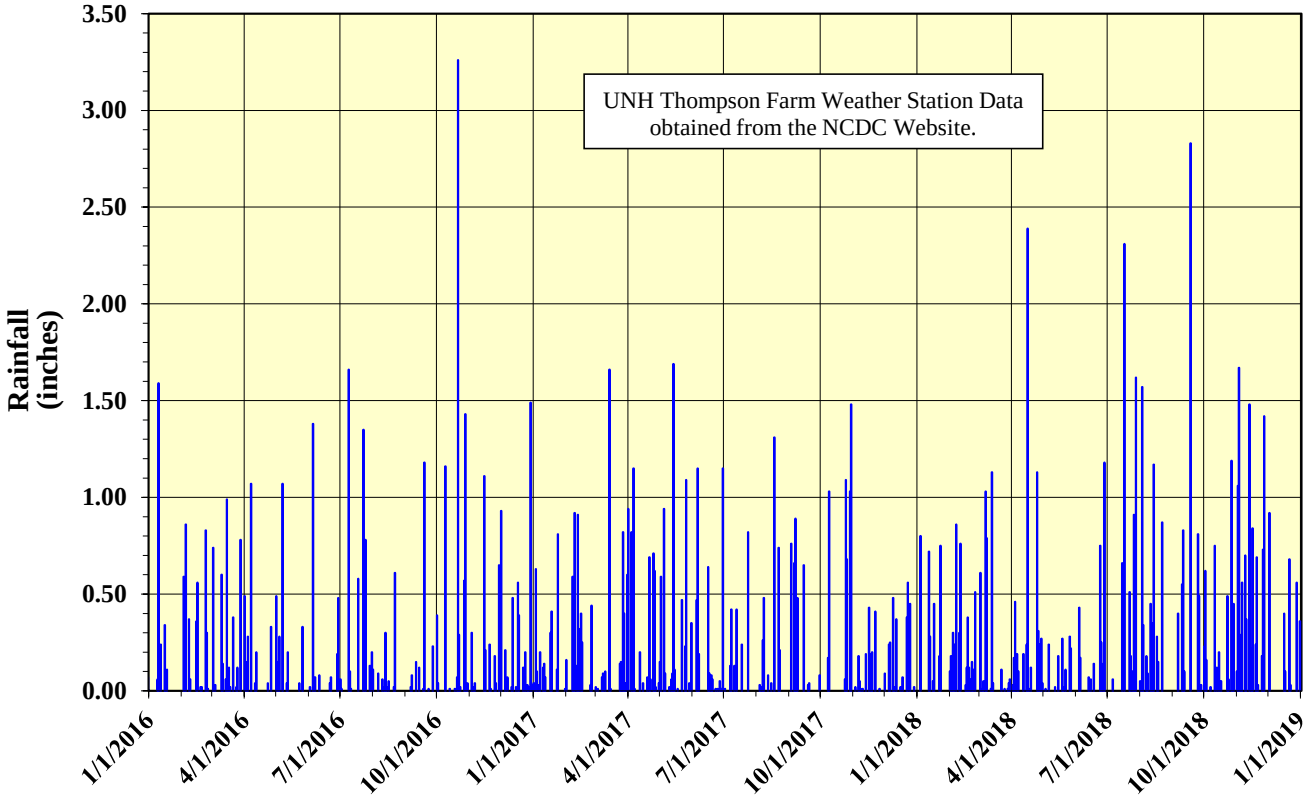
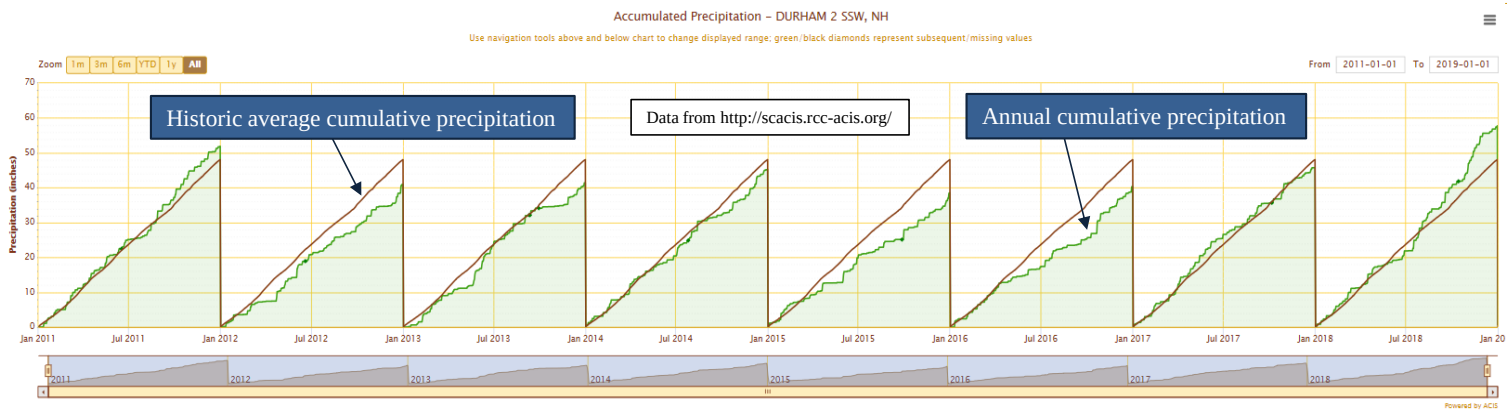
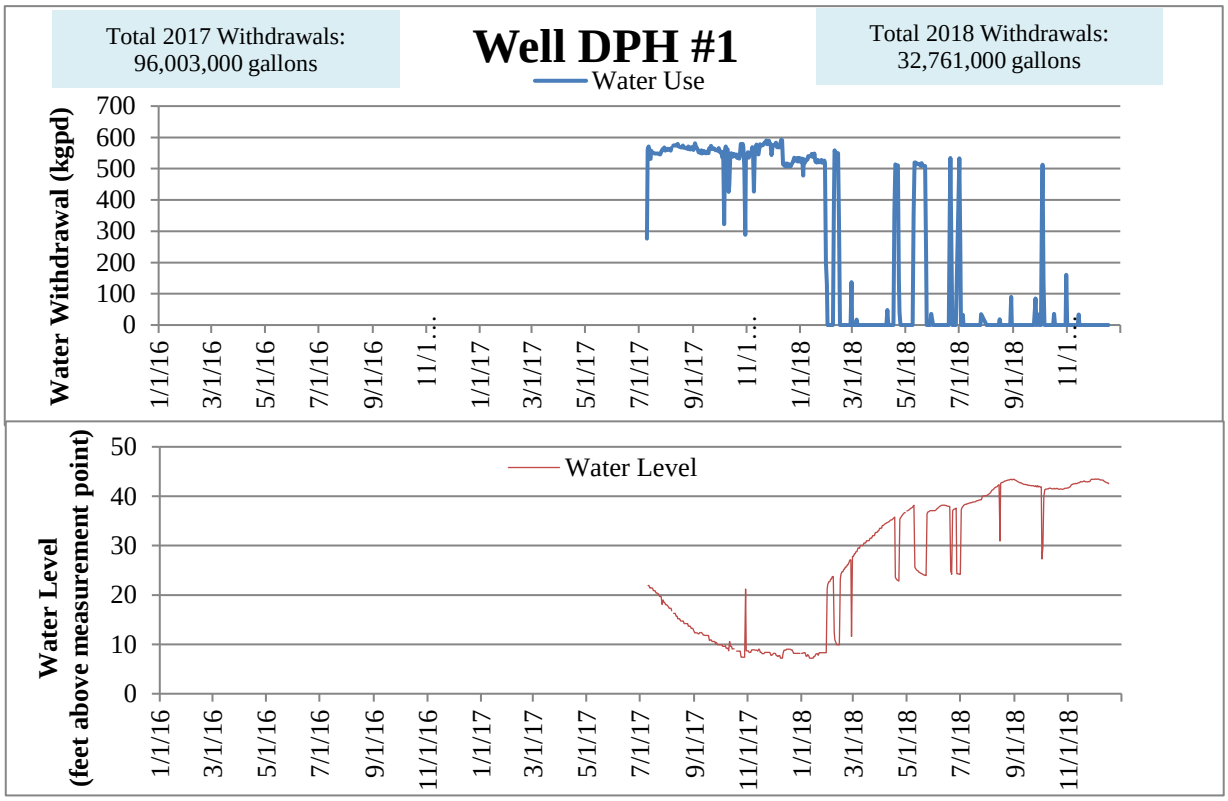
FIGURE 2
Plots of Precipitation Data - Durham 2 SSW, NH Station

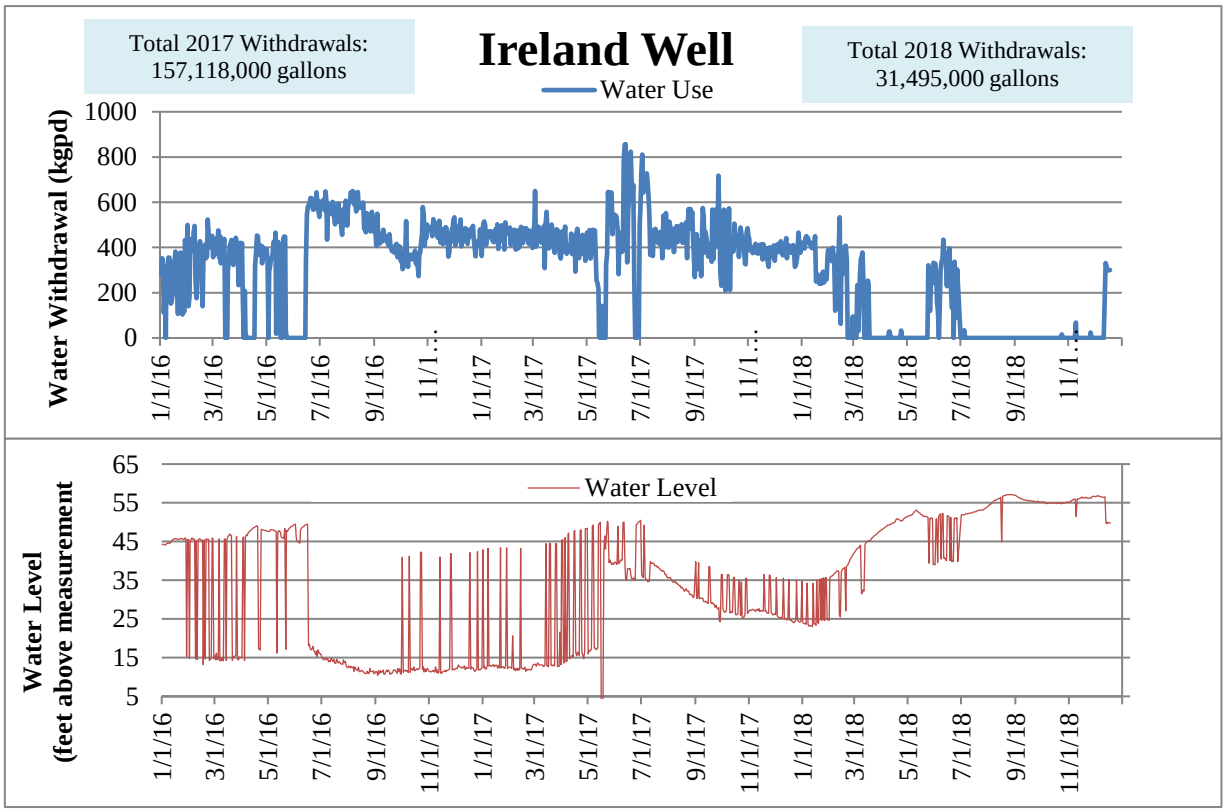




Thompson Farm, Durham, New Hampshire

FIGURE 3
2017 and 2018 Water Use and Water Levels*
Production Wells DPH #1 and Ireland Well





* Data provided by City of Dover

FIGURE 4

April 25, 2018 Groundwater Contours
DPH #1 Large Groundwater Withdrawal
Permit Monitoring Program

Pudding Hill Aquifer
Dover, New Hampshire

Bellamy River
DPH-MW2D
DPH-MW3
DPH-MW2-17
DPH-EX4
DPH-B5
Ireland well
DSK-2
DPH-MW19
DPH-MW18
DPH-MW1
DPH-MW8-17
DPH-MW1-17
DSK-3
DPH-B7
DPH-MW20D
DPH-MW5-17
DPH-MW14
DPH-MW10
DPH-MW15D
DPH #1 Production Well and DPH-7
DPH-MW10-17
DPH-MW11
DPH-6
DPH-MW4-17
DPH-MW4
DPH-MW17
DPH-MW13
AR Basin 1
DP-105
DPH-5
DPH-4
DPH-MW3-17
DPH-MW6-17
DPH-MW9-17
DPH-MW12d
DPH-MW9
DPH-1
DPH-MW5
AR Basin 2
DPH-MW6
DPH-MW7-17
DPH-MW8
Griffin Well
DPH-MW7
MW-1
79
80
81
82
83
84
85
86
87
88
89

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Dover Pudding Hill Production Well

Long-Term Monitoring Well

- Water Level and Water Quality
- Water Quality

Well used for Water Level Contouring

- Monitoring Well

Well not used for Water Level Contouring

- Monitoring Well - no contouring data
- Groundwater Flowlines on 4/25/18
- Groundwater Elevation Contours on 4/25/18
- Location of AR Basin

Contours depict groundwater elevation above mean sea level

Dashed contour based on data and conceptual model of aquifer

Contour Interval: 1 foot

1:4,800

1 inch = 400 feet

0 200 400 800 Feet

N

FIGURE 4

Emery & Garrett
Groundwater Investigations, A Division of GZA

Document Path: O:\nh\DGM\21.01_DGM_2018-2019\3 - Annual Summary Reports\DPH #1 LGWP - Annual Report_2018\Figures\DPH_LGWP_RPT_2018_Fig4_April_Contours.mxd

FIGURE 5

August 29, 2018 Groundwater Contours
DPH #1 Large Groundwater Withdrawal
Permit Monitoring Program

Pudding Hill Aquifer
Dover, New Hampshire

Bellamy River
DPH-MW2D
DPH-MW3
DPH-MW2-17
DPH-EX4
Ireland well
DPH-B5
DSK-2
DPH-MW19
DPH-MW18
DPH-MW1
DPH-MW8-17
DPH-MW1-17
DSK-3
DPH-B7
DPH-MW20D
DPH #1 Production Well and DPH-7
DPH-MW5-17
DPH-MW14
DPH-MW10
DPH-MW15D
DPH-MW10-17
DPH-MW11
DPH-6
DPH-MW4-17
DPH-MW4
DPH-MW17
DPH-MW13
AR Basin 1
DP-105
DPH-MW3-17
DPH-MW6-17
DPH-5
DPH-4
DPH-MW9-17
DPH-MW12d
DPH-MW9
DPH-1
DPH-MW5
AR Basin 2
DPH-MW6
DPH-MW7-17
DPH-MW8
Griffin Well
DPH-MW7
MW-1
85
86
89
90
87
88
91

Legend

- Dover Pudding Hill Production Well

Long-Term Monitoring Well

- Water Level and Water Quality
- Water Quality

Well used for Water Level Contouring

- Monitoring Well

Well not used for Water Level Contouring

- Monitoring Well - no contouring data
- Groundwater Flowlines on 8/29/18
- Groundwater Elevation Contours on 8/29/18
- Location of AR Basin

N

Contours depict groundwater elevation above mean sea level

Contour Interval: 1 foot

1:4,800

1 inch = 400 feet

0 200 400 800 Feet

FIGURE 5

Emery & Garrett
Groundwater Investigations, A Division of GZA

TABLES

TABLE 1

Information on Discharge of Artificial Recharge (AR) into AR Basins 1 and 2 for 2018 - Pudding Hill Aquifer, Dover, New Hampshire

DPH #1 Large Groundwater Withdrawal Permit Monitoring Program

DPH-AR Basin 1					DPH-AR Basin 2				
Date/Time	Staff Gage (feet)	AR rate (gpm)	Discharge (gallons)	AR Discharge Intervals	Date/Time	Staff Gage (feet)	AR rate (gpm)	Discharge (gallons)	AR Discharge Intervals
5/03/18 09:30:00	0			**Event 1**	5/03/18 09:30:00	0			**Event 1**
5/04/18 14:55:00	0	290	511,850	5/3/18 - 5/11/18	5/04/18 15:05:00	0	333	591,075	5/3/18 - 5/11/18
5/07/18 07:20:00	0	325	1,256,125	Total: 3,288,335	5/07/18 07:10:00	0.2	330	1,268,850	Total: 3,661,356
5/09/18 18:14:00	0.83	300	1,060,200	Avg.Day: 413,627	5/09/18 18:03:00	1.6	333	1,176,489	Avg. Day: 461,394
5/10/18 08:20:00				Total Time: 7.95	5/10/18 00:00:00				Total Time: 7.94
5/11/18 08:18:00	0.92	320	460,160		5/11/18 07:57:00	1.78	326	624,942	
				Event 2					**Event 2**
5/20/18 15:05:00	0			5/20/18 - 5/21/18	5/20/18 15:25:00	0			5/20/18 - 5/21/18
5/21/18 07:40:00	0	280	445,200	Total: 445,200	5/21/18 07:33:00	0.25	316	498,016	Total: 498,016
5/21/18 17:35:00				Avg. Day: 403,200	5/21/18 17:41:00				Avg. Day: 455,040
				Total Time: 1.10					Total Time: 1.09
6/01/18 17:25:00		300		**Event 3**	6/1/2018 17:25		303		**Event 3**
6/03/18 09:17:00		300	717,600	6/1/18 - 6/7/18	6/3/2018 9:20		303	725,685	6/1/18 - 6/7/18
6/04/18 09:34:00	0.83	306	445,842	Total: 2,368,293	6/04/18 09:15:00	1.43	296	424,760	Total: 2,358,084
6/06/18 08:47:00	0.42	279	790,407	Avg. Day: 417,218	6/06/18 08:36:00	2.65	279	792,639	Avg. Day: 415,878
6/07/18 09:39:00	0.5	278	414,444	Total Time: 5.68	6/07/18 09:30:00	2.65	278	415,000	Total Time: 5.67
				Event 4					**Event 4**
6/25/18 08:00:00				6/25/18 - 6/27/18	6/25/2018 8:00				6/25/18 - 6/27/18
6/27/18 08:15:00	0.5	300	868,500	Total: 868,500	6/27/18 08:25:00	0.8	300	871,500	Total: 871,500
				Avg. Day: 432,000					Avg. Day: 432,000
				Total Time: 2.01					Total Time: 2.02
				Event 5					**Event 5**
6/28/2018				6/28/18 - 7/2/18	6/28/18 07:51:00				6/28/18 - 7/2/18
7/2/2018		280	1,598,520	Total: 1,598,520	7/2/2018 7:00		280	1,598,520	Total: 1,598,520
				Avg. Day: 403,200					Avg. Day: 403,200
				Total Time: 3.96					Total Time: 3.96
				Event 6					**Event 6**
7/18/2018 7:22				7/18/18 - 7/19/2018	7/18/2018 7:22				7/18 - 7/19/2018
7/19/2018 12:48		250	441,500	Total: 477,170	7/19/2018 12:48		250	441,500	Total: 477,170
7/19/2018 16:54		145	35,670	Avg. Day: 341,513	7/19/2018 16:54		145	35,670	Avg. Day: 341,513
				Total Time: 1.40					Total Time: 1.40
				Event 7					**Event 7**
7/26/2018 8:25				7/26/18 - 7/28/18	7/26/2018 8:25				7/26/18 - 7/28/18
7/26/2018 15:25		270	113,400	Total: 695,200	7/26/2018 15:25		270	113,400	Total: 695,200
7/28/2018 11:58		200	534,600	Avg. Day: 300,717	7/28/2018 11:58		200	534,600	Avg. Day: 300,717
7/28/2018 15:54		200	47,200	Total Time: 2.31	7/28/2018 15:54		200	47,200	Total Time: 2.31
				Event 8					**Event 8**
7/30/2018 7:40				7/30/18 - 8/2/18	7/30/2018 7:40				7/30/18 - 8/2/18
7/31/2018 7:12		290	409,480	Total: 1,413,750	7/31/2018 7:12		290	409,480	Total: 1,413,750
8/1/2018 7:35		290	424,270	Avg. Day: 417,600	8/1/2018 7:35		290	424,270	Avg. Day: 417,600
8/2/2018 16:55		290	580,000	Total Time: 3.39	8/2/2018 16:55		290	580,000	Total Time: 3.39
8/3/2018 7:50				**Event 9**	8/3/2018 7:50				**Event 9**
8/3/2018 10:40		280	47,600	8/3/18 - 8/27/18	8/3/2018 10:40		280	47,600	8/3/18 - 8/9/18
8/3/2018 11:00	Off to fix Basin 2 flow meter				8/3/2018 11:00	Off to fix Basin 2 flow meter			
8/4/2018 8:57		285	375,345	Total: 11,211,410	8/4/2018 8:57		296	389,832	Total: 9,808,775
8/6/2018 19:52		290	1,025,150	Avg. Day: 397,793	8/6/2018 19:52		303	1,071,105	Avg. Day: 348,026
8/9/2018 13:00		290	1,133,320	Total Time: 28.18	8/9/2018 13:00		303	1,184,124	Total Time: 28.18
8/14/2018 7:51		270	1,860,570		8/14/2018 7:37		299	2,056,223	
8/15/2018 7:45		270	387,180		8/15/2018 7:36		306	440,334	
8/15/2018 8:00		330	4,950		8/15/2018 7:40		240	960	
8/17/2018 16:30		320	1,084,800		8/17/2018 17:00		229	787,760	
8/20/2018 14:25		315	1,321,425		8/20/2018 14:34		229	955,846	
8/23/2018 7:12		315	1,224,405		8/23/2018 7:12		226	876,428	
8/23/2018 7:25		240	3,120		8/23/2018 8:20		176	11,968	
8/27/2018 7:18		240	1,380,720		8/27/2018 7:09		169	961,441	
8/31/2018 8:10		225	1,307,700		8/31/2018 8:00		169	982,059	
8/31/2018 12:15		225	55,125		8/31/2018 12:15		169	43,095	
PUMP OFF DUE TO LOW FLOW IN BELLAMY RIVER					PUMP OFF DUE TO LOW FLOW IN BELLAMY RIVER				
				Total of all Events					**Total of all Events**
				Total Gallons Discharged 22,366,378	(Values in red are from Basin 1 when			Total Gallons Discharged	21,382,371
				Average Discharge per Day 399,514	the flowmeter at Basin 2 was not working)			Average Discharge per Day	382,098
				Total Days of Discharge 55.98				Total Days of Discharge	55.96

Total days since start of AR Discharge: 115.9
Percent of Time when Discharge occurred: 48.3%

Total Recharge in Both AR Basins: 43,748,749

TABLE 2

Water Levels Used to Create Groundwater Elevation Contour Maps
DPH #1 Large Groundwater Withdrawal Permit Monitoring Program
Pudding Hill Aquifer, Dover, New Hampshire

Monitoring Location	Casing Elevation (feet amsl)	Water Level below Top of Casing on 4/25/2018* (feet)	Groundwater Elevation 4/25/2018 (feet amsl)	Water Level below Top of Casing on 8/29/2018* (feet)	Groundwater Elevation 8/29/2018 (feet amsl)
Monitoring Wells					
DPH-1	102.19	21.46	80.73	11.41	90.78
DPH-4	108.58	28.15	80.43	19.97	88.61
DPH-5	102.53	22.69	79.84	13.93	88.60
DPH-6	104.35	23.83	80.52	15.96	88.39
DPH-7	100.00	21.19	78.81	13.70	86.30
DPH-MW1	102.49	23.61	78.88	17.07	85.42
DPH-MW2d	85.02	5.68	79.34	0.96	84.06
DPH-MW3	89.71	10.61	79.10	4.81	84.90
DPH-MW4	100.00	21.17	78.83	13.80	86.20
DPH-MW5	108.67	25.53	83.14	21.53	87.14
DPH-MW6	108.54	20.34	88.20	18.63	89.91
DPH-MW7	150.26	66.78	83.48	62.96	87.30
DPH-MW8	148.83	64.06	84.77	60.95	87.88
DPH-MW9	106.87	17.26	89.61	14.95	91.92
DPH-MW10	108.05	27.86	80.19	22.14	85.91
DPH-MW11	118.00	38.51	79.49	31.57	86.43
DPH-MW12d	101.53	20.54	80.99	10.57	90.96
DPH-MW13	101.73	22.80	78.93	15.06	86.67
DPH-MW15d	127.59	48.85	78.74	42.20	85.39
DPH-MW17	122.11	43.01	79.10	35.70	86.41
DPH-MW18	124.02	44.91	79.11	38.10	85.92
DPH-MW19	117.99	39.23	78.76	32.38	85.61
DPH-MW20d	123.46	44.38	79.08	37.40	86.06
DP-105	99.74	11.57	88.17	9.85	89.89
DPH-B5	87.54	7.93	79.61	2.46	85.08
DPH-B7	119.18	39.80	79.38	33.47	85.71
DSK-2	116.99	37.84	79.15	31.29	85.70
DSK-3	100.67	21.27	79.40	13.92	86.75
EX4	97.74	18.51	79.23	12.41	85.33
MW-1	146.26	57.45	88.81	56.08	90.18
DPH-MW1-17	103.75	24.16	79.59	18.29	85.46
DPH-MW2-17	86.31	6.68	79.63	1.33	84.98
DPH-MW3-17	112.85	24.58	88.27	22.92	89.93
DPH-MW4-17	96.45	8.61	87.84	7.11	89.34
DPH-MW5-17	97.26	9.74	87.52	8.09	89.17
DPHMW7-17	159.40	76.96	82.44	71.81	87.59
DPH-MW8-17	95.02	9.35	85.67	6.79	88.23
DPH-MW10-17	96.74	6.95	89.79	5.95	90.79

amsl = above mean sea level

*Some data points are from transducer measurements when manual measurements were taken the day before.

TABLE 3
Laboratory Analyses of Water Quality Samples
DPH #1 Large Groundwater Withdrawal Permit Monitoring Program
Pudding Hill Aquifer, Dover, New Hampshire

Well	Date Sampled	Lab	Arsenic (mg/l)	Barium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Selenium (mg/l)	Silver (mg/l)	Sodium (mg/l)	Zinc (mg/l)
		MCL or SMCL	***0.01***	***2***	***0.005***	***0.1***	***0.3*****	***0.015***	***0.05*****	***0.002***	***0.05***	***0.1*****	***none***	***5*****
DP-105	**6/15/2017**	**EAI**	0.007	0.060	ND	ND	**24**	ND	**0.58**	ND	0.021	ND	Not Required By Permit	
	9/8/2017	**EAI**	**0.01**	0.059	ND	ND	**22**	ND	**0.47**	ND	0.03	ND	Not Required By Permit	
	5/15/2018	**EAI**	0.002	0.058	ND	ND	**1.4**	ND	**0.52**	ND	ND	ND	Not Required By Permit	
	8/28/2018	**EAI**	0.0017	0.057	ND	ND	**1.8**	ND	**0.43**	ND	ND	ND	Not Required By Permit	
DPH-B5	**6/15/2017**	**EAI**	0.003	0.018	ND	ND	ND	ND	**0.18**	ND	0.008	ND	Not Required By Permit	
	9/7/2017	**EAI**	0.005	0.023	ND	ND	0.17	ND	0.027	ND	0.015	ND	Not Required By Permit	
	5/15/2018	**EAI**	0.001	0.028	ND	ND	**1.1**	ND	**0.28**	ND	ND	ND	Not Required By Permit	
	8/29/2018	**EAI**	0.0015	0.022	ND	ND	**1.4**	ND	**0.39**	ND	ND	ND	Not Required By Permit	
DPH-4	**6/14/2017**	**EAI**	0.004	Not Required By Permit									23	0.021
	9/6/2017	**EAI**	0.003	Not Required By Permit									20	ND
	5/16/2018	**EAI**	0.002	Not Required By Permit									26	ND
	8/28/2018	**EAI**	0.0011	Not Required By Permit									24	ND
DPH-6	**6/14/2017**	**EAI**	0.006	Not Required By Permit									15	0.041
	9/6/2017	**EAI**	0.004	Not Required By Permit									15	0.013
	5/16/2018	**EAI**	0.004	Not Required By Permit									25	0.031
	8/28/2018	**EAI**	0.0039	Not Required By Permit									10	0.0058
DPH-MW2D	**6/15/2017**	**EAI**	Not Required By Permit											
	9/8/2017	**EAI**	Not Required By Permit											
	5/16/2018	**EAI**	Not Required By Permit											
	8/29/2018	**EAI**	Not Required By Permit											
DPH-MW6	**6/15/2017**	**EAI**	0.004	0.003	ND	ND	ND	ND	**0.1**	ND	ND	ND	Not Required By Permit	
	9/6/2017	**EAI**	0.003	0.004	ND	0.003	**0.5**	ND	0.013	ND	ND	ND	Not Required By Permit	
	5/15/2018	**EAI**	ND	0.003	ND	0.002	ND	ND	ND	ND	ND	ND	Not Required By Permit	
	8/29/2018	**EAI**	0.0010	0.0033	ND	0.0023	ND	ND	ND	ND	ND	ND	Not Required By Permit	

Well	Date Sampled	Lab	Sulfate (ug/l)	Chloride (mg/l)	Nitrite-N (mg/l)	Nitrate-N (mg/l)		MtBE (ug/L)	1-4 Dioxane (ug/L)	Perfluorinated Chemicals*				
										PFBS (ng/l)	**PFHxS** (ng/l)	**PFOA** (ng/l)	**PFOS** (ng/l)	**PFNA** (ng/l)
		MCL or SMCL	***250*****	***250*****	***1***	***10***		***13******	***0.32***					
DP-105	**6/15/2017**	**EAI/VAL**	Not Required By Permit					11.0	**2.8**	41.2	143	425	412	6.66
	9/8/2017	**EAI/VAL**	Not Required By Permit					ND	**3.7**	42.3	137	353	418	8.47
	4/24/2018	**EAI/VAL**	Not Required By Permit					8.3	**3.9**	36.5	127	286	579	6.73
	7/24/2018	**EAI/VAL**	Not Required By Permit					7.9	**3.9**	40.0	128	317	571	5.71
DPH-B5	**6/15/2017**	**EAI/VAL**	Not Required By Permit					2.0	**0.93**	12.9	47.4	98	189	ND
	9/7/2017	**EAI/VAL**	Not Required By Permit					5.0	**1.7**	24.9	94.1	281	331	6.31
	4/24/2018	**EAI/VAL**	Not Required By Permit					7.2	**1.9**	30.6	116	280	341	7.49
	7/24/2018	**EAI**	Not Required By Permit					na	**1.9**	na	na	na	na	na
	8/29/2018	**EAI/VAL**	Not Required By Permit					3.7	na	16.4	60.5	154	200	ND
DPH-4	**6/14/2017**	**EAI**	na	40	ND	0.9		ND	Not Required By Permit					
	9/6/2017	**EAI**	na	25	ND	1.0		ND	Not Required By Permit					
	5/16/2018	**EAI**	70	48	ND	0.76		ND	Not Required By Permit					
	8/28/2018	**EAI**	na	35	ND	0.88		ND	Not Required By Permit					
DPH-6	**6/14/2017**	**EAI**	na	14	ND	1.7		ND	Not Required By Permit					
	9/6/2017	**EAI**	na	9	ND	1.0		ND	Not Required By Permit					
	5/16/2018	**EAI**	58	59	ND	0.98		ND	Not Required By Permit					
	8/28/2018	**EAI**	na	13	ND	0.57		ND	Not Required By Permit					
DPH-MW2D	**6/15/2017**	**EAI**	Not Required By Permit					ND	0.26	Not Required By Permit				
	9/8/2017	**EAI**	Not Required By Permit					ND	ND	Not Required By Permit				
	5/16/2018	**EAI**	Not Required By Permit					ND	ND	Not Required By Permit				
	8/29/2018	**EAI**	Not Required By Permit					ND	ND	Not Required By Permit				
DPH-MW6	**6/15/2017**	**EAI/VAL**	Not Required By Permit					ND	ND	ND	ND	ND	ND	ND
	9/6/2017	**EAI/VAL**	Not Required By Permit					ND	ND	ND	ND	ND	ND	ND
	5/15/2018	**EAI/VAL**	Not Required By Permit					ND	ND	ND	ND	ND	ND	ND
	8/29/2018	**EAI/VAL**	Not Required By Permit					ND	ND	ND	ND	ND	ND	ND

ND: Not Detected na: not analyzed

LAB CODES: EAI = Eastern Analytical, Inc. VAL = Vista Analytical Laboratory

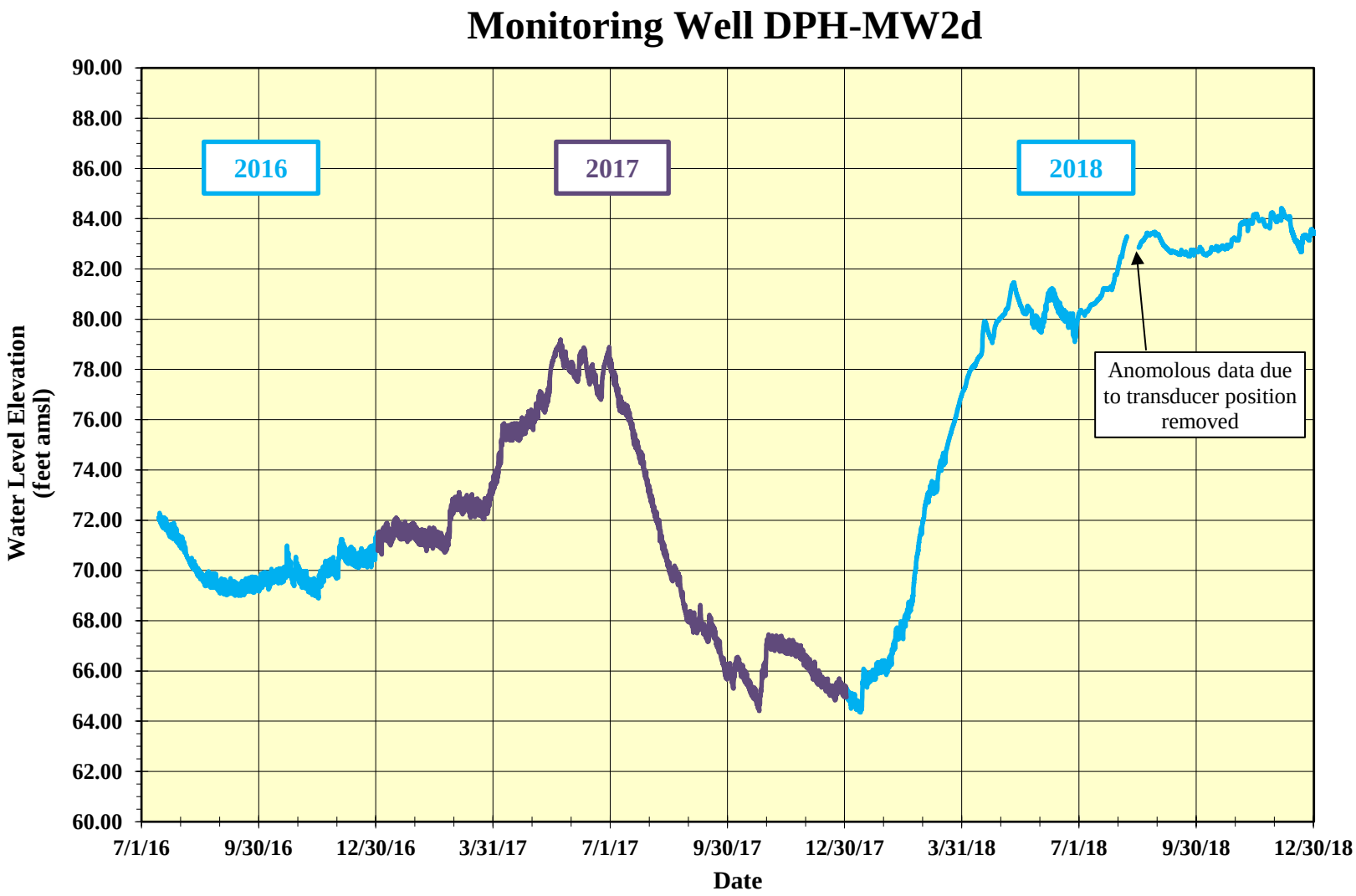
*EPA Health Advisory and NHDES AGQS: 70 ng/l for PFOA, PFOS, or combined PFOA and PFOS concentrations.

** EPA Secondary Maximum Contaminant Level

*** NHDES Ambient Groundwater Quality Standard (AGQS)

APPENDIX A

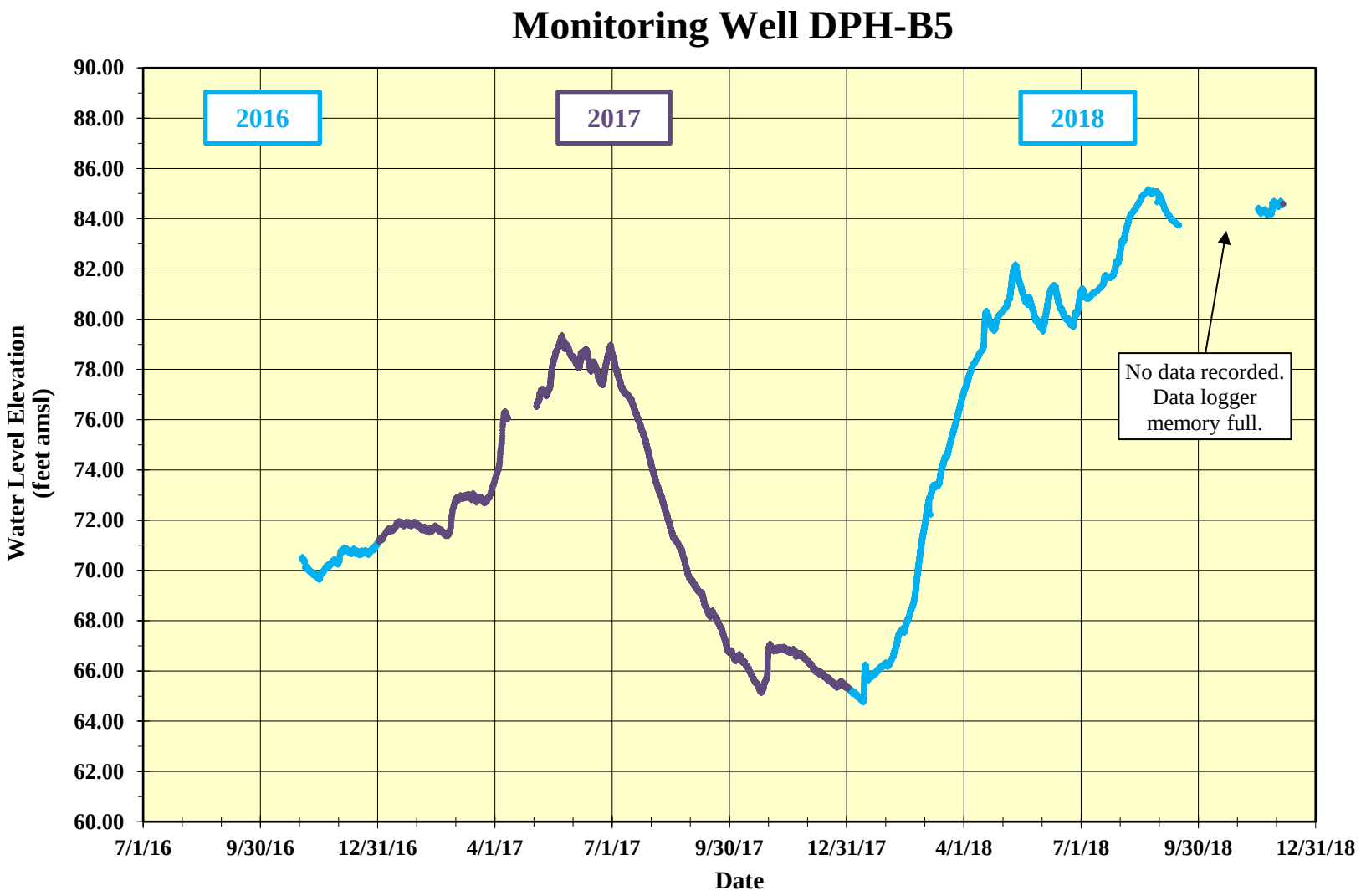
WATER LEVEL DATA



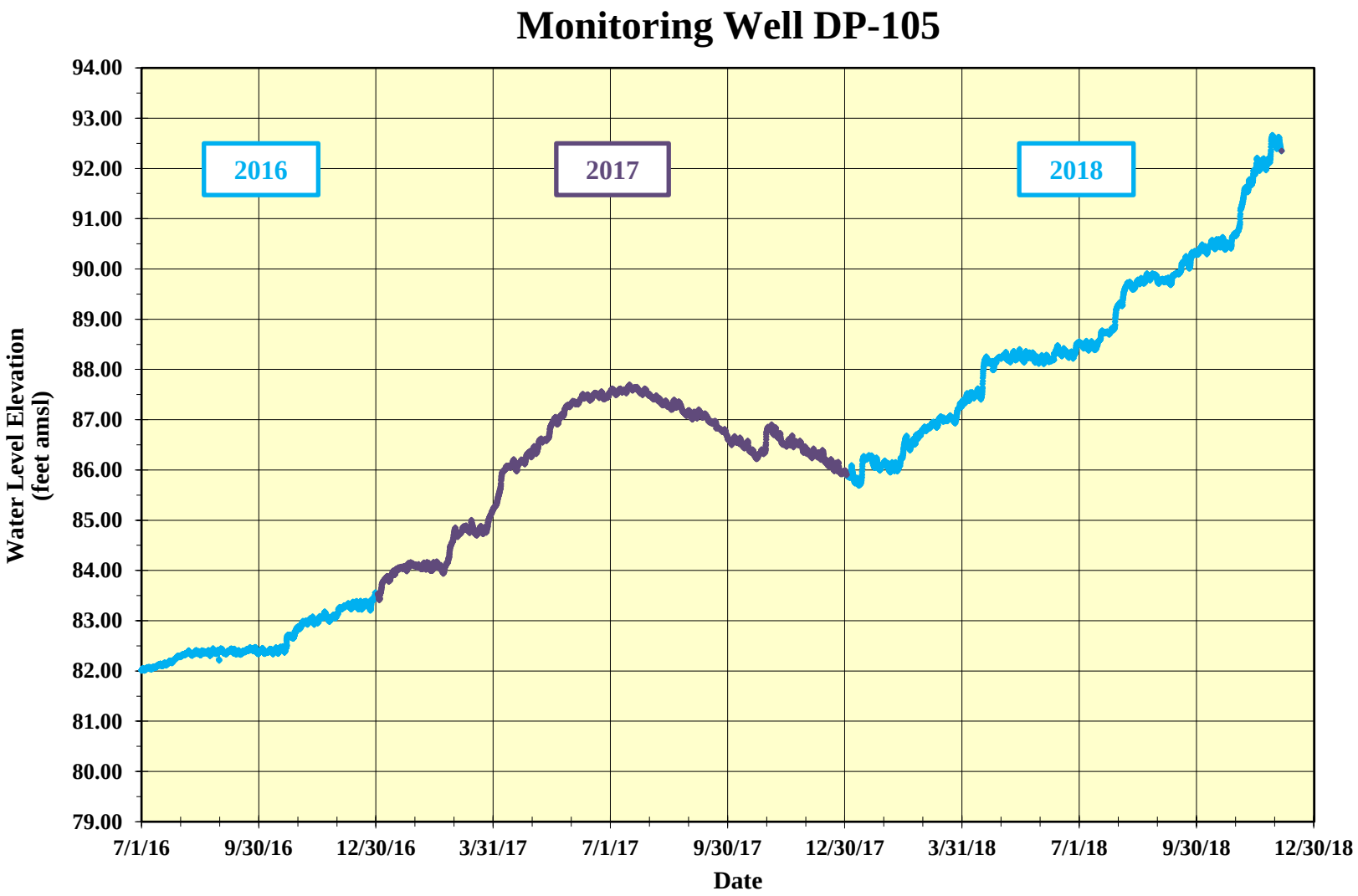
Plot of Water Level versus Time for July 14, 2016 to December 31, 2018

DPH #1 Large Groundwater Withdrawal Permit Monitoring Program

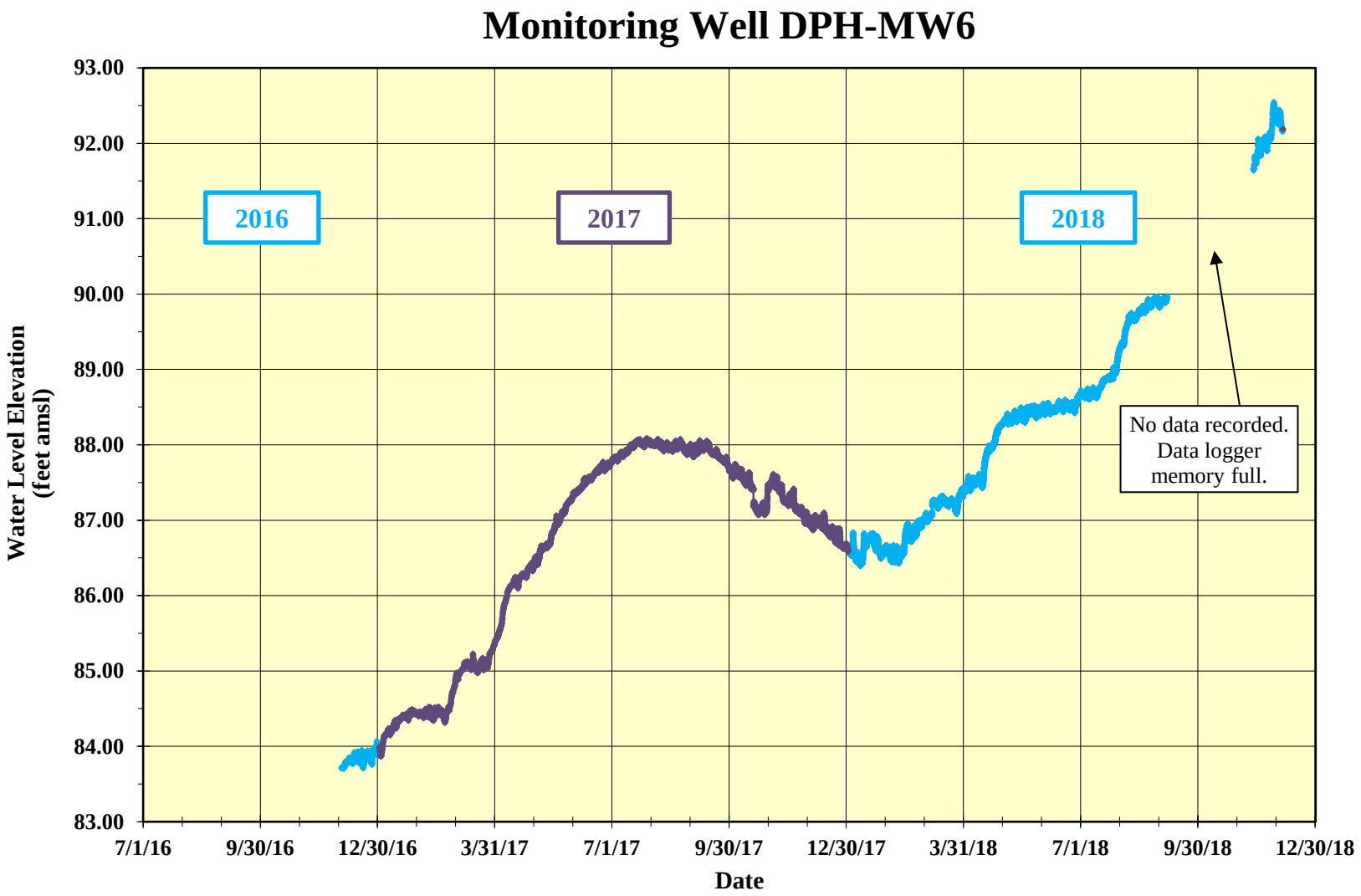
Dover, New Hampshire



Plot of Water Level versus Time for November 2, 2016 to December 5, 2018
DPH #1 Large Groundwater Withdrawal Permit Monitoring Program
Dover, New Hampshire



Plot of Water Level versus Time for July 1, 2016 to December 5, 2018
DPH #1 Large Groundwater Withdrawal Permit Monitoring Program
Dover, New Hampshire



Plot of Water Level versus Time for December 2, 2016 to December 5, 2018
DPH #1 Large Groundwater Withdrawal Permit Monitoring Program
Dover, New Hampshire

APPENDIX B

WATER QUALITY RESULTS

Eastern Analytical, Inc.
professional laboratory and drilling services

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	181058
Client Identification:	26.01 Task 2
Date Received:	4/25/2018

Dear Mr. Brooks :

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 | 6.1.18 Date | 41 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **181058**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **26.01 Task 2**

Temperature upon receipt (°C): 0.7 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
181058.01	DPH-MW1-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.02	DPH-MW2-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.03	DPH-MW3-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.04	DPH-MW4-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.05	DPH-MW5-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.06	DPH-MW8-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.07	DPH-MW9-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.08	DPH-MW10-17	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.09	DPH-Ireland	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.1	DPH #1	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.11	EX4	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.12	DPH-MW1	4/25/18	4/25/18	aqueous		Adheres to Sample Acceptance Policy
181058.13	DPH-B5	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.14	DPH-B7	4/25/18	4/25/18	aqueous		Adheres to Sample Acceptance Policy
181058.15	DP-105	4/25/18	4/24/18	aqueous		Adheres to Sample Acceptance Policy
181058.16	Trip Blank - 8260	4/25/18	4/6/18	aqueous		Adheres to Sample Acceptance Policy
181058.17	Trip Blank - 1,4 Dioxane	4/25/18	3/30/18	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:

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

LABORATORY REPORT

EAI ID#: **181058**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **26.01 Task 2**

Sample ID:	DPH-B5
Lab Sample ID:	181058.13
Matrix:	aqueous
Date Sampled:	4/24/18
Date Received:	4/25/18
Units:	ug/L
Date of Analysis:	4/27/18
Analyst:	BAM
Method:	8260C
Dilution Factor:	1
Dichlorodifluoromethane	< 5
Chloromethane	< 2
Vinyl chloride	< 2
Bromomethane	< 2
Chloroethane	< 5
Trichlorofluoromethane	< 5
Diethyl Ether	< 5
Acetone	< 10
1,1-Dichloroethene	< 1
tert-Butyl Alcohol (TBA)	< 30
Methylene chloride	< 5
Carbon disulfide	< 2
Methyl-t-butyl ether(MTBE)	**7.2**
Ethyl-t-butyl ether(ETBE)	< 5
Isopropyl ether(DIPE)	< 5
tert-amyl methyl ether(TAME)	< 5
trans-1,2-Dichloroethene	< 1
1,1-Dichloroethane	< 1
2,2-Dichloropropane	< 1
cis-1,2-Dichloroethene	< 1
2-Butanone(MEK)	< 10
Bromochloromethane	< 1
Tetrahydrofuran(THF)	< 10
Chloroform	< 1
1,1,1-Trichloroethane	< 1
Carbon tetrachloride	< 1
1,1-Dichloropropene	< 1
Benzene	< 1
1,2-Dichloroethane	< 1
Trichloroethene	< 1
1,2-Dichloropropane	< 1
Dibromomethane	< 1
Bromodichloromethane	< 0.5
1,4-Dioxane	< 50
4-Methyl-2-pentanone(MIBK)	< 10
cis-1,3-Dichloropropene	< 0.5
Toluene	< 1
trans-1,3-Dichloropropene	< 0.5
1,1,2-Trichloroethane	< 1
2-Hexanone	< 10
Tetrachloroethene	< 1
1,3-Dichloropropane	< 1
Dibromochloromethane	< 1
1,2-Dibromoethane(EDB)	< 2
Chlorobenzene	< 1
1,1,1,2-Tetrachloroethane	< 1
Ethylbenzene	< 1

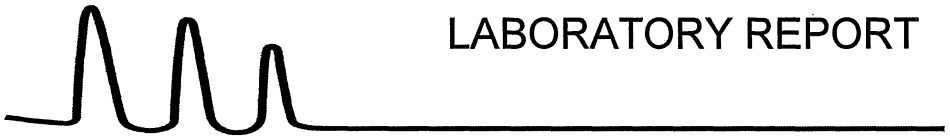
LABORATORY REPORT

EAI ID#: **181058**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **26.01 Task 2**

Sample ID:	DPH-B5
Lab Sample ID:	181058.13
Matrix:	aqueous
Date Sampled:	4/24/18
Date Received:	4/25/18
Units:	ug/L
Date of Analysis:	4/27/18
Analyst:	BAM
Method:	8260C
Dilution Factor:	1
mp-Xylene	< 1
o-Xylene	< 1
Styrene	< 1
Bromoform	< 2
IsoPropylbenzene	< 1
Bromobenzene	< 1
1,1,2,2-Tetrachloroethane	< 1
1,2,3-Trichloropropane	< 0.5
n-Propylbenzene	< 1
2-Chlorotoluene	< 1
4-Chlorotoluene	< 1
1,3,5-Trimethylbenzene	< 1
tert-Butylbenzene	< 1
1,2,4-Trimethylbenzene	< 1
sec-Butylbenzene	< 1
1,3-Dichlorobenzene	< 1
p-Isopropyltoluene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
n-Butylbenzene	< 1
1,2-Dibromo-3-chloropropane	< 2
1,3,5-Trichlorobenzene	< 1
1,2,4-Trichlorobenzene	< 1
Hexachlorobutadiene	< 0.5
Naphthalene	< 5
1,2,3-Trichlorobenzene	< 1
4-Bromofluorobenzene (surr)	**95 %R**
1,2-Dichlorobenzene-d4 (surr)	**103 %R**
Toluene-d8 (surr)	**95 %R**
1,2-Dichloroethane-d4 (surr)	**108 %R**



LABORATORY REPORT

EAI ID#: **181058**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **26.01 Task 2**

Sample ID:	DP-105	Trip Blank - 8260
Lab Sample ID:	181058.15	181058.16
Matrix:	aqueous	aqueous
Date Sampled:	4/24/18	4/6/18
Date Received:	4/25/18	4/25/18
Units:	ug/L	ug/L
Date of Analysis:	4/27/18	4/27/18
Analyst:	BAM	BAM
Method:	8260C	8260C
Dilution Factor:	1	1
Dichlorodifluoromethane	< 5	< 5
Chloromethane	< 2	< 2
Vinyl chloride	< 2	< 2
Bromomethane	< 2	< 2
Chloroethane	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Diethyl Ether	< 5	< 5
Acetone	< 10	< 10
1,1-Dichloroethene	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30
Methylene chloride	< 5	< 5
Carbon disulfide	< 2	< 2
Methyl-t-butyl ether(MTBE)	**8.3**	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1
1,1-Dichloroethane	< 1	< 1
2,2-Dichloropropane	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1
2-Butanone(MEK)	< 10	< 10
Bromochloromethane	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10
Chloroform	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1
Carbon tetrachloride	< 1	< 1
1,1-Dichloropropene	< 1	< 1
Benzene	< 1	< 1
1,2-Dichloroethane	< 1	< 1
Trichloroethene	< 1	< 1
1,2-Dichloropropane	< 1	< 1
Dibromomethane	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5
Toluene	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1
2-Hexanone	< 10	< 10
Tetrachloroethene	< 1	< 1
1,3-Dichloropropane	< 1	< 1
Dibromochloromethane	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2
Chlorobenzene	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1
Ethylbenzene	< 1	< 1

LABORATORY REPORT

EAI ID#: **181058**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **26.01 Task 2**

Sample ID:	DP-105	Trip Blank - 8260
Lab Sample ID:	181058.15	181058.16
Matrix:	aqueous	aqueous
Date Sampled:	4/24/18	4/6/18
Date Received:	4/25/18	4/25/18
Units:	ug/L	ug/L
Date of Analysis:	4/27/18	4/27/18
Analyst:	BAM	BAM
Method:	8260C	8260C
Dilution Factor:	1	1
mp-Xylene	< 1	< 1
o-Xylene	< 1	< 1
Styrene	< 1	< 1
Bromoform	< 2	< 2
IsoPropylbenzene	< 1	< 1
Bromobenzene	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1
2-Chlorotoluene	< 1	< 1
4-Chlorotoluene	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1
tert-Butylbenzene	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1
sec-Butylbenzene	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1
p-Isopropyltoluene	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1
n-Butylbenzene	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5
Naphthalene	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1
4-Bromofluorobenzene (surr)	**93 %R**	**96 %R**
1,2-Dichlorobenzene-d4 (surr)	**102 %R**	**102 %R**
Toluene-d8 (surr)	**91 %R**	**95 %R**
1,2-Dichloroethane-d4 (surr)	**109 %R**	**108 %R**

LABORATORY REPORT

EAI ID#: **181058**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **26.01 Task 2**

Sample ID:	DPH-B5
Lab Sample ID:	181058.13
Matrix:	aqueous
Date Sampled:	4/24/18
Date Received:	4/25/18
Units:	ug/L
Date of Analysis:	4/29/18
Analyst:	VG
Method:	8260B SIM
Dilution Factor:	1
1,4-Dioxane	**1.9**
4-Bromofluorobenzene (surr)	**102 %R**
Toluene-d8 (surr)	**93 %R**

LABORATORY REPORT

EAI ID#: **181058**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **26.01 Task 2**

Sample ID:	DP-105	Trip Blank - 1,4 Dioxane
Lab Sample ID:	181058.15	181058.17
Matrix:	aqueous	aqueous
Date Sampled:	4/24/18	3/30/18
Date Received:	4/25/18	4/25/18
Units:	ug/L	ug/L
Date of Analysis:	4/29/18	4/29/18
Analyst:	VG	VG
Method:	8260B SIM	8260B SIM
Dilution Factor:	1	1
1,4-Dioxane	**3.9**	< 0.25
4-Bromofluorobenzene (surr)	**102 %R**	**101 %R**
Toluene-d8 (surr)	**94 %R**	**94 %R**

May 30, 2018

Vista Work Order No. 1800778

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on April 27, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '181058 NH 4912'.

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

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

Sincerely,

Martha Maier

Martha Maier
Laboratory Director

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

Vista Work Order No. 1800778
Case Narrative

Sample Condition on Receipt:

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

Analytical Notes:

PFAS Isotope Dilution Method

The following samples contained particulate and were centrifuged prior to extraction.

Laboratory ID	Sample Name
1800778-01	DPH-MW1-17
1800778-04	DPH-MW4-17
1800778-07	DPH-MW9-17
1800778-08	DPH-MW10-17

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modifed EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The recoveries of PFDoA and PFTeDA were > 130% in the OPR. These analytes were not detected in the samples. The recoveries of all other analytes were within the method acceptance criteria.

The internal standard recoveries outside of the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B8E0024-BLK1	B8E0024-BLK1	PFAS Isotope Dilution Method	13C2-PFDA	H	56.3
B8E0024-BLK1	B8E0024-BLK1	PFAS Isotope Dilution Method	13C2-PFUnA	H	49.4

H = Recovery was outside laboratory acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800778-01	DPH-MW1-17	24-Apr-18 16:00	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-02	DPH-MW2-17	24-Apr-18 14:50	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-03	DPH-MW3-17	24-Apr-18 08:30	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-04	DPH-MW4-17	24-Apr-18 12:05	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-05	DPH-MW5-17	24-Apr-18 13:25	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-06	DPH-MW8-17	24-Apr-18 12:45	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-07	DPH-MW9-17	24-Apr-18 09:40	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-08	DPH-MW10-17	24-Apr-18 11:05	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-09	DPH-Ireland	24-Apr-18 11:00	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-10	DPH #1	24-Apr-18 11:25	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-11	EX4	24-Apr-18 09:33	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-12	DPH-MW1	25-Apr-18 09:25	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-13	DPH-B5	24-Apr-18 15:45	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-14	DPH-B7	25-Apr-18 08:20	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1800778-15	DP-105	24-Apr-18 13:55	27-Apr-18 10:32	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank — **PFAS Isotope Dilution Method**

Client Data

Name: Eastern Analytical, Inc. Matrix: Aqueous

Project: 181058 NH 4912

Laboratory Data

Lab Sample: B8E0024-BLK1 Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFPeA	2706-90-3	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFBS	375-73-5	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFHxA	307-24-4	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFHpA	375-85-9	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFHxS	355-46-4	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFOA	335-67-1	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFOS	1763-23-1	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFNA	375-95-1	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFDA	335-76-2	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
MeFOSAA	2355-31-9	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFUnA	2058-94-8	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
EtFOSAA	2991-50-6	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFDoA	307-55-1	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFTrDA	72629-94-8	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
PFTeDA	376-06-7	ND	4.00		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.6	60 - 130		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C3-PFPeA	IS	96.0	60 - 150		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C3-PFBS	IS	114	60 - 150		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C2-PFHxA	IS	92.9	70 - 130		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C4-PFHpA	IS	91.3	60 - 150		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
18O2-PFHxS	IS	102	60 - 130		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C2-PFOA	IS	83.8	60 - 130		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C8-PFOS	IS	104	60 - 130		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C5-PFNA	IS	76.2	50 - 130		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C2-PFDA	IS	56.3	60 - 130	H	B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
d3-MeFOSAA	IS	59.2	50 - 150		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C2-PFUnA	IS	49.4	60 - 130	H	B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
d5-EtFOSAA	IS	59.4	50 - 150		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C2-PFDoA	IS	56.4	30 - 130		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1
13C2-PFTeDA	IS	47.2	20 - 150		B8E0024	08-May-18	0.125 L	23-May-18 04:41	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

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

Sample ID: OPR — **PFAS Isotope Dilution Method**

Client Data

Name: Eastern Analytical, Inc.
Project: 181058 NH 4912
Matrix: Aqueous

Laboratory Data

Lab Sample: B8E0024-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	86.1	80.0	108	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFPeA	2706-90-3	82.3	80.0	103	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFBS	375-73-5	86.5	80.0	108	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFHxA	307-24-4	87.8	80.0	110	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFHpA	375-85-9	84.9	80.0	106	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFHxS	355-46-4	89.1	80.0	111	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFOA	335-67-1	84.7	80.0	106	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFOS	1763-23-1	82.5	80.0	103	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFNA	375-95-1	82.5	80.0	103	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFDA	335-76-2	98.1	80.0	123	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
MeFOSAA	2355-31-9	89.5	80.0	112	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFUnA	2058-94-8	92.7	80.0	116	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
EtFOSAA	2991-50-6	100	80.0	125	70-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFDoA	307-55-1	116	80.0	145	70-130	H	B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFTrDA	72629-94-8	101	80.0	126	60-130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
PFTeDA	376-06-7	114	80.0	143	70-130	H	B8E0024	08-May-18	0.125 L	23-May-18 04:30	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	103	60- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C3-PFPeA	IS	104	60- 150		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C3-PFBS	IS	108	60- 150		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C2-PFHxA	IS	98.6	70- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C4-PFHpA	IS	102	60- 150		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
18O2-PFHxS	IS	98.0	60- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C2-PFOA	IS	86.1	60- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C8-PFOS	IS	105	60- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C5-PFNA	IS	87.9	50- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C2-PFDA	IS	63.2	60- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
d3-MeFOSAA	IS	76.5	50- 150		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C2-PFUnA	IS	64.0	60- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
d5-EtFOSAA	IS	73.7	50- 150		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C2-PFDoA	IS	50.0	30- 130		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1
13C2-PFTeDA	IS	58.5	20- 150		B8E0024	08-May-18	0.125 L	23-May-18 04:30	1

Sample ID: DPH-B5 — **PFAS Isotope Dilution Method**

Client Data

Name: Eastern Analytical, Inc.
Project: 181058 NH 4912
Matrix: Aqueous
Date Collected: 24-Apr-18 15:45

Laboratory Data

Lab Sample: 1800778-13
Date Received: 27-Apr-18 10:32
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	37.0	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFPeA	2706-90-3	68.1	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFBS	375-73-5	30.6	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFHxA	307-24-4	104	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFHpA	375-85-9	61.5	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFHxS	355-46-4	116	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFOA	335-67-1	280	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFOS	1763-23-1	341	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFNA	375-95-1	7.49	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFDA	335-76-2	ND	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
MeFOSAA	2355-31-9	ND	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFUnA	2058-94-8	ND	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
EtFOSAA	2991-50-6	ND	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFDoA	307-55-1	ND	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFTrDA	72629-94-8	ND	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
PFTeDA	376-06-7	ND	4.18		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.6	60 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C3-PFPeA	IS	100	60 - 150		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C3-PFBS	IS	108	60 - 150		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C2-PFHxA	IS	97.4	70 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C4-PFHpA	IS	102	60 - 150		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
18O2-PFHxS	IS	105	60 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C2-PFOA	IS	85.0	60 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C8-PFOS	IS	100	60 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C5-PFNA	IS	72.2	50 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C2-PFDA	IS	79.0	60 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
d3-MeFOSAA	IS	92.6	50 - 150		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C2-PFUnA	IS	82.3	60 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
d5-EtFOSAA	IS	108	50 - 150		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C2-PFDoA	IS	90.6	30 - 130		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1
13C2-PFTeDA	IS	63.9	20 - 150		B8E0024	08-May-18	0.120 L	23-May-18 07:45	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

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

Sample ID: DP-105

PFAS Isotope Dilution Method

Client Data

Name: Eastern Analytical, Inc.
Project: 181058 NH 4912
Matrix: Aqueous
Date Collected: 24-Apr-18 13:55

Laboratory Data

Lab Sample: 1800778-15
Date Received: 27-Apr-18 10:32
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	53.8	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFPeA	2706-90-3	85.1	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFBS	375-73-5	36.5	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFHxA	307-24-4	150	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFHpA	375-85-9	72.4	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFHxS	355-46-4	127	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFOA	335-67-1	286	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFOS	1763-23-1	579	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFNA	375-95-1	6.73	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFDA	335-76-2	ND	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
MeFOSAA	2355-31-9	ND	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFUnA	2058-94-8	ND	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
EtFOSAA	2991-50-6	ND	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFDoA	307-55-1	ND	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFTrDA	72629-94-8	ND	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
PFTeDA	376-06-7	ND	4.14		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.4	60 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C3-PFPeA	IS	104	60 - 150		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C3-PFBS	IS	118	60 - 150		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C2-PFHxA	IS	98.3	70 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C4-PFHpA	IS	105	60 - 150		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
18O2-PFHxS	IS	103	60 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C2-PFOA	IS	85.0	60 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C8-PFOS	IS	101	60 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C5-PFNA	IS	80.6	50 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C2-PFDA	IS	74.1	60 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
d3-MeFOSAA	IS	85.4	50 - 150		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C2-PFUnA	IS	75.0	60 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
d5-EtFOSAA	IS	94.2	50 - 150		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C2-PFDoA	IS	79.7	30 - 130		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1
13C2-PFTeDA	IS	58.7	20 - 150		B8E0024	08-May-18	0.121 L	23-May-18 08:30	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

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

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank**
Conc.	**Concentration**
D	**Dilution**
DL	**Detection limit**
E	**The associated compound concentration exceeded the calibration range of the instrument**
H	**Recovery and/or RPD was outside laboratory acceptance limits**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ**
LOD	**Limits of Detection**
LOQ	**Limits of Quantitation**
M	**Estimated Maximum Possible Concentration (CA Region 2 projects only)**
NA	**Not applicable**
ND	**Not Detected**
Q	**Ion ratio outside of 70-130% of Standard Ratio. (DOD PFAS projects only)**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**
*	**See Cover Letter**

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

CHAIN-OF-CUSTODY RECORD

Eastern Analytical, Inc.
professional laboratory and drilling services

1800778 0.0°C **EAI ID# 181058** Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW1-17	4/24/2018 16:00	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW2-17	4/24/2018 14:50	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW3-17	4/24/2018 8:30	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW4-17	4/24/2018 12:05	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# 181058 **Project State: NH**

Project ID: 4912

Company: Vista Analytical Laboratory
Address: 1104 Windfield Way
Address: El Dorado Hills, CA 95762
Account #:
Phone #: (916) 673-1520

Results Needed: Preferred Date: Standard
RUSH Due Date: ________
QC Deliverables
☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ PC

Notes about project:
Email login confirmation, pdf of results and invoice to customerservice@easternanalytical.com.

16 Compound List

PO #: 47922 **EAI ID# 181058**

If RUSH charges will be applied, please call prior to analyzing.

Samples Collected by: ________

Relinquished by	Date/Time	Received by
[signature]	4/26/18 1530	UPS
UPS	04/27/18 1422	[signature]

CHAIN-OF-CUSTODY RECORD

Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# 181058 Page 2

1800778

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW5-17	4/24/2018 13:25	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW8-17	4/24/2018 12:45	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW9-17	4/24/2018 9:40	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW10-17	4/24/2018 11:05	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# 181058 Project State: NH
Project ID: 4912

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: Preferred Date: Standard
RUSH Due Date: _____

QC Deliverables
☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ PC

Notes about project:
Email login confirmation, pdf of results and invoice to customerservice@easternanalytical.com.

16 Compound List

PO #:47922 EAI ID# 181058

If RUSH charges will be applied, please call prior to analyzing.

Samples Collected by: _____

Relinquished by	Date/Time	Received by
[signature]	4/26/18 1530	UPS
UPS	04/27/18 1423	[signature]

CHAIN-OF-CUSTODY RECORD

Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# 181058 Page 3

1800778

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-Ireland	4/24/2018 11:00	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH #1	4/24/2018 11:25	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
EX4	4/24/2018 9:33	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW1	4/25/2018 9:25	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# 181058 Project State: NH
Project ID: 4912

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: Preferred Date: Standard
RUSH Due Date: _____

QC Deliverables
☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ PC

Notes about project:
Email login confirmation, pdf of results and invoice to customerservice@easternanalytical.com.

16 Compound List

PO #: 47922 EAI ID# 181058

If RUSH charges will be applied, please call prior to analyzing.

Samples Collected by: _____

Chris Johnson 4/26/18 1530 UPS
Relinquished by Date/Time Received by

UPS 04/27/18 1423
Relinquished by Date/Time Received by

CHAIN-OF-CUSTODY RECORD

Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# 181058 Page 4

1800778

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-B5	4/24/2018 15:45	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-B7	4/25/2018 8:20	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DP-105	4/24/2018 13:55	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# 181058 Project State: NH
Project ID: 4912

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: Preferred Date: Standard
RUSH Due Date: _____

QC Deliverables
☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ PC

Notes about project:
Email login confirmation, pdf of results and invoice to customerservice@easternanalytical.com.

16 Compound List

PO #: 47922 EAI ID# 181058

If RUSH charges will be applied, please call prior to analyzing.

Samples Collected by: _____
Chris Johnson 4/26/18 1530 UPS
Relinquished by Date/Time Received by
UPS 04/27/18 1423 Brad Bennett
Relinquished by Date/Time Received by

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1800778 **TAT** Std

Samples Arrival:	**Date/Time** 04/27/18 1032	**Initials:** JAB	**Location:** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 04/27/18 1437	**Initials:** JAB	**Location:** WR-2 **Shelf/Rack:** F3

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.1	(uncorrected)	**Time:** 1416	**Thermometer ID:** IR-4
Temp °C: 0.0	(corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill Trk # 1ZX465990199056876	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Preservation Documented:	$Na_2S_2O_3$	Trizma	None	Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose	

Comments:

Page 1 of 2

CHAIN-OF-CUSTODY RECORD

181058

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: 524.2 BTEX 524.2 MTBE ONLY; 524.2 BTEX 524.2 VTICs; 8260 624 1,4 DIOXANE; 8021 BTEX HALOS; 8015 GRO MAVPH	SVOC: 8270 625 ABN EDB DBCP SVTICs PAH; TPH8100 L1 L2; 8015 DRO MAEPH; PEST 608 PEST 8081 PCB 608 PCB 8082; OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 VOC ABN Metals Pest Herb	METALS: Dissolved Metals (List Below); Total Metals (List Below)	INORGANICS: TS TSS TDS Spec. Con.; Br Cl F SO4 NO2 NO3 NO2NO3; BOD CBOD T. Alk.; TKN NH3 T. Phos. O. Phos.; pH T. Res. Chlorine; COD Phenols TOC DOC; Total Cyanide Total Sulfide; Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	MICRO: Total Coliform E. Coli Fecal Coliform Enterococci Heterotrophic Plate Count	OTHER: VOC by 8260C; AFFS list 16	# OF CONTAINERS	NOTES MEOH VIAL #
DPH-MW1-17	4/24/18 @ 16:20	GW			X							b	x 6
DPH-MW2-17	4/24/18 @ 14:50				X							x	x 6
DPH-MW3-17	4/24/18 @ 8:30				X							x	x 6
DPH-MW4-17	4/24/18 @ 12:05				X							x	x 6
DPH-MW5-17	4/24/18 @ 13:25				X							x	x 6
DPH-MW8-17	4/24/18 @ 12:45				X							x	x 6
DPH-MW9-17	4/24/18 @ 9:40				X							x	x 6
DPH-MW10-17	4/24/18 @ 11:05				X							b	x 6

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: John Brooks

COMPANY: Emery and Garrett Groundwater Investigations

ADDRESS: 56 Main St

CITY: Dover STATE: NH ZIP: 03253

PHONE (603) 279-4425 EXT.:

FAX:

E-MAIL: eggi@eggi.com

SITE NAME:

PROJECT #: 26.01 Table 2

STATE: (NH) MA ME VT OTHER:

REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:

QUOTE #: PO #:

DATE NEEDED:

QA/QC

REPORTING LEVEL A B C

OR

PRESUMPTIVE CERTAINTY

REPORTING OPTIONS

PRELIMS: YES OR NO

ELECTRONIC OPTIONS

E-MAIL PDF EQUIS EXCEL

TEMP. 0.7 °C

ICE? (YES) NO

SAMPLER(S): Jon-Erik Tryggestad (603) 387-5482

	DATE:	TIME:	
RELINQUISHED BY:	4-25-18	11:55	RECEIVED BY: Lizy Burton
RELINQUISHED BY: Lizy Burton	4-25-18	13:05	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
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

Page 2 of 2

CHAIN-OF-CUSTODY RECORD

181058

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: 524.2 / 524.2 BTEX / 524.2 MTBE ONLY	VOC: 8260 624 VTICs 1, 4 DIOXANE	VOC: 8021 BTEX HALOS	VOC: 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015 DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081 PCB 8082	SVOC: OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.	INORGANICS: BR Cl F SO_4 NO_2 NO_3 NO_3NO_2	INORGANICS: BOD CBOD T. ALK.	INORGANICS: TKN NH_3 T. PHOS. O. PHOS.	INORGANICS: pH T. RES. CHLORINE	INORGANICS: COD PHENOLS TOC DOC	INORGANICS: TOTAL CYANIDE TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM	MICRO: ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER: VOC by 8260 C	OTHER:	OTHER: PFAS - vista - 16	# OF CONTAINERS	NOTES MEOH VIAL #
DPH-IRELAND	4/24/18 @ 11:00	GW	GRAB		X																					X		X	6	
DPH #1	4/24/18 @ 11:28	↓	↓		X																					X		X	6	
EX4	4/24/18 @ 9:33	↓	↓		X																					X		X	6	
DPH-MW1	4/25/18 @ 9:25	↓	↓		X																					X		X	6	
DPH-B5	4/24/18 @ 15:45	↓	↓		X																					X		X	6	
DPH-B7	4/25/18 @ 8:20	↓	↓		X																					X		X	6	
DP-105	4/24/18 1355 (cj)	↓	↓		X																					X		X	6	

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER
PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: John Brooks
COMPANY: Emery and Garrett Groundwater Investigations
ADDRESS: 56 Main St
CITY: Meredith STATE: NH ZIP: 03253
PHONE: (603) 279 - 4425 EXT.:
FAX:
E-MAIL: eggi@eggi.com
SITE NAME:
PROJECT #: 26.01 Task 2
STATE: NH (circled) MA ME VT OTHER:
REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:
QUOTE #: PO #:

DATE NEEDED:

QA/QC REPORTING LEVEL
A B C
OR
PRESUMPTIVE CERTAINTY

REPORTING OPTIONS
PRELIMS: YES OR NO

ELECTRONIC OPTIONS
E-MAIL PDF EQUIS EXCEL

TEMP. 0.7 °C
ICE? YES (circled) NO

SAMPLER(S): Jan-Erik Tryggestad (603) 387-5846

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	4-25-18	11:85	[signature]
[signature]	4-25-18	13:05	[signature]

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
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

41

Eastern Analytical, Inc.

professional laboratory and drilling services

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	181987
Client Identification:	DPH | 33.0083021.00 Task 5
Date Received:	5/16/2018

Dear Mr. Brooks :

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 — Lorraine Olashaw, Lab Director

6.7.18 — Date

17 — # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **181987**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH | 33.0083021.00 Task 5**

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 Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
181987.01	DPH-105	5/16/18	5/15/18	aqueous		Adheres to Sample Acceptance Policy
181987.02	DPH-B5	5/16/18	5/15/18	aqueous		Adheres to Sample Acceptance Policy
181987.03	DPH-MW6	5/16/18	5/15/18	aqueous		Adheres to Sample Acceptance Policy
181987.04	DPH-6	5/16/18	5/16/18	aqueous		Adheres to Sample Acceptance Policy
181987.05	DPH-4	5/16/18	5/16/18	aqueous		Adheres to Sample Acceptance Policy
181987.06	DPH-MW2D	5/16/18	5/16/18	aqueous		Adheres to Sample Acceptance Policy
181987.07	Trip Blank	5/16/18	3/30/18	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.
All results contained in this report relate only to the above listed samples.
References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater,20th Edition, 1998 and 22nd Edition, 2012
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **181987**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH | 33.0083021.00 Task 5**

Sample ID:	DPH-MW6	DPH-MW2D	Trip Blank
Lab Sample ID:	181987.03	181987.06	181987.07
Matrix:	aqueous	aqueous	aqueous
Date Sampled:	5/15/18	5/16/18	3/30/18
Date Received:	5/16/18	5/16/18	5/16/18
Units:	ug/L	ug/L	ug/L
Date of Analysis:	5/17/18	5/17/18	5/17/18
Analyst:	VG	VG	VG
Method:	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1
1,4-Dioxane	< 0.25	< 0.25	< 0.25
4-Bromofluorobenzene (surr)	**104 %R**	**103 %R**	**103 %R**
Toluene-d8 (surr)	**101 %R**	**101 %R**	**101 %R**

LABORATORY REPORT

EAI ID#: **181987**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH | 33.0083021.00 Task 5**

Sample ID:	DPH-4	DPH-6					
Lab Sample ID:	181987.05	181987.04					
Matrix:	aqueous	aqueous					
Date Sampled:	5/16/18	5/16/18					
Date Received:	5/16/18	5/16/18					
				Analysis			
			Units	**Date**	**Time**	**Method**	**Analyst**
Sulfate	**70**	**58**	mg/L	5/21/18	19:57	300.0	KD
Chloride	**48**	**59**	mg/L	5/17/18	9:47	4500ClE-97	KD
Nitrite-N	< 0.5	< 0.5	mg/L	5/17/18	9:47	353.2	KD
Nitrate-N	**0.76**	**0.98**	mg/L	5/17/18	9:47	353.2	KD

LABORATORY REPORT

EAI ID#: **181987**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH | 33.0083021.00 Task 5**

Sample ID:	DPH-105	DPH-B5	DPH-MW6					
Lab Sample ID:	181987.01	181987.02	181987.03					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	5/15/18	5/15/18	5/15/18					
Date Received:	5/16/18	5/16/18	5/16/18	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Arsenic	**0.002**	**0.001**	< 0.001	AqDis	mg/L	5/17/18	200.8	DS
Barium	**0.058**	**0.028**	**0.003**	AqDis	mg/L	5/17/18	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	5/17/18	200.8	DS
Chromium	< 0.001	< 0.001	**0.002**	AqDis	mg/L	5/17/18	200.8	DS
Iron	**1.4**	**1.1**	< 0.05	AqDis	mg/L	5/17/18	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	AqDis	mg/L	5/17/18	200.8	DS
Manganese	**0.52**	**0.28**	< 0.005	AqDis	mg/L	5/17/18	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	AqDis	mg/L	5/17/18	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	5/17/18	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	AqDis	mg/L	5/17/18	200.8	DS

Sample ID:	DPH-6	DPH-4					
Lab Sample ID:	181987.04	181987.05					
Matrix:	aqueous	aqueous					
Date Sampled:	5/16/18	5/16/18					
Date Received:	5/16/18	5/16/18	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Arsenic	**0.004**	**0.002**	AqDis	mg/L	5/17/18	200.8	DS
Sodium	**25**	**26**	AqDis	mg/L	5/17/18	200.8	DS
Zinc	**0.031**	< 0.005	AqDis	mg/L	5/17/18	200.8	DS

June 06, 2018

Vista Work Order No. 1801000

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on May 18, 2018. This sample set was analyzed on a rush turn-around time, under your Project Name '181987 NH 4912'.

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

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

Sincerely,

Martha Maier

Martha Maier
Laboratory Director

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

Vista Work Order No. 1801000
Case Narrative

Sample Condition on Receipt:

One aqueous sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The sample was extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

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

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

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B8E0173-BLK1	B8E0173-BLK1	PFAS Isotope Dilution Method	13C2-PFDA	H	139

H = Recovery was outside laboratory acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1801000-01	DPH-MW6	15-May-18 15:00	18-May-18 11:10	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: Eastern Analytical, Inc.
Project: 181987 NH 4912
Matrix: Aqueous

Laboratory Data

Lab Sample: B8E0173-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFPeA	2706-90-3	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFBS	375-73-5	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFHxA	307-24-4	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFHpA	375-85-9	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFHxS	355-46-4	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFOA	335-67-1	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFOS	1763-23-1	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFNA	375-95-1	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFDA	335-76-2	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
MeFOSAA	2355-31-9	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFUnA	2058-94-8	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
EtFOSAA	2991-50-6	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFDoA	307-55-1	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFTrDA	72629-94-8	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
PFTeDA	376-06-7	ND	4.00		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	110	60 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C3-PFPeA	IS	107	60 - 150		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C3-PFBS	IS	125	60 - 150		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C2-PFHxA	IS	108	70 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C4-PFHpA	IS	108	60 - 150		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
18O2-PFHxS	IS	121	60 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C2-PFOA	IS	105	60 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C8-PFOS	IS	110	60 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C5-PFNA	IS	101	50 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C2-PFDA	IS	139	60 - 130	H	B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
d3-MeFOSAA	IS	98.9	50 - 150		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C2-PFUnA	IS	83.2	60 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
d5-EtFOSAA	IS	96.6	50 - 150		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C2-PFDoA	IS	125	30 - 130		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1
13C2-PFTeDA	IS	65.4	20 - 150		B8E0173	29-May-18	0.250 L	04-Jun-18 07:05	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

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

Sample ID: OPR — **PFAS Isotope Dilution Method**

Client Data

Name: Eastern Analytical, Inc.
Project: 181987 NH 4912
Matrix: Aqueous

Laboratory Data

Lab Sample: B8E0173-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	40.8	40.0	102	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFPeA	2706-90-3	40.4	40.0	101	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFBS	375-73-5	41.0	40.0	102	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFHxA	307-24-4	45.0	40.0	113	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFHpA	375-85-9	42.3	40.0	106	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFHxS	355-46-4	40.9	40.0	102	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFOA	335-67-1	43.0	40.0	107	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFOS	1763-23-1	40.6	40.0	101	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFNA	375-95-1	37.6	40.0	94.1	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFDA	335-76-2	37.0	40.0	92.4	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
MeFOSAA	2355-31-9	39.5	40.0	98.8	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFUnA	2058-94-8	49.5	40.0	124	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
EtFOSAA	2991-50-6	33.6	40.0	83.9	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFDoA	307-55-1	37.9	40.0	94.8	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFTrDA	72629-94-8	33.9	40.0	84.7	60-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
PFTeDA	376-06-7	47.1	40.0	118	70-130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	102	60- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C3-PFPeA	IS	97.7	60- 150		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C3-PFBS	IS	111	60- 150		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C2-PFHxA	IS	92.9	70- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C4-PFHpA	IS	98.9	60- 150		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
18O2-PFHxS	IS	105	60- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C2-PFOA	IS	96.4	60- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C8-PFOS	IS	102	60- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C5-PFNA	IS	106	50- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C2-PFDA	IS	97.5	60- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
d3-MeFOSAA	IS	83.3	50- 150		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C2-PFUnA	IS	63.8	60- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
d5-EtFOSAA	IS	92.7	50- 150		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C2-PFDoA	IS	79.1	30- 130		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1
13C2-PFTeDA	IS	64.4	20- 150		B8E0173	29-May-18	0.250 L	04-Jun-18 06:54	1

Sample ID: DPH-MW6 — **PFAS Isotope Dilution Method**

Client Data

Name: Eastern Analytical, Inc.
Project: 181987 NH 4912
Matrix: Aqueous
Date Collected: 15-May-18 15:00

Laboratory Data

Lab Sample: 1801000-01
Date Received: 18-May-18 11:10
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFPeA	2706-90-3	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFBS	375-73-5	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFHxA	307-24-4	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFHpA	375-85-9	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFHxS	355-46-4	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFOA	335-67-1	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFOS	1763-23-1	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFNA	375-95-1	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFDA	335-76-2	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
MeFOSAA	2355-31-9	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFUnA	2058-94-8	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
EtFOSAA	2991-50-6	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFDoA	307-55-1	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFTrDA	72629-94-8	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
PFTeDA	376-06-7	ND	4.87		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.7	60 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C3-PFPeA	IS	99.6	60 - 150		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C3-PFBS	IS	126	60 - 150		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C2-PFHxA	IS	98.5	70 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C4-PFHpA	IS	97.3	60 - 150		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
18O2-PFHxS	IS	91.9	60 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C2-PFOA	IS	77.1	60 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C8-PFOS	IS	99.6	60 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C5-PFNA	IS	95.0	50 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C2-PFDA	IS	104	60 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
d3-MeFOSAA	IS	91.8	50 - 150		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C2-PFUnA	IS	84.1	60 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
d5-EtFOSAA	IS	91.0	50 - 150		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C2-PFDoA	IS	84.8	30 - 130		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1
13C2-PFTeDA	IS	97.4	20 - 150		B8E0173	29-May-18	0.103 L	05-Jun-18 02:20	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

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

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank**
Conc.	**Concentration**
D	**Dilution**
DL	**Detection limit**
E	**The associated compound concentration exceeded the calibration range of the instrument**
H	**Recovery and/or RPD was outside laboratory acceptance limits**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ**
LOD	**Limits of Detection**
LOQ	**Limits of Quantitation**
M	**Estimated Maximum Possible Concentration (CA Region 2 projects only)**
NA	**Not applicable**
ND	**Not Detected**
Q	**Ion ratio outside of 70-130% of Standard Ratio. (DOD PFAS projects only)**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**
*	**See Cover Letter**

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

CHAIN-OF-CUSTODY RECORD 1801000

KE 05/18/18

1801000 0.3°C

Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# 181987 Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW6	5/15/2018 15:00	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# 181987 **Project State: NH**

Project ID: 4912

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: Preferred Date: Standard

RUSH Due Date: _____

QC Deliverables

☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ MA MCP

Notes about project:

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

NHDES 16 Compound List

PO #:48057 **EAI ID# 181987**

If RUSH charges will be applied, please call prior to analyzing.

Samples Collected by: 5/17/15 1530 UPS

Relinquished by	Date/Time	Received by
UPS	05/18/18 1114	Kim
Relinquished by	**Date/Time**	**Received by**

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1801000 **TAT** 21 14 KE 05/18/18

Samples Arrival:	**Date/Time** 05/18/18 1110	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 05/18/18 1450	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** F-6

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.4 (uncorrected)	**Time:** 1112	**Thermometer ID:** IR-4
Temp °C: 0.3 (corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	KE		
Holding Time Acceptable?	KE		
Shipping Container(s) Intact?	KE		
Shipping Custody Seals Intact?			KE
Shipping Documentation Present?	KE		
Airbill Trk # 1ZX465990199739076	KE		
Sample Container Intact?	KE		
Sample Custody Seals Intact?			KE
Chain of Custody / Sample Documentation Present?	KE		
COC Anomaly/Sample Acceptance Form completed?		KE	KE

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						KE
Preservation Documented:	$Na_2S_2O_3$	Trizma	None	Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose	

Comments:

Page 1 of 1

Chain-of-Custody Record

181987

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: 524.2 BTEX 524.2 MTBE only; 524.2 VTICs; 8260 624 (1,4 Dioxane); 8021 BTEX Halos; 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP; ABN A BN PAH; TPH8100 LI L2; 8015 DRO MAEPH; PEST 608 PCB 608; PEST 8081 PCB 8082; Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals; VOC Pest Herb	Metals: Dissolved Metals (List Below); Total Metals (List Below)	Inorganics: TS TSS TDS Spec. Con.; Br Cl F SO4 NO3 NO2; BOD CBOD T. Alk.; TKN NH3 T. Phos. O. Phos.; pH T. Res. Chlorine; COD Phenols TOC DOC; Total Cyanide Total Sulfide; Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: Total Coliform E. Coli Fecal Coliform; Enterococci Heterotrophic Plate Count	Other: 1,4 Dioxane by SIM 16	# of Containers	Notes MeOH Vial #
DPH-105	5-15-18 1250	GW					X					3	
DPH-B5	1309						X					3	
DPH-MW6	1500			X			X				X	5	
DPH-6	5-16-18 815						X		X			2	
DPH-4	835						X		X			2	
DPH-MW2D	910			X								2	

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water Trip Blank - EAI 3/30/18 13:00

Preservative: H-HCL; N-HNO3; S-H2SO4; Na-NaOH; M-MEOH PA- 5/16/18

Project Manager: JOHN BROOKS

Company: EGGI

Address: 56 MAIN ST

City: MEREDITH State: NH Zip: 03253

Phone: 603-279-4425 Ext.:

Fax:

E-Mail: EGGI@EGGI.COM

Site Name: DPH

Project #: 33.0083021.00 TASK 5

State: NH MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #:

Date Needed:

QA/QC Reporting Level: A B C or Presumptive Certainty

Reporting Options: Prelims: Yes or No

Electronic Options: E-Mail PDF Equis Excel

Temp. 4.0 °C

ICE? (Yes) No

Sampler(s): MICHAEL O'BRIEN 571-262-9599

Relinquished By:	Date:	Time:	Received By:
	5/16/18	1026	
T. Thompson	5-16-18	14:30	

Metals: (8 RCRA) 13 PP (Fe, Mn) Pb, Cu

Other Metals: FOR DPH-MW6 DPH-B5 & DPH-105

Samples Field Filtered? [X] Yes [ ] No

Notes: (ie: Special Detection Limits, Billing Info, If Different)

DPH-6, DPH-4 METALS: CHLORIDE, SODIUM, ARSENIC ? ZINC

DPH-B5 MET3 DOES NOT HAVE PRESERVATIVE

Site History:

Suspected Contamination:

Field Readings:

Eastern Analytical, Inc.
professional laboratory and drilling services
25 Chenell Drive | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | E-Mail: CustomerService@EasternAnalytical.com | www.EasternAnalytical.com

(White: Original Green: Project Manager)

Eastern Analytical, Inc.

professional laboratory and drilling services

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	181984
Client Identification:	DPH | 33.0083025.00 Task 1
Date Received:	5/16/2018

Dear Mr. Brooks :

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,

Jennifer Scott for
Lorraine Olashaw, Lab Director

5.24.18
Date

4
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **181984**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH | 33.0083025.00 Task 1**

Temperature upon receipt (°C): 3.4 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
181984.01	DPH-MW6	5/16/18	5/15/18	aqueous		Adheres to Sample Acceptance Policy
181984.02	DPH-6	5/16/18	5/16/18	aqueous		Adheres to Sample Acceptance Policy
181984.03	DPH-4	5/16/18	5/16/18	aqueous		Adheres to Sample Acceptance Policy
181984.04	DPH-MW2D	5/16/18	5/16/18	aqueous		Adheres to Sample Acceptance Policy
181984.05	Trip Blank	5/16/18	4/6/18	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.
All results contained in this report relate only to the above listed samples.
References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater,20th Edition, 1998 and 22nd Edition, 2012
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **181984**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH | 33.0083025.00 Task 1**

Sample ID:	DPH-MW6	DPH-6	DPH-4	DPH-MW2D	Trip Blank
Lab Sample ID:	181984.01	181984.02	181984.03	181984.04	181984.05
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	5/15/18	5/16/18	5/16/18	5/16/18	4/6/18
Date Received:	5/16/18	5/16/18	5/16/18	5/16/18	5/16/18
Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	5/17/18	5/17/18	5/17/18	5/17/18	5/17/18
Analyst:	BAM	BAM	BAM	BAM	BAM
Method:	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1
Dichlorodifluoromethane	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 2	< 2	< 2	< 2	< 2
Vinyl chloride	< 2	< 2	< 2	< 2	< 2
Bromomethane	< 2	< 2	< 2	< 2	< 2
Chloroethane	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5
Diethyl Ether	< 5	< 5	< 5	< 5	< 5
Acetone	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 1	< 1	< 1	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30	< 30
Methylene chloride	< 5	< 5	< 5	< 5	< 5
Carbon disulfide	< 2	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1	< 1	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5	< 5	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5	< 5	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	< 1	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **181984**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH | 33.0083025.00 Task 1**

Sample ID:	DPH-MW6	DPH-6	DPH-4	DPH-MW2D	Trip Blank
Lab Sample ID:	181984.01	181984.02	181984.03	181984.04	181984.05
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	5/15/18	5/16/18	5/16/18	5/16/18	4/6/18
Date Received:	5/16/18	5/16/18	5/16/18	5/16/18	5/16/18
Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	5/17/18	5/17/18	5/17/18	5/17/18	5/17/18
Analyst:	BAM	BAM	BAM	BAM	BAM
Method:	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1
mp-Xylene	< 1	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
4-Bromofluorobenzene (surr)	**90 %R**	**86 %R**	**90 %R**	**92 %R**	**88 %R**
1,2-Dichlorobenzene-d4 (surr)	**117 %R**	**117 %R**	**120 %R**	**135 %R**	**118 %R**
Toluene-d8 (surr)	**97 %R**	**94 %R**	**94 %R**	**96 %R**	**96 %R**
1,2-Dichloroethane-d4 (surr)	**124 %R**	**123 %R**	**126 %R**	**124 %R**	**119 %R**

DPH-MW2D: The surrogate 1,2-Dichlorobenzene-d4 (surr) in the sample resulted in recovery outside of the acceptance control limits of 70-130%R. There is no impact to the date as no analytes are present.

Bromomethane, tert-Butyl Alcohol (TBA), Carbon tetrachloride and Bromodichloromethane exhibited recovery outside acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

181984

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: 524.2 524.2 BTEX 524.2 MTBE ONLY; 8260B 624 VTICs 1, 4 Dioxane; 8021 BTEX HALOS; 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP ABN A BN PAH; TPH8100 LI L2; 8015 DRO MAEPH; PEST 608 PCB 608 PEST 8081 PCB 8082; Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals VOC Pest Herb	METALS: Dissolved Metals (List Below); Total Metals (List Below)	INORGANICS: TS TSS TDS Spec. Con.; Br Cl F SO_4 NO_2 NO_3 NO_2NO_3; BOD CBOD T. Alk.; TKN NH_3 T. Phos. O. Phos.; pH T. Res. Chlorine; COD Phenols TOC DOC; Total Cyanide Total Sulfide; Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	MICRO: Total Coliform E. Coli Fecal Coliform; Enterococci Heterotrophic Plate Count	OTHER	# OF CONTAINERS	NOTES MeOH Vial #
DPH-MW6	5-15-18 1500	GW	G	X								2
DPH-6	5-16-18 815			X								2
DPH-4	835			X								2
DPH-MW20	910			X								2

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: JOHN BROOKS

COMPANY: EGGI

ADDRESS: 56 MAIN ST

CITY: MEREDITH STATE: NH ZIP: 03253

PHONE: 603-279-4425 EXT.:

FAX:

E-MAIL: EGGI@EGGI.COM

SITE NAME: DPH

PROJECT #: 33.0083025.00 TASK 1

STATE: NH MA ME VT OTHER:

REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:

QUOTE #: PO #:

DATE NEEDED:

QA/QC REPORTING LEVEL A B C OR PRESUMPTIVE CERTAINTY

REPORTING OPTIONS PRELIMS: YES OR NO

ELECTRONIC OPTIONS E-MAIL PDF EQUIS EXCEL

TEMP. 3.4 °C ICE? (YES) NO

SAMPLER(S): MICHAEL O'BRIEN 571-262-9559

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	5-16-18	1026	T. Thompson
T. Thompson	5-16-18	14:30	[signature]
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)

VOC BY 8260C

TRIP BLANK EAT 4/16/18 11:36

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

PA 5/17/18

Eastern Analytical, Inc.
professional laboratory and drilling services
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

Eastern Analytical, Inc.

professional laboratory and drilling services

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 184677
Client Identification: DPH - 26.01 Task 2
Date Received: 7/25/2018

Dear Mr. Brooks :

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 | 8.29.18 Date | 34 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **184677**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH - 26.01 Task 2**

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 Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
184677.01	DPH-EX4	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.02	DPH-105	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.03	DPH-MW9-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.04	DPH-MW10-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.05	DPH-MW8-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.06	DPH-MW5-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.07	DPH-MW4-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.08	DPH-MW3-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.09	DPH-MW2-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.1	DPH-B5	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.11	DPH-MW1-17	7/25/18	7/24/18	aqueous		Adheres to Sample Acceptance Policy
184677.12	DPH-B7	7/25/18	7/24/18	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#: **184677**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH - 26.01 Task 2**

Sample ID:	DPH-105
Lab Sample ID:	184677.02
Matrix:	aqueous
Date Sampled:	7/24/18
Date Received:	7/25/18
Units:	ug/L
Date of Analysis:	7/28/18
Analyst:	BAM
Method:	8260C
Dilution Factor:	1
Dichlorodifluoromethane	< 5
Chloromethane	< 2
Vinyl chloride	< 2
Bromomethane	< 2
Chloroethane	< 5
Trichlorofluoromethane	< 5
Diethyl Ether	< 5
Acetone	< 10
1,1-Dichloroethene	< 1
tert-Butyl Alcohol (TBA)	< 30
Methylene chloride	< 5
Carbon disulfide	< 2
Methyl-t-butyl ether(MTBE)	**7.9**
Ethyl-t-butyl ether(ETBE)	< 5
Isopropyl ether(DIPE)	< 5
tert-amyl methyl ether(TAME)	< 5
trans-1,2-Dichloroethene	< 1
1,1-Dichloroethane	< 1
2,2-Dichloropropane	< 1
cis-1,2-Dichloroethene	< 1
2-Butanone(MEK)	< 10
Bromochloromethane	< 1
Tetrahydrofuran(THF)	< 10
Chloroform	< 1
1,1,1-Trichloroethane	< 1
Carbon tetrachloride	< 1
1,1-Dichloropropene	< 1
Benzene	< 1
1,2-Dichloroethane	< 1
Trichloroethene	< 1
1,2-Dichloropropane	< 1
Dibromomethane	< 1
Bromodichloromethane	< 0.5
1,4-Dioxane	< 50
4-Methyl-2-pentanone(MIBK)	< 10
cis-1,3-Dichloropropene	< 0.5
Toluene	< 1
trans-1,3-Dichloropropene	< 0.5
1,1,2-Trichloroethane	< 1
2-Hexanone	< 10
Tetrachloroethene	< 1
1,3-Dichloropropane	< 1
Dibromochloromethane	< 1
1,2-Dibromoethane(EDB)	< 2
Chlorobenzene	< 1
1,1,1,2-Tetrachloroethane	< 1
Ethylbenzene	< 1

LABORATORY REPORT

EAI ID#: **184677**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH - 26.01 Task 2**

Sample ID:	DPH-105
Lab Sample ID:	184677.02
Matrix:	aqueous
Date Sampled:	7/24/18
Date Received:	7/25/18
Units:	ug/L
Date of Analysis:	7/28/18
Analyst:	BAM
Method:	8260C
Dilution Factor:	1
mp-Xylene	< 1
o-Xylene	< 1
Styrene	< 1
Bromoform	< 2
IsoPropylbenzene	< 1
Bromobenzene	< 1
1,1,2,2-Tetrachloroethane	< 1
1,2,3-Trichloropropane	< 0.5
n-Propylbenzene	< 1
2-Chlorotoluene	< 1
4-Chlorotoluene	< 1
1,3,5-Trimethylbenzene	< 1
tert-Butylbenzene	< 1
1,2,4-Trimethylbenzene	< 1
sec-Butylbenzene	< 1
1,3-Dichlorobenzene	< 1
p-Isopropyltoluene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
n-Butylbenzene	< 1
1,2-Dibromo-3-chloropropane	< 2
1,3,5-Trichlorobenzene	< 1
1,2,4-Trichlorobenzene	< 1
Hexachlorobutadiene	< 0.5
Naphthalene	< 5
1,2,3-Trichlorobenzene	< 1
4-Bromofluorobenzene (surr)	**99 %R**
1,2-Dichlorobenzene-d4 (surr)	**101 %R**
Toluene-d8 (surr)	**102 %R**
1,2-Dichloroethane-d4 (surr)	**117 %R**

Chloroethane, Diethyl Ether and 2,2-Dichloropropane exhibited recovery outside acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).

LABORATORY REPORT

EAI ID#: **184677**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH - 26.01 Task 2**

Sample ID:	DPH-105
Lab Sample ID:	184677.02
Matrix:	aqueous
Date Sampled:	7/24/18
Date Received:	7/25/18
Units:	ug/L
Date of Analysis:	7/30/18
Analyst:	VG
Method:	8260B SIM
Dilution Factor:	1
1,4-Dioxane	**3.9**
4-Bromofluorobenzene (surr)	**114 %R**
Toluene-d8 (surr)	**106 %R**

LABORATORY REPORT

EAI ID#: **184677**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH - 26.01 Task 2**

Sample ID:	DPH-B5
Lab Sample ID:	184677.1
Matrix:	aqueous
Date Sampled:	7/24/18
Date Received:	7/25/18
Units:	ug/L
Date of Analysis:	7/30/18
Analyst:	VG
Method:	8260B SIM
Dilution Factor:	1
1,4-Dioxane	**1.9**
4-Bromofluorobenzene (surr)	**104 %R**
Toluene-d8 (surr)	**101 %R**

August 24, 2018

Vista Work Order No. 1802057

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on July 27, 2018 under your Project Name '184677 NH 5136'.

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

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

Sincerely,

Martha Maier

Martha Maier
Laboratory Director

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

Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

Vista Work Order No. 1802057
Case Narrative

Sample Condition on Receipt:

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

Analytical Notes:

PFAS Isotope Dilution Method

The following samples contained particulate and were centrifuged prior to extraction.

Laboratory ID	Sample Name
1802057-01	DPH-EX4
1802057-03	DPH-MW9-17
1802057-07	DPH-MW4-17
1802057-10	DPH-B5
1802057-11	DPH-MW1-17

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modifed EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria. A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B8H0001-BLK1	B8H0001-BLK1	PFAS Isotope Dilution Method	13C2-PFDA	H	58.7

H = Recovery was outside laboratory acceptance criteria.

Table of Contents

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1802057-01	DPH-EX4	24-Jul-18 11:25	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-02	DPH-105	24-Jul-18 12:05	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-03	DPH-MW9-17	24-Jul-18 09:30	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-04	DPH-MW10-17	24-Jul-18 10:10	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-05	DPH-MW8-17	24-Jul-18 10:50	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-06	DPH-MW5-17	24-Jul-18 11:20	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-07	DPH-MW4-17	24-Jul-18 12:00	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-08	DPH-MW3-17	24-Jul-18 12:45	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-09	DPH-MW2-17	24-Jul-18 13:40	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-10	DPH-B5	24-Jul-18 14:15	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-11	DPH-MW1-17	24-Jul-18 14:40	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1802057-12	DPH-B7	24-Jul-18 15:20	27-Jul-18 11:56	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: Eastern Analytical, Inc.
Project: 184677 NH 5136
Matrix: Aqueous

Laboratory Data

Lab Sample: B8H0001-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFPeA	2706-90-3	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFBS	375-73-5	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFHxA	307-24-4	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFHpA	375-85-9	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFHxS	355-46-4	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFOA	335-67-1	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFNA	375-95-1	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFOS	1763-23-1	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFDA	335-76-2	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
MeFOSAA	2355-31-9	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
EtFOSAA	2991-50-6	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFUnA	2058-94-8	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFDoA	307-55-1	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFTrDA	72629-94-8	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
PFTeDA	376-06-7	ND	4.00		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.7	60 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C3-PFPeA	IS	94.0	60 - 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C3-PFBS	IS	100	60 - 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C2-PFHxA	IS	103	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C4-PFHpA	IS	80.9	60 - 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C2-PFOA	IS	111	60 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C5-PFNA	IS	81.5	50 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C8-PFOS	IS	95.6	60 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C2-PFDA	IS	58.7	60 - 130	H	B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
d3-MeFOSAA	IS	68.3	50 - 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
d5-EtFOSAA	IS	71.6	50 - 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C2-PFUnA	IS	75.7	60 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C2-PFDoA	IS	61.5	30 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1
13C2-PFTeDA	IS	72.4	20 - 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:52	1

RL - Reporting limit

Results reported to RL.

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

Sample ID: OPR — **PFAS Isotope Dilution Method**

Client Data

Name: Eastern Analytical, Inc.
Project: 184677 NH 5136
Matrix: Aqueous

Laboratory Data

Lab Sample: B8H0001-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	43.2	40.0	108	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFPeA	2706-90-3	40.3	40.0	101	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFBS	375-73-5	47.3	40.0	118	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFHxA	307-24-4	39.3	40.0	98.3	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFHpA	375-85-9	48.4	40.0	121	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFHxS	355-46-4	37.9	40.0	94.6	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFOA	335-67-1	41.9	40.0	105	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFNA	375-95-1	44.4	40.0	111	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFOS	1763-23-1	39.9	40.0	99.8	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFDA	335-76-2	44.5	40.0	111	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
MeFOSAA	2355-31-9	31.9	40.0	79.8	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
EtFOSAA	2991-50-6	44.2	40.0	110	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFUnA	2058-94-8	38.2	40.0	95.5	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFDoA	307-55-1	44.1	40.0	110	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFTrDA	72629-94-8	42.9	40.0	107	60 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
PFTeDA	376-06-7	43.1	40.0	108	70 - 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.9	60- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C3-PFPeA	IS	88.5	60- 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C3-PFBS	IS	89.2	60- 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C2-PFHxA	IS	86.1	70- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C4-PFHpA	IS	76.1	60- 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C2-PFOA	IS	102	60- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C5-PFNA	IS	70.9	50- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C8-PFOS	IS	80.0	60- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C2-PFDA	IS	65.2	60- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
d3-MeFOSAA	IS	78.3	50- 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
d5-EtFOSAA	IS	74.4	50- 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C2-PFUnA	IS	80.8	60- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C2-PFDoA	IS	65.6	30- 130		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1
13C2-PFTeDA	IS	75.5	20- 150		B8H0001	02-Aug-18	0.250 L	07-Aug-18 06:41	1

Sample ID: DPH-105

PFAS Isotope Dilution Method

Client Data

Name: Eastern Analytical, Inc.
Project: 184677 NH 5136
Matrix: Aqueous
Date Collected: 24-Jul-18 12:05

Laboratory Data

Lab Sample: 1802057-02
Date Received: 27-Jul-18 11:56
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	47.7	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFPeA	2706-90-3	85.3	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFBS	375-73-5	40.0	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFHxA	307-24-4	139	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFHpA	375-85-9	77.2	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFHxS	355-46-4	128	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFOA	335-67-1	317	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFNA	375-95-1	5.71	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFOS	1763-23-1	571	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFDA	335-76-2	ND	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
MeFOSAA	2355-31-9	ND	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
EtFOSAA	2991-50-6	ND	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFUnA	2058-94-8	ND	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFDoA	307-55-1	ND	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFTrDA	72629-94-8	ND	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
PFTeDA	376-06-7	ND	4.26		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.8	60 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C3-PFPeA	IS	88.6	60 - 150		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C3-PFBS	IS	100	60 - 150		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C2-PFHxA	IS	90.6	70 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C4-PFHpA	IS	96.8	60 - 150		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
18O2-PFHxS	IS	94.7	60 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C2-PFOA	IS	91.9	60 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C5-PFNA	IS	84.9	50 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C8-PFOS	IS	84.7	60 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C2-PFDA	IS	82.4	60 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
d3-MeFOSAA	IS	85.4	50 - 150		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
d5-EtFOSAA	IS	80.6	50 - 150		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C2-PFUnA	IS	78.9	60 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C2-PFDoA	IS	78.4	30 - 130		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1
13C2-PFTeDA	IS	70.8	20 - 150		B8H0001	02-Aug-18	0.117 L	23-Aug-18 06:03	1

RL - Reporting limit

Results reported to RL.

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

Sample ID: DPH-B5

PFAS Isotope Dilution Method

Client Data

Name: Eastern Analytical, Inc.
Project: 184677 NH 5136
Matrix: Aqueous
Date Collected: 24-Jul-18 14:15

Laboratory Data

Lab Sample: 1802057-10
Date Received: 27-Jul-18 11:56
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	27.3	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFPeA	2706-90-3	56.7	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFBS	375-73-5	24.2	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFHxA	307-24-4	88.5	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFHpA	375-85-9	54.9	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFHxS	355-46-4	85.5	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFOA	335-67-1	246	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFNA	375-95-1	5.04	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFOS	1763-23-1	261	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFDA	335-76-2	ND	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
MeFOSAA	2355-31-9	ND	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
EtFOSAA	2991-50-6	ND	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFUnA	2058-94-8	ND	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFDoA	307-55-1	ND	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFTrDA	72629-94-8	ND	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
PFTeDA	376-06-7	ND	4.44		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.9	60 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C3-PFPeA	IS	89.4	60 - 150		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C3-PFBS	IS	103	60 - 150		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C2-PFHxA	IS	89.0	70 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C4-PFHpA	IS	92.6	60 - 150		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
18O2-PFHxS	IS	90.3	60 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C2-PFOA	IS	82.8	60 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C5-PFNA	IS	79.6	50 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C8-PFOS	IS	85.0	60 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C2-PFDA	IS	77.0	60 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
d3-MeFOSAA	IS	82.7	50 - 150		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
d5-EtFOSAA	IS	79.8	50 - 150		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C2-PFUnA	IS	76.1	60 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C2-PFDoA	IS	80.7	30 - 130		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1
13C2-PFTeDA	IS	73.3	20 - 150		B8H0001	02-Aug-18	0.113 L	23-Aug-18 07:28	1

RL - Reporting limit

Results reported to RL.

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

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank**
Conc.	**Concentration**
D	**Dilution**
DL	**Detection limit**
E	**The associated compound concentration exceeded the calibration range of the instrument**
H	**Recovery and/or RPD was outside laboratory acceptance limits**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ**
LOD	**Limits of Detection**
LOQ	**Limits of Quantitation**
M	**Estimated Maximum Possible Concentration (CA Region 2 projects only)**
NA	**Not applicable**
ND	**Not Detected**
Q	**Ion ratio outside of 70-130% of Standard Ratio. (DOD PFAS projects only)**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**
*	**See Cover Letter**

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

CHAIN-OF-CUSTODY RECORD

Eastern Analytical, Inc.
professional laboratory and drilling services

1802057 -0.1°C

EAI ID# **184677**

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-EX4	7/24/2018 11:25	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-105	7/24/2018 12:15	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW9-17	7/24/2018 9:30	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW10-17	7/24/2018 10:10	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# **184677** Project State: NH

Project ID: 5136

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: Preferred Date: Standard

RUSH Due Date: _____

QC Deliverables

☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ MA MCP

Notes about project:

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

16 Compound List

PO #: 48484 EAI ID# **184677**

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
	7/26/18 1500	UPS
UPS	7/27/18 1203	
Relinquished by	Date/Time	Received by

CHAIN-OF-CUSTODY RECORD

1802057

Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# **184677**

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW8-17	7/24/2018 10:50	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW5-17	7/24/2018 11:20	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW4-17	7/24/2018 12:00	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW3-17	7/24/2018 12:45	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# 184677 **Project State: NH**

Project ID: 5136

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: **Preferred Date: Standard**

RUSH Due Date: _____

QC Deliverables

☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ MA MCP

Notes about project:

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

16 Compound List

PO #: 48484 **EAI ID# 184677**

Data Deliverable (circle)

Excel NH EMD EQuIS ME EGAD

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

Samples Collected by: _____ 7/26/18 1500 UPS

Relinquished by	Date/Time	Received by
UPS	7/27/18 1203	
Relinquished by	Date/Time	Received by

CHAIN-OF-CUSTODY RECORD

Eastern Analytical, Inc.
professional laboratory and drilling services

1802057

EAI ID# **184677**

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW2-17	7/24/2018 13:40	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-B5	7/24/2018 14:15	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-MW1-17	7/24/2018 14:40	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	
DPH-B7	7/24/2018 15:20	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	

EAI ID# **184677** Project State: NH

Project ID: 5136

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: Preferred Date: Standard

RUSH Due Date: _____

QC Deliverables

☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ MA MCP

Notes about project:

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

16 Compound List

PO #:48484 EAI ID# **184677**

Data Deliverable (circle)

Excel NH EMD EQuIS ME EGAD

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

Samples Collected by: _____ 7/26/18 1500 UPS

Relinquished by / Date/Time / Received by

UPS 7/27/18 1204 _____

Relinquished by / Date/Time / Received by

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1802057 TAT std

Samples Arrival:	**Date/Time** 07/27/18 1156	**Initials:** BLB	**Location** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 07/28/18 1101	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** F-B

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.0 (uncorrected)	**Time:** 1159	**Thermometer ID:** IR-4
Temp °C: −0.1 (corrected)	**Probe used:** Yes☐ No☒	

	YES	NO	NA
Adequate Sample Volume Received?	BLB		
Holding Time Acceptable?	SR		
Shipping Container(s) Intact?	SR		
Shipping Custody Seals Intact?			SR
Shipping Documentation Present?	SR		
Airbill Trk # 1Z X46 599 01 9163 5915	SR		
Sample Container Intact?	BLB		
Sample Custody Seals Intact?		BLB	
Chain of Custody / Sample Documentation Present?	SR		
COC Anomaly/Sample Acceptance Form completed?		WWS	WWS

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						WWS
Preservation Documented:	$Na_2S_2O_3$	Trizma	None	WWS 07/28/18	Yes	No / NA
Shipping Container	Vista	Client	Retain	Return	Dispose	

Comments:

CHAIN-OF-CUSTODY RECORD

184677

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

33

SAMPLE I.D.	SAMPLING DATE / TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE / TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE ONLY	VOC: 8260 624 VTICs 1,4 DIOXANE	VOC: 8021 BTEX HALOS	VOC: 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015 DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081 PCB 8082	SVOC: OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.	INORGANICS: Br Cl F SO_4 NO_2 NO_3 NO_3NO_2	INORGANICS: BOD CBOD T. ALK.	INORGANICS: TKN NH_3 T. PHOS. O. PHOS.	INORGANICS: pH T. RES. CHLORINE	INORGANICS: COD PHENOLS TOC DOC	INORGANICS: TOTAL CYANIDE TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM	MICRO: ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER: VOCs by 8260C	OTHER	OTHER: PFAS Vista 16	# OF CONTAINERS	NOTES MeOH VIAL #
DPH-EX4	7-24-18 1125	GW	GRAB		X																					X		X	6	
DPH-105	7-24-18 1205	↓	↓		X																					X		X	6	
DPH-MW9-17	7/24/18 9:30	↓	↓		X																					X		X	6	
DPH-MW10-14	7/24/18 ~~10:00~~ 1010	↓	↓		X																					X		X	6	
DPH-MW8-17	7/24/18 10:50	↓	↓		X																					X		X	6	
DPH-MW5-17	7/24/18 11:20	↓	↓		X																					X		X	6	
DPH-MW4-17	7/24/18 12:00	↓	↓		X																					X		X	6	
DPH-MW3-17	7/24/18 12:45	↓	↓		X																					X		X	6	
DPH-MW2-17	7/24/18 13:40	↓	↓		X																					X		X	6	
DPH-BS	7/24/18 14:15	↓	↓		X																					X		X	6	

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: [redacted] John Brooks

COMPANY: Emery and Garrett Groundwater Investigations

ADDRESS: 56 Main St

CITY: Meredith STATE: NH ZIP: 03253

PHONE: 603 279 4425 EXT.:

FAX:

E-MAIL: eggi@ eggi.com

SITE NAME:

PROJECT #: DPH-26.01 TASK 2

STATE: (NH) MA ME VT OTHER:

REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:

QUOTE #: PO #:

DATE NEEDED: Normal

TEMP. 2.3 °C
ICE? (YES) NO

QA/QC REPORTING LEVEL
A B C
OR
MA MCP

REPORTING OPTIONS
PRELIMS: YES OR NO

ELECTRONIC OPTIONS
E-MAIL PDF EQUIS EXCEL

SAMPLER(S): Jon-Erik Tryggestad and Mike O'Brien

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	7-25-18	1500	[signature]
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

25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

CHAIN-OF-CUSTODY RECORD

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

184677

34

SAMPLE I.D.	SAMPLING DATE / TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE / TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE ONLY	VOC: 8260 / 624 / VTICs / 1,4 DIOXANE	VOC: 8021 BTEX HALOS	VOC: 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP / ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015 DRO MAEPH	SVOC: PEST 608 PCB 608 / PEST 8081 PCB 8082	SVOC: OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS / VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.	INORGANICS: BR CL F SO_4 / NO_2 NO_3 NO_3NO_2	INORGANICS: BOD CBOD T. ALK.	INORGANICS: TKN NH_3 T. PHOS. O. PHOS.	INORGANICS: pH T. RES. CHLORINE	INORGANICS: COD PHENOLS TOC DOC	INORGANICS: TOTAL CYANIDE TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE / FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI / FECAL COLIFORM	MICRO: ENTEROCOCCI / HETEROTROPHIC PLATE COUNT	OTHER: VOCs 8260C	OTHER	OTHER: PFAS Vista 16	# OF CONTAINERS	NOTES MEOH VIAL #
DPH-MW1-17	7/24/18 14:40	GW	GRAB		X																					X		X	6	
DPH-B7	7/24/18 15:20	↓	↓		X																					X		X	6	

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER
PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: John Brooks
COMPANY: Emery and Garrett Groundwater Investigations
ADDRESS: 56 Main St
CITY: Meredith NH STATE: NH ZIP: 03253
PHONE: 603 279 4425 EXT.:
FAX:
E-MAIL: eggi@eggi.com
SITE NAME:
PROJECT #: DPH-26.01 Task 2
STATE: NH (circled) MA ME VT OTHER:
REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:
QUOTE #: PO #:

DATE NEEDED: Normal

QA/QC REPORTING LEVEL A B C OR PRESUMPTIVE CERTAINTY

REPORTING OPTIONS PRELIMS: YES OR NO

ELECTRONIC OPTIONS E-MAIL PDF EQUIS EXCEL

TEMP. 2.3 °C ICE? YES (circled) NO

SAMPLER(S): Jon-Erik Tryggestad (603) 387-5846

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	7-25-18	1500	[signature]

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

James Wieck
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	185935
Client Identification:	Dover Pudding Hill
Date Received:	8/28/2018

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 | 9.6.18 Date | 6 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **185935**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill**

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 Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
185935.01	DPH-4	8/28/18	8/28/18	aqueous		Adheres to Sample Acceptance Policy
185935.02	DPH-6	8/28/18	8/28/18	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

Eastern Analytical, Inc. www.easternanalytical.com | 800.287.0525 | customerservice@easternanalytical.com

LABORATORY REPORT

EAI ID#: **185935**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill**

Sample ID:	DPH-4	DPH-6
Lab Sample ID:	185935.01	185935.02
Matrix:	aqueous	aqueous
Date Sampled:	8/28/18	8/28/18
Date Received:	8/28/18	8/28/18
Units:	ug/L	ug/L
Date of Analysis:	8/29/18	8/29/18
Analyst:	VG	VG
Method:	8260C	8260C
Dilution Factor:	1	1
Dichlorodifluoromethane	< 5	< 5
Chloromethane	< 2	< 2
Vinyl chloride	< 2	< 2
Bromomethane	< 2	< 2
Chloroethane	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Diethyl Ether	< 5	< 5
Acetone	< 10	< 10
1,1-Dichloroethene	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30
Methylene chloride	< 5	< 5
Carbon disulfide	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1
1,1-Dichloroethane	< 1	< 1
2,2-Dichloropropane	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1
2-Butanone(MEK)	< 10	< 10
Bromochloromethane	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10
Chloroform	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1
Carbon tetrachloride	< 1	< 1
1,1-Dichloropropene	< 1	< 1
Benzene	< 1	< 1
1,2-Dichloroethane	< 1	< 1
Trichloroethene	< 1	< 1
1,2-Dichloropropane	< 1	< 1
Dibromomethane	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5
Toluene	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1
2-Hexanone	< 10	< 10
Tetrachloroethene	< 1	< 1
1,3-Dichloropropane	< 1	< 1
Dibromochloromethane	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2
Chlorobenzene	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1
Ethylbenzene	< 1	< 1

LABORATORY REPORT

EAI ID#: **185935**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill**

Sample ID:	DPH-4	DPH-6
Lab Sample ID:	185935.01	185935.02
Matrix:	aqueous	aqueous
Date Sampled:	8/28/18	8/28/18
Date Received:	8/28/18	8/28/18
Units:	ug/L	ug/L
Date of Analysis:	8/29/18	8/29/18
Analyst:	VG	VG
Method:	8260C	8260C
Dilution Factor:	1	1
mp-Xylene	< 1	< 1
o-Xylene	< 1	< 1
Styrene	< 1	< 1
Bromoform	< 2	< 2
IsoPropylbenzene	< 1	< 1
Bromobenzene	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1
2-Chlorotoluene	< 1	< 1
4-Chlorotoluene	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1
tert-Butylbenzene	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1
sec-Butylbenzene	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1
p-Isopropyltoluene	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1
n-Butylbenzene	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5
Naphthalene	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1
4-Bromofluorobenzene (surr)	**93 %R**	**93 %R**
1,2-Dichlorobenzene-d4 (surr)	**105 %R**	**105 %R**
Toluene-d8 (surr)	**97 %R**	**99 %R**
1,2-Dichloroethane-d4 (surr)	**107 %R**	**108 %R**

LABORATORY REPORT

EAI ID#: **185935**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill**

Sample ID:	DPH-4	DPH-6
Lab Sample ID:	185935.01	185935.02
Matrix:	aqueous	aqueous
Date Sampled:	8/28/18	8/28/18
Date Received:	8/28/18	8/28/18

			Analysis			
			Units	**Date**	**Time**	**Method**	**Analyst**
Chloride	**35**	**13**	mg/L	8/29/18	9:34	4500ClE-11	KD
Nitrite-N	< 0.5	< 0.5	mg/L	8/29/18	9:34	353.2	KD
Nitrate-N	**0.88**	**0.57**	mg/L	8/29/18	9:34	353.2	KD

LABORATORY REPORT

EAI ID#: **185935**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill**

Sample ID:	DPH-4	DPH-6					
Lab Sample ID:	185935.01	185935.02					
Matrix:	aqueous	aqueous					
Date Sampled:	8/28/18	8/28/18	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	8/28/18	8/28/18					
Arsenic	**0.0011**	**0.0039**	AqDis	mg/L	8/30/18	200.8	DS
Sodium	**24**	**10**	AqDis	mg/L	8/30/18	200.8	DS
Zinc	< 0.005	**0.0058**	AqDis	mg/L	8/30/18	200.8	DS

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

185935

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: 524.2; 524.2 BTEX; 524.2 MTBE ONLY; 8260B 624; 624 VTICS; 1,4 DIOXANE; 8021 BTEX; HALOS; 8015 GRO; MAVPH	SVOC: 8270 625 ABN; SVTICS; EDB; DBCP; A; BN; PAH; TPH8100; LI; L2; 8015 DRO; MAEPH; PEST 608; PEST 8081; PCB 608; PCB 8082; OIL & GREASE 1664; TPH 1664	TCLP: TCLP 1311; VOC; PEST; ABN; HERB; METALS	METALS: DISSOLVED METALS (LIST BELOW); TOTAL METALS (LIST BELOW)	INORGANICS: TS; TSS; TDS; SPEC. CON.; BR; CL; F; SO4; NO3; NO2; BOD; CBOD; T. ALK.; TKN; NH3; T. PHOS.; O. PHOS.; PH; T. RES. CHLORINE; COD; PHENOLS; TOC; DOC; TOTAL CYANIDE; TOTAL SULFIDE; REACTIVE CYANIDE; REACTIVE SULFIDE; FLASHPOINT; IGNITABILITY	MICRO: TOTAL COLIFORM; E. COLI; FECAL COLIFORM; ENTEROCOCCI; HETEROTROPHIC PLATE COUNT	OTHER	# OF CONTAINERS	NOTES MEOH VIAL #
DPH-4	8-28-18 1240	GW	G	X	X		X	X		4	
DPH-6	↓ 1250	↓	↓	X	X		X	X		4	

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: JIM WIECK

COMPANY: EGGI

ADDRESS: 56 MAIN ST

CITY: MEREDITH STATE: NH ZIP: 03253

PHONE: 603-279-4425 EXT.:

FAX:

E-MAIL: michael.obrien@egca.com

SITE NAME: DOVER PUDDING HILL

PROJECT #:

STATE: (NH) MA ME VT OTHER:

REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:

QUOTE #: PO #:

DATE NEEDED: Standard

QA/QC REPORTING LEVEL A B C OR MA MCP

REPORTING OPTIONS PRELIMS: YES OR NO

ELECTRONIC OPTIONS E-MAIL PDF EQUIS EXCEL

TEMP. 3.1 °C ICE? (YES) NO

SAMPLER(S): Michael O'Brien 571-262-9549

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
MWC	8.29.18	1450	
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

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

OTHER METALS: SODIUM, ARSENIC, ZINC

SAMPLES FIELD FILTERED? ☒ YES ☐ NO

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

VOC BY 8260C

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

Eastern Analytical, Inc.
professional laboratory and drilling services
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

Eastern Analytical, Inc.
professional laboratory and drilling services

James Wieck
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	185983
Client Identification:	Dover Pudding Hill / 33.0083025.00 Task 1
Date Received:	8/29/2018

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

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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 | 9.7.18 Date | 4 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **185983**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill / 33.0083025.00 Task 1**

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 Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
185983.01	DPH-MW6	8/29/18	8/29/18	aqueous		Adheres to Sample Acceptance Policy
185983.02	DPH-MW2D	8/29/18	8/29/18	aqueous		Adheres to Sample Acceptance Policy
185983.03	DPH-B5	8/29/18	8/29/18	aqueous		Adheres to Sample Acceptance Policy
185983.04	DP-105	8/29/18	8/28/18	aqueous		Adheres to Sample Acceptance Policy
185983.05	Trip Blank - VOC	8/29/18	8/2/18	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#: **185983**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill / 33.0083025.00 Task 1**

Sample ID:	DPH-MW6	DPH-MW2D	DPH-B5	DP-105	Trip Blank - VOC
Lab Sample ID:	185983.01	185983.02	185983.03	185983.04	185983.05
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	8/29/18	8/29/18	8/29/18	8/28/18	8/2/18
Date Received:	8/29/18	8/29/18	8/29/18	8/29/18	8/29/18
Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	8/31/18	8/31/18	8/31/18	8/31/18	8/31/18
Analyst:	BAM	BAM	BAM	BAM	BAM
Method:	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1
Dichlorodifluoromethane	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 2	< 2	< 2	< 2	< 2
Vinyl chloride	< 2	< 2	< 2	< 2	< 2
Bromomethane	< 2	< 2	< 2	< 2	< 2
Chloroethane	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5
Diethyl Ether	< 5	< 5	< 5	< 5	< 5
Acetone	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 1	< 1	< 1	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30	< 30
Methylene chloride	< 5	< 5	< 5	< 5	< 5
Carbon disulfide	< 2	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1	**3.7**	**7.4**	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5	< 5	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5	< 5	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	< 1	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **185983**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill / 33.0083025.00 Task 1**

Sample ID:	DPH-MW6	DPH-MW2D	DPH-B5	DP-105	Trip Blank - VOC
Lab Sample ID:	185983.01	185983.02	185983.03	185983.04	185983.05
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	8/29/18	8/29/18	8/29/18	8/28/18	8/2/18
Date Received:	8/29/18	8/29/18	8/29/18	8/29/18	8/29/18
Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	8/31/18	8/31/18	8/31/18	8/31/18	8/31/18
Analyst:	BAM	BAM	BAM	BAM	BAM
Method:	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1
mp-Xylene	< 1	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
4-Bromofluorobenzene (surr)	**92 %R**	**91 %R**	**89 %R**	**89 %R**	**91 %R**
1,2-Dichlorobenzene-d4 (surr)	**98 %R**	**101 %R**	**97 %R**	**99 %R**	**98 %R**
Toluene-d8 (surr)	**100 %R**	**97 %R**	**97 %R**	**95 %R**	**101 %R**
1,2-Dichloroethane-d4 (surr)	**110 %R**	**112 %R**	**109 %R**	**110 %R**	**109 %R**

Page _____ of _____

Chain-of-Custody Record

185983

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: 524.2 BTEX; 524.2 MTBE only; 8260B 624 VOCs; 1, 4 Dioxane 8260C; 8021B BTEX; HALOS; 8015B GRO; MAVPH	SVOC: 8270D 625 SVOCs; EDB; DBCP; ABN A BN PAH; TPH8100; LI L2; 8015B DRO; MAEPH; PEST 608 PCB 608; PEST 8081A PCB 8082; Oil & Grease 1664; TPH 1664	TCLP: TCLP 1311 ABN Metals; VOC Pest Herb	Metals: Dissolved Metals (List Below); Total Metals (List Below)	Inorganics: TS TSS TDS Spec. Con.; Br Cl F SO_4 NO_2 NO_3 NO_2NO_3; BOD CBOD T. Alk.; TKN NH_3 T. Phos. O. Phos.; pH T. Res. Chlorine; COD Phenols TOC DOC; Total Cyanide Total Sulfide; Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: Total Coliform E. Coli; Fecal Coliform; Enterococci Heterotrophic Plate Count	Other	# of Containers	Notes MeOH Vial #
DPH-MW6	8-29-18 1140	GW		X										
DPH-MW2D	1300			X										
DPH-B5	1000			X										
~~MW2~~ DP-10S	8-29-18 1345			X										
Trip Blank VOC	8-2-18 1345			X										
TRI GW1														

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: Jim Weeks

Company: EGGI

Address: 56 Main St

City: Meredith State: NH Zip: 03253

Phone: 603-279-4425 Ext.: _____

Fax: _____

E-Mail: Michael.OBrien@gza.com

Site Name: Dover Bunding Hill

Project #: 33.0083025.00 Task 1

State: NH MA ME VT Other: _____

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other: _____

Quote #: _____ PO #: _____

Date Needed: _____

QA/QC Reporting Level: A B C or Presumptive Certainty

Reporting Options: Prelims: Yes or No

Electronic Options: E-Mail PDF Equis Excel

Temp. 1.1 °C

ICE? (Yes) No

Sampler(s): Michael O'Brien 571-262-9599

Relinquished By:	Date:	Time:	Received By:
[signature]	8-29-18	1610	[signature]
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)

VOC by 8260C

Site History: _____

Suspected Contamination: _____

Field Readings: _____

Eastern Analytical, Inc.
professional laboratory and drilling services
25 Chenell Drive | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | E-Mail: CustomerService@EasternAnalytical.com | www.EasternAnalytical.com

(White: Original Green: Project Manager)

Eastern Analytical, Inc.
professional laboratory and drilling services

James Wieck
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	185984
Client Identification:	Dover Pudding Hill / 33.0083021.01 Task 1
Date Received:	8/29/2018

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 | 9.24.18 Date | 18 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **185984**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill / 33.0083021.01 Task 1**

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 Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
185984.01	DPH-MW6	8/29/18	8/29/18	aqueous		Adheres to Sample Acceptance Policy
185984.02	DPH-MW2D	8/29/18	8/29/18	aqueous		Adheres to Sample Acceptance Policy
185984.03	DPH-B5	8/29/18	8/29/18	aqueous		Adheres to Sample Acceptance Policy
185984.04	DP-105	8/29/18	8/28/18	aqueous		Adheres to Sample Acceptance Policy
185984.05	Trip Blank - 1,4 Dioxane	8/29/18	4/25/18	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#: **185984**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill / 33.0083021.01 Task 1**

Sample ID:	DPH-MW6	DPH-MW2D	Trip Blank - 1,4 Dioxane
Lab Sample ID:	185984.01	185984.02	185984.05
Matrix:	aqueous	aqueous	aqueous
Date Sampled:	8/29/18	8/29/18	4/25/18
Date Received:	8/29/18	8/29/18	8/29/18
Units:	ug/L	ug/L	ug/L
Date of Analysis:	8/30/18	8/30/18	8/30/18
Analyst:	VG	VG	VG
Method:	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1
1,4-Dioxane	< 0.2	< 0.2	< 0.2
4-Bromofluorobenzene (surr)	**92 %R**	**98 %R**	**100 %R**
Toluene-d8 (surr)	**98 %R**	**99 %R**	**100 %R**

LABORATORY REPORT

EAI ID#: **185984**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Dover Pudding Hill / 33.0083021.01 Task 1**

Sample ID:	DPH-MW6	DPH-B5	DP-105					
Lab Sample ID:	185984.01	185984.03	185984.04					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	8/29/18	8/29/18	8/28/18					
Date Received:	8/29/18	8/29/18	8/29/18	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Arsenic	**0.0010**	**0.0015**	**0.0017**	AqDis	mg/L	8/30/18	200.8	DS
Barium	**0.0033**	**0.022**	**0.057**	AqDis	mg/L	8/30/18	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	8/30/18	200.8	DS
Chromium	**0.0023**	< 0.001	< 0.001	AqDis	mg/L	8/30/18	200.8	DS
Iron	< 0.05	**1.4**	**1.8**	AqDis	mg/L	8/30/18	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	AqDis	mg/L	8/30/18	200.8	DS
Manganese	< 0.005	**0.39**	**0.43**	AqDis	mg/L	8/30/18	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	AqDis	mg/L	8/30/18	200.8	DS
Selenium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	8/30/18	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	AqDis	mg/L	8/30/18	200.8	DS

Vista Analytical Laboratory

September 23, 2018

Vista Work Order No. 1802850

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on August 31, 2018 under your Project Name '185984 NH 4912'.

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

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

Sincerely,

Martha Maier

Martha Maier
Laboratory Director

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

Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

Vista Work Order No. 1802850
Case Narrative

Sample Condition on Receipt:

One aqueous sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The sample was extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

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

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

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

Table of Contents

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1802850-01	DPH-MW6	29-Aug-18 11:40	31-Aug-18 09:30	HDPE Bottle, 125 mL HDPE Bottle, 125 mL

Vista Project: 1802850

Client Project: 185984 NH 4912

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: Eastern Analytical, Inc.
Project: 185984 NH 4912
Matrix: Aqueous

Laboratory Data

Lab Sample: B8I0028-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFPeA	2706-90-3	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFBS	375-73-5	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFHxA	307-24-4	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFHpA	375-85-9	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFHxS	355-46-4	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFOA	335-67-1	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFNA	375-95-1	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFOS	1763-23-1	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFDA	335-76-2	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
MeFOSAA	2355-31-9	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
EtFOSAA	2991-50-6	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFUnA	2058-94-8	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFDoA	307-55-1	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFTrDA	72629-94-8	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
PFTeDA	376-06-7	ND	4.00		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	104	60 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C3-PFPeA	IS	104	60 - 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C3-PFBS	IS	111	60 - 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C2-PFHxA	IS	105	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C4-PFHpA	IS	108	60 - 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
18O2-PFHxS	IS	112	60 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C2-PFOA	IS	97.3	60 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C5-PFNA	IS	91.0	50 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C8-PFOS	IS	101	60 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C2-PFDA	IS	79.7	60 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
d3-MeFOSAA	IS	77.3	50 - 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
d5-EtFOSAA	IS	77.7	50 - 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C2-PFUnA	IS	75.5	60 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C2-PFDoA	IS	75.9	30 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1
13C2-PFTeDA	IS	75.9	20 - 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:23	1

RL - Reporting limit

Results reported to RL.

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

Sample ID: OPR — **PFAS Isotope Dilution Method**

Client Data

Name: Eastern Analytical, Inc.
Project: 185984 NH 4912
Matrix: Aqueous

Laboratory Data

Lab Sample: B8I0028-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	40.8	40.0	102	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFPeA	2706-90-3	41.1	40.0	103	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFBS	375-73-5	40.4	40.0	101	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFHxA	307-24-4	40.8	40.0	102	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFHpA	375-85-9	40.0	40.0	100	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFHxS	355-46-4	37.9	40.0	94.7	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFOA	335-67-1	40.0	40.0	100	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFNA	375-95-1	42.5	40.0	106	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFOS	1763-23-1	42.8	40.0	107	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFDA	335-76-2	41.9	40.0	105	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
MeFOSAA	2355-31-9	38.5	40.0	96.3	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
EtFOSAA	2991-50-6	38.2	40.0	95.4	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFUnA	2058-94-8	40.4	40.0	101	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFDoA	307-55-1	39.7	40.0	99.3	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFTrDA	72629-94-8	42.4	40.0	106	60 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
PFTeDA	376-06-7	36.6	40.0	91.6	70 - 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	101	60- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C3-PFPeA	IS	95.7	60- 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C3-PFBS	IS	102	60- 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C2-PFHxA	IS	97.8	70- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C4-PFHpA	IS	109	60- 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
18O2-PFHxS	IS	102	60- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C2-PFOA	IS	100	60- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C5-PFNA	IS	91.3	50- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C8-PFOS	IS	102	60- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C2-PFDA	IS	74.3	60- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
d3-MeFOSAA	IS	69.4	50- 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
d5-EtFOSAA	IS	74.7	50- 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C2-PFUnA	IS	71.7	60- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C2-PFDoA	IS	74.1	30- 130		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1
13C2-PFTeDA	IS	89.6	20- 150		B8I0028	10-Sep-18	0.250 L	19-Sep-18 18:34	1

Sample ID: DPH-MW6

PFAS Isotope Dilution Method

Client Data

Name: Eastern Analytical, Inc.
Project: 185984 NH 4912
Matrix: Aqueous
Date Collected: 29-Aug-18 11:40

Laboratory Data

Lab Sample: 1802850-01
Date Received: 31-Aug-18 09:30
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFPeA	2706-90-3	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFBS	375-73-5	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFHxA	307-24-4	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFHpA	375-85-9	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFHxS	355-46-4	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFOA	335-67-1	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFNA	375-95-1	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFOS	1763-23-1	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFDA	335-76-2	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
MeFOSAA	2355-31-9	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
EtFOSAA	2991-50-6	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFUnA	2058-94-8	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFDoA	307-55-1	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFTrDA	72629-94-8	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
PFTeDA	376-06-7	ND	4.31		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.2	60 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C3-PFPeA	IS	97.5	60 - 150		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C3-PFBS	IS	105	60 - 150		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C2-PFHxA	IS	97.0	70 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C4-PFHpA	IS	102	60 - 150		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
18O2-PFHxS	IS	93.1	60 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C2-PFOA	IS	91.6	60 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C5-PFNA	IS	80.5	50 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C8-PFOS	IS	91.1	60 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C2-PFDA	IS	70.2	60 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
d3-MeFOSAA	IS	64.1	50 - 150		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
d5-EtFOSAA	IS	63.9	50 - 150		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C2-PFUnA	IS	66.7	60 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C2-PFDoA	IS	70.1	30 - 130		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1
13C2-PFTeDA	IS	74.7	20 - 150		B8I0028	10-Sep-18	0.116 L	19-Sep-18 21:02	1

RL - Reporting limit

Results reported to RL.

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

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limits of Detection
LOQ	Limits of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
Q	Ion ratio outside of 70-130% of Standard Ratio. (DOD PFAS projects only)
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	18-008-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-009
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-18-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

CHAIN-OF-CUSTODY RECORD

Eastern Analytical, Inc.
professional laboratory and drilling services

EAI ID# 185984 Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW6	8/29/2018 11:40	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537	180285D 0.6°C

EAI ID# 185984 Project State: NH
Project ID: 4912

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520

Results Needed: Preferred Date: Standard
RUSH Due Date: _____

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

Notes about project:
Email login confirmation, pdf of results and invoice to customerservice@easternanalytical.com.
PFCs 16 compound list

PO #: 48678 EAI ID# 185984

Data Deliverable (circle)
Excel NH EMD EQuIS ME EGAD

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

Samples Collected by: _____ 8/30/18 1500 UPS

Relinquished by	Date/Time	Received by
UPS	8/31/18 1101	Kim GRC
Relinquished by	Date/Time	Received by

Vista Analytical Laboratory

Sample Log in Checklist

PAGE # 1 of 1
WO# 1802850
SDG# —
TAT std.

Section 1: Container Receipt

Delivered By: ☐ FedEx ☑ UPS ☐ On Trac ☐ GSO ☐ DHL ☐ Hand Delivered ☐ Other:

Number of Containers	Arrival Date	Arrival time	Cooler Received LR-SLC Initiated By/Date
1	08/31/18	0930	KE 8/31/18

Section 2: Sample Receipt Condition and Initial Storage

Container Condition	Chain of Custody	Preservation Type	Temperature	Storage Location	Initials/ Date
☑ Shipping container intact ☑ Shipping seals intact ☐ Custody Seals present ☐ Custody seals intact	☑ COC present ☑ Multiple COC's: 3 ☑ "Relinquished By" Section complete	☑ Ice ☐ Blue Ice ☐ Dry Ice ☐ Other	Thermometer ID: **IR-4** ☐ Probe used Temp (uncorrected): 0.7 °C Temp (corrected): 0.6 °C	☑ WR2 ☐ WF2 ☐ NA	KE 8/31/18

Section 3: Sample Log In

Airbill/Trk # 1Z X46 599 01 9860 9824

	By/date
Shipping container ☐ Vista ☑ Client ☐ Retain ☑ Return ☐ Dispose	
Log In Time: 1433	KE 09/04/18
COC clearly identifies: • Sample name • Sample matrix • Test method • Sample collection date or time • Collector's name • Preservation type	☑ Acceptable ☐ Not acceptable – anomaly form required KE 09/04/18
All samples present and accounted for on COC	KE 09/04/18
Sample IDs are legible	KE 09/04/18
Samples conform to the description on the COC	KE 09/04/18
Samples are intact and suitable for testing	KE 09/04/18
Preservation documented as required: ☑ NA ☐ $Na_2S_2O_3$ ☐ Trizma ☐ Other _____	KE 09/04/18
Samples stored ☑ WR2 Shelf: E5 ☐ WF2 Shelf: _____ ☐ R1 Shelf: _____	KE 09/04/18

Comments:

N/A

Page ______ of ______

Chain-of-Custody Record

185984

18

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: 524.2 / 524.2 BTEX / 524.2 MTBE only	VOC: 8260B 624 VTICs 1,4 Dioxane	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MAVPH	SVOC: 8270D 625 SVTICs EDB DBCP ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015B DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081A PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals VOC Pest Herb	Metals: Dissolved Metals (list below)	Metals: Total Metals (list below)	Inorganics: TS TSS TDS Spec. Con.	Inorganics: Br Cl F SO_4 NO_2 NO_3 NO_3NO_2	Inorganics: BOD CBOD T. Alk.	Inorganics: TKN NH_3 T. Phos. O. Phos.	Inorganics: pH T. Res. Chlorine	Inorganics: COD Phenols TOC DOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: Total Coliform E. Coli Fecal Coliform	Micro: Enterococci Heterotrophic Plate Count	Other: PFAS-16	Other	Other	# of Containers	**Notes** MeOH Vial #
DPH-MW6	8-29-18 1140				X									X												X			5	
DPH-MW2D	8-29-18 1300				X																								2	
~~DPH~~																														
DPH-B5	8-29-18 1000													X															1	
DPB-105	8-28-18 1345													X															1	
Trip Blank 1-4	4-25-18 1130				X																									
EA-1																														

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: JIM WIECK
Company: EGGI
Address: 56 MAIN ST
City: MEREDITH State: NH Zip: 03253
Phone: 603-279-4425 Ext.:
Fax:
E-Mail: michael.obrien@gza.com
Site Name: MOVER HUNTING HILL
Project #: 33.0083021.01 TASK 1
State: (NH) MA ME VT Other:
Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:
Quote #: PO #:

Date Needed:

QA/QC Reporting Level A B C OR Presumptive Certainty

Reporting Options Prelims: Yes or No

Electronic Options E-Mail PDF Equis Excel

Temp. 1.1 °C
Ice? (Yes) No

Sampler(s): Michael O'Brien 571-262-9559

Relinquished By:	Date:	Time:	Received By:
[signature]	8-29-18	1610	[signature]

Metals: (8 RCRA) 13 PP (Fe, Mn) Pb, Cu
Other Metals:
Samples Field Filtered? [X] 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*
25 Chenell Drive | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | E-Mail: CustomerService@EasternAnalytical.com | www.EasternAnalytical.com

(WHITE: Original GREEN: Project Manager)

Eastern Analytical, Inc.
professional laboratory and drilling services

Sample Date: 6/14/17
Monitoring Wells
VOCs, LGW Permit WQ

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	169946
Client Identification:	DPH #1
Date Received:	6/14/2017

Dear Mr. Brooks :

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

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

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director | 6.23.17 Date | 6 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **169946**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Temperature upon receipt (°C): 0.3 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
169946.01	DPH-4	6/14/17	6/14/17	aqueous		Adheres to Sample Acceptance Policy
169946.02	DPH-6	6/14/17	6/14/17	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:

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

LABORATORY REPORT

EAI ID#: **169946**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-4	DPH-6
Lab Sample ID:	169946.01	169946.02
Matrix:	aqueous	aqueous
Date Sampled:	6/14/17	6/14/17
Date Received:	6/14/17	6/14/17
Units:	ug/L	ug/L
Date of Analysis:	6/15/17	6/15/17
Analyst:	BML	BML
Method:	8260C	8260C
Dilution Factor:	1	1
Dichlorodifluoromethane	< 5	< 5
Chloromethane	< 2	< 2
Vinyl chloride	< 2	< 2
Bromomethane	< 2	< 2
Chloroethane	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Diethyl Ether	< 5	< 5
Acetone	< 10	< 10
1,1-Dichloroethene	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30
Methylene chloride	< 5	< 5
Carbon disulfide	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1
1,1-Dichloroethane	< 1	< 1
2,2-Dichloropropane	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1
2-Butanone(MEK)	< 10	< 10
Bromochloromethane	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10
Chloroform	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1
Carbon tetrachloride	< 1	< 1
1,1-Dichloropropene	< 1	< 1
Benzene	< 1	< 1
1,2-Dichloroethane	< 1	< 1
Trichloroethene	< 1	< 1
1,2-Dichloropropane	< 1	< 1
Dibromomethane	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5
Toluene	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1
2-Hexanone	< 10	< 10
Tetrachloroethene	< 1	< 1
1,3-Dichloropropane	< 1	< 1
Dibromochloromethane	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2
Chlorobenzene	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1
Ethylbenzene	< 1	< 1

LABORATORY REPORT

EAI ID#: **169946**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-4	DPH-6
Lab Sample ID:	169946.01	169946.02
Matrix:	aqueous	aqueous
Date Sampled:	6/14/17	6/14/17
Date Received:	6/14/17	6/14/17
Units:	ug/L	ug/L
Date of Analysis:	6/15/17	6/15/17
Analyst:	BML	BML
Method:	8260C	8260C
Dilution Factor:	1	1
mp-Xylene	< 1	< 1
o-Xylene	< 1	< 1
Styrene	< 1	< 1
Bromoform	< 2	< 2
IsoPropylbenzene	< 1	< 1
Bromobenzene	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1
2-Chlorotoluene	< 1	< 1
4-Chlorotoluene	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1
tert-Butylbenzene	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1
sec-Butylbenzene	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1
p-Isopropyltoluene	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1
n-Butylbenzene	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5
Naphthalene	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1
4-Bromofluorobenzene (surr)	**99 %R**	**97 %R**
1,2-Dichlorobenzene-d4 (surr)	**95 %R**	**96 %R**
Toluene-d8 (surr)	**107 %R**	**107 %R**
1,2-Dichloroethane-d4 (surr)	**111 %R**	**111 %R**

Vinyl chloride exhibited recovery outside acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).

LABORATORY REPORT

EAI ID#: **169946**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-4	DPH-6					
Lab Sample ID:	169946.01	169946.02					
Matrix:	aqueous	aqueous					
Date Sampled:	6/14/17	6/14/17					
Date Received:	6/14/17	6/14/17					
				Analysis			
			Units	**Date**	**Time**	**Method**	**Analyst**
Chloride	**40**	**14**	mg/L	6/15/17	10:38	4500CIE-97	KD
Nitrite-N	< 0.5	< 0.5	mg/L	6/15/17	10:38	353.2	KD
Nitrate-N	**0.9**	**1.7**	mg/L	6/15/17	10:38	353.2	KD

LABORATORY REPORT

EAI ID#: **169946**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-4	DPH-6					
Lab Sample ID:	169946.01	169946.02					
Matrix:	aqueous	aqueous					
Date Sampled:	6/14/17	6/14/17	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	6/14/17	6/14/17					
Arsenic	**0.004**	**0.006**	AqDis	mg/L	6/16/17	200.8	DS
Sodium	**23**	**15**	AqDis	mg/L	6/16/17	200.8	DS
Zinc	**0.021**	**0.041**	AqDis	mg/L	6/16/17	200.8	DS

Page 1 of 1

Chain-of-Custody Record

169946

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: BTEX 524.2 MTBE only	VOC: VTICs 8260B 624 1,4 Dioxane	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MAVPH	SVOC: 8270D 625 SVTICs EDB DBCP ABN A BN PAH	SVOC: TPH8100 LI L2	SVOC: 8015B DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081A PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals VOC Pest Herb	Metals: Dissolved Metals (list below)	Metals: Total Metals (list below)	Inorganics: TS TSS TDS Spec. Con.	Inorganics: Br F SO_4 NO_3NO_2 * NO_3	Inorganics: Rad	Inorganics: BOD CBOD T. Alk.	Inorganics: TKN NH_3 T. Phos. O. Phos.	Inorganics: pH T. Res. Chlorine	Inorganics: COD Phenols TOC DOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: Total Coliform E. Coli Fecal Coliform	Micro: Enterococci Heterotrophic Plate Count	Other	Other	Other	# of Containers	Notes MeOH Vial #
DPH-4	6/14/17 1302	GW	G	X										X	X		X														
DPH-6	6/14/17 1154	GW	G	X										X	X		X														

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: JohnBrooks

Company: Emery+Garrett Groundwate

Address: 56 Main St

City: West Meredith State: NH Zip: 03253

Phone: 603-279-4425 Ext.:

Fax:

E-Mail: eggi@eggi.com

Site Name: DPH #1

Project #:

State: NH MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #:

Date Needed:

QA/QC Reporting Level: A B C OR Presumptive Certainty

Reporting Options: Prelims: Yes or No

Electronic Options: E-Mail PDF Equis Excel

Temp. 3 °C

ICE? (Yes) No

Sampler(s): Ryan Allen

Relinquished By:	Date:	Time:	Received By:
	6/14/17	1650	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Metals: 8 RCRA 13 PP Fe, Mn Pb, Cu

Other Metals: Na, As, Zn

Samples Field Filtered? ☒ Yes ☐ No

Notes: (ie: Special Detection Limits, Billing Info, If Different)

Dissolved Metals

Field Filtered → 4 oz HDPE

*NO_2/NO_3 per customer

Site History:

Suspected Contamination:

Field Readings: PA 6/15/17

Eastern Analytical, Inc.
professional laboratory and drilling services
25 Chenell Drive | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | E-Mail: CustomerService@EasternAnalytical.com | www.EasternAnalytical.com

(White: Original Green: Project Manager)

Eastern Analytical, Inc.
professional laboratory and drilling services

Sample Date: 6/15/17
Monitoring Wells
VOCs, 1,4-Dioxane, PFCs

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	169997
Client Identification:	DPH #1
Date Received:	6/15/2017

Dear Mr. Brooks :

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

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

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director

7-13-17
Date

33
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **169997**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Temperature upon receipt (°C): 0.7 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
169997.01	DPH-MW6	6/15/17	6/15/17	aqueous		Adheres to Sample Acceptance Policy
169997.02	DPH-B5	6/15/17	6/15/17	aqueous		Adheres to Sample Acceptance Policy
169997.03	DPH-105	6/15/17	6/15/17	aqueous		Adheres to Sample Acceptance Policy3
169997.04	DPH-MW2d	6/15/17	6/15/17	aqueous		Adheres to Sample Acceptance Policy
169997.05	Trip Blank - 8260	6/15/17	5/19/17	aqueous		Adheres to Sample Acceptance Policy
169997.06	Trip Blank - 1,4 Dioxane	6/15/17	6/2/17	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.
All results contained in this report relate only to the above listed samples.
References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater,20th Edition, 1998 and 22nd Edition, 2012
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **169997**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-MW6	DPH-B5	DPH-105	DPH-MW2d	Trip Blank - 8260
Lab Sample ID:	169997.01	169997.02	169997.03	169997.04	169997.05
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	6/15/17	6/15/17	6/15/17	6/15/17	5/19/17
Date Received:	6/15/17	6/15/17	6/15/17	6/15/17	6/15/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	6/19/17	6/16/17	6/16/17	6/16/17	6/16/17
Analyst:	VG	VG	VG	VG	VG
Method:	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1
Dichlorodifluoromethane	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 2	< 2	< 2	< 2	< 2
Vinyl chloride	< 2	< 2	< 2	< 2	< 2
Bromomethane	< 2	< 2	< 2	< 2	< 2
Chloroethane	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5
Diethyl Ether	< 5	< 5	< 5	< 5	< 5
Acetone	< 10	< 10	**20**	< 10	< 10
1,1-Dichloroethene	< 1	< 1	< 1	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30	< 30
Methylene chloride	< 5	< 5	< 5	< 5	< 5
Carbon disulfide	< 2	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	**2**	**11**	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5	< 5	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5	< 5	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	< 1	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **169997**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-MW6	DPH-B5	DPH-105	DPH-MW2d	Trip Blank - 8260
Lab Sample ID:	169997.01	169997.02	169997.03	169997.04	169997.05
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	6/15/17	6/15/17	6/15/17	6/15/17	5/19/17
Date Received:	6/15/17	6/15/17	6/15/17	6/15/17	6/15/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	6/19/17	6/16/17	6/16/17	6/16/17	6/16/17
Analyst:	VG	VG	VG	VG	VG
Method:	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1
mp-Xylene	< 1	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1
4-Bromofluorobenzene (surr)	**91 %R**	**92 %R**	**89 %R**	**90 %R**	**87 %R**
1,2-Dichlorobenzene-d4 (surr)	**122 %R**	**121 %R**	**120 %R**	**134 %R**	**128 %R**
Toluene-d8 (surr)	**100 %R**	**97 %R**	**99 %R**	**99 %R**	**100 %R**
1,2-Dichloroethane-d4 (surr)	**113 %R**	**123 %R**	**103 %R**	**117 %R**	**121 %R**

DPH-B5, DPH-105, DPH-MW2d, Trip Blank-8260: Vinyl chloride, 2,2-Dichloropropane, 1,1,1-Trichloroethane, Carbon tetrachloride, Bromodichloromethane, Dibromochloromethane, 1,1,1,2-Tetrachloroethane and Bromoform exhibited recovery outside acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).

DPH-MW6: Vinyl chloride, Trichlorofluoromethane, 1,1,1-Trichloroethane, Carbon tetrachloride, Bromodichloromethane, Dibromochloromethane, 1,1,1,2-Tetrachloroethane and Bromoform exhibited recovery outside acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).

DPH-MW2d: Surrogate recovery of 1,2-Dichlorobenzene-d4 (surr) is outside of the acceptance control limits of 70-130%R. The sample results were less than reporting limits therefore data is not impacted.

LABORATORY REPORT

EAI ID#: **169997**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-MW6	DPH-B5	DPH-105	DPH-MW2d	Trip Blank - 1,4 Dioxane
Lab Sample ID:	169997.01	169997.02	169997.03	169997.04	169997.06
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	6/15/17	6/15/17	6/15/17	6/15/17	6/2/17
Date Received:	6/15/17	6/15/17	6/15/17	6/15/17	6/15/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	6/20/17	6/20/17	6/20/17	6/20/17	6/20/17
Analyst:	VG	VG	VG	VG	VG
Method:	8260B SIM	8260B SIM	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1	1	1
1,4-Dioxane	< 0.25	**0.93**	**2.8**	**0.26**	< 0.25
4-Bromofluorobenzene (surr)	**92 %R**	**93 %R**	**94 %R**	**92 %R**	**90 %R**
Toluene-d8 (surr)	**96 %R**	**97 %R**	**96 %R**	**96 %R**	**96 %R**

LABORATORY REPORT

EAI ID#: **169997**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **DPH #1**

Sample ID:	DPH-MW6	DPH-B5	DPH-105					
Lab Sample ID:	169997.01	169997.02	169997.03					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	6/15/17	6/15/17	6/15/17					
Date Received:	6/15/17	6/15/17	6/15/17	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Arsenic	**0.004**	**0.003**	**0.007**	AqDis	mg/L	6/19/17	200.8	DS
Barium	**0.003**	**0.018**	**0.060**	AqDis	mg/L	6/19/17	200.8	DS
Cadmium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	6/19/17	200.8	DS
Chromium	< 0.001	< 0.001	< 0.001	AqDis	mg/L	6/19/17	200.8	DS
Iron	< 0.05	< 0.05	**24**	AqDis	mg/L	6/19/17	200.8	DS
Lead	< 0.001	< 0.001	< 0.001	AqDis	mg/L	6/19/17	200.8	DS
Manganese	**0.10**	**0.18**	**0.58**	AqDis	mg/L	6/19/17	200.8	DS
Mercury	< 0.0001	< 0.0001	< 0.0001	AqDis	mg/L	6/19/17	200.8	DS
Selenium	< 0.001	**0.008**	**0.021**	AqDis	mg/L	6/19/17	200.8	DS
Silver	< 0.001	< 0.001	< 0.001	AqDis	mg/L	6/19/17	200.8	DS

DPH-B5 and DPH-105: The values for Arsenic and Selenium may be elevated due to matrix interference.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Eastern Analytical
25 Chenell Drive
Concord NH 03301

Report Date: June 30, 2017

Project: 169997

Submittal Date: 06/20/2017
Group Number: 1815435
PO Number: 46356
State of Sample Origin: NH

Client Sample Description	Lancaster Labs (LL) #
DPH-B5	9058020

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Eastern Analytical Attn: Customer Service

Respectfully Submitted,

Lyssa M. Longenecker
Specialist

(717) 556-7321

Sample Description: DPH-B5
EAI ID# 169997

LL Sample # WW 9058020
LL Group # 1815435
Account # 11730

Project Name: 169997

Collected: 06/15/2017 10:54

Submitted: 06/20/2017 08:20
Reported: 06/30/2017 18:56

Eastern Analytical
25 Chenell Drive
Concord NH 03301

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	NEtFOSAA	2991-50-6	N.D.		1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	N.D.		1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	15		0.8	3	1
10954	Perfluorodecanoic acid	335-76-2	N.D.		0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	N.D.		0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	27		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	63		1	3	1
10954	Perfluorohexanoic acid	307-24-4	52		0.6	2	1
10954	Perfluorononanoic acid	375-95-1	1	J	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	210		2	6	1
10954	Perfluorooctanoic acid	335-67-1	130		0.6	2	1
10954	Perfluorotetradecanoic acid	376-06-7	N.D.		0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	N.D.		0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	N.D.		1	3	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFAS in Water by LC/MS/MS	EPA 537 Rev. 1.1 modified	1	17172002	06/24/2017 01:08	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17172002	06/21/2017 07:55	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Eastern Analytical
Reported: 06/30/2017 18:56

Group Number: 1815435

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17172002	Sample number(s): 9058020		
NEtFOSAA	N.D.	1	3
NMeFOSAA	N.D.	1	3
Perfluorobutanesulfonate	N.D.	0.8	3
Perfluorodecanoic acid	N.D.	0.5	2
Perfluorododecanoic acid	N.D.	0.5	2
Perfluoroheptanoic acid	N.D.	0.5	2
Perfluorohexanesulfonate	N.D.	1	3
Perfluorohexanoic acid	N.D.	0.6	2
Perfluorononanoic acid	N.D.	0.6	2
Perfluoro-octanesulfonate	N.D.	2	6
Perfluorooctanoic acid	N.D.	0.6	2
Perfluorotetradecanoic acid	N.D.	0.5	2
Perfluorotridecanoic acid	N.D.	0.5	2
Perfluoroundecanoic acid	N.D.	1	3

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17172002	Sample number(s): 9058020								
NEtFOSAA	200	204.48	200	169.2	102	85	70-130	19	30
NMeFOSAA	200	162.1	200	183.84	81	92	70-130	13	30
Perfluorobutanesulfonate	176.8	167.6	176.8	159.4	95	90	70-130	5	30
Perfluorodecanoic acid	200	184.18	200	199.42	92	100	70-130	8	30
Perfluorododecanoic acid	200	210.43	200	194.71	105	97	70-130	8	30
Perfluoroheptanoic acid	200	202.73	200	190.65	101	95	70-130	6	30
Perfluorohexanesulfonate	189.2	178.85	189.2	188.44	95	100	70-130	5	30
Perfluorohexanoic acid	200	196.14	200	189.28	98	95	70-130	4	30
Perfluorononanoic acid	200	182.71	200	171.82	91	86	70-130	6	30
Perfluoro-octanesulfonate	191.2	200.7	191.2	192.48	105	101	70-130	4	30
Perfluorooctanoic acid	200	198.91	200	206.83	99	103	70-130	4	30
Perfluorotetradecanoic acid	200	201.74	200	195.53	101	98	70-130	3	30
Perfluorotridecanoic acid	200	194.56	200	188.74	97	94	70-130	3	30
Perfluoroundecanoic acid	200	211.32	200	178.56	106	89	70-130	17	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Eastern Analytical
Reported: 06/30/2017 18:56

Group Number: 1815435

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17172002	Sample number(s): 9058020 UNSPK: 9058020									
NEtFOSAA	N.D.	200.22	191.19			95		70-130		
NMeFOSAA	N.D.	200.22	177.48			89		70-130		
Perfluorobutanesulfonate	14.59	177	184.6			96		70-130		
Perfluorodecanoic acid	N.D.	200.22	180.47			90		70-130		
Perfluorododecanoic acid	N.D.	200.22	184.18			92		70-130		
Perfluoroheptanoic acid	27.02	200.22	215.71			94		70-130		
Perfluorohexanesulfonate	63.2	189.41	229.43			88		70-130		
Perfluorohexanoic acid	52.09	200.22	254.39			101		70-130		
Perfluorononanoic acid	1.19	200.22	186.81			93		70-130		
Perfluoro-octanesulfonate	207.67	191.41	427.3			115		70-130		
Perfluorooctanoic acid	130.87	200.22	294.18			82		70-130		
Perfluorotetradecanoic acid	N.D.	200.22	186.47			93		70-130		
Perfluorotridecanoic acid	N.D.	200.22	192.45			96		70-130		
Perfluoroundecanoic acid	N.D.	200.22	191.25			96		70-130		

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS
Batch number: 17172002

	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA	13C8-PFOA	13C8-PFOS
9058020	89	72	66*	76	70	90
Blank	76	107	96	97	86	79
LCS	74	77	76	74	69*	66*
LCSD	77	93	82	84	78	78
MS	75	57*	61*	61*	64*	74
Limits:	70-130	70-130	70-130	70-130	70-130	70-130

	13C9-PFNA	13C6-PFDA	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA
9058020	83	80	60*	87	75	81
Blank	88	87	60*	80	73	83
LCS	79	71	64*	72	62*	72
LCSD	81	74	70	98	71	90
MS	84	70	56*	69*	55*	69*
Limits:	70-130	70-130	70-130	70-130	70-130	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Eastern Analytical
Reported: 06/30/2017 18:56

Group Number: 1815435

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS
Batch number: 17172002

	13C2-PFTeDA
9058020	74
Blank	77
LCS	74
LCSD	86
MS	73
Limits:	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

11730/18154351 9058020

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

EAI ID# **169997** Page 1

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-B5	6/15/2017 10:54	aqueous	Subcontract - Perfluorinated Compounds EPA 537 (14 Compound List)	

EAI ID# **169997** Project State: NH
Project ID: 4912

Company Lancaster Labs aka Eurofins
Address 2425 New Holland Pike PO
Address Lancaster, PA 17601
Account # 11730
Phone # 717-656-2300
Fax Number 717-656-2681

Results Needed by: Preferred date
QC Deliverables
☒A ☐A+ ☐B ☐B+ ☐C ☐P

Notes about project:
Email pdf of results and invoice to customerservice@eailabs.com.
14 Compound List

PO #:46356 EAI ID# **169997**

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by:

Relinquished by	Date/Time	Received by
[signature]	6/16/17 1530	UPS
		[signature] 6-20-17 /820
Relinquished by	Date/Time	Received by

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4591

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

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 186733

Group Number(s): 1815435

Client: Eastern Analytical

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	06/20/2017 8:20
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 08:43 on 06/20/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	5.0	IR	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...
W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

July 12, 2017

Vista Work Order No. 1700757

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on June 21, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name '169997 / NH /4912'.

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

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

Sincerely,

Martha Maier

Martha Maier
Laboratory Director

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

Vista Work Order No. 1700757
Case Narrative

Sample Condition on Receipt:

Three aqueous samples were received in good condition at 18.2 °C. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. Approval was received to proceed with the analyses.

Analytical Notes:

Modified EPA Method 537

The samples were extracted and analyzed for a selected list of 14 PFAS using Modified EPA Method 537. The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomer only.

Holding Times

The samples were originally extracted and analyzed within the method hold times. The samples were re-extracted for PFTeDA; the second extractions were performed outside the hold time (Prep Batch B7G0020).

Quality Control

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

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

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1700757-01	DPH-MW6	Modified EPA Method 537	13C2-PFDoA	H	39.9
1700757-01	DPH-MW6	Modified EPA Method 537	13C2-PFTeDA	H	5.20
1700757-02	DPH-B5	Modified EPA Method 537	13C2-PFDoA	H	25.3
1700757-02	DPH-B5	Modified EPA Method 537	13C2-PFTeDA	H	2.40
1700757-03	DPH-105	Modified EPA Method 537	13C2-PFDoA	H	16.0
1700757-03	DPH-105	Modified EPA Method 537	13C2-PFTeDA	H	9.20
B7F0101-BLK1	B7F0101-BLK1	Modified EPA Method 537	13C2-PFDoA	H	26.1
B7F0101-BLK1	B7F0101-BLK1	Modified EPA Method 537	13C2-PFTeDA	H	3.30
B7F0101-BS1	B7F0101-BS1	Modified EPA Method 537	13C2-PFDoA	H	27.0
B7F0101-BS1	B7F0101-BS1	Modified EPA Method 537	13C2-PFTeDA	H	5.10
B7G0020-BLK1	B7G0020-BLK1	Modified EPA Method 537	13C2-PFTeDA	H	2.60
B7G0020-BS1	B7G0020-BS1	Modified EPA Method 537	13C2-PFTeDA	H	5.80

H = Recovery was outside laboratory acceptance criteria.

Table of Contents

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1700757-01	DPH-MW6	15-Jun-17 09:58	21-Jun-17 10:09	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1700757-02	DPH-B5	15-Jun-17 10:54	21-Jun-17 10:09	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1700757-03	DPH-105	15-Jun-17 11:47	21-Jun-17 10:09	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank			Modified EPA Method 537
Matrix: Aqueous Sample Size: 0.125 L	QC Batch: B7F0101 Date Extracted: 26-Jun-2017 13:09	Lab Sample: B7F0101-BLK1 Date Analyzed: 03-Jul-17 18:46 Column: BEH C18 27-Jun-17 13:50 Column: BEH C18	

Analyte	Conc. (ng/L)	RL	Qualifiers
PFBS	ND	5.00	
PFHxA	ND	5.00	
PFHpA	ND	5.00	
PFHxS	ND	5.00	
PFOA	ND	5.00	
PFOS	ND	5.00	
PFNA	ND	5.00	
PFDA	ND	5.00	
MeFOSAA	ND	5.00	
PFUnA	ND	5.00	
EtFOSAA	ND	5.00	
PFDoA	ND	5.00	
PFTrDA	ND	5.00	
PFTeDA	ND	5.00	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C3-PFBS	105	50 - 150	
IS	13C2-PFHxA	94.4	50 - 150	
IS	13C4-PFHpA	101	50 - 150	
IS	18O2-PFHxS	99.7	50 - 150	
IS	13C2-PFOA	96.2	50 - 150	
IS	13C8-PFOS	107	50 - 150	
IS	13C5-PFNA	90.2	50 - 150	
IS	13C2-PFDA	89.6	50 - 150	
IS	13C2-PFUnA	103	50 - 150	
IS	13C2-PFDoA	26.1	50 - 150	H
IS	13C2-PFTeDA	3.30	50 - 150	H

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
Results reported to RL.
When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR

Modified EPA Method 537

Matrix:	Aqueous	QC Batch:	B7F0101	Lab Sample:	B7F0101-BS1
Sample Size:	0.125 L	Date Extracted:	26-Jun-2017 13:09	Date Analyzed:	03-Jul-17 17:56 Column: BEH C18
					27-Jun-17 12:15 Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits
PFBS	73.7	80.0	92.1	70 - 130
PFHxA	78.6	80.0	98.3	70 - 130
PFHpA	79.4	80.0	99.3	70 - 130
PFHxS	65.1	80.0	81.4	70 - 130
PFOA	82.4	80.0	103	70 - 130
PFOS	66.8	80.0	83.4	70 - 130
PFNA	60.2	80.0	75.3	70 - 130
PFDA	78.2	80.0	97.7	70 - 130
MeFOSAA	65.7	80.0	82.1	70 - 130
PFUnA	83.7	80.0	105	70 - 130
EtFOSAA	59.8	80.0	74.7	70 - 130
PFDoA	90.8	80.0	114	70 - 130
PFTrDA	13.7	80.0	17.2	60 - 130
PFTeDA	81.5	80.0	102	70 - 130

	Labeled Standard	%R	LCL-UCL
IS	13C3-PFBS	100	50 - 150
IS	13C2-PFHxA	94.5	50 - 150
IS	13C4-PFHpA	94.2	50 - 150
IS	18O2-PFHxS	96.7	50 - 150
IS	13C2-PFOA	97.4	50 - 150
IS	13C8-PFOS	112	50 - 150
IS	13C5-PFNA	97.6	50 - 150
IS	13C2-PFDA	60.1	50 - 150
IS	13C2-PFUnA	78.9	50 - 150
IS	13C2-PFDoA	27.0	50 - 150
IS	13C2-PFTeDA	5.10	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: Method Blank				Modified EPA Method 537			
Matrix: Aqueous Sample Size: 0.250 L		QC Batch: B7G0020 Date Extracted: 07-Jul-2017 8:05		Lab Sample: B7G0020-BLK1 Date Analyzed: 10-Jul-17 19:40 Column: BEH C18			
Analyte	**Conc. (ng/L)**	**RL**	**Qualifiers**	**Labeled Standard**	**%R**	**LCL-UCL**	**Qualifiers**
PFTeDA	ND	5.00		IS 13C2-PFTeDA	2.60	50 - 150	H

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
Results reported to RL.
When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR					Modified EPA Method 537			
Matrix: Aqueous Sample Size: 0.250 L		QC Batch: B7G0020 Date Extracted: 07-Jul-2017 8:05			Lab Sample: B7G0020-BS1 Date Analyzed: 10-Jul-17 18:44 Column: BEH C18			
Analyte	**Amt Found (ng/L)**	**Spike Amt**	**%R**	**Limits**		**Labeled Standard**	**%R**	**LCL-UCL**
PFTeDA	29.7	40.0	74.4	70 - 130	IS	13C2-PFTeDA	5.80	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: DPH-MW6

Modified EPA Method 537

Client Data		Sample Data		Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1700757-01	Date Received:	21-Jun-2017 10:09
Project:	169997 / NH /4912	Sample Size:	0.115 L	QC Batch:	B7F0101	Date Extracted:	26-Jun-2017 13:09
Date Collected:	15-Jun-2017 9:58			Date Analyzed:	03-Jul-17 19:12 Column: BEH C18		
					27-Jun-17 16:10 Column: BEH C18		

Analyte	Conc. (ng/L)	RL	Qualifiers
PFBS	ND	5.00	
PFHxA	ND	5.00	
PFHpA	ND	5.00	
PFHxS	ND	5.00	
PFOA	ND	5.00	
PFOS	ND	5.00	
PFNA	ND	5.00	
PFDA	ND	5.00	
MeFOSAA	ND	5.00	
PFUnA	ND	5.00	
EtFOSAA	ND	5.00	
PFDoA	ND	5.00	
PFTrDA	ND	5.00	
PFTeDA	ND	5.00	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C3-PFBS	107	50 - 150	
IS	13C2-PFHxA	103	50 - 150	
IS	13C4-PFHpA	109	50 - 150	
IS	18O2-PFHxS	107	50 - 150	
IS	13C2-PFOA	112	50 - 150	
IS	13C8-PFOS	103	50 - 150	
IS	13C5-PFNA	100	50 - 150	
IS	13C2-PFDA	77.3	50 - 150	
IS	13C2-PFUnA	123	50 - 150	
IS	13C2-PFDoA	39.9	50 - 150	H
IS	13C2-PFTeDA	5.20	50 - 150	H

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
Results reported to RL.
When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: DPH-B5

Modified EPA Method 537

Client Data		Sample Data		Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1700757-02	Date Received:	21-Jun-2017 10:09
Project:	169997 / NH /4912	Sample Size:	0.124 L	QC Batch:	B7F0101	Date Extracted:	26-Jun-2017 13:09
Date Collected:	15-Jun-2017 10:54			Date Analyzed:	03-Jul-17 19:25 Column: BEH C18		
					27-Jun-17 16:23 Column: BEH C18		

Analyte	Conc. (ng/L)	RL	Qualifiers
PFBS	12.9	5.00	
PFHxA	41.4	5.00	
PFHpA	26.0	5.00	
PFHxS	47.4	5.00	
PFOA	98.0	5.00	
PFOS	189	5.00	
PFNA	ND	5.00	
PFDA	ND	5.00	
MeFOSAA	ND	5.00	
PFUnA	ND	5.00	
EtFOSAA	ND	5.00	
PFDoA	ND	5.00	
PFTrDA	ND	5.00	
PFTeDA	ND	5.00	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C3-PFBS	102	50 - 150	
IS	13C2-PFHxA	97.5	50 - 150	
IS	13C4-PFHpA	111	50 - 150	
IS	18O2-PFHxS	95.8	50 - 150	
IS	13C2-PFOA	114	50 - 150	
IS	13C8-PFOS	116	50 - 150	
IS	13C5-PFNA	96.0	50 - 150	
IS	13C2-PFDA	72.5	50 - 150	
IS	13C2-PFUnA	107	50 - 150	
IS	13C2-PFDoA	25.3	50 - 150	H
IS	13C2-PFTeDA	2.40	50 - 150	H

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
Results reported to RL.
When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: DPH-105

Modified EPA Method 537

Client Data		Sample Data		Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1700757-03	Date Received:	21-Jun-2017 10:09
Project:	169997 / NH /4912	Sample Size:	0.120 L	QC Batch:	B7F0101	Date Extracted:	26-Jun-2017 13:09
Date Collected:	15-Jun-2017 11:47			Date Analyzed:	03-Jul-17 19:38 Column: BEH C18		
					27-Jun-17 17:24 Column: BEH C18		

Analyte	Conc. (ng/L)	RL	Qualifiers
PFBS	41.2	5.00	
PFHxA	130	5.00	
PFHpA	81.4	5.00	
PFHxS	143	5.00	
PFOA	425	5.00	
PFOS	412	5.00	
PFNA	6.66	5.00	
PFDA	ND	5.00	
MeFOSAA	ND	5.00	
PFUnA	ND	5.00	
EtFOSAA	ND	5.00	
PFDoA	ND	5.00	
PFTrDA	ND	5.00	
PFTeDA	ND	5.00	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C3-PFBS	103	50 - 150	
IS	13C2-PFHxA	95.9	50 - 150	
IS	13C4-PFHpA	91.8	50 - 150	
IS	18O2-PFHxS	88.9	50 - 150	
IS	13C2-PFOA	107	50 - 150	
IS	13C8-PFOS	103	50 - 150	
IS	13C5-PFNA	96.0	50 - 150	
IS	13C2-PFDA	65.6	50 - 150	
IS	13C2-PFUnA	85.8	50 - 150	
IS	13C2-PFDoA	16.0	50 - 150	H
IS	13C2-PFTeDA	9.20	50 - 150	H

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
Results reported to RL.
When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
Nevada Division of Environmental Protection	CA004132017-1
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

1700757 18.2°C

EAI ID# **169997**

30

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW6	6/15/2017 9:58	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	
DPH-B5	6/15/2017 10:54	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	
DPH-105	6/15/2017 11:47	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	

EAI ID# 169997 **Project State: NH**

Project ID: 4912

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520
Fax Number

Results Needed by: Preferred date

QC Deliverables

☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ P

Notes about project:

Email pdf of results and invoice to customerservice@eailabs.com.

14 Compound List

PO #: 46355 **EAI ID# 169997**

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by: [signature] 6/19/17 1550 UPS

Relinquished by	Date/Time	Received by
UPS	06/20/17 1018	[signature]
Relinquished by	**Date/Time**	**Received by**

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4591

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1700757 **TAT** STD

Samples Arrival:	**Date/Time** 06/21/17 1009	**Initials:** JBB	**Location:** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 06/22/ 1258	**Initials:** WLS JBB	**Location:** WR-2 **Shelf/Rack:** F4

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	* Ice		Blue Ice		Dry Ice		None

Temp °C: 18.9 (uncorrected)	**Time:** 1016	**Thermometer ID:** DT-3
Temp °C: 18.2 (corrected)	**Probe used:** Yes☑ No☐	

	YES	NO	NA
Adequate Sample Volume Received? A/B	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 1Z X49b 599 01 9288 6652 JBB 06/21/17	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?	✓		

If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓		~~✓~~ JBB 6/22/17
Preservation Documented:	$Na_2S_2O_3$	Trizma	None	Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose	

Comments: * ice melted

Chain of Custody Anomaly/Sample Acceptance Form

Vista Analytical Laboratory

Client:	Eastern Analytical, Inc.	Workorder Number:	1700757
Contact:	Jennifer Laramie	Date Received:	21-Jun-17 10:09
Email:	JenniferL@eailabs.com	Documented by/date:	B.Benedict 06/22/2017
Phone:	(603) 410-3881		

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

Thank you,

Martha Maier
mmaier@vista-analytical.com
916-673-1520

The following information or item is needed to proceed with analysis:

☐	Complete Chain-of-Custody	☐	Preservative	☐	Collector's Name
☐	Test Method Requested	☐	Sample Identification	☐	Sample Type
☐	Analyte List Requested	☐	Sample Collection Date and/or Time	☐	Sample Location
☐	Other:				

The following anomalies were noted. Authorization is needed to proceed with analysis.

☒ Temperature outside < 6°C Range — Samples Affected: DPH-MW6, DPH-B5, DPH-105

Temperature _18.2°C — Ice Present? Yes (very little ice left) and Melted

☐	Sample ID Discrepancy	☐	Insufficient Sample Size
☐	Sample Holding Time Missed	☐	Sample Container(s) Broken
☐	Custody Seals Broken	☐	Incorrect Container Type

Comments:

Client Authorization

Proceed with Analysis: (YES) NO — Signature and Date Karen J. Wheeler 6-22-2017

Client Comments/Instructions per phone conversation with Jennifer Laramie on 6-22-2017, proceed with analysis.

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

169997

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: 524.2 BTEX 524.2 MTBE ONLY	VOC: 524.2 VITICS 8260B 624 1,4 DIOXANE	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MAVPH	SVOC: 8270D 625 SVITICS EDB DBCP ABN A BN PAH	SVOC: TPH8100 LI L2	SVOC: 8015B DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081A PCB 8082	SVOC: OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.	INORGANICS: BR CL F SO4 NO2 NO3,NO2	INORGANICS: BOD CBOD T. ALK.	INORGANICS: TKN NH3 T. PHOS. O. PHOS.	INORGANICS: PH T. RES. CHLORINE	INORGANICS: COD PHENOLS TOC DOC	INORGANICS: TOTAL CYANIDE TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER: PFC-VISTA 14	OTHER: PFC-EUROFINS 14	# OF CONTAINERS	NOTES MEOH VIAL #
DPH-MW6	6/15/17 958	GW	G		X									X											X		7	
DPH-B5	6/15/17 1054	GW	G		X									X											X	X	9	
DPH-105	6/15/17 1147	GW	G		X									X											X		7	
DPH-MW2D	6/15/17 1313	GW	G		X																						4	

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: John Brooks
COMPANY: Emery + Garrett Groundwater
ADDRESS: 56 Main St
CITY: Meredith **STATE:** NH **ZIP:** 03253
PHONE: 603-279-4425 **EXT.:**
FAX:
E-MAIL: egg@egg.com
SITE NAME: DPH #1
PROJECT #:
STATE: (NH) MA ME VT **OTHER:**
REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:
QUOTE #: **PO #:**

DATE NEEDED:

QA/QC REPORTING LEVEL A B C OR PRESUMPTIVE CERTAINTY

REPORTING OPTIONS PRELIMS: YES OR NO

ELECTRONIC OPTIONS E-MAIL PDF EQUIS EXCEL

TEMP. 0.7 °C ICE? (YES) NO

SAMPLER(S): Ryan Allen (603-828-2541)

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	6/15/17	1605	[signature]
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)

Dissolved Metals
Recra 8, Fe, Mn

TRIP BLANKS - EAI
8260 - 5/8/17 14:15
1,4D - 6/2/17 9:00

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

PM 6/16/17

Eastern Analytical, Inc.
professional laboratory and drilling services
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

Eastern Analytical, Inc.
professional laboratory and drilling services

Sample Date: 9/5/17
Ireland Well and DPH #1
VOCs, 1,4-Dioxane, and PFCS
Monitoring Wells, Production Wells and River
Color and Total Coliform

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 172986
Client Identification: Pudding Hill, Dover, NH
Date Received: 9/5/2017

Dear Mr. Brooks :

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

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

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

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

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

Sincerely,

Jennifer Stott for
Lorraine Olashaw, Lab Director

9.22.17
Date

21
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **172986**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

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 Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
172986.01	DPH-MW16	9/5/17	9/5/17	aqueous		Adheres to Sample Acceptance Policy
172986.02	DPH-MW20D	9/5/17	9/5/17	aqueous		Adheres to Sample Acceptance Policy
172986.03	IRELAND	9/5/17	9/5/17	aqueous		Adheres to Sample Acceptance Policy
172986.04	DPH-1	9/5/17	9/5/17	aqueous		Adheres to Sample Acceptance Policy
172986.05	DPH-MW12D	9/5/17	9/5/17	aqueous		Adheres to Sample Acceptance Policy
172986.06	DPH-PW1	9/5/17	9/5/17	aqueous		Adheres to Sample Acceptance Policy
172986.07	DPH-RIVER	9/5/17	9/5/17	aqueous		Adheres to Sample Acceptance Policy

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

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

References include:

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

LABORATORY REPORT

EAI ID#: **172986**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	IRELAND	DPH-PW1
Lab Sample ID:	172986.03	172986.06
Matrix:	aqueous	aqueous
Date Sampled:	9/5/17	9/5/17
Date Received:	9/5/17	9/5/17
Units:	ug/L	ug/L
Date of Analysis:	9/8/17	9/8/17
Analyst:	BAM	BAM
Method:	8260C	8260C
Dilution Factor:	1	1
Dichlorodifluoromethane	< 5	< 5
Chloromethane	< 2	< 2
Vinyl chloride	< 2	< 2
Bromomethane	< 2	< 2
Chloroethane	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Diethyl Ether	< 5	< 5
Acetone	< 10	< 10
1,1-Dichloroethene	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30
Methylene chloride	< 5	< 5
Carbon disulfide	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1
1,1-Dichloroethane	< 1	< 1
2,2-Dichloropropane	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1
2-Butanone(MEK)	< 10	< 10
Bromochloromethane	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10
Chloroform	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1
Carbon tetrachloride	< 1	< 1
1,1-Dichloropropene	< 1	< 1
Benzene	< 1	< 1
1,2-Dichloroethane	< 1	< 1
Trichloroethene	< 1	< 1
1,2-Dichloropropane	< 1	< 1
Dibromomethane	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5
Toluene	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1
2-Hexanone	< 10	< 10
Tetrachloroethene	< 1	< 1
1,3-Dichloropropane	< 1	< 1
Dibromochloromethane	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2
Chlorobenzene	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1
Ethylbenzene	< 1	< 1

LABORATORY REPORT

EAI ID#: **172986**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	IRELAND	DPH-PW1
Lab Sample ID:	172986.03	172986.06
Matrix:	aqueous	aqueous
Date Sampled:	9/5/17	9/5/17
Date Received:	9/5/17	9/5/17
Units:	ug/L	ug/L
Date of Analysis:	9/8/17	9/8/17
Analyst:	BAM	BAM
Method:	8260C	8260C
Dilution Factor:	1	1
mp-Xylene	< 1	< 1
o-Xylene	< 1	< 1
Styrene	< 1	< 1
Bromoform	< 2	< 2
IsoPropylbenzene	< 1	< 1
Bromobenzene	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1
2-Chlorotoluene	< 1	< 1
4-Chlorotoluene	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1
tert-Butylbenzene	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1
sec-Butylbenzene	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1
p-Isopropyltoluene	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1
n-Butylbenzene	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5
Naphthalene	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1
4-Bromofluorobenzene (surr)	**92 %R**	**93 %R**
1,2-Dichlorobenzene-d4 (surr)	**102 %R**	**101 %R**
Toluene-d8 (surr)	**102 %R**	**102 %R**
1,2-Dichloroethane-d4 (surr)	**97 %R**	**98 %R**

LABORATORY REPORT

EAI ID#: **172986**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	IRELAND	DPH-PW1
Lab Sample ID:	172986.03	172986.06
Matrix:	aqueous	aqueous
Date Sampled:	9/5/17	9/5/17
Date Received:	9/5/17	9/5/17
Units:	ug/L	ug/L
Date of Analysis:	9/8/17	9/8/17
Analyst:	BAM	BAM
Method:	8260B SIM	8260B SIM
Dilution Factor:	1	1
1,4-Dioxane	< 0.25	< 0.25
4-Bromofluorobenzene (surr)	**107 %R**	**106 %R**
Toluene-d8 (surr)	**102 %R**	**102 %R**

LABORATORY REPORT

EAI ID#: **172986**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-MW16	DPH-MW20D	IRELAND	DPH-1					
Lab Sample ID:	172986.01	172986.02	172986.03	172986.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	9/5/17	9/5/17	9/5/17	9/5/17		Analysis			
Date Received:	9/5/17	9/5/17	9/5/17	9/5/17	**Units**	**Date**	**Time**	**Method**	**Analyst**
Color	< 5	< 5	< 5	< 5	PtCo	09/05/17	17:00	110.2	AMB
Total Coliform	< 1	< 1	< 1	< 1	MPN/100ml	09/05/17	15:40	9223B	SEL

Sample ID:	DPH-MW12D	DPH-PW1	DPH-RIVER					
Lab Sample ID:	172986.05	172986.06	172986.07					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	9/5/17	9/5/17	9/5/17	Analysis				
Date Received:	9/5/17	9/5/17	9/5/17	**Units**	**Date**	**Time**	**Method**	**Analyst**
Color	< 5	< 5	**50-60**	PtCo	09/05/17	17:00	110.2	AMB
Total Coliform	< 1	< 1	**> 2400**	MPN/100ml	09/05/17	15:40	9223B	SEL

September 20, 2017

Vista Work Order No. 1701199

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on September 07, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name '172986 / NH / 5008'.

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

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

Sincerely,

Martha Maier

Martha Maier
Laboratory Director

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

Vista Work Order No. 1701199
Case Narrative

Sample Condition on Receipt:

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

Analytical Notes:

Modified EPA Method 537

The samples were extracted and analyzed for a selected list of 14 PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

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

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

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701199-01	IRELAND	05-Sep-17 11:00	07-Sep-17 10:03	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701199-02	DPH-PW1	05-Sep-17 11:15	07-Sep-17 10:03	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Eastern Analytical, Inc.
Project: 172986 / NH / 5008
Matrix: Aqueous

Laboratory Data

Lab Sample: B7I0039-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFHxA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFHpA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFHxS	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFOA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFOS	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFNA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFDA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
MeFOSAA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFUnA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
EtFOSAA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFDoA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFTrDA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFTeDA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	114	60 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFHxA	IS	85.4	70 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C4-PFHpA	IS	74.4	60 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
18O2-PFHxS	IS	81.5	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFOA	IS	83.0	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C8-PFOS	IS	83.4	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C5-PFNA	IS	80.0	50 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFDA	IS	71.7	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
d3-MeFOSAA	IS	64.1	50 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFUnA	IS	75.5	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
d5-EtFOSAA	IS	61.8	50 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFDoA	IS	72.5	30 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFTeDA	IS	66.9	20 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR — **Modified EPA Method 537**

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	B7I0039-BS1	Column:	BEH C18
Project:	172986 / NH / 5008						

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	92.5	80.0	116	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFHxA	98.4	80.0	123	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFHpA	88.5	80.0	111	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFHxS	83.1	80.0	104	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFOA	94.1	80.0	118	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFOS	86.3	80.0	108	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFNA	91.7	80.0	115	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFDA	98.9	80.0	124	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
MeFOSAA	78.5	80.0	98.1	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFUnA	75.9	80.0	94.9	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
EtFOSAA	93.2	80.0	117	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFDoA	88.8	80.0	111	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFTrDA	68.3	80.0	85.4	60-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFTeDA	100	80.0	125	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	109	60- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFHxA	IS	83.1	70- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C4-PFHpA	IS	75.8	60- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
18O2-PFHxS	IS	90.8	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFOA	IS	78.9	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C8-PFOS	IS	80.7	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C5-PFNA	IS	84.0	50- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFDA	IS	70.2	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
d3-MeFOSAA	IS	59.4	50- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFUnA	IS	66.4	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
d5-EtFOSAA	IS	53.3	50- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFDoA	IS	58.0	30- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFTeDA	IS	35.7	20- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1

Sample ID: IRELAND

Modified EPA Method 537

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1701199-01	Column:	BEH C18
Project:	172986 / NH / 5008	Date Collected:	05-Sep-17 11:00	Date Received:	07-Sep-17 10:03		

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFHxA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFHpA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFHxS	5.55	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFOA	9.88	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFOS	29.0	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFNA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFDA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
MeFOSAA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFUnA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
EtFOSAA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFDoA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFTrDA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
PFTeDA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	111	60 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C2-PFHxA	IS	82.5	70 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C4-PFHpA	IS	71.7	60 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
18O2-PFHxS	IS	79.4	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C2-PFOA	IS	80.0	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C8-PFOS	IS	81.2	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C5-PFNA	IS	76.1	50 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C2-PFDA	IS	71.1	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
d3-MeFOSAA	IS	63.2	50 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C2-PFUnA	IS	74.2	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
d5-EtFOSAA	IS	58.7	50 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C2-PFDoA	IS	71.7	30 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1
13C2-PFTeDA	IS	58.5	20 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:02	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit

Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: DPH-PW1

Modified EPA Method 537

Client Data

Name: Eastern Analytical, Inc.
Project: 172986 / NH / 5008
Matrix: Aqueous
Date Collected: 05-Sep-17 11:15

Laboratory Data

Lab Sample: 1701199-02
Date Received: 07-Sep-17 10:03
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFHxA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFHpA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFHxS	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFOA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFOS	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFNA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFDA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
MeFOSAA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFUnA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
EtFOSAA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFDoA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFTrDA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
PFTeDA	ND	5.00		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	107	60 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C2-PFHxA	IS	77.2	70 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C4-PFHpA	IS	64.3	60 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
18O2-PFHxS	IS	77.2	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C2-PFOA	IS	78.3	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C8-PFOS	IS	83.2	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C5-PFNA	IS	72.3	50 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C2-PFDA	IS	66.7	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
d3-MeFOSAA	IS	50.8	50 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C2-PFUnA	IS	70.2	60 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
d5-EtFOSAA	IS	53.8	50 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C2-PFDoA	IS	77.2	30 - 130		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1
13C2-PFTeDA	IS	52.8	20 - 150		B7I0039	12-Sep-17	117 L	14-Sep-17 19:13	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

1701199 2.0°C

EAI ID# 172986

19

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
IRELAND	9/5/2017 11:00	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	
DPH-PW1	9/5/2017 11:15	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	

EAI ID# 172986 Project State: NH
Project ID: 5008

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520
Fax Number

Results Needed by: Preferred date
QC Deliverables
☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ P

Notes about project:
Email pdf of results and invoice to customerservice@eailabs.com.

14 Compound List (PFAS)

PO #: 46797 EAI ID# 172986

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by: [signature] 9/6/17 1530 UPS

Relinquished by | Date/Time | Received by

UPS | [signature] 9/7/17 1011

Relinquished by | Date/Time | Received by

Eastern Analytical, Inc. 25 Chenell Dr. Concord, NH 03301 Phone: (603)228-0525 1-800-287-0525 Fax: (603)228-4591

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701199 TAT 14 days

Samples Arrival:	Date/Time 9/7/17 1003	Initials: WWS	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 9/7/17 1147	Initials: WWS	Location: WR-2 Shelf/Rack: 2-5

Delivered By:	FedEx	(UPS)	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 1.9	(uncorrected)	Time: 1015	Thermometer ID: IR-1
Temp °C: 2.0	(corrected)	Probe used: Yes☐ No☒	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill Trk # 1Z X46 599 01 9214 9485	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	~~None~~		(Yes)	No	NA
Shipping Container	Vista	(Client)	Retain	(Return)		Dispose	

Comments:

Page ______ of ______

CHAIN-OF-CUSTODY RECORD

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

For 172986

21

SAMPLE I.D.	SAMPLING DATE / TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE / TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE ONLY	VOC: 8260 624 VTICs 1,4 DIOXANE (8260 C)	VOC: 8021 BTEX HALOS	VOC: 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015 DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081 PCB 8082	SVOC: OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.	INORGANICS: BR CI F SO_4 NO_2 NO_3 NO_3NO_2	INORGANICS: BOD CBOD T. ALK.	INORGANICS: TKN NH_3 T. PHOS. O. PHOS.	INORGANICS: pH T. RES. CHLORINE	INORGANICS: COD PHENOLS TOC DOC	INORGANICS: TOTAL CYANIDE TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM	MICRO: ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER: COLOR	OTHER: PFC's	OTHER: BY 537(VAL)	# OF CONTAINERS	NOTES MEOH VIAL #
DPH-MW16	9/5/17 / 9:50	GW																						X		X			2	
DPH-MW20D	9/5/17 / 10:45	↓																						X		X			2	
IRELAND	9/5/17 / 11:00	↓			X																			X		X		X	8	
DPH-1	9/5/17 / 12:35	↓																						X		X			2	
* DPH-MW12D	9/5/17 / 13:05	↓																						X		X			2	
DPH-PW1	9/5/17 / 11:15	↓			X																			X		X		X	8	
DPH-RIVER	9/5/17 / 13:30	SW																						X		X			2	

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: John Brooks
COMPANY: Emery and Garrett Groundwater Investigation LLC
ADDRESS: 56 Main St
CITY: Meredith **STATE:** NH **ZIP:** 03253
PHONE: 603 279 4425 **EXT.:**
FAX:
E-MAIL: eggi@eggi.com
SITE NAME: Pudding Hill Dover, NH
PROJECT #:
STATE: (NH) MA ME VT **OTHER:**
REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:
QUOTE #: **PO #:**

DATE NEEDED:

QA/QC REPORTING LEVEL A B C OR PRESUMPTIVE CERTAINTY

REPORTING OPTIONS PRELIMS: YES OR NO

ELECTRONIC OPTIONS E-MAIL PDF EQUIS EXCEL

TEMP. 1.1 °C ICE? (YES) NO

SAMPLER(S): Jon-Erik Tryggestad (617-435-5493)

RELINQUISHED BY: Jon-Erik Tryggestad DATE: 9/5/17 TIME: 1530 RECEIVED BY: [signature]

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)

Tot. Col. BY 22 MPN
1,4-DIOXANE BY 8260
PFC'S (14 COMPOUNDS)

*Site name per customer AOB 9/22/17

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

Eastern Analytical, Inc.
professional laboratory and drilling services

25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

Eastern Analytical, Inc.
professional laboratory and drilling services

Sample Date: 9/6/17
Monitoring Wells
VOC, 1,4-Dioxane, PFC
RECRA 8 for LGWP

John Brooks
Emery & Garrett Groundwater Investigations, LLC
56 Main Street
Meredith , NH 03253

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 173023
Client Identification: Pudding Hill, Dover, NH
Date Received: 9/6/2017

Dear Mr. Brooks :

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

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

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

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

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

Sincerely,

Jennifer Scott for
Lorraine Olashaw, Lab Director

9.26.17
Date

24
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **173023**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Temperature upon receipt (°C): 10.7 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
173023.01	DPH-6	9/6/17	9/6/17	aqueous		Adheres to Sample Acceptance Policy
173023.02	DPH-4	9/6/17	9/6/17	aqueous		Adheres to Sample Acceptance Policy
173023.03	DPH-MW6	9/6/17	9/6/17	aqueous		Adheres to Sample Acceptance Policy
173023.04	DPH-EX4	9/6/17	9/6/17	aqueous		Adheres to Sample Acceptance Policy
173023.05	DPH-B7	9/6/17	9/6/17	aqueous		Adheres to Sample Acceptance Policy
173023.06	TRIP BLANK	9/6/17	8/18/17	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.
All results contained in this report relate only to the above listed samples.
References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater,20th Edition, 1998 and 22nd Edition, 2012
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **173023**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-6	DPH-4	DPH-MW6	DPH-EX4	DPH-B7	TRIP BLANK
Lab Sample ID:	173023.01	173023.02	173023.03	173023.04	173023.05	173023.06
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	9/6/17	9/6/17	9/6/17	9/6/17	9/6/17	8/18/17
Date Received:	9/6/17	9/6/17	9/6/17	9/6/17	9/6/17	9/6/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	9/7/17	9/7/17	9/7/17	9/7/17	9/7/17	9/7/17
Analyst:	BAM	BAM	BAM	BAM	BAM	BAM
Method:	8260C	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1	1
Dichlorodifluoromethane	< 5	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 2	< 2	< 2	< 2	< 2	< 2
Vinyl chloride	< 2	< 2	< 2	< 2	< 2	< 2
Bromomethane	< 2	< 2	< 2	< 2	< 2	< 2
Chloroethane	< 5	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5	< 5
Diethyl Ether	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	< 10	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30	< 30	< 30
Methylene chloride	< 5	< 5	< 5	< 5	< 5	< 5
Carbon disulfide	< 2	< 2	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	< 1	< 1	< 1	< 1	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5	< 5	< 5	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5	< 5	< 5	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **173023**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-6	DPH-4	DPH-MW6	DPH-EX4	DPH-B7	TRIP BLANK
Lab Sample ID:	173023.01	173023.02	173023.03	173023.04	173023.05	173023.06
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	9/6/17	9/6/17	9/6/17	9/6/17	9/6/17	8/18/17
Date Received:	9/6/17	9/6/17	9/6/17	9/6/17	9/6/17	9/6/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	9/7/17	9/7/17	9/7/17	9/7/17	9/7/17	9/7/17
Analyst:	BAM	BAM	BAM	BAM	BAM	BAM
Method:	8260C	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1	1
mp-Xylene	< 1	< 1	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 5	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
4-Bromofluorobenzene (surr)	**103 %R**	**98 %R**	**100 %R**	**98 %R**	**102 %R**	**99 %R**
1,2-Dichlorobenzene-d4 (surr)	**96 %R**	**98 %R**	**98 %R**	**95 %R**	**102 %R**	**97 %R**
Toluene-d8 (surr)	**98 %R**	**96 %R**	**97 %R**	**97 %R**	**96 %R**	**99 %R**
1,2-Dichloroethane-d4 (surr)	**97 %R**	**102 %R**	**98 %R**	**94 %R**	**109 %R**	**103 %R**

Vinyl chloride exhibited recovery outside acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).

LABORATORY REPORT

EAI ID#: **173023**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-MW6	DPH-EX4	DPH-B7
Lab Sample ID:	173023.03	173023.04	173023.05
Matrix:	aqueous	aqueous	aqueous
Date Sampled:	9/6/17	9/6/17	9/6/17
Date Received:	9/6/17	9/6/17	9/6/17
Units:	ug/L	ug/L	ug/L
Date of Analysis:	9/8/17	9/8/17	9/8/17
Analyst:	BAM	BAM	BAM
Method:	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1
1,4-Dioxane	< 0.25	**0.27**	< 0.25
4-Bromofluorobenzene (surr)	**107 %R**	**94 %R**	**106 %R**
Toluene-d8 (surr)	**102 %R**	**97 %R**	**101 %R**

LABORATORY REPORT

EAI ID#: **173023**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-6	DPH-4
Lab Sample ID:	173023.01	173023.02
Matrix:	aqueous	aqueous
Date Sampled:	9/6/17	9/6/17
Date Received:	9/6/17	9/6/17
Chloride	**9**	**25**
Nitrite-N	< 0.5	< 0.5
Nitrate-N	**1.0**	**1.0**

	Analysis			
Units	**Date**	**Time**	**Method**	**Analyst**
mg/L	9/07/17	14:29	4500ClE-97	KD
mg/L	9/07/17	14:29	353.2	KD
mg/L	9/07/17	14:29	353.2	KD

LABORATORY REPORT

EAI ID#: **173023**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-6	DPH-4					
Lab Sample ID:	173023.01	173023.02					
Matrix:	aqueous	aqueous					
Date Sampled:	9/6/17	9/6/17					
Date Received:	9/6/17	9/6/17	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Arsenic	**0.004**	**0.003**	AqTot	mg/L	9/7/17	200.8	DS
Sodium	**15**	**20**	AqTot	mg/L	9/7/17	200.8	DS
Zinc	**0.013**	< 0.005	AqTot	mg/L	9/7/17	200.8	DS

Sample ID:	DPH-MW6					
Lab Sample ID:	173023.03					
Matrix:	aqueous					
Date Sampled:	9/6/17	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	9/6/17					
Arsenic	**0.003**	AqTot	mg/L	9/7/17	200.8	DS
Barium	**0.004**	AqTot	mg/L	9/7/17	200.8	DS
Cadmium	< 0.001	AqTot	mg/L	9/7/17	200.8	DS
Chromium	**0.003**	AqTot	mg/L	9/7/17	200.8	DS
Iron	**0.50**	AqTot	mg/L	9/7/17	200.8	DS
Lead	< 0.001	AqTot	mg/L	9/7/17	200.8	DS
Manganese	**0.013**	AqTot	mg/L	9/7/17	200.8	DS
Mercury	< 0.0001	AqTot	mg/L	9/7/17	200.8	DS
Selenium	< 0.001	AqTot	mg/L	9/7/17	200.8	DS
Silver	< 0.001	AqTot	mg/L	9/7/17	200.8	DS

September 22, 2017

Vista Work Order No. 1701207

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on September 08, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name '173023 / NH / 5008'.

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

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

Sincerely,

Martha Maier
Laboratory Director

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

Vista Work Order No. 1701207
Case Narrative

Sample Condition on Receipt:

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

Analytical Notes:

Modified EPA Method 537

The samples were extracted and analyzed for a selected list of 14 PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

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

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

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701207-01	DPH-MW6	06-Sep-17 08:40	08-Sep-17 10:20	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701207-02	DPH-EX4	06-Sep-17 10:30	08-Sep-17 10:20	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701207-03	DPH-B7	06-Sep-17 10:45	08-Sep-17 10:20	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Eastern Analytical, Inc.
Project: 173023 / NH / 5008
Matrix: Aqueous

Laboratory Data

Lab Sample: B7I0039-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFHxA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFHpA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFHxS	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFOA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFOS	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFNA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFDA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
MeFOSAA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFUnA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
EtFOSAA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFDoA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFTrDA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
PFTeDA	ND	5.00		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	114	60 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFHxA	IS	85.4	70 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C4-PFHpA	IS	74.4	60 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
18O2-PFHxS	IS	81.5	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFOA	IS	83.0	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C8-PFOS	IS	83.4	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C5-PFNA	IS	80.0	50 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFDA	IS	71.7	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
d3-MeFOSAA	IS	64.1	50 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFUnA	IS	75.5	60 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
d5-EtFOSAA	IS	61.8	50 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFDoA	IS	72.5	30 - 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1
13C2-PFTeDA	IS	66.9	20 - 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 18:30	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR — **Modified EPA Method 537**

Client Data

Name: Eastern Analytical, Inc.
Project: 173023 / NH / 5008
Matrix: Aqueous

Laboratory Data

Lab Sample: B7I0039-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	92.5	80.0	116	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFHxA	98.4	80.0	123	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFHpA	88.5	80.0	111	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFHxS	83.1	80.0	104	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFOA	94.1	80.0	118	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFOS	86.3	80.0	108	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFNA	91.7	80.0	115	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFDA	98.9	80.0	124	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
MeFOSAA	78.5	80.0	98.1	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFUnA	75.9	80.0	94.9	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
EtFOSAA	93.2	80.0	117	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFDoA	88.8	80.0	111	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFTrDA	68.3	80.0	85.4	60-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
PFTeDA	100	80.0	125	70-130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	109	60- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFHxA	IS	83.1	70- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C4-PFHpA	IS	75.8	60- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
18O2-PFHxS	IS	90.8	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFOA	IS	78.9	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C8-PFOS	IS	80.7	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C5-PFNA	IS	84.0	50- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFDA	IS	70.2	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
d3-MeFOSAA	IS	59.4	50- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFUnA	IS	66.4	60- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
d5-EtFOSAA	IS	53.3	50- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFDoA	IS	58.0	30- 130		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1
13C2-PFTeDA	IS	35.7	20- 150		B7I0039	12-Sep-17	0.125 L	14-Sep-17 17:47	1

Sample ID: DPH-MW6 — **Modified EPA Method 537**

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1701207-01	Column:	BEH C18
Project:	173023 / NH / 5008	Date Collected:	06-Sep-17 08:40	Date Received:	08-Sep-17 10:20		

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFHxA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFHpA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFHxS	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFOA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFOS	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFNA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFDA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
MeFOSAA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFUnA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
EtFOSAA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFDoA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFTrDA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
PFTeDA	ND	5.00		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	111	60 - 150		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C2-PFHxA	IS	78.0	70 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C4-PFHpA	IS	66.1	60 - 150		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
18O2-PFHxS	IS	80.2	60 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C2-PFOA	IS	81.8	60 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C8-PFOS	IS	78.8	60 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C5-PFNA	IS	74.6	50 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C2-PFDA	IS	63.3	60 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
d3-MeFOSAA	IS	51.2	50 - 150		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C2-PFUnA	IS	60.9	60 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
d5-EtFOSAA	IS	51.0	50 - 150		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C2-PFDoA	IS	57.8	30 - 130		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1
13C2-PFTeDA	IS	58.6	20 - 150		B7I0039	12-Sep-17	0.119 L	14-Sep-17 21:21	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: DPH-EX4 **Modified EPA Method 537**

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1701207-02	Column:	BEH C18
Project:	173023 / NH / 5008	Date Collected:	06-Sep-17 10:30	Date Received:	08-Sep-17 10:20		

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFHxA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFHpA	5.99	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFHxS	13.6	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFOA	19.6	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFOS	64.3	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFNA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFDA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
MeFOSAA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFUnA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
EtFOSAA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFDoA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFTrDA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
PFTeDA	ND	5.00		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	106	60 - 150		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C2-PFHxA	IS	81.8	70 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C4-PFHpA	IS	66.2	60 - 150		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
18O2-PFHxS	IS	78.5	60 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C2-PFOA	IS	83.9	60 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C8-PFOS	IS	74.9	60 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C5-PFNA	IS	87.3	50 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C2-PFDA	IS	73.2	60 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
d3-MeFOSAA	IS	51.1	50 - 150		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C2-PFUnA	IS	66.9	60 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
d5-EtFOSAA	IS	51.0	50 - 150		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C2-PFDoA	IS	63.3	30 - 130		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1
13C2-PFTeDA	IS	37.3	20 - 150		B7I0039	12-Sep-17	0.117 L	14-Sep-17 21:32	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: DPH-B7 **Modified EPA Method 537**

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1701207-03	Column:	BEH C18
Project:	173023 / NH / 5008	Date Collected:	06-Sep-17 10:45	Date Received:	08-Sep-17 10:20		

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFHxA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFHpA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFHxS	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFOA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFOS	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFNA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFDA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
MeFOSAA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFUnA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
EtFOSAA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFDoA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFTrDA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
PFTeDA	ND	5.00		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	112	60 - 150		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C2-PFHxA	IS	86.1	70 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C4-PFHpA	IS	73.0	60 - 150		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
18O2-PFHxS	IS	79.4	60 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C2-PFOA	IS	79.3	60 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C8-PFOS	IS	90.7	60 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C5-PFNA	IS	89.0	50 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C2-PFDA	IS	68.0	60 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
d3-MeFOSAA	IS	66.0	50 - 150		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C2-PFUnA	IS	71.5	60 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
d5-EtFOSAA	IS	57.5	50 - 150		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C2-PFDoA	IS	77.4	30 - 130		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1
13C2-PFTeDA	IS	67.4	20 - 150		B7I0039	12-Sep-17	0.120 L	14-Sep-17 21:42	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

EAI ID# **173023**

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DPH-MW6	9/6/2017 8:40	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	1701207, 1.1°C
DPH-EX4	9/6/2017 10:30	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	
DPH-B7	9/6/2017 10:45	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (VAL)	

EAI ID# **173023** Project State: NH

Project ID: 5008

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520
Fax Number

Results Needed by: Preferred date
QC Deliverables
☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ P
Notes about project:
Email pdf of results and invoice to customerservice@eailabs.com.
14 Compound List (PFAS)

PO #:46804 EAI ID# **173023**

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by: 9/7/17 1530 UPS

Relinquished by	Date/Time	Received by
UPS		M Sparrow 9/8/17 1319
Relinquished by	Date/Time	Received by

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701207 TAT Std

Samples Arrival:	**Date/Time** 9/8/17 1020	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 09/08/17 1657	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** F4

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 1.0 (uncorrected)	**Time:** ~~0818~~ 1318		**Thermometer ID:** IR-1
Temp °C: 1.1 (corrected)	**Probe used:** Yes☐ No☐		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 1Z X46 599 01 9854 4340	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?							✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	None		Yes	No	NA
Shipping Container	Vista	Client	Retain	Return		Dispose	

Comments:

Page 1 of 2 JMS

Chain-of-Custody Record

Bold Fields Required. Please Circle Requested Analysis.

173023

23

Sample I.D.	Sampling Date/Time *If Composite, Indicate Both Start & Finish Date/Time	Matrix (see below)	Grab/*Composite	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE only	VOC: 8260 (circled) / 624 / VTIC / 1,4 Dioxane	VOC: 8021 BTEX Halos	VOC: 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015 DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081 PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals VOC Pest Herb	Metals: Dissolved Metals (List Below)	Metals: Total Metals (List Below) (circled)	Inorganics: TS TSS TDS Spec. Con.	Inorganics: Br Cl F SO_4 NO_3 (circled) NO_2 (circled) NO_3NO_2	Inorganics: BOD CBOD T. Alk.	Inorganics: TKN NH_3 T. Phos. O. Phos.	Inorganics: pH T. Res. Chlorine	Inorganics: COD Phenols TOC DOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: Total Coliform E. Coli Fecal Coliform	Micro: Enterococci Heterotrophic Plate Count	Other 1	Other 2	Other 3	# of Containers	Notes MeOH Vial #
PPH-6	9-6-17 1130	GW			X										X		X												4	
~~PHH-4~~ DPH JW 9/7/17	↓ 1145	GW			X										X		X												4	

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: John Brooks

Company: Emory + Garrett Groundwater Investigation LLC

Address: 56 Main St

City: Meredith State: NH Zip: 03253

Phone: 603 279 4425 Ext.:

Fax:

E-Mail: eggi@eggi.com

Site Name: Pudding Hill, Dover, NH

Project #:

State: NH (circled) MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #:

Date Needed:

QA/QC Reporting Level A B C

OR

Presumptive Certainty

Reporting Options
Prelims: Yes or No

Electronic Options
E-Mail PDF Equis Excel

Temp. 10.7 °C
Ice? Yes (circled) No

Sampler(s): Jon-Erik Tryggestad (617 435 5495)

Relinquished By:	Date:	Time:	Received By:
[signature]	9-6-17	1315	[signature]

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)

Chloride, Sodium, Arsenic
Zinc

Site History:

Suspected Contamination:

Field Readings:

Eastern Analytical, Inc.
professional laboratory and drilling services

25 Chenell Drive | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | E-Mail: CustomerService@EasternAnalytical.com | www.EasternAnalytical.com

(White: Original Green: Project Manager)

Chain-of-Custody Record

Bold Fields Required. Please Circle Requested Analysis.

173023

24

Sample I.D.	Sampling Date/Time *If Composite, Indicate Both Start & Finish Date/Time	Matrix (see below)	Grab/*Composite	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE only	VOC: 8260 624 VTICs 1,4 Dioxane (8260C)	VOC: 8021 BTEX Halos	VOC: 8015 GRO MAVPH	SVOC: 8270 625 SVTICs EDB DBCP ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015 DRO MAEPH	SVOC: PEST 608 PCB 608 PEST 8081 PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals VOC Pest Herb	Metals: Dissolved Metals (List Below)	Metals: Total Metals (List Below)	Inorganics: TS TSS TDS Spec. Con.	Inorganics: Br Cl F SO_4 NO_2 NO_3 NO_3NO_2	Inorganics: BOD CBOD T. Alk.	Inorganics: TKN NH_3 T. Phos. O. Phos.	Inorganics: pH T. Res. Chlorine	Inorganics: COD Phenols TOC DOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: Total Coliform E. Coli Fecal Coliform	Micro: Enterococci Heterotrophic Plate Count	Other: PFCs 537	Other	Other	# of Containers	Notes MeOH Vial #
DPH-MW6	9-6-17 840	GW	↓		X										X											X			7	
DPH-EX4	↓ 1030	↓	↓		X																					X			6	
DPH-B7	1045	↓	↓		X																					X			6	
Trip Blank	8/18/17 1400				X*																									

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste Water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: John Brooks
Company: Emery and Garrett Groundwater Investigations LLC
Address: 56 Main St
City: Meredith State: NH Zip: 03253
Phone: 603 279 [redacted] 4425 Ext.:
Fax:
E-Mail: eggi@eggi.com
Site Name: Pudding Hill Dover, NH
Project #:
State: (NH) MA ME VT Other:
Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:
Quote #: PO #:

Date Needed:

QA/QC Reporting Level A B C or Presumptive Certainty

Reporting Options Prelims: Yes or No

Electronic Options E-Mail PDF Equis Excel

Temp. 10.7 °C Ice? (Yes) No

Sampler(s): Jon-Erik Tryggestad (617 435 5495)

Relinquished By:	Date:	Time:	Received By:
[signature]	9-6-17	1305	[signature]

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)

PFC by 537 (14)

*8260 Trip blank JW 9/7/17

Site History:
Suspected Contamination:
Field Readings:

Eastern Analytical, Inc.

professional laboratory and drilling services

PRELIMINARY ANALYTICAL RESULTS ATTACHED

The attached .pdf file contains results that have not been subjected to a final QA/QC review. If you have any questions, please contact us at customerservice@eailabs.com or call 1-800-287-0525.

Eastern Analytical, Inc. service reminders…

Autumn is here! Please keep EAI's laboratory capabilities in mind for your upcoming groundwater monitoring, Brownfields redevelopment, remediation and monitoring, site investigation and risk assessment, property transactions, property closures, property development and construction, hazardous waste determination, waste characterization, solid waste management, water resource and other projects. We also offer direct push drilling services as well!

Granite State Rural Water Association (GSRWA) Training Opportunity -

Proper Sample Collection Techniques

Taught by: Jeff Gagne, Eastern Analytical, Inc.

Date: December 12th
Time: 8:00 am – 3:00 pm
Location: Lake Sunapee Protective Association, Sunapee NH
Cost: $95.00 Members / $125 Non Members
To Register: Visit the GSRWA website http://www.granitestatewater.org/Training.asp
Credit: Earn 6 TCH's. NHDES drinking water and wastewater credit approved

Training topics include:

- Pre-Project Planning – Identify Needs (Why are you Collecting Samples?)
- Regulatory Program - Compliance or non-compliance?
- Parameters, frequency and timing - TAT, Rush, Subcontractors, Access
- Acronyms: SAP, QAPP, DQO - LOQ, MDL, RL
- 3M: Methods, Matrix, Minutia (props) - Containers, preservation, hold times
- Components of a "Good" Sample - Homogeneous and Representative
- Surface Water / Drinking Water Sampling - All about real estate
- Groundwater Sampling (demo)- Monitoring Wells 101and Methods - pros and cons
- Wastewater Sampling (demo) - Composite versus Grab and Sludge, wastes, Jekyll and Hyde
- "Special" Projects- Low Flow and Method 1669
- New and Exciting? - PFAS
- Quality Systems in the Field - Instrument calibration and Data generation
- Documentation - Chain of Custody

Please call GSRWA at 603-756-3570 or email info@granitestatewater.org to register or learn more.

Data you can trust. Service you can depend on.

LABORATORY REPORT

EAI ID#: **173211**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-MW9-17	DPH-MW10-17	DPH-#105	DPH-MW7-17	DPH-MW2D	Trip Blank VOC
Lab Sample ID:	173211.01	173211.02	173211.03	173211.04	173211.05	173211.06
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17	8/18/17
Date Received:	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	9/13/17	9/13/17	9/13/17	9/13/17	9/13/17	9/13/17
Analyst:	BML	BML	BML	BML	BML	BML
Method:	8260C	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1	1
Dichlorodifluoromethane	< 5	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 2	< 2	< 2	< 2	< 2	< 2
Vinyl chloride	< 2	< 2	< 2	< 2	< 2	< 2
Bromomethane	< 2	< 2	< 2	< 2	< 2	< 2
Chloroethane	< 5	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5	< 5
Diethyl Ether	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	< 10	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
tert-Butyl Alcohol (TBA)	< 30	< 30	< 30	< 30	< 30	< 30
Methylene chloride	< 5	< 5	< 5	< 5	< 5	< 5
Carbon disulfide	< 2	< 2	< 2	< 2	< 2	< 2
Methyl-t-butyl ether(MTBE)	**5**	**5**	**9**	< 1	< 1	< 1
Ethyl-t-butyl ether(ETBE)	< 5	< 5	< 5	< 5	< 5	< 5
Isopropyl ether(DIPE)	< 5	< 5	< 5	< 5	< 5	< 5
tert-amyl methyl ether(TAME)	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
2,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
2-Butanone(MEK)	< 10	< 10	< 10	< 10	< 10	< 10
Bromochloromethane	< 1	< 1	< 1	< 1	< 1	< 1
Tetrahydrofuran(THF)	< 10	< 10	< 10	< 10	< 10	< 10
Chloroform	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
Carbon tetrachloride	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloropropene	< 1	< 1	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50	< 50	< 50	< 50	< 50
4-Methyl-2-pentanone(MIBK)	< 10	< 10	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 1	< 1	< 1	< 1	< 1	< 1
2-Hexanone	< 10	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	< 1	< 1	< 1	< 1	< 1	< 1
1,3-Dichloropropane	< 1	< 1	< 1	< 1	< 1	< 1
Dibromochloromethane	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane(EDB)	< 2	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1

LABORATORY REPORT

EAI ID#: **173211**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-MW9-17	DPH-MW10-17	DPH-#105	DPH-MW7-17	DPH-MW2D	Trip Blank VOC
Lab Sample ID:	173211.01	173211.02	173211.03	173211.04	173211.05	173211.06
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17	8/18/17
Date Received:	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	9/13/17	9/13/17	9/13/17	9/13/17	9/13/17	9/13/17
Analyst:	BML	BML	BML	BML	BML	BML
Method:	8260C	8260C	8260C	8260C	8260C	8260C
Dilution Factor:	1	1	1	1	1	1
mp-Xylene	< 1	< 1	< 1	< 1	< 1	< 1
o-Xylene	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	< 1	< 1	< 1	< 1	< 1	< 1
Bromoform	< 2	< 2	< 2	< 2	< 2	< 2
IsoPropylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
Bromobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
2-Chlorotoluene	< 1	< 1	< 1	< 1	< 1	< 1
4-Chlorotoluene	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
tert-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
p-Isopropyltoluene	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane	< 2	< 2	< 2	< 2	< 2	< 2
1,3,5-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
Hexachlorobutadiene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	< 5	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichlorobenzene	< 1	< 1	< 1	< 1	< 1	< 1
4-Bromofluorobenzene (surr)	**95 %R**	**96 %R**	**93 %R**	**96 %R**	**95 %R**	**93 %R**
1,2-Dichlorobenzene-d4 (surr)	**104 %R**	**103 %R**	**104 %R**	**102 %R**	**104 %R**	**103 %R**
Toluene-d8 (surr)	**103 %R**	**101 %R**	**100 %R**	**102 %R**	**100 %R**	**101 %R**
1,2-Dichloroethane-d4 (surr)	**101 %R**	**101 %R**	**100 %R**	**101 %R**	**100 %R**	**102 %R**

Hexachlorobutadiene exhibited recovery outside acceptance limits in the Quality Control sample(s). The analyte(s) were not detected in the sample(s).

LABORATORY REPORT

EAI ID#: **173211**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID:	DPH-MW9-17	DPH-MW10-17	DPH-#105	DPH-MW7-17	DPH-MW2D	Trip Blank 1,4-Dioxane
Lab Sample ID:	173211.01	173211.02	173211.03	173211.04	173211.05	173211.07
Matrix:	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Date Sampled:	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17	8/16/17
Date Received:	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17	9/8/17
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date of Analysis:	9/12/17	9/12/17	9/12/17	9/12/17	9/12/17	9/12/17
Analyst:	VG	VG	VG	VG	VG	VG
Method:	8260B SIM	8260B SIM	8260B SIM	8260B SIM	8260B SIM	8260B SIM
Dilution Factor:	1	1	1	1	1	1
1,4-Dioxane	**1.2**	**1.4**	**3.7**	< 0.25	< 0.25	< 0.25
4-Bromofluorobenzene (surr)	**97 %R**	**105 %R**	**95 %R**	**95 %R**	**100 %R**	**106 %R**
Toluene-d8 (surr)	**98 %R**	**102 %R**	**99 %R**	**97 %R**	**101 %R**	**102 %R**

LABORATORY REPORT

EAI ID#: **173211**

Client: **Emery & Garrett Groundwater Investigations, LLC (NH)**

Client Designation: **Pudding Hill, Dover, NH**

Sample ID: DPH-#105

Lab Sample ID: 173211.03
Matrix: aqueous
Date Sampled: 9/8/17
Date Received: 9/8/17

		Analytical Matrix	Units	Date of Analysis	Method	Analyst
Arsenic	**0.010**	AqTot	mg/L	9/11/17	200.8	DS
Barium	**0.059**	AqTot	mg/L	9/11/17	200.8	DS
Cadmium	< 0.001	AqTot	mg/L	9/11/17	200.8	DS
Chromium	< 0.001	AqTot	mg/L	9/11/17	200.8	DS
Iron	**22**	AqTot	mg/L	9/11/17	200.8	DS
Lead	< 0.001	AqTot	mg/L	9/11/17	200.8	DS
Manganese	**0.47**	AqTot	mg/L	9/11/17	200.8	DS
Mercury	< 0.0001	AqTot	mg/L	9/11/17	200.8	DS
Selenium	**0.030**	AqTot	mg/L	9/11/17	200.8	DS
Silver	< 0.001	AqTot	mg/L	9/11/17	200.8	DS

The values for Arsenic and Selenium may be elevated due to matrix interference.

APPENDIX C

WATER LEVELS (COMPACT DISC)