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

# Unvalidated Temporary Monitoring Well Groundwater Data Submittal

**Saint-Gobain Performance Plastics**
**701 Daniel Webster Highway**
**Merrimack, New Hampshire 03054**
**NHDES Site No.: 199712055**
**Project Number: 36430**

Prepared For:
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Ross Bennett
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Date: 2018.12.17 16:06:40 -05'00'

Prepared By:
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670 North Commercial Street
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Contact Name: Ross Bennett
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Date of Report: December 17, 2018

December 17, 2018 Project No. 166-8623

Mr. Jeff Marts
New Hampshire Department of Environmental Services
Waste Management Division
P.O. Box 95, 29 Hazen Drive
Concord, New Hampshire 03302-0095

**RE: UNVALIDATED TEMPORARY WELL GROUNDWATER DATA SUBMITTAL**
**SAINT-GOBAIN PERFORMANCE PLASTICS**
**701 DANIEL WEBSTER HIGHWAY, MERRIMACK, NEW HAMPSHIRE**
**NHDES SITE NO. 199712055**

Dear Mr. Marts:

Golder Associates Inc. (Golder) is pleased to provide this Data Submittal to the New Hampshire Department of Environmental Services (NHDES) on behalf of Saint-Gobain Performance Plastics (SGPP) for the SGPP facility located at 701 Daniel Webster Highway, Merrimack, New Hampshire (Site). This letter summarizes the October and November 2018 Temporary Monitoring Well groundwater sampling results.

Golder performed the temporary monitoring well investigation sampling events in general accordance with the June 2018 Final On-Property Site Investigation Work Plan (SI Work Plan) prepared by Golder (Golder, 2018). NHDES provided additional clarification of their expectations for on-property site investigations and reporting in an August 20, 2018 letter (NHDES, 2018). These two documents collectively represent Golder's understanding of the 2018 on-property site investigation requirements for the SGPP facility.

In October and November 2018, Golder personnel collected grab groundwater samples from the onsite temporary monitoring well locations. Golder sent the grab groundwater samples under chain-of-custody procedures to Eurofins Lancaster Laboratories Environmental, Inc. of Lancaster, Pennsylvania (ELLE) for analysis of per- and polyfluoroalkyl substances (PFAS) by Method 537.1.1, Volatile Organic Compounds (VOCs) by Method 8260C, Semi-volatile Organic Compounds (SVOCs) by Method 8270D, total metals by Methods 6020A, 6010C, and 7470A (Mercury), and additional parameters. Laboratory analytical reports are included as Attachment A and field forms for the TMW monitoring event are provided as Attachment B. A figure showing the location of the sampled temporary monitoring wells is included as Attachment C. Analytical data provided as part of this data submittal have not yet been validated. Unvalidated analytical results are provided in Table 1 through Table 4. Groundwater elevation data for the temporary monitoring wells are presented in Table 5.

Validated data, monitoring well installation logs, and well decommissioning records will be submitted to NHDES as part of the Site Investigation Report which is anticipated to be submitted in March 2019.

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Should you have any questions regarding this Data Submittal, please call Mr. Ross Bennett at (603) 668-0880.

Sincerely,

**Golder Associates Inc.**



Alistair Macdonald, P.G., LSP
*Senior Program Leader and Principal*



Ross Bennett, P.E.
*Senior Engineer*

LWL/RWB/drb

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Encl:

Table 1 – Unvalidated SI Temporary Well Analytical Results (PFAS) – Oct/Nov 2018
Table 2 – Unvalidated SI Temporary Well Analytical Results (VOCs) – Oct/Nov 2018
Table 3 – Unvalidated SI Temporary Well Analytical Results (SVOCs) – Oct/Nov 2018
Table 4 – Unvalidated SI Temporary Well Analytical Results (Metals & Additional Parameters) – Oct/Nov 2018
Table 5 – Temporary Monitoring Well Groundwater Elevations
Attachment A – Temporary Well Laboratory Analytical Reports
Attachment B – Temporary Well Field Sampling Forms
Attachment C – Figure of Temporary Well Locations

**References:**

Golder, 2018. On-Property Site Investigation Work Plan, Saint-Gobain Performance Plastics. June 8, 2018.

NHDES, 2018. Letter Re: *On-Property Site Investigation Work Plan, On-Property Site Investigation Work Plan Addendum, Flatley Property Investigation*. August 20, 2018.

# Tables

**TABLE 1: Well Investigation Unvalidated Data Summary Table - PFAS**
**Saint-Gobain Performance Plastics**
**Merrimack, New Hampshire**

| | | | Sample ID | TMW-A | TMW-B | TMW-C | TMW-D | TMW-D | TMW-E | TMW-F | TMW-G | TMW-H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Lab Sample ID | 9851709 | 9851710 | 9851711 | 9858440 | 9858440 | 9851712 | 9851713 | 9851714 | 9858439 |
| | | | Sample Collection Date | 10/10/2018 | 10/10/2018 | 10/10/2018 | 10/16/2018 | 10/16/2018 | 10/11/2018 | 10/11/2018 | 10/12/2018 | 10/17/2018 |
| | | | N= Normal; FD= Field Duplicate | N | N | N | N | FD | N | N | N | N |
| **Analysis Name** | **CAS Number** | **Unit** | **Validated (Y/N)** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** |
| **PFAS Analyte List** | | | | | | | | | | | | |
| 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | ng/l | N | NA | NA | 0.85 U | 0.87 U | 0.85 U | NA | NA | NA | NA |
| 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | ng/l | N | NA | NA | 0.85 U | 0.87 U | 0.85 U | NA | NA | NA | NA |
| 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | ng/l | N | NA | NA | 1.7 U | 1.7 U | 1.7 U | NA | NA | NA | NA |
| 6:2-Fluorotelomersulfonic acid | 27619-97-2 | ng/l | N | NA | NA | 21 | 130 | 120 | NA | NA | NA | NA |
| HFPODA | 13252-13-6 | ng/l | N | NA | NA | 0.77 J | 3.5 | 2 | NA | NA | NA | NA |
| NaDONA | 958445-44-8 | ng/l | N | NA | NA | 0.25 U | 0.26 U | 0.26 U | NA | NA | NA | NA |
| NEtFOSAA | 2991-50-6 | ng/l | N | 0.85 U | 0.85 U | 0.85 U | 0.87 U | 0.85 U | 8.5 U | 2,400 | 1.7 J | 26 |
| NEtPFOSA | 4151-50-2 | ng/l | N | NA | NA | 2.5 U | 2.6 U | 2.6 U | NA | NA | NA | NA |
| NEtPFOSAE | 1691-99-2 | ng/l | N | NA | NA | 1.0 U | 1.0 U | 1.0 U | NA | NA | NA | NA |
| NMeFOSAA | 2355-31-9 | ng/l | N | 0.85 U | 0.85 U | 0.85 U | 0.87 U | 0.85 U | 8.5 U | 8.5 U | 0.86 U | 0.85 U |
| NMePFOSA | 31506-32-8 | ng/l | N | NA | NA | 2.5 U | 2.6 U | 2.6 U | NA | NA | NA | NA |
| NMePFOSAE | 24448-09-7 | ng/l | N | NA | NA | 0.85 U | 0.87 U | 0.85 U | NA | NA | NA | NA |
| Perfluorooctanesulfonic acid | 1763-23-1 | ng/l | N | 25 | 120 | 59 | 1,100 | 1,100 | 880 | 1,300 | 150 | 470 |
| Perfluorobutanesulfonic acid | 375-73-5 | ng/l | N | 2.3 | 2.8 | 5.4 | 22 | 21 | 4.1 J | 8.6 | 3.1 | 7 |
| Perfluorobutanoic acid | 375-22-4 | ng/l | N | 45 | 310 | 110 | 190 | 180 | 1,300 | 1,300 | 120 | 130 |
| Perfluorodecanesulfonic acid | 335-77-3 | ng/l | N | NA | NA | 0.51 U | 0.52 U | 0.51 U | NA | NA | NA | NA |
| Perfluorodecanoic acid | 335-76-2 | ng/l | N | 1.2 J | 0.76 U | 0.76 U | 180 | 170 | 660 | 950 | 13 | 24 |
| Perfluorododecanesulfonic acid | 79780-39-5 | ng/l | N | NA | NA | 0.25 U | 0.26 U | 0.26 U | NA | NA | NA | NA |
| Perfluorododecanoic acid | 307-55-1 | ng/l | N | 0.42 U | 0.42 U | 0.42 U | 0.44 U | 0.43 U | 4.2 U | 31 | 0.43 U | 2.5 |
| Perfluoroheptanesulfonic acid | 375-92-8 | ng/l | N | NA | NA | 1.3 J | 13 | 13 | NA | NA | NA | NA |
| Perfluoroheptanoic acid | 375-85-9 | ng/l | N | 55 | 260 | 170 | 320 | 300 | 900 | 730 | 130 | 230 |
| Perfluorohexadecanoic acid | 67905-19-5 | ng/l | N | NA | NA | 0.25 U | 0.26 U | 0.26 U | NA | NA | NA | NA |
| Perfluorohexanesulfonic acid | 355-46-4 | ng/l | N | 9.2 | 43 | 5.8 | 91 | 87 | 28 | 36 | 6.5 | 15 |
| Perfluorohexanoic acid | 307-24-4 | ng/l | N | 130 | 900 | 300 | 520 | 500 | 2,700 | 1,700 | 220 | 490 |
| Perfluorononanesulfonic acid | 68259-12-1 | ng/l | N | NA | NA | 0.51 U | 0.52 U | 0.51 U | NA | NA | NA | NA |
| Perfluorononanoic acid | 375-95-1 | ng/l | N | 7.9 | 92 | 22 | 200 | 210 | 110 | 400 | 66 | 46 |
| Perfluorooctadecanoic acid | 16517-11-6 | ng/l | N | NA | NA | 0.42 U | 0.44 U | 0.43 U | NA | NA | NA | NA |
| Perfluorooctanesulfonamide | 754-91-6 | ng/l | N | NA | NA | 0.42 U | 7.1 | 6.7 | NA | NA | NA | NA |
| Perfluorooctanesulfonic acid | 1763-23-1 | ng/l | N | 25 | 120 | 59 | 1,100 | 1,100 | 880 | 1,300 | 150 | 470 |
| Perfluorooctanoic acid | 335-67-1 | ng/l | N | 310 | 2,800 | 1,300 | 2,600 | 2,200 | 5,100 | 4,700 | 670 | 1,600 |
| Perfluoropentanesulfonic acid | 2706-91-4 | ng/l | N | NA | NA | 1.2 J | 22 | 21 | NA | NA | NA | NA |
| Perfluoropentanoic acid | 2706-90-3 | ng/l | N | 110 | 1,800 | 290 | 500 | 500 | 3,700 | 2,700 | 210 | 410 |
| Perfluorotetradecanoic acid | 376-06-7 | ng/l | N | 0.25 U | 0.25 U | 0.25 U | 0.26 U | 0.26 U | 2.5 U | 2.6 U | 0.26 U | 0.26 U |
| Perfluorotridecanoic acid | 72629-94-8 | ng/l | N | 0.34 U | 0.34 U | 0.34 U | 0.35 U | 0.34 U | 3.4 U | 3.4 U | 0.34 U | 0.34 U |
| Perfluoroundecanoic acid | 2058-94-8 | ng/l | N | 0.34 U | 0.34 U | 0.34 U | 0.54 J | 0.57 J | 3.4 J | 97 | 0.34 U | 5.7 |

Prepared by: MLS
Reviewed by: SJS

Notes:
1. Golder collected groundwater samples from temporary wells on the dates indicated. Samples were submitted to Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania for analysis. Data is not validated to date.

**Abbreviations:**
FD = Field duplicate sample
N = Normal (primary) sample
NA = Not analyzed
Units: ng/l = nanograms per liter

**Qualifiers:**
U = The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

**TABLE 2: Temporary Well Investigation Unvalidated Data Summary Table - VOCs**
**Saint-Gobain Performance Plastics**
**Merrimack, New Hampshire**

| | | | Sample ID | TMW-A | TMW-B | TMW-C | TMW-D | TMW-D | TMW-E | TMW-F | TMW-G | TMW-H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Lab Sample ID | 9851709 | 9851710 | 9851711 | 9858440 | 9858440 | 9851712 | 9851713 | 9851714 | 9858439 |
| | | | Sample Collection Date | 10/10/2018 | 10/10/2018 | 10/10/2018 | 10/16/2018 | 10/16/2018 | 10/11/2018 | 10/11/2018 | 10/12/2018 | 10/17/2018 |
| | | | N= Normal; FD= Field Duplicate | N | N | N | N | FD | N | N | N | N |
| **Analysis Name** | **CAS Number** | **Unit** | **Validated (Y/N)** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | |
| Acetone | 67-64-1 | ug/l | N | NA | NA | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.9 J | 0.7 U |
| Benzene | 71-43-2 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Bromochloromethane | 74-97-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Bromodichloromethane | 75-27-4 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Bromoform | 75-25-2 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Bromomethane | 74-83-9 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| 2-Butanone | 78-93-3 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| Carbon Disulfide | 75-15-0 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Carbon Tetrachloride | 56-23-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Chlorobenzene | 108-90-7 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Chloroethane | 75-00-3 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Chloroform | 67-66-3 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Chloromethane | 74-87-3 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Cyclohexane | 110-82-7 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| Dibromochloromethane | 124-48-1 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,2-Dibromoethane | 106-93-4 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,2-Dichlorobenzene | 95-50-1 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,3-Dichlorobenzene | 541-73-1 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,4-Dichlorobenzene | 106-46-7 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Dichlorodifluoromethane | 75-71-8 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,1-Dichloroethane | 75-34-3 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,2-Dichloroethane | 107-06-2 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| 1,1-Dichloroethene | 75-35-4 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| cis-1,2-Dichloroethene | 156-59-2 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| trans-1,2-Dichloroethene | 156-60-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,2-Dichloropropane | 78-87-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| cis-1,3-Dichloropropene | 10061-01-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| trans-1,3-Dichloropropene | 10061-02-6 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Ethylbenzene | 100-41-4 | ug/l | N | NA | NA | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U |
| Freon 113 | 76-13-1 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 2-Hexanone | 591-78-6 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| Isopropylbenzene | 98-82-8 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Methyl Acetate | 79-20-9 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Methyl Tertiary Butyl Ether | 1634-04-4 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 4-Methyl-2-pentanone | 108-10-1 | ug/l | N | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Methylcyclohexane | 108-87-2 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Methylene Chloride | 75-09-2 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| Styrene | 100-42-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Tetrachloroethene | 127-18-4 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Toluene | 108-88-3 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | ug/l | N | NA | NA | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| 1,1,1-Trichloroethane | 71-55-6 | ug/l | N | NA | NA | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| 1,1,2-Trichloroethane | 79-00-5 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Trichloroethene | 79-01-6 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Trichlorofluoromethane | 75-69-4 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| Vinyl Chloride | 75-01-4 | ug/l | N | NA | NA | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| m+p-Xylene | 179601-23-1 | ug/l | N | NA | NA | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| o-Xylene | 95-47-6 | ug/l | N | NA | NA | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U |

Notes:
1. Golder collected groundwater samples from temporary monitoring wells on the dates indicated. Samples were submitted to Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania for analysis. Data is not validated to date.

Prepared by: MLS
Reviewed by: SJS

**Abbreviations:**
FD = Field duplicate sample
N = Normal (primary) sample
NA = Not analyzed
Units: ug/l = micrograms per liter

**Qualifiers:**
U = The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

**TABLE 3: Temporary Well Investigation Unvalidated Data Summary Table - SVOCs**
**Saint-Gobain Performance Plastics**
**Merrimack, New Hampshire**

| | | | | Sample ID | TMW-A | TMW-B | TMW-C | TMW-D | TMW-D | TMW-E | TMW-F | TMW-G | TMW-H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lab Sample ID | 9851709 | 9851710 | 9851711 | 9858440 | 9858440 | 9851712 | 9851713 | 9851714 | 9858439 |
| | | | | Sample Collection Date | 10/10/2018 | 10/10/2018 | 10/10/2018 | 10/16/2018 | 10/16/2018 | 10/11/2018 | 10/11/2018 | 10/12/2018 | 10/17/2018 |
| | | | | N= Normal; FD= Field Duplicate | N | N | N | N | FD | N | N | N | N |
| **Analysis Name** | **CAS Number** | **Unit** | **Validated (Y/N)** | | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** |
| **Semivolatile Organic Compounds (SVOCs)** | | | | | | | | | | | | | |
| Acenaphthene | 83-32-9 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Acenaphthylene | 208-96-8 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Acetophenone | 98-86-2 | ug/l | N | | NA | NA | 4 U | 4 U | 4 U | 4 U | 4 U | 4 U | 4 U |
| Anthracene | 120-12-7 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Atrazine | 1912-24-9 | ug/l | N | | NA | NA | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U |
| Benzaldehyde | 100-52-7 | ug/l | N | | NA | NA | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U |
| Benzo(a)anthracene | 56-55-3 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Benzo(a)pyrene | 50-32-8 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Benzo(b)fluoranthene | 205-99-2 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Benzo(g,h,i)perylene | 191-24-2 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Benzo(k)fluoranthene | 207-08-9 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| 1,1'-Biphenyl | 92-52-4 | ug/l | N | | NA | NA | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U |
| 4-Bromophenyl-phenylether | 101-55-3 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Butylbenzylphthalate | 85-68-7 | ug/l | N | | NA | NA | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U |
| Di-n-butylphthalate | 84-74-2 | ug/l | N | | NA | NA | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U |
| Caprolactam | 105-60-2 | ug/l | N | | NA | NA | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U |
| Carbazole | 86-74-8 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 4-Chloro-3-methylphenol | 59-50-7 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 4-Chloroaniline | 106-47-8 | ug/l | N | | NA | NA | 4 U | 4 U | 4 U | 4 U | 4 U | 4 U | 4 U |
| bis(2-Chloroethoxy)methane | 111-91-1 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| bis(2-Chloroethyl)ether | 111-44-4 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 2-Chloronaphthalene | 91-58-7 | ug/l | N | | NA | NA | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U |
| 2-Chlorophenol | 95-57-8 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 4-Chlorophenyl-phenylether | 7005-72-3 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 2,2'-oxybis(1-Chloropropane) | 108-60-1 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Chrysene | 218-01-9 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Dibenz(a,h)anthracene | 53-70-3 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Dibenzofuran | 132-64-9 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | ug/l | N | | NA | NA | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U |
| 2,4-Dichlorophenol | 120-83-2 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Diethylphthalate | 84-66-2 | ug/l | N | | NA | NA | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U |
| 2,4-Dimethylphenol | 105-67-9 | ug/l | N | | NA | NA | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U |
| Dimethylphthalate | 131-11-3 | ug/l | N | | NA | NA | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/l | N | | NA | NA | 8 U | 8 U | 8 U | 8 U | 8 U | 8 U | 8 U |
| 2,4-Dinitrophenol | 51-28-5 | ug/l | N | | NA | NA | 14 U | 14 U | 14 U | 14 U | 14 U | 15 U | 15 U |
| 2,4-Dinitrotoluene | 121-14-2 | ug/l | N | | NA | NA | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2,6-Dinitrotoluene | 606-20-2 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 1,4-Dioxane | 123-91-1 | ug/l | N | | NA | NA | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U |
| bis(2-Ethylhexyl)phthalate | 117-81-7 | ug/l | N | | NA | NA | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U |
| Fluoranthene | 206-44-0 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Fluorene | 86-73-7 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Hexachlorobenzene | 118-74-1 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Hexachlorobutadiene | 87-68-3 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Hexachlorocyclopentadiene | 77-47-4 | ug/l | N | | NA | NA | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U |
| Hexachloroethane | 67-72-1 | ug/l | N | | NA | NA | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Isophorone | 78-59-1 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 2-Methylnaphthalene | 91-57-6 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.2 J | 0.1 U |
| 2-Methylphenol | 95-48-7 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 4-Methylphenol | 106-44-5 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Naphthalene | 91-20-3 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.2 J | 0.1 U |
| 2-Nitroaniline | 88-74-4 | ug/l | N | | NA | NA | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U | 2 U |
| 3-Nitroaniline | 99-09-2 | ug/l | N | | NA | NA | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U |
| 4-Nitroaniline | 100-01-6 | ug/l | N | | NA | NA | 0.9 U | 0.9 U | 0.9 U | 0.9 U | 0.9 U | 0.9 U | 0.9 U |
| Nitrobenzene | 98-95-3 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 2-Nitrophenol | 88-75-5 | ug/l | N | | NA | NA | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U | 3 U |
| 4-Nitrophenol | 100-02-7 | ug/l | N | | NA | NA | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U |
| N-Nitroso-di-n-propylamine | 621-64-7 | ug/l | N | | NA | NA | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.7 U |
| N-Nitrosodiphenylamine | 86-30-6 | ug/l | N | | NA | NA | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.7 U | 0.7 U |
| Di-n-octylphthalate | 117-84-0 | ug/l | N | | NA | NA | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U | 5 U |
| Pentachlorophenol | 87-86-5 | ug/l | N | | NA | NA | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Phenanthrene | 85-01-8 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Phenol | 108-95-2 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Pyrene | 129-00-0 | ug/l | N | | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/l | N | | NA | NA | 4 U | 4 U | 4 U | 4 U | 4 U | 4 U | 4 U |
| 2,4,5-Trichlorophenol | 95-95-4 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 2,4,6-Trichlorophenol | 88-06-2 | ug/l | N | | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |

Notes:
1. Golder collected groundwater samples from temporary monitoring wells on the dates indicated. Samples were submitted to Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania for analysis. Data is not validated to date.

Prepared by: MLS
Reviewed by: SJS

**Abbreviations:**
FD = Field duplicate sample
N = Normal (primary) sample
NA = Not analyzed
Units: ug/kg = micrograms per kilograms

**Qualifiers:**
U = The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

**TABLE 4: Temporary Well Investigation Unvalidated Data Summary Table - Total Metals and Additional Parameters**
**Saint-Gobain Performance Plastics**
**Merrimack, New Hampshire**

| | | | Sample ID | TMW-A | TMW-B | TMW-C | TMW-D | TMW-D | TMW-E | TMW-F | TMW-G | TMW-H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Lab Sample ID | 9851709 | 9851710 | 9851711 | 9858440 | 9858440 | 9851712 | 9851713 | 9851714 | 9858439 |
| | | | Sample Collection Date | 10/10/2018 | 10/10/2018 | 10/10/2018 | 10/16/2018 | 10/16/2018 | 10/11/2018 | 10/11/2018 | 10/12/2018 | 10/17/2018 |
| | | | N= Normal; FD= Field Duplicate | N | N | N | N | FD | N | N | N | N |
| **Analysis Name** | **CAS Number** | **Unit** | **Validated (Y/N)** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** |
| **Total Metals** | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/l | N | NA | NA | 0.153 U | 0.153 U | 0.153 U | 0.153 U | 0.153 U | 0.153 U | NA |
| Antimony | 7440-36-0 | mg/l | N | NA | NA | 0.00041 U | 0.00041 U | 0.00041 U | 0.00041 U | 0.00041 U | 0.00041 U | NA |
| Arsenic | 7440-38-2 | mg/l | N | NA | NA | 0.00068 U | 0.00068 U | 0.00068 U | 0.00068 U | 0.00068 U | 0.00068 U | NA |
| Barium | 7440-39-3 | mg/l | N | NA | NA | 0.0321 | 0.0315 | 0.0341 | 0.0057 | 0.0048 | 0.0112 | NA |
| Beryllium | 7440-41-7 | mg/l | N | NA | NA | 0.000091 U | 0.000091 U | 0.000091 U | 0.000091 U | 0.000091 U | 0.000091 U | NA |
| Cadmium | 7440-43-9 | mg/l | N | NA | NA | 0.00015 U | 0.00015 U | 0.00015 U | 0.00015 U | 0.00016 J | 0.00015 U | NA |
| Calcium | 7440-70-2 | mg/l | N | NA | NA | 17.9 | 14.8 | 15.8 | 2.56 | 1.55 | 14.5 | NA |
| Chromium | 7440-47-3 | mg/l | N | NA | NA | 0.00070 U | 0.00070 U | 0.00070 U | 0.00070 U | 0.00070 U | 0.00070 U | NA |
| Cobalt | 7440-48-4 | mg/l | N | NA | NA | 0.00016 U | 0.00016 U | 0.00016 U | 0.00016 J | 0.00091 J | 0.00016 U | NA |
| Copper | 7440-50-8 | mg/l | N | NA | NA | 0.0099 U | 0.0099 U | 0.0099 U | 0.0099 U | 0.0099 U | 0.0099 U | NA |
| Iron | 7439-89-6 | mg/l | N | NA | NA | 0.0400 U | 0.0400 U | 0.0400 U | 0.0400 U | 0.0400 U | 0.0400 U | NA |
| Lead | 7439-92-1 | mg/l | N | NA | NA | 0.0011 U | 0.0011 U | 0.0011 U | 0.0011 U | 0.0011 U | 0.0011 U | NA |
| Magnesium | 7439-95-4 | mg/l | N | NA | NA | 4.37 | 2.74 | 2.97 | 0.22 | 0.226 | 6.56 | NA |
| Manganese | 7439-96-5 | mg/l | N | NA | NA | 0.0513 | 0.0184 J | 0.0174 J | 0.0092 J | 0.165 | 0.102 | NA |
| Mercury | 7439-97-6 | mg/l | N | NA | NA | 0.000050 U | 0.000050 U | 0.000050 U | 0.000050 U | 0.000050 U | 0.000050 U | NA |
| Nickel | 7440-02-0 | mg/l | N | NA | NA | 0.00060 U | 0.00060 U | 0.00060 U | 0.00070 J | 0.0011 J | 0.00060 U | NA |
| Potassium | 7440-09-7 | mg/l | N | NA | NA | 3.11 | 2.28 | 2.42 | 1.03 | 0.871 | 2.4 | NA |
| Selenium | 7782-49-2 | mg/l | N | NA | NA | 0.00065 U | 0.00065 U | 0.00065 U | 0.00065 U | 0.00065 U | 0.00065 U | NA |
| Silver | 7440-22-4 | mg/l | N | NA | NA | 0.00017 U | 0.00017 U | 0.00017 U | 0.00017 U | 0.00017 U | 0.00017 U | NA |
| Sodium | 7440-23-5 | mg/l | N | NA | NA | 108 | 51.1 | 55.8 | 5.53 | 4.9 | 20 | NA |
| Thallium | 7440-28-0 | mg/l | N | NA | NA | 0.00011 U | 0.00011 U | 0.00011 U | 0.00011 U | 0.00011 U | 0.00011 U | NA |
| Vanadium | 7440-62-2 | mg/l | N | NA | NA | 0.00024 U | 0.00024 U | 0.00024 U | 0.00024 U | 0.00024 U | 0.00026 J | NA |
| Zinc | 7440-66-6 | mg/l | N | NA | NA | 0.0036 J | 0.0030 U | 0.0030 U | 0.0114 J | 0.0316 | 0.0137 J | NA |
| **Additional Parameters** | | | | | | | | | | | | |
| Ammonia Nitrogen | 7664-41-7 | mg/l | N | NA | NA | NA | 0.050 U | 0.050 U | NA | NA | NA | NA |
| Bicarbonate Alkalinity | -- | mg/l as $CaCO_3$ | N | NA | NA | NA | 10.3 | 7.7 | NA | NA | NA | NA |
| Chloride | 16887-00-6 | mg/l | N | NA | NA | NA | 115 | 93.3 | NA | NA | NA | NA |
| Kjeldahl Nitrogen | -- | mg/l | N | NA | NA | NA | 0.50 U | 0.60 J | NA | NA | NA | NA |
| Nitrate Nitrogen | 14797-55-8 | mg/l | N | NA | NA | NA | 1.8 | 1.7 | NA | NA | NA | NA |
| Nitrite Nitrogen | 14797-65-0 | mg/l | N | NA | NA | NA | 0.25 U | 0.25 U | NA | NA | NA | NA |
| Sulfate | 14808-79-8 | mg/l | N | NA | NA | NA | 6.3 | 7 | NA | NA | NA | NA |
| Sulfite | 14265-45-3 | mg/l | N | NA | NA | NA | 1.5 U | 1.5 U | NA | NA | NA | NA |
| Total Alkalinity to pH 4.5 | -- | mg/l as $CaCO_3$ | N | NA | NA | NA | 10.3 | 7.7 | NA | NA | NA | NA |
| Total Suspended Solids | -- | mg/l | N | NA | NA | NA | 1.04 J | 1.00 U | NA | NA | NA | NA |

Notes:
1. Golder collected groundwater samples from temporary monitoring wells on the dates indicated. Samples were submitted to Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania for analysis. Data is not validated to date.

Prepared by: MLS
Reviewed by: SJS

**Abbreviations:**
$CaCO_3$ = Calcium Carbonate
FD = Field duplicate sample
N = Normal (primary) sample
NA = Not analyzed
SU = Standard Units (pH)
Units: mg/l = milligrams per liter

**Qualifiers:**
U = The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

**TABLE 5: Temporary Monitoring Well Groundwater Elevations**
**Saint-Gobain Performance Plastics**
**Merrimack, New Hampshire**

| | | 09/25/2018 | | 10/05/2018 | | 11/15/2018 | |
|---|---|---|---|---|---|---|---|
| **Location ID** | **Reference Elevation (ft amsl)** | **DTW (ft)** | **Elevation (ft amsl)** | **DTW (ft)** | **Elevation (ft amsl)** | **DTW (ft)** | **Elevation (ft amsl)** |
| TMW-A | 185.02 | 13.18 | 171.84 | 13.08 | 171.94 | 12.26 | 172.76 |
| TMW-B | 185.43 | 13.10 | 172.33 | 12.99 | 172.44 | 12.07 | 173.36 |
| TMW-C | 187.08 | 12.30 | 174.78 | 12.20 | 174.88 | 11.24 | 175.84 |
| TMW-D | 186.24 | 10.75 | 175.49 | 10.58 | 175.66 | 9.58 | 176.66 |
| TMW-E | 184.37 | 8.19 | 176.18 | 8.04 | 176.33 | 7.05 | 177.32 |
| TMW-F | 183.91 | 7.62 | 176.29 | 7.55 | 176.36 | 6.45 | 177.46 |
| TMW-G | 187.08 | 8.88 | 178.20 | 8.58 | 178.50 | 7.07 | 180.01 |
| TMW-H | 180.89 | NM | NM | 3.95 | 176.94 | 2.72 | 178.17 |

Notes:
1. Groundwater elevation data collected by Golder
2. DTW = depth to water
   ft = feet
   amsl = above mean sea level

Prepared by: MLS
Reviewed by: RWB

# Attachment A - Temporary Well Laboratory Analytical Reports

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REVISED

# ANALYSIS REPORT

Prepared by:

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

Prepared for:

Golder Associates
670 North Commercial Street
Suite 103
Manchester NH 03101

Report Date: November 05, 2018 12:18

**Project: SGPP-Merrimack NH**

Account #: 10253
Group Number: 1998361
SDG: GOA40
PO Number: PROJECT: 166-8623
State of Sample Origin: NH

| | | |
|---|---|---|
| Electronic Copy To | Golder Associates | Attn: Jim Peace |
| Electronic Copy To | Environmental Standards | Attn: Meg Michell |
| Electronic Copy To | Environmental Standards | Attn: SaintGobain |
| Electronic Copy To | Golder Associates | Attn: Ross Bennett |
| Electronic Copy To | Golder Associates | Attn: Scott Drew |
| Electronic Copy To | Golder Associates | Attn: Jen Fisher |
| Electronic Copy To | Golder Associates | Attn: McKenzie Sheldon |

Respectfully Submitted,

Kay Hower

(717) 556-7364

To view our laboratory's current scopes of accreditation please go to http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . Historical copies may be requested through your project manager.

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## SAMPLE INFORMATION

| Client Sample Description | Sample Collection Date/Time | ELLE# |
|---|---|---|
| TMW-A Grab Groundwater | 10/10/2018 11:46 | 9851709 |
| TMW-B Grab Groundwater | 10/10/2018 13:35 | 9851710 |
| TMW-C Grab Groundwater | 10/10/2018 15:50 | 9851711 |
| TMW-E Grab Groundwater | 10/11/2018 10:55 | 9851712 |
| TMW-F Grab Groundwater | 10/11/2018 13:40 | 9851713 |
| TMW-G Grab Groundwater | 10/12/2018 11:15 | 9851714 |
| FB-1 Grab Water | 10/10/2018 16:25 | 9851715 |
| FB-2 Grab Water | 10/11/2018 14:25 | 9851716 |
| EB-1 Grab Water | 10/10/2018 16:20 | 9851717 |
| TB-1 Water | 10/12/2018 15:30 | 9851718 |

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

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Project Name: SGPP-Merrimack NH
ELLE Group #: 1998361

**General Comments:**

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if 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.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

**Analysis Specific Comments:**

**SW-846 8260C, GC/MS Volatiles**

Sample #s: 9851711

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Batch #: E182961AA (Sample number(s): 9851711 UNSPK: P847515)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: 2-Hexanone

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Chloroform, 1,1,1-Trichloroethane, Carbon Tetrachloride, 1,2-Dichloroethane, 1,2-Dichloropropane, Bromodichloromethane, Toluene, Tetrachloroethene, trans-1,3-Dichloropropene, cis-1,3-Dichloropropene, 4-Methyl-2-pentanone, Cyclohexane, Methyl Acetate, Chloromethane, 1,1-Dichloroethane, 1,1,2-Trichloroethane, Dibromochloromethane, 1,2-Dibromoethane, 2-Butanone, 2-Hexanone

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Methyl Acetate, Chloromethane, 2-Hexanone

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) MS, MSD

Batch #: L182984AA (Sample number(s): 9851714, 9851718 UNSPK: P851737)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Isopropylbenzene, Ethylbenzene, m+p-Xylene

**SW-846 8270D, GC/MS Semivolatiles**

Batch #: 18288WAN026 (Sample number(s): 9851711-9851713 UNSPK: P851220)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Isophorone

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Isophorone

Batch #: 18290WAF026 (Sample number(s): 9851714 UNSPK: P854805)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: 4-Methylphenol, 2-Chlorophenol, 2,4-Dichlorophenol, 4-Chloro-3-methylphenol, 2-Methylphenol

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 4-Methylphenol, Phenol

**EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous**

Sample #s: 9851709, 9851712, 9851713, 9851715, 9851716, 9851717, 9851718

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

Sample #s: 9851710, 9851711, 9851714

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

The recovery of several labeled compounds used as extraction standards are outside of QC acceptance limits due to the matrix of the sample.

Batch #: 18289002 (Sample number(s): 9851709-9851718)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NMePFOSA

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9851710, 9851711, 9851714

**SW-846 6010C, Metals**

Batch #: 182881063601 (Sample number(s): 9851711-9851714 UNSPK: P848116 BKG: P848116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Iron, Sodium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

eurofins | Lancaster Laboratories Environmental

November 6, 2018

Mr. Ross Bennett
Golder Associates
Suite 103
670 North Commercial Street
Manchester NH 03101

Dear Mr. Bennett;

I am writing to inform you of revised analytical reports that are being issued for the following:

**Project: SGPP-Merrimack NH**
**Group No.: 1998361** **SDG No.: GOA40**

| ELLE Sample No. | Client Sample Identification | Collection Date |
|---|---|---|
| 9851714 | TMW-G Grab Groundwater | 10/12/2018 |

The correction to the data affects the SW-846 8270D analysis only.

During an additional review of the data it was determined that N-Nitrosodiphenylamine was reported as a detection in error. The previous result of 1 µg/L has been updated to non-detect. The revised analytical report reflects this correction and is enclosed.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1369. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Holly Ziegler
Senior Specialist
GC/MS Semivolatiles

HZ/jll
Enclosures

cc: Kay G. Hower

REVISED

**Sample Description:** **TMW-A Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 11:46
SDG#: GOA40-01

**Golder Associates**
**ELLE Sample #: WW 9851709**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.85 U | 0.85 | 2.5 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.5 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 2.3 | 0.25 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 45 | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 1.2 J | 0.76 | 1.7 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 55 | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 9.2 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 130 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 7.9 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 25 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 310 | 0.25 | 0.85 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 110 | 1.7 | 5.1 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 21:28 | Devon M Whooley | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |

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

REVISED

**Sample Description:** **TMW-B Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 13:35
SDG#: GOA40-02

**Golder Associates**
**ELLE Sample #: WW 9851710**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.85 U | 0.85 | 2.5 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.5 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 2.8 | 0.25 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 310 | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.76 U | 0.76 | 1.7 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 260 | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 43 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 900 | 3.4 | 17 | 10 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 92 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 120 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 2,800 | 2.5 | 8.5 | 10 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1,800 | 17 | 51 | 10 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

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

The recovery of several labeled compounds used as extraction standards are outside of QC acceptance limits due to the matrix of the sample.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 21:46 | Devon M Whooley | 1 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/19/2018 09:09 | Marissa C Drexinger | 10 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |

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

REVISED

**Sample Description:** **TMW-C Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 15:50
SDG#: GOA40-03

**Golder Associates**
**ELLE Sample #: WW 9851711**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

REVISED

**Sample Description:** **TMW-C Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 15:50
SDG#: GOA40-03

**Golder Associates**
**ELLE Sample #: WW 9851711**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Acenaphthene | 83-32-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acenaphthylene | 208-96-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acetophenone | 98-86-2 | 4 U | 4 | 10 | 1 |
| 14242 | Anthracene | 120-12-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Atrazine | 1912-24-9 | 2 U | 2 | 5 | 1 |
| 14242 | Benzaldehyde | 100-52-7 | 3 U | 3 | 10 | 1 |
| 14242 | Benzo(a)anthracene | 56-55-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(a)pyrene | 50-32-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(b)fluoranthene | 205-99-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(g,h,i)perylene | 191-24-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(k)fluoranthene | 207-08-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,1'-Biphenyl | 92-52-4 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Bromophenyl-phenylether | 101-55-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Butylbenzylphthalate | 85-68-7 | 2 U | 2 | 5 | 1 |
| 14242 | Di-n-butylphthalate | 84-74-2 | 2 U | 2 | 5 | 1 |
| 14242 | Caprolactam | 105-60-2 | 5 U | 5 | 11 | 1 |
| 14242 | Carbazole | 86-74-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloro-3-methylphenol | 59-50-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloroaniline | 106-47-8 | 4 U | 4 | 10 | 1 |
| 14242 | bis(2-Chloroethoxy)methane | 111-91-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | bis(2-Chloroethyl)ether | 111-44-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Chloronaphthalene | 91-58-7 | 0.4 U | 0.4 | 1 | 1 |
| 14242 | 2-Chlorophenol | 95-57-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chlorophenyl-phenylether | 7005-72-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,2'-oxybis(1-Chloropropane) | 108-60-1 | 0.5 U | 0.5 | 2 | 1 |

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

REVISED

**Sample Description:** **TMW-C Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 15:50
SDG#: GOA40-03

**Golder Associates**
**ELLE Sample #: WW 9851711**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| | Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds. | | | | | |
| 14242 | Chrysene | 218-01-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenz(a,h)anthracene | 53-70-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenzofuran | 132-64-9 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 3,3'-Dichlorobenzidine | 91-94-1 | 3 U | 3 | 10 | 1 |
| 14242 | 2,4-Dichlorophenol | 120-83-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Diethylphthalate | 84-66-2 | 2 U | 2 | 5 | 1 |
| 14242 | 2,4-Dimethylphenol | 105-67-9 | 3 U | 3 | 10 | 1 |
| 14242 | Dimethylphthalate | 131-11-3 | 2 U | 2 | 5 | 1 |
| 14242 | 4,6-Dinitro-2-methylphenol | 534-52-1 | 8 U | 8 | 21 | 1 |
| 14242 | 2,4-Dinitrophenol | 51-28-5 | 14 U | 14 | 30 | 1 |
| 14242 | 2,4-Dinitrotoluene | 121-14-2 | 1 U | 1 | 5 | 1 |
| 14242 | 2,6-Dinitrotoluene | 606-20-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 1,4-Dioxane | 123-91-1 | 2 U | 2 | 5 | 1 |
| 14242 | bis(2-Ethylhexyl)phthalate | 117-81-7 | 5 U | 5 | 11 | 1 |
| 14242 | Fluoranthene | 206-44-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Fluorene | 86-73-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobenzene | 118-74-1 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobutadiene | 87-68-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Hexachlorocyclopentadiene | 77-47-4 | 5 U | 5 | 11 | 1 |
| 14242 | Hexachloroethane | 67-72-1 | 1 U | 1 | 5 | 1 |
| 14242 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Isophorone | 78-59-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Methylnaphthalene | 91-57-6 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Methylphenol | 95-48-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Methylphenol | 106-44-5 | 0.5 U | 0.5 | 2 | 1 |
| | 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds. | | | | | |
| 14242 | Naphthalene | 91-20-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Nitroaniline | 88-74-4 | 2 U | 2 | 7 | 1 |
| 14242 | 3-Nitroaniline | 99-09-2 | 3 U | 3 | 7 | 1 |
| 14242 | 4-Nitroaniline | 100-01-6 | 0.9 U | 0.9 | 3 | 1 |
| 14242 | Nitrobenzene | 98-95-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Nitrophenol | 88-75-5 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Nitrophenol | 100-02-7 | 10 U | 10 | 30 | 1 |
| 14242 | N-Nitroso-di-n-propylamine | 621-64-7 | 0.7 U | 0.7 | 3 | 1 |
| 14242 | N-Nitrosodiphenylamine | 86-30-6 | 0.7 U | 0.7 | 3 | 1 |

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

REVISED

**Sample Description:** **TMW-C Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 15:50
SDG#: GOA40-03

**Golder Associates**
**ELLE Sample #: WW 9851711**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| | N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds. | | | | | |
| 14242 | Di-n-octylphthalate | 117-84-0 | 5 U | 5 | 11 | 1 |
| 14242 | Pentachlorophenol | 87-86-5 | 1 U | 1 | 5 | 1 |
| 14242 | Phenanthrene | 85-01-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Phenol | 108-95-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Pyrene | 129-00-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 4 U | 4 | 10 | 1 |
| 14242 | 2,4,5-Trichlorophenol | 95-95-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,4,6-Trichlorophenol | 88-06-2 | 0.5 U | 0.5 | 2 | 1 |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 0.85 U | 0.85 | 2.5 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 0.85 U | 0.85 | 2.5 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 21 | 0.85 | 1.7 | 1 |
| 14473 | HFPODA | 13252-13-6 | 0.77 J | 0.42 | 1.7 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.25 U | 0.25 | 0.85 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.85 U | 0.85 | 2.5 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 2.5 U | 2.5 | 7.6 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.0 U | 1.0 | 2.5 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.5 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 2.5 U | 2.5 | 7.6 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 0.85 U | 0.85 | 2.5 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 5.4 | 0.25 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 110 | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.51 U | 0.51 | 1.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.76 U | 0.76 | 1.7 | 1 |

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

REVISED

**Sample Description:** **TMW-C Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 15:50
SDG#: GOA40-03

**Golder Associates**
**ELLE Sample #: WW 9851711**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 1.3 J | 0.34 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 170 | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 5.8 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 300 | 3.4 | 17 | 10 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.51 U | 0.51 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 22 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 0.42 U | 0.42 | 2.5 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 59 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 1,300 | 2.5 | 8.5 | 10 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 1.2 J | 0.34 | 1.7 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 290 | 1.7 | 5.1 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

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

The recovery of several labeled compounds used as extraction standards are outside of QC acceptance limits due to the matrix of the sample.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010C** | | **mg/l** | **mg/l** | **mg/l** | |
| 01743 | Aluminum | 7429-90-5 | 0.153 U | 0.153 | 0.300 | 1 |
| 01750 | Calcium | 7440-70-2 | 17.9 | 0.0330 | 0.500 | 1 |
| 01754 | Iron | 7439-89-6 | 0.0400 U | 0.0400 | 0.200 | 1 |
| 01757 | Magnesium | 7439-95-4 | 4.37 | 0.0190 | 0.100 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.0513 | 0.0011 | 0.0200 | 1 |
| 01762 | Potassium | 7440-09-7 | 3.11 | 0.203 | 0.500 | 1 |
| 01767 | Sodium | 7440-23-5 | 108 | 0.326 | 1.00 | 1 |
| 07072 | Zinc | 7440-66-6 | 0.0036 J | 0.0030 | 0.0200 | 1 |
| | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06024 | Antimony | 7440-36-0 | 0.00041 U | 0.00041 | 0.0020 | 1 |
| 06025 | Arsenic | 7440-38-2 | 0.00068 U | 0.00068 | 0.0020 | 1 |
| 06026 | Barium | 7440-39-3 | 0.0321 | 0.00075 | 0.0040 | 1 |
| 06027 | Beryllium | 7440-41-7 | 0.000091 U | 0.000091 | 0.00050 | 1 |
| 06028 | Cadmium | 7440-43-9 | 0.00015 U | 0.00015 | 0.0010 | 1 |
| 06031 | Chromium | 7440-47-3 | 0.00070 U | 0.00070 | 0.0040 | 1 |

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

REVISED

**Sample Description:** **TMW-C Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 15:50
SDG#: GOA40-03

**Golder Associates**
**ELLE Sample #: WW 9851711**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06032 | Cobalt | 7440-48-4 | 0.00016 U | 0.00016 | 0.0010 | 1 |
| 06033 | Copper | 7440-50-8 | 0.0099 U | 0.0099 | 0.0400 | 1 |
| 06035 | Lead | 7439-92-1 | 0.0011 U | 0.0011 | 0.0030 | 1 |
| 06039 | Nickel | 7440-02-0 | 0.00060 U | 0.00060 | 0.0040 | 1 |
| 06041 | Selenium | 7782-49-2 | 0.00065 U | 0.00065 | 0.0020 | 1 |
| 06042 | Silver | 7440-22-4 | 0.00017 U | 0.00017 | 0.00050 | 1 |
| 06045 | Thallium | 7440-28-0 | 0.00011 U | 0.00011 | 0.00050 | 1 |
| 06048 | Vanadium | 7440-62-2 | 0.00024 U | 0.00024 | 0.0010 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | 0.000050 U | 0.000050 | 0.00020 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | E182961AA | 10/23/2018 23:53 | Angela D Sneeringer | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | E182961AA | 10/23/2018 23:53 | Angela D Sneeringer | 1 |
| 14242 | TC: SVOA 8270D | SW-846 8270D | 1 | 18288WAN026 | 10/19/2018 20:04 | Linda M Hartenstine | 1 |
| 00813 | BNA Water Extraction | SW-846 3510C | 1 | 18288WAN026 | 10/16/2018 09:00 | Joshua S Ruth | 1 |
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 21:55 | Jason W Knight | 1 |
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/19/2018 09:18 | Jason W Knight | 10 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |
| 01743 | Aluminum | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 01750 | Calcium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 01754 | Iron | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 01757 | Magnesium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 07058 | Manganese | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 01762 | Potassium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 01767 | Sodium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 07072 | Zinc | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:00 | Elaine F Stoltzfus | 1 |
| 06024 | Antimony | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06025 | Arsenic | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06026 | Barium | SW-846 6020A | 1 | 182881063902D | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06027 | Beryllium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06028 | Cadmium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06031 | Chromium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06032 | Cobalt | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06033 | Copper | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06035 | Lead | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06039 | Nickel | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06041 | Selenium | SW-846 6020A | 1 | 182881063902B | 10/17/2018 12:16 | Choon Y Tian | 1 |
| 06042 | Silver | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:06 | Choon Y Tian | 1 |

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

REVISED

**Sample Description:** **TMW-C Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 15:50
SDG#: GOA40-03

**Golder Associates**
**ELLE Sample #: WW 9851711**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06045 | Thallium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:53 | Choon Y Tian | 1 |
| 06048 | Vanadium | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:06 | Choon Y Tian | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 182880571310 | 10/18/2018 12:53 | Damary Valentin | 1 |
| 10636 | ICP-WW/TL, 3010A (tot) - U4 | SW-846 3010A | 1 | 182881063601 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 10639 | ICPMS - Water, 3020A - U4 | SW-846 3020A | 1 | 182881063902 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 182880571310 | 10/18/2018 08:31 | James L Mertz | 1 |

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

REVISED

**Sample Description:** **TMW-E Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 10:55
SDG#: GOA40-04

**Golder Associates**
**ELLE Sample #: WW 9851712**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

REVISED

**Sample Description:** **TMW-E Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 10:55
SDG#: GOA40-04

**Golder Associates**
**ELLE Sample #: WW 9851712**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Acenaphthene | 83-32-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acenaphthylene | 208-96-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acetophenone | 98-86-2 | 4 U | 4 | 10 | 1 |
| 14242 | Anthracene | 120-12-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Atrazine | 1912-24-9 | 2 U | 2 | 5 | 1 |
| 14242 | Benzaldehyde | 100-52-7 | 3 U | 3 | 10 | 1 |
| 14242 | Benzo(a)anthracene | 56-55-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(a)pyrene | 50-32-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(b)fluoranthene | 205-99-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(g,h,i)perylene | 191-24-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(k)fluoranthene | 207-08-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,1'-Biphenyl | 92-52-4 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Bromophenyl-phenylether | 101-55-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Butylbenzylphthalate | 85-68-7 | 2 U | 2 | 5 | 1 |
| 14242 | Di-n-butylphthalate | 84-74-2 | 2 U | 2 | 5 | 1 |
| 14242 | Caprolactam | 105-60-2 | 5 U | 5 | 11 | 1 |
| 14242 | Carbazole | 86-74-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloro-3-methylphenol | 59-50-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloroaniline | 106-47-8 | 4 U | 4 | 10 | 1 |
| 14242 | bis(2-Chloroethoxy)methane | 111-91-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | bis(2-Chloroethyl)ether | 111-44-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Chloronaphthalene | 91-58-7 | 0.4 U | 0.4 | 1 | 1 |
| 14242 | 2-Chlorophenol | 95-57-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chlorophenyl-phenylether | 7005-72-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,2'-oxybis(1-Chloropropane) | 108-60-1 | 0.5 U | 0.5 | 2 | 1 |
| | Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds. | | | | | |
| 14242 | Chrysene | 218-01-9 | 0.1 U | 0.1 | 0.5 | 1 |

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

REVISED

**Sample Description:** **TMW-E Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 10:55
SDG#: GOA40-04

**Golder Associates**
**ELLE Sample #: WW 9851712**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Dibenz(a,h)anthracene | 53-70-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenzofuran | 132-64-9 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 3,3'-Dichlorobenzidine | 91-94-1 | 3 U | 3 | 10 | 1 |
| 14242 | 2,4-Dichlorophenol | 120-83-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Diethylphthalate | 84-66-2 | 2 U | 2 | 5 | 1 |
| 14242 | 2,4-Dimethylphenol | 105-67-9 | 3 U | 3 | 10 | 1 |
| 14242 | Dimethylphthalate | 131-11-3 | 2 U | 2 | 5 | 1 |
| 14242 | 4,6-Dinitro-2-methylphenol | 534-52-1 | 8 U | 8 | 21 | 1 |
| 14242 | 2,4-Dinitrophenol | 51-28-5 | 14 U | 14 | 30 | 1 |
| 14242 | 2,4-Dinitrotoluene | 121-14-2 | 1 U | 1 | 5 | 1 |
| 14242 | 2,6-Dinitrotoluene | 606-20-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 1,4-Dioxane | 123-91-1 | 2 U | 2 | 5 | 1 |
| 14242 | bis(2-Ethylhexyl)phthalate | 117-81-7 | 5 U | 5 | 11 | 1 |
| 14242 | Fluoranthene | 206-44-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Fluorene | 86-73-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobenzene | 118-74-1 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobutadiene | 87-68-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Hexachlorocyclopentadiene | 77-47-4 | 5 U | 5 | 11 | 1 |
| 14242 | Hexachloroethane | 67-72-1 | 1 U | 1 | 5 | 1 |
| 14242 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Isophorone | 78-59-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Methylnaphthalene | 91-57-6 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Methylphenol | 95-48-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Methylphenol | 106-44-5 | 0.5 U | 0.5 | 2 | 1 |
| | 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds. | | | | | |
| 14242 | Naphthalene | 91-20-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Nitroaniline | 88-74-4 | 2 U | 2 | 7 | 1 |
| 14242 | 3-Nitroaniline | 99-09-2 | 3 U | 3 | 7 | 1 |
| 14242 | 4-Nitroaniline | 100-01-6 | 0.9 U | 0.9 | 3 | 1 |
| 14242 | Nitrobenzene | 98-95-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Nitrophenol | 88-75-5 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Nitrophenol | 100-02-7 | 10 U | 10 | 30 | 1 |
| 14242 | N-Nitroso-di-n-propylamine | 621-64-7 | 0.7 U | 0.7 | 3 | 1 |
| 14242 | N-Nitrosodiphenylamine | 86-30-6 | 0.7 U | 0.7 | 3 | 1 |
| | N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds. | | | | | |
| 14242 | Di-n-octylphthalate | 117-84-0 | 5 U | 5 | 11 | 1 |
| 14242 | Pentachlorophenol | 87-86-5 | 1 U | 1 | 5 | 1 |
| 14242 | Phenanthrene | 85-01-8 | 0.1 U | 0.1 | 0.5 | 1 |

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

REVISED

**Sample Description:** **TMW-E Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 10:55
SDG#: GOA40-04

**Golder Associates**
**ELLE Sample #: WW 9851712**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Phenol | 108-95-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Pyrene | 129-00-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 4 U | 4 | 10 | 1 |
| 14242 | 2,4,5-Trichlorophenol | 95-95-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,4,6-Trichlorophenol | 88-06-2 | 0.5 U | 0.5 | 2 | 1 |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 8.5 U | 8.5 | 25 | 10 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 8.5 U | 8.5 | 25 | 10 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 4.1 J | 2.5 | 8.5 | 10 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1,300 | 17 | 51 | 10 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 660 | 7.6 | 17 | 10 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 4.2 U | 4.2 | 17 | 10 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 900 | 3.4 | 8.5 | 10 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 28 | 3.4 | 17 | 10 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 2,700 | 3.4 | 17 | 10 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 110 | 3.4 | 17 | 10 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 880 | 3.4 | 17 | 10 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 5,100 | 25 | 85 | 100 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 3,700 | 170 | 510 | 100 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 2.5 U | 2.5 | 8.5 | 10 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 3.4 U | 3.4 | 8.5 | 10 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 3.4 J | 3.4 | 17 | 10 |
| | The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits. | | | | | |
| **Metals** | **SW-846 6010C** | | **mg/l** | **mg/l** | **mg/l** | |
| 01743 | Aluminum | 7429-90-5 | 0.153 U | 0.153 | 0.300 | 1 |
| 01750 | Calcium | 7440-70-2 | 2.56 | 0.0330 | 0.500 | 1 |
| 01754 | Iron | 7439-89-6 | 0.0400 U | 0.0400 | 0.200 | 1 |
| 01757 | Magnesium | 7439-95-4 | 0.220 | 0.0190 | 0.100 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.0092 J | 0.0011 | 0.0200 | 1 |
| 01762 | Potassium | 7440-09-7 | 1.03 | 0.203 | 0.500 | 1 |
| 01767 | Sodium | 7440-23-5 | 5.53 | 0.326 | 1.00 | 1 |
| 07072 | Zinc | 7440-66-6 | 0.0114 J | 0.0030 | 0.0200 | 1 |
| | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06024 | Antimony | 7440-36-0 | 0.00041 U | 0.00041 | 0.0020 | 1 |

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

REVISED

**Sample Description:** **TMW-E Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 10:55
SDG#: GOA40-04

**Golder Associates**
**ELLE Sample #: WW 9851712**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | | **SW-846 6020A** | **mg/l** | **mg/l** | **mg/l** | |
| 06025 | Arsenic | 7440-38-2 | 0.00068 U | 0.00068 | 0.0020 | 1 |
| 06026 | Barium | 7440-39-3 | 0.0057 | 0.00075 | 0.0040 | 1 |
| 06027 | Beryllium | 7440-41-7 | 0.000091 U | 0.000091 | 0.00050 | 1 |
| 06028 | Cadmium | 7440-43-9 | 0.00015 U | 0.00015 | 0.0010 | 1 |
| 06031 | Chromium | 7440-47-3 | 0.00070 U | 0.00070 | 0.0040 | 1 |
| 06032 | Cobalt | 7440-48-4 | 0.00016 J | 0.00016 | 0.0010 | 1 |
| 06033 | Copper | 7440-50-8 | 0.0099 U | 0.0099 | 0.0400 | 1 |
| 06035 | Lead | 7439-92-1 | 0.0011 U | 0.0011 | 0.0030 | 1 |
| 06039 | Nickel | 7440-02-0 | 0.00070 J | 0.00060 | 0.0040 | 1 |
| 06041 | Selenium | 7782-49-2 | 0.00065 U | 0.00065 | 0.0020 | 1 |
| 06042 | Silver | 7440-22-4 | 0.00017 U | 0.00017 | 0.00050 | 1 |
| 06045 | Thallium | 7440-28-0 | 0.00011 U | 0.00011 | 0.00050 | 1 |
| 06048 | Vanadium | 7440-62-2 | 0.00024 U | 0.00024 | 0.0010 | 1 |
| | | **SW-846 7470A** | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | 0.000050 U | 0.000050 | 0.00020 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | L182971AA | 10/24/2018 14:40 | Abigail Roselli | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L182971AA | 10/24/2018 14:40 | Abigail Roselli | 1 |
| 14242 | TC: SVOA 8270D | SW-846 8270D | 1 | 18288WAN026 | 10/19/2018 20:31 | Linda M Hartenstine | 1 |
| 00813 | BNA Water Extraction | SW-846 3510C | 1 | 18288WAN026 | 10/16/2018 09:00 | Joshua S Ruth | 1 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/19/2018 09:27 | Marissa C Drexinger | 10 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/19/2018 09:54 | Marissa C Drexinger | 100 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |
| 01743 | Aluminum | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:02 | Elaine F Stoltzfus | 1 |
| 01750 | Calcium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:02 | Elaine F Stoltzfus | 1 |
| 01754 | Iron | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:02 | Elaine F Stoltzfus | 1 |
| 01757 | Magnesium | SW-846 6010C | 1 | 182881063601 | 10/25/2018 21:00 | Elaine F Stoltzfus | 1 |
| 07058 | Manganese | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:02 | Elaine F Stoltzfus | 1 |
| 01762 | Potassium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:02 | Elaine F Stoltzfus | 1 |
| 01767 | Sodium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:02 | Elaine F Stoltzfus | 1 |
| 07072 | Zinc | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:02 | Elaine F Stoltzfus | 1 |
| 06024 | Antimony | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06025 | Arsenic | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06026 | Barium | SW-846 6020A | 1 | 182881063902D | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06027 | Beryllium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06028 | Cadmium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06031 | Chromium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |

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

REVISED

**Sample Description:** **TMW-E Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 10:55
SDG#: GOA40-04

**Golder Associates**
**ELLE Sample #: WW 9851712**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06032 | Cobalt | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06033 | Copper | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06035 | Lead | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06039 | Nickel | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06041 | Selenium | SW-846 6020A | 1 | 182881063902B | 10/17/2018 12:18 | Choon Y Tian | 1 |
| 06042 | Silver | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:08 | Choon Y Tian | 1 |
| 06045 | Thallium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:56 | Choon Y Tian | 1 |
| 06048 | Vanadium | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:08 | Choon Y Tian | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 182880571310 | 10/18/2018 12:55 | Damary Valentin | 1 |
| 10636 | ICP-WW/TL, 3010A (tot) - U4 | SW-846 3010A | 1 | 182881063601 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 10639 | ICPMS - Water, 3020A - U4 | SW-846 3020A | 1 | 182881063902 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 182880571310 | 10/18/2018 08:31 | James L Mertz | 1 |

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

REVISED

**Sample Description:** **TMW-F Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 13:40
SDG#: GOA40-05

**Golder Associates**
**ELLE Sample #: WW 9851713**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

REVISED

**Sample Description:** **TMW-F Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 13:40
SDG#: GOA40-05

**Golder Associates**
**ELLE Sample #: WW 9851713**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Acenaphthene | 83-32-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acenaphthylene | 208-96-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acetophenone | 98-86-2 | 4 U | 4 | 10 | 1 |
| 14242 | Anthracene | 120-12-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Atrazine | 1912-24-9 | 2 U | 2 | 5 | 1 |
| 14242 | Benzaldehyde | 100-52-7 | 3 U | 3 | 10 | 1 |
| 14242 | Benzo(a)anthracene | 56-55-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(a)pyrene | 50-32-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(b)fluoranthene | 205-99-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(g,h,i)perylene | 191-24-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(k)fluoranthene | 207-08-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,1'-Biphenyl | 92-52-4 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Bromophenyl-phenylether | 101-55-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Butylbenzylphthalate | 85-68-7 | 2 U | 2 | 5 | 1 |
| 14242 | Di-n-butylphthalate | 84-74-2 | 2 U | 2 | 5 | 1 |
| 14242 | Caprolactam | 105-60-2 | 5 U | 5 | 11 | 1 |
| 14242 | Carbazole | 86-74-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloro-3-methylphenol | 59-50-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloroaniline | 106-47-8 | 4 U | 4 | 10 | 1 |
| 14242 | bis(2-Chloroethoxy)methane | 111-91-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | bis(2-Chloroethyl)ether | 111-44-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Chloronaphthalene | 91-58-7 | 0.4 U | 0.4 | 1 | 1 |
| 14242 | 2-Chlorophenol | 95-57-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chlorophenyl-phenylether | 7005-72-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,2'-oxybis(1-Chloropropane) | 108-60-1 | 0.5 U | 0.5 | 2 | 1 |
| | Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds. | | | | | |
| 14242 | Chrysene | 218-01-9 | 0.1 U | 0.1 | 0.5 | 1 |

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

REVISED

**Sample Description:** **TMW-F Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 13:40
SDG#: GOA40-05

**Golder Associates**
**ELLE Sample #: WW 9851713**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Dibenz(a,h)anthracene | 53-70-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenzofuran | 132-64-9 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 3,3'-Dichlorobenzidine | 91-94-1 | 3 U | 3 | 10 | 1 |
| 14242 | 2,4-Dichlorophenol | 120-83-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Diethylphthalate | 84-66-2 | 2 U | 2 | 5 | 1 |
| 14242 | 2,4-Dimethylphenol | 105-67-9 | 3 U | 3 | 10 | 1 |
| 14242 | Dimethylphthalate | 131-11-3 | 2 U | 2 | 5 | 1 |
| 14242 | 4,6-Dinitro-2-methylphenol | 534-52-1 | 8 U | 8 | 21 | 1 |
| 14242 | 2,4-Dinitrophenol | 51-28-5 | 14 U | 14 | 30 | 1 |
| 14242 | 2,4-Dinitrotoluene | 121-14-2 | 1 U | 1 | 5 | 1 |
| 14242 | 2,6-Dinitrotoluene | 606-20-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 1,4-Dioxane | 123-91-1 | 2 U | 2 | 5 | 1 |
| 14242 | bis(2-Ethylhexyl)phthalate | 117-81-7 | 5 U | 5 | 11 | 1 |
| 14242 | Fluoranthene | 206-44-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Fluorene | 86-73-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobenzene | 118-74-1 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobutadiene | 87-68-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Hexachlorocyclopentadiene | 77-47-4 | 5 U | 5 | 11 | 1 |
| 14242 | Hexachloroethane | 67-72-1 | 1 U | 1 | 5 | 1 |
| 14242 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Isophorone | 78-59-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Methylnaphthalene | 91-57-6 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Methylphenol | 95-48-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Methylphenol | 106-44-5 | 0.5 U | 0.5 | 2 | 1 |
| | 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds. | | | | | |
| 14242 | Naphthalene | 91-20-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Nitroaniline | 88-74-4 | 2 U | 2 | 7 | 1 |
| 14242 | 3-Nitroaniline | 99-09-2 | 3 U | 3 | 7 | 1 |
| 14242 | 4-Nitroaniline | 100-01-6 | 0.9 U | 0.9 | 3 | 1 |
| 14242 | Nitrobenzene | 98-95-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Nitrophenol | 88-75-5 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Nitrophenol | 100-02-7 | 10 U | 10 | 30 | 1 |
| 14242 | N-Nitroso-di-n-propylamine | 621-64-7 | 0.7 U | 0.7 | 3 | 1 |
| 14242 | N-Nitrosodiphenylamine | 86-30-6 | 0.7 U | 0.7 | 3 | 1 |
| | N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds. | | | | | |
| 14242 | Di-n-octylphthalate | 117-84-0 | 5 U | 5 | 11 | 1 |
| 14242 | Pentachlorophenol | 87-86-5 | 1 U | 1 | 5 | 1 |
| 14242 | Phenanthrene | 85-01-8 | 0.1 U | 0.1 | 0.5 | 1 |

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

REVISED

**Sample Description:** **TMW-F Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 13:40
SDG#: GOA40-05

**Golder Associates**
**ELLE Sample #: WW 9851713**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Phenol | 108-95-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Pyrene | 129-00-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 4 U | 4 | 10 | 1 |
| 14242 | 2,4,5-Trichlorophenol | 95-95-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,4,6-Trichlorophenol | 88-06-2 | 0.5 U | 0.5 | 2 | 1 |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 2,400 | 8.5 | 26 | 10 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 8.5 U | 8.5 | 26 | 10 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 8.6 | 2.6 | 8.5 | 10 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1,300 | 17 | 51 | 10 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 950 | 7.7 | 17 | 10 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 31 | 4.3 | 17 | 10 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 730 | 3.4 | 8.5 | 10 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 36 | 3.4 | 17 | 10 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 1,700 | 3.4 | 17 | 10 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 400 | 3.4 | 17 | 10 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 1,300 | 3.4 | 17 | 10 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 4,700 | 26 | 85 | 100 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 2,700 | 17 | 51 | 10 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 2.6 U | 2.6 | 8.5 | 10 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 3.4 U | 3.4 | 8.5 | 10 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 97 | 3.4 | 17 | 10 |
| | The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits. | | | | | |
| **Metals** | **SW-846 6010C** | | **mg/l** | **mg/l** | **mg/l** | |
| 01743 | Aluminum | 7429-90-5 | 0.153 U | 0.153 | 0.300 | 1 |
| 01750 | Calcium | 7440-70-2 | 1.55 | 0.0330 | 0.500 | 1 |
| 01754 | Iron | 7439-89-6 | 0.0400 U | 0.0400 | 0.200 | 1 |
| 01757 | Magnesium | 7439-95-4 | 0.226 | 0.0190 | 0.100 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.165 | 0.0011 | 0.0200 | 1 |
| 01762 | Potassium | 7440-09-7 | 0.871 | 0.203 | 0.500 | 1 |
| 01767 | Sodium | 7440-23-5 | 4.90 | 0.326 | 1.00 | 1 |
| 07072 | Zinc | 7440-66-6 | 0.0316 | 0.0030 | 0.0200 | 1 |
| | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06024 | Antimony | 7440-36-0 | 0.00041 U | 0.00041 | 0.0020 | 1 |

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

REVISED

**Sample Description:** **TMW-F Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 13:40
SDG#: GOA40-05

**Golder Associates**
**ELLE Sample #: WW 9851713**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | | **SW-846 6020A** | **mg/l** | **mg/l** | **mg/l** | |
| 06025 | Arsenic | 7440-38-2 | 0.00068 U | 0.00068 | 0.0020 | 1 |
| 06026 | Barium | 7440-39-3 | 0.0048 | 0.00075 | 0.0040 | 1 |
| 06027 | Beryllium | 7440-41-7 | 0.000091 U | 0.000091 | 0.00050 | 1 |
| 06028 | Cadmium | 7440-43-9 | 0.00016 J | 0.00015 | 0.0010 | 1 |
| 06031 | Chromium | 7440-47-3 | 0.00070 U | 0.00070 | 0.0040 | 1 |
| 06032 | Cobalt | 7440-48-4 | 0.00091 J | 0.00016 | 0.0010 | 1 |
| 06033 | Copper | 7440-50-8 | 0.0099 U | 0.0099 | 0.0400 | 1 |
| 06035 | Lead | 7439-92-1 | 0.0011 U | 0.0011 | 0.0030 | 1 |
| 06039 | Nickel | 7440-02-0 | 0.0011 J | 0.00060 | 0.0040 | 1 |
| 06041 | Selenium | 7782-49-2 | 0.00065 U | 0.00065 | 0.0020 | 1 |
| 06042 | Silver | 7440-22-4 | 0.00017 U | 0.00017 | 0.00050 | 1 |
| 06045 | Thallium | 7440-28-0 | 0.00011 U | 0.00011 | 0.00050 | 1 |
| 06048 | Vanadium | 7440-62-2 | 0.00024 U | 0.00024 | 0.0010 | 1 |
| | | **SW-846 7470A** | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | 0.000050 U | 0.000050 | 0.00020 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | L182971AA | 10/24/2018 15:02 | Abigail Roselli | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L182971AA | 10/24/2018 15:02 | Abigail Roselli | 1 |
| 14242 | TC: SVOA 8270D | SW-846 8270D | 1 | 18288WAN026 | 10/19/2018 20:58 | Linda M Hartenstine | 1 |
| 00813 | BNA Water Extraction | SW-846 3510C | 1 | 18288WAN026 | 10/16/2018 09:00 | Joshua S Ruth | 1 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/19/2018 09:36 | Marissa C Drexinger | 10 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/19/2018 10:03 | Marissa C Drexinger | 100 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |
| 01743 | Aluminum | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:05 | Elaine F Stoltzfus | 1 |
| 01750 | Calcium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:05 | Elaine F Stoltzfus | 1 |
| 01754 | Iron | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:05 | Elaine F Stoltzfus | 1 |
| 01757 | Magnesium | SW-846 6010C | 1 | 182881063601 | 10/29/2018 17:32 | Elaine F Stoltzfus | 1 |
| 07058 | Manganese | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:05 | Elaine F Stoltzfus | 1 |
| 01762 | Potassium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:05 | Elaine F Stoltzfus | 1 |
| 01767 | Sodium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:05 | Elaine F Stoltzfus | 1 |
| 07072 | Zinc | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:05 | Elaine F Stoltzfus | 1 |
| 06024 | Antimony | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06025 | Arsenic | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06026 | Barium | SW-846 6020A | 1 | 182881063902D | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06027 | Beryllium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06028 | Cadmium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06031 | Chromium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |

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

REVISED

**Sample Description:** **TMW-F Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 13:40
SDG#: GOA40-05

**Golder Associates**
**ELLE Sample #: WW 9851713**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06032 | Cobalt | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06033 | Copper | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06035 | Lead | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06039 | Nickel | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06041 | Selenium | SW-846 6020A | 1 | 182881063902B | 10/17/2018 12:20 | Choon Y Tian | 1 |
| 06042 | Silver | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:10 | Choon Y Tian | 1 |
| 06045 | Thallium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 08:59 | Choon Y Tian | 1 |
| 06048 | Vanadium | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:10 | Choon Y Tian | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 182880571310 | 10/18/2018 12:57 | Damary Valentin | 1 |
| 10636 | ICP-WW/TL, 3010A (tot) - U4 | SW-846 3010A | 1 | 182881063601 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 10639 | ICPMS - Water, 3020A - U4 | SW-846 3020A | 1 | 182881063902 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 182880571310 | 10/18/2018 08:31 | James L Mertz | 1 |

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

REVISED

**Sample Description:** **TMW-G Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 11:15
SDG#: GOA40-06

**Golder Associates**
**ELLE Sample #: WW 9851714**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.9 | J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

REVISED

**Sample Description:** **TMW-G Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 11:15
SDG#: GOA40-06

**Golder Associates**
**ELLE Sample #: WW 9851714**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Acenaphthene | 83-32-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acenaphthylene | 208-96-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acetophenone | 98-86-2 | 4 U | 4 | 10 | 1 |
| 14242 | Anthracene | 120-12-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Atrazine | 1912-24-9 | 2 U | 2 | 5 | 1 |
| 14242 | Benzaldehyde | 100-52-7 | 3 U | 3 | 10 | 1 |
| 14242 | Benzo(a)anthracene | 56-55-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(a)pyrene | 50-32-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(b)fluoranthene | 205-99-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(g,h,i)perylene | 191-24-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(k)fluoranthene | 207-08-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,1'-Biphenyl | 92-52-4 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Bromophenyl-phenylether | 101-55-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Butylbenzylphthalate | 85-68-7 | 2 U | 2 | 5 | 1 |
| 14242 | Di-n-butylphthalate | 84-74-2 | 2 U | 2 | 5 | 1 |
| 14242 | Caprolactam | 105-60-2 | 5 U | 5 | 12 | 1 |
| 14242 | Carbazole | 86-74-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloro-3-methylphenol | 59-50-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloroaniline | 106-47-8 | 4 U | 4 | 10 | 1 |
| 14242 | bis(2-Chloroethoxy)methane | 111-91-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | bis(2-Chloroethyl)ether | 111-44-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Chloronaphthalene | 91-58-7 | 0.4 U | 0.4 | 1 | 1 |
| 14242 | 2-Chlorophenol | 95-57-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chlorophenyl-phenylether | 7005-72-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,2'-oxybis(1-Chloropropane) | 108-60-1 | 0.5 U | 0.5 | 2 | 1 |
| | Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds. | | | | | |
| 14242 | Chrysene | 218-01-9 | 0.1 U | 0.1 | 0.5 | 1 |

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

REVISED

**Sample Description:** **TMW-G Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 11:15
SDG#: GOA40-06

**Golder Associates**
**ELLE Sample #: WW 9851714**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Dibenz(a,h)anthracene | 53-70-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenzofuran | 132-64-9 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 3,3'-Dichlorobenzidine | 91-94-1 | 3 U | 3 | 10 | 1 |
| 14242 | 2,4-Dichlorophenol | 120-83-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Diethylphthalate | 84-66-2 | 2 U | 2 | 5 | 1 |
| 14242 | 2,4-Dimethylphenol | 105-67-9 | 3 U | 3 | 10 | 1 |
| 14242 | Dimethylphthalate | 131-11-3 | 2 U | 2 | 5 | 1 |
| 14242 | 4,6-Dinitro-2-methylphenol | 534-52-1 | 8 U | 8 | 22 | 1 |
| 14242 | 2,4-Dinitrophenol | 51-28-5 | 15 U | 15 | 31 | 1 |
| 14242 | 2,4-Dinitrotoluene | 121-14-2 | 1 U | 1 | 5 | 1 |
| 14242 | 2,6-Dinitrotoluene | 606-20-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 1,4-Dioxane | 123-91-1 | 2 U | 2 | 5 | 1 |
| 14242 | bis(2-Ethylhexyl)phthalate | 117-81-7 | 5 U | 5 | 12 | 1 |
| 14242 | Fluoranthene | 206-44-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Fluorene | 86-73-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobenzene | 118-74-1 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobutadiene | 87-68-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Hexachlorocyclopentadiene | 77-47-4 | 5 U | 5 | 12 | 1 |
| 14242 | Hexachloroethane | 67-72-1 | 1 U | 1 | 5 | 1 |
| 14242 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Isophorone | 78-59-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Methylnaphthalene | 91-57-6 | 0.2 J | 0.1 | 0.5 | 1 |
| 14242 | 2-Methylphenol | 95-48-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Methylphenol | 106-44-5 | 0.5 U | 0.5 | 2 | 1 |
| | 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds. | | | | | |
| 14242 | Naphthalene | 91-20-3 | 0.2 J | 0.1 | 0.5 | 1 |
| 14242 | 2-Nitroaniline | 88-74-4 | 2 U | 2 | 7 | 1 |
| 14242 | 3-Nitroaniline | 99-09-2 | 3 U | 3 | 7 | 1 |
| 14242 | 4-Nitroaniline | 100-01-6 | 0.9 U | 0.9 | 3 | 1 |
| 14242 | Nitrobenzene | 98-95-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Nitrophenol | 88-75-5 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Nitrophenol | 100-02-7 | 10 U | 10 | 31 | 1 |
| 14242 | N-Nitroso-di-n-propylamine | 621-64-7 | 0.7 U | 0.7 | 3 | 1 |
| 14242 | N-Nitrosodiphenylamine | 86-30-6 | 0.7 U | 0.7 | 3 | 1 |
| | N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds. | | | | | |
| 14242 | Di-n-octylphthalate | 117-84-0 | 5 U | 5 | 12 | 1 |
| 14242 | Pentachlorophenol | 87-86-5 | 1 U | 1 | 5 | 1 |
| 14242 | Phenanthrene | 85-01-8 | 0.1 U | 0.1 | 0.5 | 1 |

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

REVISED

**Sample Description:** **TMW-G Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 11:15
SDG#: GOA40-06

**Golder Associates**
**ELLE Sample #: WW 9851714**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Phenol | 108-95-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Pyrene | 129-00-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 4 U | 4 | 10 | 1 |
| 14242 | 2,4,5-Trichlorophenol | 95-95-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,4,6-Trichlorophenol | 88-06-2 | 0.5 U | 0.5 | 2 | 1 |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 1.7 J | 0.86 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.86 U | 0.86 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 3.1 | 0.26 | 0.86 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 120 | 1.7 | 5.2 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 13 | 0.77 | 1.7 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 130 | 0.34 | 0.86 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 6.5 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 220 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 66 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 150 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 670 | 2.6 | 8.6 | 10 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 210 | 1.7 | 5.2 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.86 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.86 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

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

The recovery of several labeled compounds used as extraction standards are outside of QC acceptance limits due to the matrix of the sample.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010C** | | **mg/l** | **mg/l** | **mg/l** | |
| 01743 | Aluminum | 7429-90-5 | 0.153 U | 0.153 | 0.300 | 1 |
| 01750 | Calcium | 7440-70-2 | 14.5 | 0.0330 | 0.500 | 1 |
| 01754 | Iron | 7439-89-6 | 0.0400 U | 0.0400 | 0.200 | 1 |
| 01757 | Magnesium | 7439-95-4 | 6.56 | 0.0190 | 0.100 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.102 | 0.0011 | 0.0200 | 1 |
| 01762 | Potassium | 7440-09-7 | 2.40 | 0.203 | 0.500 | 1 |
| 01767 | Sodium | 7440-23-5 | 20.0 | 0.326 | 1.00 | 1 |

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

REVISED

**Sample Description:** **TMW-G Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 11:15
SDG#: GOA40-06

**Golder Associates**
**ELLE Sample #: WW 9851714**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | | **SW-846 6010C** | **mg/l** | **mg/l** | **mg/l** | |
| 07072 | Zinc | 7440-66-6 | 0.0137 J | 0.0030 | 0.0200 | 1 |
| **Metals** | | **SW-846 6020A** | **mg/l** | **mg/l** | **mg/l** | |
| 06024 | Antimony | 7440-36-0 | 0.00041 U | 0.00041 | 0.0020 | 1 |
| 06025 | Arsenic | 7440-38-2 | 0.00068 U | 0.00068 | 0.0020 | 1 |
| 06026 | Barium | 7440-39-3 | 0.0112 | 0.00075 | 0.0040 | 1 |
| 06027 | Beryllium | 7440-41-7 | 0.000091 U | 0.000091 | 0.00050 | 1 |
| 06028 | Cadmium | 7440-43-9 | 0.00015 U | 0.00015 | 0.0010 | 1 |
| 06031 | Chromium | 7440-47-3 | 0.00070 U | 0.00070 | 0.0040 | 1 |
| 06032 | Cobalt | 7440-48-4 | 0.00016 U | 0.00016 | 0.0010 | 1 |
| 06033 | Copper | 7440-50-8 | 0.0099 U | 0.0099 | 0.0400 | 1 |
| 06035 | Lead | 7439-92-1 | 0.0011 U | 0.0011 | 0.0030 | 1 |
| 06039 | Nickel | 7440-02-0 | 0.00060 U | 0.00060 | 0.0040 | 1 |
| 06041 | Selenium | 7782-49-2 | 0.00065 U | 0.00065 | 0.0020 | 1 |
| 06042 | Silver | 7440-22-4 | 0.00017 U | 0.00017 | 0.00050 | 1 |
| 06045 | Thallium | 7440-28-0 | 0.00011 U | 0.00011 | 0.00050 | 1 |
| 06048 | Vanadium | 7440-62-2 | 0.00026 J | 0.00024 | 0.0010 | 1 |
| | | **SW-846 7470A** | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | 0.000050 U | 0.000050 | 0.00020 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | L182984AA | 10/26/2018 01:35 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L182984AA | 10/26/2018 01:35 | Corie Mellinger | 1 |
| 14242 | TC: SVOA 8270D | SW-846 8270D | 1 | 18290WAF026 | 10/19/2018 02:00 | Brandon K Cordova | 1 |
| 00813 | BNA Water Extraction | SW-846 3510C | 1 | 18290WAF026 | 10/17/2018 16:30 | Osvaldo R Sanchez | 1 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 22:22 | Devon M Whooley | 1 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/19/2018 09:45 | Marissa C Drexinger | 10 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |
| 01743 | Aluminum | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 01750 | Calcium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 01754 | Iron | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 01757 | Magnesium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 07058 | Manganese | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 01762 | Potassium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 01767 | Sodium | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 07072 | Zinc | SW-846 6010C | 1 | 182881063601 | 10/22/2018 16:08 | Elaine F Stoltzfus | 1 |
| 06024 | Antimony | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |

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

REVISED

**Sample Description:** **TMW-G Grab Groundwater SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 11:15
SDG#: GOA40-06

**Golder Associates**
**ELLE Sample #: WW 9851714**
**ELLE Group #: 1998361**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06025 | Arsenic | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06026 | Barium | SW-846 6020A | 1 | 182881063902D | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06027 | Beryllium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06028 | Cadmium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06031 | Chromium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06032 | Cobalt | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06033 | Copper | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06035 | Lead | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06039 | Nickel | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06041 | Selenium | SW-846 6020A | 1 | 182881063902B | 10/17/2018 12:23 | Choon Y Tian | 1 |
| 06042 | Silver | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:13 | Choon Y Tian | 1 |
| 06045 | Thallium | SW-846 6020A | 1 | 182881063902A | 10/16/2018 09:02 | Choon Y Tian | 1 |
| 06048 | Vanadium | SW-846 6020A | 1 | 182881063902A | 10/17/2018 07:13 | Choon Y Tian | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 182880571310 | 10/18/2018 12:59 | Damary Valentin | 1 |
| 10636 | ICP-WW/TL, 3010A (tot) - U4 | SW-846 3010A | 1 | 182881063601 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 10639 | ICPMS - Water, 3020A - U4 | SW-846 3020A | 1 | 182881063902 | 10/15/2018 15:05 | JoElla L Rice | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 182880571310 | 10/18/2018 08:31 | James L Mertz | 1 |

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

REVISED

**Sample Description:** **FB-1 Grab Water**
**SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 16:25
SDG#: GOA40-07FB

**Golder Associates**
**ELLE Sample #: WW 9851715**
**ELLE Group #: 1998361**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.85 U | 0.85 | 2.5 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.5 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.76 U | 0.76 | 1.7 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 22:31 | Devon M Whooley | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |

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

REVISED

**Sample Description:** **FB-2 Grab Water**
**SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/11/2018 14:25
SDG#: GOA40-08FB

**Golder Associates**
**ELLE Sample #: WW 9851716**
**ELLE Group #: 1998361**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.85 U | 0.85 | 2.5 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.5 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.76 U | 0.76 | 1.7 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.25 U | 0.25 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 22:40 | Devon M Whooley | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |

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

REVISED

**Sample Description:** **EB-1 Grab Water**
**SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/10/2018 16:20
SDG#: GOA40-09EB

**Golder Associates**
**ELLE Sample #: WW 9851717**
**ELLE Group #: 1998361**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.85 U | 0.85 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.26 U | 0.26 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.77 U | 0.77 | 1.7 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.26 U | 0.26 | 0.85 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 22:49 | Devon M Whooley | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |

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

REVISED

**Sample Description:** **TB-1 Water**
**SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 15:30
SDG#: GOA40-10TB

**Golder Associates**
**ELLE Sample #: WW 9851718**
**ELLE Group #: 1998361**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

REVISED

**Sample Description:** **TB-1 Water**
**SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 15:30
SDG#: GOA40-10TB

**Golder Associates**
**ELLE Sample #: WW 9851718**
**ELLE Group #: 1998361**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.94 U | 0.94 | 2.8 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.94 U | 0.94 | 2.8 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.28 U | 0.28 | 0.94 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.9 U | 1.9 | 5.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.85 U | 0.85 | 1.9 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.47 U | 0.47 | 1.9 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.38 U | 0.38 | 0.94 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.38 U | 0.38 | 1.9 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.38 U | 0.38 | 1.9 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.38 U | 0.38 | 1.9 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 0.38 U | 0.38 | 1.9 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.28 U | 0.28 | 0.94 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.9 U | 1.9 | 5.7 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.28 U | 0.28 | 0.94 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.38 U | 0.38 | 0.94 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.38 U | 0.38 | 1.9 | 1 |

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | L182984AA | 10/25/2018 21:57 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L182984AA | 10/25/2018 21:57 | Corie Mellinger | 1 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/17/2018 22:58 | Devon M Whooley | 1 |

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

REVISED

**Sample Description:** **TB-1 Water**
**SGPP**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/13/2018 09:30
Collection Date/Time: 10/12/2018 15:30
SDG#: GOA40-10TB

**Golder Associates**
**ELLE Sample #: WW 9851718**
**ELLE Group #: 1998361**
**Matrix: Water**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18289002 | 10/16/2018 08:00 | Courtney J Fatta | 1 |

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

REVISED

# Quality Control Summary

Client Name: Golder Associates
Group Number: 1998361
Reported: 11/05/2018 12:18

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 |
|---|---|---|---|---|
| | ug/l | | ug/l | ug/l |
| Batch number: E182961AA | Sample number(s): 9851711 | | | |
| Acetone | 0.7 | U | 0.7 | 20 |
| Benzene | 0.2 | U | 0.2 | 1 |
| Bromochloromethane | 0.2 | U | 0.2 | 5 |
| Bromodichloromethane | 0.2 | U | 0.2 | 1 |
| Bromoform | 0.2 | U | 0.2 | 4 |
| Bromomethane | 0.3 | U | 0.3 | 1 |
| 2-Butanone | 0.3 | U | 0.3 | 10 |
| Carbon Disulfide | 0.2 | U | 0.2 | 5 |
| Carbon Tetrachloride | 0.2 | U | 0.2 | 1 |
| Chlorobenzene | 0.2 | U | 0.2 | 1 |
| Chloroethane | 0.2 | U | 0.2 | 1 |
| Chloroform | 0.2 | U | 0.2 | 1 |
| Chloromethane | 0.2 | U | 0.2 | 1 |
| Cyclohexane | 0.2 | U | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | 0.3 | U | 0.3 | 5 |
| Dibromochloromethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dibromoethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,3-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,4-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| Dichlorodifluoromethane | 0.2 | U | 0.2 | 1 |
| 1,1-Dichloroethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloroethane | 0.3 | U | 0.3 | 1 |
| 1,1-Dichloroethene | 0.2 | U | 0.2 | 1 |
| cis-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| trans-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloropropane | 0.2 | U | 0.2 | 1 |
| cis-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| trans-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| Ethylbenzene | 0.4 | U | 0.4 | 1 |
| Freon 113 | 0.2 | U | 0.2 | 10 |
| 2-Hexanone | 0.3 | U | 0.3 | 10 |
| Isopropylbenzene | 0.2 | U | 0.2 | 5 |
| Methyl Acetate | 0.2 | U | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | 0.2 | U | 0.2 | 1 |
| 4-Methyl-2-pentanone | 0.5 | U | 0.5 | 10 |
| Methylcyclohexane | 0.2 | U | 0.2 | 5 |
| Methylene Chloride | 0.3 | U | 0.3 | 1 |
| Styrene | 0.2 | U | 0.2 | 5 |

*- 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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | | MDL** | LOQ |
|---|---|---|---|---|
| | ug/l | | ug/l | ug/l |
| 1,1,2,2-Tetrachloroethane | 0.2 | U | 0.2 | 1 |
| Tetrachloroethene | 0.2 | U | 0.2 | 1 |
| Toluene | 0.2 | U | 0.2 | 1 |
| 1,2,3-Trichlorobenzene | 0.4 | U | 0.4 | 5 |
| 1,2,4-Trichlorobenzene | 0.3 | U | 0.3 | 5 |
| 1,1,1-Trichloroethane | 0.3 | U | 0.3 | 1 |
| 1,1,2-Trichloroethane | 0.2 | U | 0.2 | 1 |
| Trichloroethene | 0.2 | U | 0.2 | 1 |
| Trichlorofluoromethane | 0.2 | U | 0.2 | 1 |
| Vinyl Chloride | 0.2 | U | 0.2 | 1 |
| m+p-Xylene | 1 | U | 1 | 5 |
| o-Xylene | 0.4 | U | 0.4 | 1 |
| Batch number: L182971AA | Sample number(s): 9851712-9851713 | | | |
| Acetone | 0.7 | U | 0.7 | 20 |
| Benzene | 0.2 | U | 0.2 | 1 |
| Bromochloromethane | 0.2 | U | 0.2 | 5 |
| Bromodichloromethane | 0.2 | U | 0.2 | 1 |
| Bromoform | 0.2 | U | 0.2 | 4 |
| Bromomethane | 0.3 | U | 0.3 | 1 |
| 2-Butanone | 0.3 | U | 0.3 | 10 |
| Carbon Disulfide | 0.2 | U | 0.2 | 5 |
| Carbon Tetrachloride | 0.2 | U | 0.2 | 1 |
| Chlorobenzene | 0.2 | U | 0.2 | 1 |
| Chloroethane | 0.2 | U | 0.2 | 1 |
| Chloroform | 0.2 | U | 0.2 | 1 |
| Chloromethane | 0.2 | U | 0.2 | 1 |
| Cyclohexane | 0.2 | U | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | 0.3 | U | 0.3 | 5 |
| Dibromochloromethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dibromoethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,3-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,4-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| Dichlorodifluoromethane | 0.2 | U | 0.2 | 1 |
| 1,1-Dichloroethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloroethane | 0.3 | U | 0.3 | 1 |
| 1,1-Dichloroethene | 0.2 | U | 0.2 | 1 |
| cis-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| trans-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloropropane | 0.2 | U | 0.2 | 1 |
| cis-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| trans-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| Ethylbenzene | 0.4 | U | 0.4 | 1 |
| Freon 113 | 0.2 | U | 0.2 | 10 |

*- 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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | | MDL** | LOQ |
|---|---|---|---|---|
| | ug/l | | ug/l | ug/l |
| 2-Hexanone | 0.3 | U | 0.3 | 10 |
| Isopropylbenzene | 0.2 | U | 0.2 | 5 |
| Methyl Acetate | 0.2 | U | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | 0.2 | U | 0.2 | 1 |
| 4-Methyl-2-pentanone | 0.5 | U | 0.5 | 10 |
| Methylcyclohexane | 0.2 | U | 0.2 | 5 |
| Methylene Chloride | 0.3 | U | 0.3 | 1 |
| Styrene | 0.2 | U | 0.2 | 5 |
| 1,1,2,2-Tetrachloroethane | 0.2 | U | 0.2 | 1 |
| Tetrachloroethene | 0.2 | U | 0.2 | 1 |
| Toluene | 0.2 | U | 0.2 | 1 |
| 1,2,3-Trichlorobenzene | 0.4 | U | 0.4 | 5 |
| 1,2,4-Trichlorobenzene | 0.3 | U | 0.3 | 5 |
| 1,1,1-Trichloroethane | 0.3 | U | 0.3 | 1 |
| 1,1,2-Trichloroethane | 0.2 | U | 0.2 | 1 |
| Trichloroethene | 0.2 | U | 0.2 | 1 |
| Trichlorofluoromethane | 0.2 | U | 0.2 | 1 |
| Vinyl Chloride | 0.2 | U | 0.2 | 1 |
| m+p-Xylene | 1 | U | 1 | 5 |
| o-Xylene | 0.4 | U | 0.4 | 1 |
| Batch number: L182984AA | Sample number(s): 9851714,9851718 | | | |
| Acetone | 0.7 | U | 0.7 | 20 |
| Benzene | 0.2 | U | 0.2 | 1 |
| Bromochloromethane | 0.2 | U | 0.2 | 5 |
| Bromodichloromethane | 0.2 | U | 0.2 | 1 |
| Bromoform | 0.2 | U | 0.2 | 4 |
| Bromomethane | 0.3 | U | 0.3 | 1 |
| 2-Butanone | 0.3 | U | 0.3 | 10 |
| Carbon Disulfide | 0.2 | U | 0.2 | 5 |
| Carbon Tetrachloride | 0.2 | U | 0.2 | 1 |
| Chlorobenzene | 0.2 | U | 0.2 | 1 |
| Chloroethane | 0.2 | U | 0.2 | 1 |
| Chloroform | 0.2 | U | 0.2 | 1 |
| Chloromethane | 0.2 | U | 0.2 | 1 |
| Cyclohexane | 0.2 | U | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | 0.3 | U | 0.3 | 5 |
| Dibromochloromethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dibromoethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,3-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,4-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| Dichlorodifluoromethane | 0.2 | U | 0.2 | 1 |
| 1,1-Dichloroethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloroethane | 0.3 | U | 0.3 | 1 |

*- 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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| 1,1-Dichloroethene | 0.2 U | 0.2 | 1 |
| cis-1,2-Dichloroethene | 0.2 U | 0.2 | 1 |
| trans-1,2-Dichloroethene | 0.2 U | 0.2 | 1 |
| 1,2-Dichloropropane | 0.2 U | 0.2 | 1 |
| cis-1,3-Dichloropropene | 0.2 U | 0.2 | 1 |
| trans-1,3-Dichloropropene | 0.2 U | 0.2 | 1 |
| Ethylbenzene | 0.4 U | 0.4 | 1 |
| Freon 113 | 0.2 U | 0.2 | 10 |
| 2-Hexanone | 0.3 U | 0.3 | 10 |
| Isopropylbenzene | 0.2 U | 0.2 | 5 |
| Methyl Acetate | 0.2 U | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | 0.2 U | 0.2 | 1 |
| 4-Methyl-2-pentanone | 0.5 U | 0.5 | 10 |
| Methylcyclohexane | 0.2 U | 0.2 | 5 |
| Methylene Chloride | 0.3 U | 0.3 | 1 |
| Styrene | 0.2 U | 0.2 | 5 |
| 1,1,2,2-Tetrachloroethane | 0.2 U | 0.2 | 1 |
| Tetrachloroethene | 0.2 U | 0.2 | 1 |
| Toluene | 0.2 U | 0.2 | 1 |
| 1,2,3-Trichlorobenzene | 0.4 U | 0.4 | 5 |
| 1,2,4-Trichlorobenzene | 0.3 U | 0.3 | 5 |
| 1,1,1-Trichloroethane | 0.3 U | 0.3 | 1 |
| 1,1,2-Trichloroethane | 0.2 U | 0.2 | 1 |
| Trichloroethene | 0.2 U | 0.2 | 1 |
| Trichlorofluoromethane | 0.2 U | 0.2 | 1 |
| Vinyl Chloride | 0.2 U | 0.2 | 1 |
| m+p-Xylene | 1 U | 1 | 5 |
| o-Xylene | 0.4 U | 0.4 | 1 |
| Batch number: 18288WAN026 | Sample number(s): 9851711-9851713 | | |
| Acenaphthene | 0.1 U | 0.1 | 0.5 |
| Acenaphthylene | 0.1 U | 0.1 | 0.5 |
| Acetophenone | 4 U | 4 | 10 |
| Anthracene | 0.1 U | 0.1 | 0.5 |
| Atrazine | 2 U | 2 | 5 |
| Benzaldehyde | 3 U | 3 | 10 |
| Benzo(a)anthracene | 0.1 U | 0.1 | 0.5 |
| Benzo(a)pyrene | 0.1 U | 0.1 | 0.5 |
| Benzo(b)fluoranthene | 0.1 U | 0.1 | 0.5 |
| Benzo(g,h,i)perylene | 0.1 U | 0.1 | 0.5 |
| Benzo(k)fluoranthene | 0.1 U | 0.1 | 0.5 |
| 1,1'-Biphenyl | 3 U | 3 | 10 |
| 4-Bromophenyl-phenylether | 0.5 U | 0.5 | 2 |
| Butylbenzylphthalate | 2 U | 2 | 5 |
| Di-n-butylphthalate | 2 U | 2 | 5 |

*- 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.

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Caprolactam | 5 U | 5 | 11 |
| Carbazole | 0.5 U | 0.5 | 2 |
| 4-Chloro-3-methylphenol | 0.5 U | 0.5 | 2 |
| 4-Chloroaniline | 4 U | 4 | 10 |
| bis(2-Chloroethoxy)methane | 0.5 U | 0.5 | 2 |
| bis(2-Chloroethyl)ether | 0.5 U | 0.5 | 2 |
| 2-Chloronaphthalene | 0.4 U | 0.4 | 1 |
| 2-Chlorophenol | 0.5 U | 0.5 | 2 |
| 4-Chlorophenyl-phenylether | 0.5 U | 0.5 | 2 |
| 2,2'-oxybis(1-Chloropropane) | 0.5 U | 0.5 | 2 |
| Chrysene | 0.1 U | 0.1 | 0.5 |
| Dibenz(a,h)anthracene | 0.1 U | 0.1 | 0.5 |
| Dibenzofuran | 0.5 U | 0.5 | 2 |
| 3,3'-Dichlorobenzidine | 3 U | 3 | 10 |
| 2,4-Dichlorophenol | 0.5 U | 0.5 | 2 |
| Diethylphthalate | 2 U | 2 | 5 |
| 2,4-Dimethylphenol | 3 U | 3 | 10 |
| Dimethylphthalate | 2 U | 2 | 5 |
| 4,6-Dinitro-2-methylphenol | 8 U | 8 | 21 |
| 2,4-Dinitrophenol | 14 U | 14 | 30 |
| 2,4-Dinitrotoluene | 1 U | 1 | 5 |
| 2,6-Dinitrotoluene | 0.5 U | 0.5 | 2 |
| 1,4-Dioxane | 2 U | 2 | 5 |
| bis(2-Ethylhexyl)phthalate | 5 U | 5 | 11 |
| Fluoranthene | 0.1 U | 0.1 | 0.5 |
| Fluorene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobenzene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobutadiene | 0.5 U | 0.5 | 2 |
| Hexachlorocyclopentadiene | 5 U | 5 | 11 |
| Hexachloroethane | 1 U | 1 | 5 |
| Indeno(1,2,3-cd)pyrene | 0.1 U | 0.1 | 0.5 |
| Isophorone | 0.5 U | 0.5 | 2 |
| 2-Methylnaphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Methylphenol | 0.5 U | 0.5 | 2 |
| 4-Methylphenol | 0.5 U | 0.5 | 2 |
| Naphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Nitroaniline | 2 U | 2 | 7 |
| 3-Nitroaniline | 3 U | 3 | 7 |
| 4-Nitroaniline | 0.9 U | 0.9 | 3 |
| Nitrobenzene | 0.5 U | 0.5 | 2 |
| 2-Nitrophenol | 3 U | 3 | 10 |
| 4-Nitrophenol | 10 U | 10 | 30 |
| N-Nitroso-di-n-propylamine | 0.7 U | 0.7 | 3 |
| N-Nitrosodiphenylamine | 0.7 U | 0.7 | 3 |
| Di-n-octylphthalate | 5 U | 5 | 11 |

*- Outside of specification
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REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Pentachlorophenol | 1 U | 1 | 5 |
| Phenanthrene | 0.1 U | 0.1 | 0.5 |
| Phenol | 0.5 U | 0.5 | 2 |
| Pyrene | 0.1 U | 0.1 | 0.5 |
| 1,2,4,5-Tetrachlorobenzene | 0.5 U | 0.5 | 2 |
| 2,3,4,6-Tetrachlorophenol | 4 U | 4 | 10 |
| 2,4,5-Trichlorophenol | 0.5 U | 0.5 | 2 |
| 2,4,6-Trichlorophenol | 0.5 U | 0.5 | 2 |
| Batch number: 18290WAF026 | Sample number(s): 9851714 | | |
| Acenaphthene | 0.1 U | 0.1 | 0.5 |
| Acenaphthylene | 0.1 U | 0.1 | 0.5 |
| Acetophenone | 4 U | 4 | 10 |
| Anthracene | 0.1 U | 0.1 | 0.5 |
| Atrazine | 2 U | 2 | 5 |
| Benzaldehyde | 3 U | 3 | 10 |
| Benzo(a)anthracene | 0.1 U | 0.1 | 0.5 |
| Benzo(a)pyrene | 0.1 U | 0.1 | 0.5 |
| Benzo(b)fluoranthene | 0.1 U | 0.1 | 0.5 |
| Benzo(g,h,i)perylene | 0.1 U | 0.1 | 0.5 |
| Benzo(k)fluoranthene | 0.1 U | 0.1 | 0.5 |
| 1,1'-Biphenyl | 3 U | 3 | 10 |
| 4-Bromophenyl-phenylether | 0.5 U | 0.5 | 2 |
| Butylbenzylphthalate | 2 U | 2 | 5 |
| Di-n-butylphthalate | 2 U | 2 | 5 |
| Caprolactam | 5 U | 5 | 11 |
| Carbazole | 0.5 U | 0.5 | 2 |
| 4-Chloro-3-methylphenol | 0.5 U | 0.5 | 2 |
| 4-Chloroaniline | 4 U | 4 | 10 |
| bis(2-Chloroethoxy)methane | 0.5 U | 0.5 | 2 |
| bis(2-Chloroethyl)ether | 0.5 U | 0.5 | 2 |
| 2-Chloronaphthalene | 0.4 U | 0.4 | 1 |
| 2-Chlorophenol | 0.5 U | 0.5 | 2 |
| 4-Chlorophenyl-phenylether | 0.5 U | 0.5 | 2 |
| 2,2'-oxybis(1-Chloropropane) | 0.5 U | 0.5 | 2 |
| Chrysene | 0.1 U | 0.1 | 0.5 |
| Dibenz(a,h)anthracene | 0.1 U | 0.1 | 0.5 |
| Dibenzofuran | 0.5 U | 0.5 | 2 |
| 3,3'-Dichlorobenzidine | 3 U | 3 | 10 |
| 2,4-Dichlorophenol | 0.5 U | 0.5 | 2 |
| Diethylphthalate | 2 U | 2 | 5 |
| 2,4-Dimethylphenol | 3 U | 3 | 10 |
| Dimethylphthalate | 2 U | 2 | 5 |
| 4,6-Dinitro-2-methylphenol | 8 U | 8 | 21 |
| 2,4-Dinitrophenol | 14 U | 14 | 30 |

*- Outside of specification
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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| 2,4-Dinitrotoluene | 1 U | 1 | 5 |
| 2,6-Dinitrotoluene | 0.5 U | 0.5 | 2 |
| 1,4-Dioxane | 2 U | 2 | 5 |
| bis(2-Ethylhexyl)phthalate | 5 U | 5 | 11 |
| Fluoranthene | 0.1 U | 0.1 | 0.5 |
| Fluorene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobenzene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobutadiene | 0.5 U | 0.5 | 2 |
| Hexachlorocyclopentadiene | 5 U | 5 | 11 |
| Hexachloroethane | 1 U | 1 | 5 |
| Indeno(1,2,3-cd)pyrene | 0.1 U | 0.1 | 0.5 |
| Isophorone | 0.5 U | 0.5 | 2 |
| 2-Methylnaphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Methylphenol | 0.5 U | 0.5 | 2 |
| 4-Methylphenol | 0.5 U | 0.5 | 2 |
| Naphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Nitroaniline | 2 U | 2 | 7 |
| 3-Nitroaniline | 3 U | 3 | 7 |
| 4-Nitroaniline | 0.9 U | 0.9 | 3 |
| Nitrobenzene | 0.5 U | 0.5 | 2 |
| 2-Nitrophenol | 3 U | 3 | 10 |
| 4-Nitrophenol | 10 U | 10 | 30 |
| N-Nitroso-di-n-propylamine | 0.7 U | 0.7 | 3 |
| N-Nitrosodiphenylamine | 0.7 U | 0.7 | 3 |
| Di-n-octylphthalate | 5 U | 5 | 11 |
| Pentachlorophenol | 1 U | 1 | 5 |
| Phenanthrene | 0.1 U | 0.1 | 0.5 |
| Phenol | 0.5 U | 0.5 | 2 |
| Pyrene | 0.1 U | 0.1 | 0.5 |
| 1,2,4,5-Tetrachlorobenzene | 0.5 U | 0.5 | 2 |
| 2,3,4,6-Tetrachlorophenol | 4 U | 4 | 10 |
| 2,4,5-Trichlorophenol | 0.5 U | 0.5 | 2 |
| 2,4,6-Trichlorophenol | 0.5 U | 0.5 | 2 |
| | ng/l | ng/l | ng/l |
| Batch number: 18289002 | Sample number(s): 9851709-9851718 | | |
| 10:2-Fluorotelomersulfonic Ac | 1.0 U | 1.0 | 3.0 |
| 4:2-Fluorotelomersulfonic Ac | 1.0 U | 1.0 | 3.0 |
| 8:2-Fluorotelomersulfonic Ac | 2.0 U | 2.0 | 6.0 |
| 6:2-Fluorotelomersulfonic acid | 1.0 U | 1.0 | 2.0 |
| HFPODA | 0.50 U | 0.50 | 2.0 |
| NaDONA | 0.30 U | 0.30 | 1.0 |
| NEtFOSAA | 1.0 U | 1.0 | 3.0 |
| NEtPFOSA | 3.0 U | 3.0 | 9.0 |
| NEtPFOSAE | 1.2 U | 1.2 | 3.0 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ng/l | ng/l | ng/l |
| NMeFOSAA | 1.0 U | 1.0 | 3.0 |
| NMePFOSA | 3.0 U | 3.0 | 9.0 |
| NMePFOSAE | 1.0 U | 1.0 | 3.0 |
| Perfluorobutanesulfonic acid | 0.30 U | 0.30 | 1.0 |
| Perfluorobutanoic acid | 2.0 U | 2.0 | 6.0 |
| Perfluorodecanesulfonic acid | 0.60 U | 0.60 | 2.0 |
| Perfluorodecanoic acid | 0.90 U | 0.90 | 2.0 |
| Perfluorododecanesulfonic acid | 0.30 U | 0.30 | 1.0 |
| Perfluorododecanoic acid | 0.50 U | 0.50 | 2.0 |
| Perfluoroheptanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluoroheptanoic acid | 0.40 U | 0.40 | 1.0 |
| Perfluorohexadecanoic acid | 0.30 U | 0.30 | 1.0 |
| Perfluorohexanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorohexanoic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorononanesulfonic acid | 0.60 U | 0.60 | 2.0 |
| Perfluorononanoic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorooctadecanoic acid | 0.50 U | 0.50 | 2.0 |
| Perfluorooctanesulfonamide | 0.50 U | 0.50 | 3.0 |
| Perfluorooctanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorooctanoic acid | 0.30 U | 0.30 | 1.0 |
| Perfluoropentanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluoropentanoic acid | 2.0 U | 2.0 | 6.0 |
| Perfluorotetradecanoic acid | 0.30 U | 0.30 | 1.0 |
| Perfluorotridecanoic acid | 0.40 U | 0.40 | 1.0 |
| Perfluoroundecanoic acid | 0.40 U | 0.40 | 2.0 |
| | mg/l | mg/l | mg/l |
| Batch number: 182880571310 | Sample number(s): 9851711-9851714 | | |
| Mercury | 0.000050 U | 0.000050 | 0.00020 |
| Batch number: 182881063601 | Sample number(s): 9851711-9851714 | | |
| Aluminum | 0.153 U | 0.153 | 0.300 |
| Calcium | 0.167 J | 0.0330 | 0.500 |
| Iron | 0.0740 J | 0.0400 | 0.200 |
| Magnesium | 0.0190 U | 0.0190 | 0.100 |
| Manganese | 0.0011 U | 0.0011 | 0.0200 |
| Potassium | 0.203 U | 0.203 | 0.500 |
| Sodium | 0.326 U | 0.326 | 1.00 |
| Zinc | 0.0030 U | 0.0030 | 0.0200 |
| Batch number: 182881063902A | Sample number(s): 9851711-9851714 | | |
| Antimony | 0.00041 U | 0.00041 | 0.0020 |
| Arsenic | 0.00068 U | 0.00068 | 0.0020 |
| Beryllium | 0.000091 U | 0.000091 | 0.00050 |
| Cadmium | 0.00015 U | 0.00015 | 0.0010 |
| Chromium | 0.00070 U | 0.00070 | 0.0040 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | mg/l | mg/l | mg/l |
| Cobalt | 0.00016 U | 0.00016 | 0.0010 |
| Copper | 0.0099 U | 0.0099 | 0.0400 |
| Lead | 0.0011 U | 0.0011 | 0.0030 |
| Nickel | 0.00060 U | 0.00060 | 0.0040 |
| Silver | 0.00017 U | 0.00017 | 0.00050 |
| Thallium | 0.00011 U | 0.00011 | 0.00050 |
| Vanadium | 0.00024 U | 0.00024 | 0.0010 |
| Batch number: 182881063902B | Sample number(s): 9851711-9851714 | | |
| Selenium | 0.00065 U | 0.00065 | 0.0020 |
| Batch number: 182881063902D | Sample number(s): 9851711-9851714 | | |
| Barium | 0.00075 U | 0.00075 | 0.0040 |

## LCS/LCSD

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: E182961AA | Sample number(s): 9851711 | | | | | | | | |
| Acetone | 150 | 137.65 | | | 92 | | 54-157 | | |
| Benzene | 20 | 18.67 | | | 93 | | 80-120 | | |
| Bromochloromethane | 20 | 16.45 | | | 82 | | 80-120 | | |
| Bromodichloromethane | 20 | 19.59 | | | 98 | | 71-120 | | |
| Bromoform | 20 | 19.57 | | | 98 | | 51-120 | | |
| Bromomethane | 20 | 12.71 | | | 64 | | 53-128 | | |
| 2-Butanone | 150 | 152.87 | | | 102 | | 59-135 | | |
| Carbon Disulfide | 20 | 21.97 | | | 110 | | 65-128 | | |
| Carbon Tetrachloride | 20 | 21.26 | | | 106 | | 64-134 | | |
| Chlorobenzene | 20 | 20.06 | | | 100 | | 80-120 | | |
| Chloroethane | 20 | 16.54 | | | 83 | | 55-123 | | |
| Chloroform | 20 | 20.46 | | | 102 | | 80-120 | | |
| Chloromethane | 20 | 14.38 | | | 72 | | 56-121 | | |
| Cyclohexane | 20 | 18.91 | | | 95 | | 68-126 | | |
| 1,2-Dibromo-3-chloropropane | 20 | 19.08 | | | 95 | | 47-131 | | |
| Dibromochloromethane | 20 | 21.2 | | | 106 | | 71-120 | | |
| 1,2-Dibromoethane | 20 | 20.76 | | | 104 | | 77-120 | | |
| 1,2-Dichlorobenzene | 20 | 19.54 | | | 98 | | 80-120 | | |
| 1,3-Dichlorobenzene | 20 | 19.86 | | | 99 | | 80-120 | | |
| 1,4-Dichlorobenzene | 20 | 19.78 | | | 99 | | 80-120 | | |
| Dichlorodifluoromethane | 20 | 8.52 | | | 43 | | 41-127 | | |
| 1,1-Dichloroethane | 20 | 21.01 | | | 105 | | 80-120 | | |
| 1,2-Dichloroethane | 20 | 23.21 | | | 116 | | 73-124 | | |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 20 | 19.06 | | | 95 | | 80-131 | | |
| cis-1,2-Dichloroethene | 20 | 18.25 | | | 91 | | 80-120 | | |
| trans-1,2-Dichloroethene | 20 | 18.99 | | | 95 | | 80-120 | | |
| 1,2-Dichloropropane | 20 | 19.77 | | | 99 | | 80-120 | | |
| cis-1,3-Dichloropropene | 20 | 18.51 | | | 93 | | 75-120 | | |
| trans-1,3-Dichloropropene | 20 | 19.77 | | | 99 | | 67-120 | | |
| Ethylbenzene | 20 | 21.94 | | | 110 | | 80-120 | | |
| Freon 113 | 20 | 18.17 | | | 91 | | 73-139 | | |
| 2-Hexanone | 100 | 145.05 | | | 145* | | 56-135 | | |
| Isopropylbenzene | 20 | 21.05 | | | 105 | | 80-120 | | |
| Methyl Acetate | 20 | 26.8 | | | 134 | | 54-136 | | |
| Methyl Tertiary Butyl Ether | 20 | 19.5 | | | 98 | | 69-122 | | |
| 4-Methyl-2-pentanone | 100 | 99.69 | | | 100 | | 62-133 | | |
| Methylcyclohexane | 20 | 16.37 | | | 82 | | 67-121 | | |
| Methylene Chloride | 20 | 20.24 | | | 101 | | 80-120 | | |
| Styrene | 20 | 20.76 | | | 104 | | 80-120 | | |
| 1,1,2,2-Tetrachloroethane | 20 | 20.86 | | | 104 | | 72-120 | | |
| Tetrachloroethene | 20 | 19.22 | | | 96 | | 80-120 | | |
| Toluene | 20 | 18.26 | | | 91 | | 80-120 | | |
| 1,2,3-Trichlorobenzene | 20 | 18.21 | | | 91 | | 66-120 | | |
| 1,2,4-Trichlorobenzene | 20 | 19.63 | | | 98 | | 63-120 | | |
| 1,1,1-Trichloroethane | 20 | 20.82 | | | 104 | | 67-126 | | |
| 1,1,2-Trichloroethane | 20 | 17.96 | | | 90 | | 80-120 | | |
| Trichloroethene | 20 | 18.97 | | | 95 | | 80-120 | | |
| Trichlorofluoromethane | 20 | 15.29 | | | 76 | | 55-135 | | |
| Vinyl Chloride | 20 | 15.74 | | | 79 | | 56-120 | | |
| m+p-Xylene | 40 | 41.51 | | | 104 | | 80-120 | | |
| o-Xylene | 20 | 20.46 | | | 102 | | 80-120 | | |
| Batch number: L182971AA | Sample number(s): 9851712-9851713 | | | | | | | | |
| Acetone | 150 | 146.62 | 150 | 148.3 | 98 | 99 | 54-157 | 1 | 30 |
| Benzene | 20 | 20.56 | 20 | 20.59 | 103 | 103 | 80-120 | 0 | 30 |
| Bromochloromethane | 20 | 17.85 | 20 | 17.89 | 89 | 89 | 80-120 | 0 | 30 |
| Bromodichloromethane | 20 | 21.75 | 20 | 21.4 | 109 | 107 | 71-120 | 2 | 30 |
| Bromoform | 20 | 16.85 | 20 | 16.91 | 84 | 85 | 51-120 | 0 | 30 |
| Bromomethane | 20 | 16.24 | 20 | 15.63 | 81 | 78 | 53-128 | 4 | 30 |
| 2-Butanone | 150 | 137.21 | 150 | 143.47 | 91 | 96 | 59-135 | 4 | 30 |
| Carbon Disulfide | 20 | 19.95 | 20 | 19.6 | 100 | 98 | 65-128 | 2 | 30 |
| Carbon Tetrachloride | 20 | 22.21 | 20 | 21.98 | 111 | 110 | 64-134 | 1 | 30 |
| Chlorobenzene | 20 | 20.98 | 20 | 21.08 | 105 | 105 | 80-120 | 0 | 30 |
| Chloroethane | 20 | 16.7 | 20 | 16.34 | 84 | 82 | 55-123 | 2 | 30 |
| Chloroform | 20 | 21.74 | 20 | 21.6 | 109 | 108 | 80-120 | 1 | 30 |
| Chloromethane | 20 | 17.4 | 20 | 17.66 | 87 | 88 | 56-121 | 2 | 30 |
| Cyclohexane | 20 | 19.01 | 20 | 18.91 | 95 | 95 | 68-126 | 1 | 30 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | 20 | 20.94 | 20 | 20.61 | 105 | 103 | 47-131 | 2 | 30 |
| Dibromochloromethane | 20 | 20.52 | 20 | 20.71 | 103 | 104 | 71-120 | 1 | 30 |
| 1,2-Dibromoethane | 20 | 20.75 | 20 | 21.15 | 104 | 106 | 77-120 | 2 | 30 |
| 1,2-Dichlorobenzene | 20 | 20.74 | 20 | 21.29 | 104 | 106 | 80-120 | 3 | 30 |
| 1,3-Dichlorobenzene | 20 | 20.71 | 20 | 20.97 | 104 | 105 | 80-120 | 1 | 30 |
| 1,4-Dichlorobenzene | 20 | 20.96 | 20 | 21.1 | 105 | 106 | 80-120 | 1 | 30 |
| Dichlorodifluoromethane | 20 | 15.91 | 20 | 15.42 | 80 | 77 | 41-127 | 3 | 30 |
| 1,1-Dichloroethane | 20 | 20.81 | 20 | 20.6 | 104 | 103 | 80-120 | 1 | 30 |
| 1,2-Dichloroethane | 20 | 22 | 20 | 21.9 | 110 | 110 | 73-124 | 0 | 30 |
| 1,1-Dichloroethene | 20 | 22.65 | 20 | 22.2 | 113 | 111 | 80-131 | 2 | 30 |
| cis-1,2-Dichloroethene | 20 | 21.88 | 20 | 22.07 | 109 | 110 | 80-120 | 1 | 30 |
| trans-1,2-Dichloroethene | 20 | 22.2 | 20 | 21.57 | 111 | 108 | 80-120 | 3 | 30 |
| 1,2-Dichloropropane | 20 | 20.59 | 20 | 20.53 | 103 | 103 | 80-120 | 0 | 30 |
| cis-1,3-Dichloropropene | 20 | 20.42 | 20 | 20.73 | 102 | 104 | 75-120 | 2 | 30 |
| trans-1,3-Dichloropropene | 20 | 20.08 | 20 | 20.22 | 100 | 101 | 67-120 | 1 | 30 |
| Ethylbenzene | 20 | 21.16 | 20 | 21.34 | 106 | 107 | 80-120 | 1 | 30 |
| Freon 113 | 20 | 21.69 | 20 | 20.55 | 108 | 103 | 73-139 | 5 | 30 |
| 2-Hexanone | 100 | 90.79 | 100 | 93.74 | 91 | 94 | 56-135 | 3 | 30 |
| Isopropylbenzene | 20 | 21.86 | 20 | 22.06 | 109 | 110 | 80-120 | 1 | 30 |
| Methyl Acetate | 20 | 17.86 | 20 | 17.88 | 89 | 89 | 54-136 | 0 | 30 |
| Methyl Tertiary Butyl Ether | 20 | 19.94 | 20 | 20.15 | 100 | 101 | 69-122 | 1 | 30 |
| 4-Methyl-2-pentanone | 100 | 90.43 | 100 | 92.02 | 90 | 92 | 62-133 | 2 | 30 |
| Methylcyclohexane | 20 | 17.18 | 20 | 16.85 | 86 | 84 | 67-121 | 2 | 30 |
| Methylene Chloride | 20 | 21.12 | 20 | 20.66 | 106 | 103 | 80-120 | 2 | 30 |
| Styrene | 20 | 20.9 | 20 | 21.04 | 105 | 105 | 80-120 | 1 | 30 |
| 1,1,2,2-Tetrachloroethane | 20 | 20.84 | 20 | 21.41 | 104 | 107 | 72-120 | 3 | 30 |
| Tetrachloroethene | 20 | 20.13 | 20 | 20.21 | 101 | 101 | 80-120 | 0 | 30 |
| Toluene | 20 | 20.95 | 20 | 20.81 | 105 | 104 | 80-120 | 1 | 30 |
| 1,2,3-Trichlorobenzene | 20 | 17.64 | 20 | 18.09 | 88 | 90 | 66-120 | 3 | 30 |
| 1,2,4-Trichlorobenzene | 20 | 18.17 | 20 | 18.68 | 91 | 93 | 63-120 | 3 | 30 |
| 1,1,1-Trichloroethane | 20 | 21.02 | 20 | 20.79 | 105 | 104 | 67-126 | 1 | 30 |
| 1,1,2-Trichloroethane | 20 | 21.37 | 20 | 21.47 | 107 | 107 | 80-120 | 0 | 30 |
| Trichloroethene | 20 | 21.59 | 20 | 21.4 | 108 | 107 | 80-120 | 1 | 30 |
| Trichlorofluoromethane | 20 | 19.06 | 20 | 18.66 | 95 | 93 | 55-135 | 2 | 30 |
| Vinyl Chloride | 20 | 18.73 | 20 | 18.54 | 94 | 93 | 56-120 | 1 | 30 |
| m+p-Xylene | 40 | 42.97 | 40 | 43.15 | 107 | 108 | 80-120 | 0 | 30 |
| o-Xylene | 20 | 21.09 | 20 | 21.4 | 105 | 107 | 80-120 | 1 | 30 |
| Batch number: L182984AA | Sample number(s): 9851714,9851718 | | | | | | | | |
| Acetone | 150 | 143.78 | | | 96 | | 54-157 | | |
| Benzene | 20 | 19.94 | | | 100 | | 80-120 | | |
| Bromochloromethane | 20 | 19.14 | | | 96 | | 80-120 | | |
| Bromodichloromethane | 20 | 21.92 | | | 110 | | 71-120 | | |
| Bromoform | 20 | 17.53 | | | 88 | | 51-120 | | |

*- Outside of specification
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(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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 20 | 17.04 | | | 85 | | 53-128 | | |
| 2-Butanone | 150 | 141.33 | | | 94 | | 59-135 | | |
| Carbon Disulfide | 20 | 18.88 | | | 94 | | 65-128 | | |
| Carbon Tetrachloride | 20 | 22.28 | | | 111 | | 64-134 | | |
| Chlorobenzene | 20 | 21.42 | | | 107 | | 80-120 | | |
| Chloroethane | 20 | 17.13 | | | 86 | | 55-123 | | |
| Chloroform | 20 | 21.84 | | | 109 | | 80-120 | | |
| Chloromethane | 20 | 17.36 | | | 87 | | 56-121 | | |
| Cyclohexane | 20 | 17.92 | | | 90 | | 68-126 | | |
| 1,2-Dibromo-3-chloropropane | 20 | 21.15 | | | 106 | | 47-131 | | |
| Dibromochloromethane | 20 | 21.64 | | | 108 | | 71-120 | | |
| 1,2-Dibromoethane | 20 | 21.22 | | | 106 | | 77-120 | | |
| 1,2-Dichlorobenzene | 20 | 21.34 | | | 107 | | 80-120 | | |
| 1,3-Dichlorobenzene | 20 | 21.11 | | | 106 | | 80-120 | | |
| 1,4-Dichlorobenzene | 20 | 21.31 | | | 107 | | 80-120 | | |
| Dichlorodifluoromethane | 20 | 16.65 | | | 83 | | 41-127 | | |
| 1,1-Dichloroethane | 20 | 20.5 | | | 103 | | 80-120 | | |
| 1,2-Dichloroethane | 20 | 23 | | | 115 | | 73-124 | | |
| 1,1-Dichloroethene | 20 | 22.02 | | | 110 | | 80-131 | | |
| cis-1,2-Dichloroethene | 20 | 21.1 | | | 106 | | 80-120 | | |
| trans-1,2-Dichloroethene | 20 | 20.98 | | | 105 | | 80-120 | | |
| 1,2-Dichloropropane | 20 | 20.12 | | | 101 | | 80-120 | | |
| cis-1,3-Dichloropropene | 20 | 20.63 | | | 103 | | 75-120 | | |
| trans-1,3-Dichloropropene | 20 | 20.5 | | | 103 | | 67-120 | | |
| Ethylbenzene | 20 | 21.66 | | | 108 | | 80-120 | | |
| Freon 113 | 20 | 20.89 | | | 104 | | 73-139 | | |
| 2-Hexanone | 100 | 95.01 | | | 95 | | 56-135 | | |
| Isopropylbenzene | 20 | 22.45 | | | 112 | | 80-120 | | |
| Methyl Acetate | 20 | 19.81 | | | 99 | | 54-136 | | |
| Methyl Tertiary Butyl Ether | 20 | 20.66 | | | 103 | | 69-122 | | |
| 4-Methyl-2-pentanone | 100 | 92.34 | | | 92 | | 62-133 | | |
| Methylcyclohexane | 20 | 18.33 | | | 92 | | 67-121 | | |
| Methylene Chloride | 20 | 20.63 | | | 103 | | 80-120 | | |
| Styrene | 20 | 21.47 | | | 107 | | 80-120 | | |
| 1,1,2,2-Tetrachloroethane | 20 | 20.35 | | | 102 | | 72-120 | | |
| Tetrachloroethene | 20 | 20.07 | | | 100 | | 80-120 | | |
| Toluene | 20 | 20.73 | | | 104 | | 80-120 | | |
| 1,2,3-Trichlorobenzene | 20 | 17.83 | | | 89 | | 66-120 | | |
| 1,2,4-Trichlorobenzene | 20 | 18.18 | | | 91 | | 63-120 | | |
| 1,1,1-Trichloroethane | 20 | 21.34 | | | 107 | | 67-126 | | |
| 1,1,2-Trichloroethane | 20 | 21.87 | | | 109 | | 80-120 | | |
| Trichloroethene | 20 | 20.99 | | | 105 | | 80-120 | | |
| Trichlorofluoromethane | 20 | 21.13 | | | 106 | | 55-135 | | |
| Vinyl Chloride | 20 | 18.93 | | | 95 | | 56-120 | | |

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REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| m+p-Xylene | 40 | 44.05 | | | 110 | | 80-120 | | |
| o-Xylene | 20 | 21.53 | | | 108 | | 80-120 | | |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 18288WAN026 | Sample number(s): 9851711-9851713 | | | | | | | | |
| Acenaphthene | 50 | 38.57 | | | 77 | | 62-119 | | |
| Acenaphthylene | 50 | 43.77 | | | 88 | | 66-125 | | |
| Acetophenone | 50 | 35.73 | | | 71 | | 62-114 | | |
| Anthracene | 50 | 41.46 | | | 83 | | 70-118 | | |
| Atrazine | 50 | 41.26 | | | 83 | | 71-133 | | |
| Benzaldehyde | 50 | 29.36 | | | 59 | | 56-117 | | |
| Benzo(a)anthracene | 50 | 46.28 | | | 93 | | 70-123 | | |
| Benzo(a)pyrene | 50 | 47.39 | | | 95 | | 71-122 | | |
| Benzo(b)fluoranthene | 50 | 46.18 | | | 92 | | 70-120 | | |
| Benzo(g,h,i)perylene | 50 | 42.9 | | | 86 | | 64-119 | | |
| Benzo(k)fluoranthene | 50 | 46.45 | | | 93 | | 73-122 | | |
| 1,1'-Biphenyl | 50 | 38.2 | | | 76 | | 54-116 | | |
| 4-Bromophenyl-phenylether | 50 | 38.27 | | | 77 | | 64-119 | | |
| Butylbenzylphthalate | 50 | 45.17 | | | 90 | | 57-119 | | |
| Di-n-butylphthalate | 50 | 42.94 | | | 86 | | 71-113 | | |
| Caprolactam | 50 | 12.49 | | | 25 | | 13-37 | | |
| Carbazole | 50 | 44.96 | | | 90 | | 71-128 | | |
| 4-Chloro-3-methylphenol | 50 | 39 | | | 78 | | 65-122 | | |
| 4-Chloroaniline | 50 | 25.75 | | | 52 | | 42-110 | | |
| bis(2-Chloroethoxy)methane | 50 | 35.29 | | | 71 | | 64-119 | | |
| bis(2-Chloroethyl)ether | 50 | 33.8 | | | 68 | | 60-110 | | |
| 2-Chloronaphthalene | 50 | 36.77 | | | 74 | | 51-114 | | |
| 2-Chlorophenol | 50 | 34.5 | | | 69 | | 58-108 | | |
| 4-Chlorophenyl-phenylether | 50 | 37.14 | | | 74 | | 58-115 | | |
| 2,2'-oxybis(1-Chloropropane) | 50 | 31.74 | | | 63 | | 48-118 | | |
| Chrysene | 50 | 46.12 | | | 92 | | 71-123 | | |
| Dibenz(a,h)anthracene | 50 | 43.33 | | | 87 | | 67-123 | | |
| Dibenzofuran | 50 | 38.51 | | | 77 | | 63-117 | | |
| 3,3'-Dichlorobenzidine | 50 | 34.49 | | | 69 | | 36-116 | | |
| 2,4-Dichlorophenol | 50 | 35.35 | | | 71 | | 65-117 | | |
| Diethylphthalate | 50 | 40.03 | | | 80 | | 61-111 | | |
| 2,4-Dimethylphenol | 50 | 28.54 | | | 57 | | 52-106 | | |
| Dimethylphthalate | 50 | 38.23 | | | 76 | | 37-116 | | |
| 4,6-Dinitro-2-methylphenol | 50 | 40.76 | | | 82 | | 63-129 | | |
| 2,4-Dinitrophenol | 100 | 89.73 | | | 90 | | 26-141 | | |
| 2,4-Dinitrotoluene | 50 | 39.75 | | | 79 | | 69-117 | | |
| 2,6-Dinitrotoluene | 50 | 41.65 | | | 83 | | 69-122 | | |
| 1,4-Dioxane | 50 | 17.29 | | | 35 | | 29-59 | | |
| bis(2-Ethylhexyl)phthalate | 50 | 49.3 | | | 99 | | 68-120 | | |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Fluoranthene | 50 | 43.49 | | | 87 | | 70-124 | | |
| Fluorene | 50 | 41.02 | | | 82 | | 62-116 | | |
| Hexachlorobenzene | 50 | 38.4 | | | 77 | | 65-121 | | |
| Hexachlorobutadiene | 50 | 24.46 | | | 49 | | 21-114 | | |
| Hexachlorocyclopentadiene | 100 | 20.66 | | | 21 | | 10-117 | | |
| Hexachloroethane | 50 | 26.74 | | | 53 | | 24-100 | | |
| Indeno(1,2,3-cd)pyrene | 50 | 43.25 | | | 86 | | 61-121 | | |
| Isophorone | 50 | 36.97 | | | 74 | | 65-123 | | |
| 2-Methylnaphthalene | 50 | 32.99 | | | 66 | | 51-112 | | |
| 2-Methylphenol | 50 | 32.95 | | | 66 | | 59-109 | | |
| 4-Methylphenol | 50 | 31.38 | | | 63 | | 56-108 | | |
| Naphthalene | 50 | 32.07 | | | 64 | | 54-107 | | |
| 2-Nitroaniline | 50 | 44.13 | | | 88 | | 66-126 | | |
| 3-Nitroaniline | 50 | 36.22 | | | 72 | | 51-120 | | |
| 4-Nitroaniline | 50 | 35.37 | | | 71 | | 53-111 | | |
| Nitrobenzene | 50 | 32.91 | | | 66 | | 59-117 | | |
| 2-Nitrophenol | 50 | 33.51 | | | 67 | | 63-121 | | |
| 4-Nitrophenol | 50 | 25.58 | | | 51 | | 28-88 | | |
| N-Nitroso-di-n-propylamine | 50 | 33.8 | | | 68 | | 61-118 | | |
| N-Nitrosodiphenylamine | 50 | 46.23 | | | 92 | | 68-122 | | |
| Di-n-octylphthalate | 50 | 43.54 | | | 87 | | 67-120 | | |
| Pentachlorophenol | 50 | 36.86 | | | 74 | | 64-130 | | |
| Phenanthrene | 50 | 40.54 | | | 81 | | 68-118 | | |
| Phenol | 50 | 19.93 | | | 40 | | 23-82 | | |
| Pyrene | 50 | 43.91 | | | 88 | | 68-118 | | |
| 1,2,4,5-Tetrachlorobenzene | 50 | 30.8 | | | 62 | | 39-112 | | |
| 2,3,4,6-Tetrachlorophenol | 50 | 39.89 | | | 80 | | 69-125 | | |
| 2,4,5-Trichlorophenol | 50 | 42.81 | | | 86 | | 73-124 | | |
| 2,4,6-Trichlorophenol | 50 | 42.57 | | | 85 | | 69-122 | | |
| Batch number: 18290WAF026 | Sample number(s): 9851714 | | | | | | | | |
| Acenaphthene | 50 | 39.66 | | | 79 | | 62-119 | | |
| Acenaphthylene | 50 | 41.96 | | | 84 | | 66-125 | | |
| Acetophenone | 50 | 37.5 | | | 75 | | 62-114 | | |
| Anthracene | 50 | 40.06 | | | 80 | | 70-118 | | |
| Atrazine | 50 | 42.61 | | | 85 | | 71-133 | | |
| Benzaldehyde | 50 | 34.53 | | | 69 | | 56-117 | | |
| Benzo(a)anthracene | 50 | 46.05 | | | 92 | | 70-123 | | |
| Benzo(a)pyrene | 50 | 43.37 | | | 87 | | 71-122 | | |
| Benzo(b)fluoranthene | 50 | 43.1 | | | 86 | | 70-120 | | |
| Benzo(g,h,i)perylene | 50 | 43.23 | | | 86 | | 64-119 | | |
| Benzo(k)fluoranthene | 50 | 45.08 | | | 90 | | 73-122 | | |
| 1,1'-Biphenyl | 50 | 38.79 | | | 78 | | 54-116 | | |
| 4-Bromophenyl-phenylether | 50 | 41.3 | | | 83 | | 64-119 | | |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Butylbenzylphthalate | 50 | 42.37 | | | 85 | | 57-119 | | |
| Di-n-butylphthalate | 50 | 38.75 | | | 78 | | 71-113 | | |
| Caprolactam | 50 | 11.93 | | | 24 | | 13-37 | | |
| Carbazole | 50 | 40.75 | | | 82 | | 71-128 | | |
| 4-Chloro-3-methylphenol | 50 | 42.47 | | | 85 | | 65-122 | | |
| 4-Chloroaniline | 50 | 30.27 | | | 61 | | 42-110 | | |
| bis(2-Chloroethoxy)methane | 50 | 39.68 | | | 79 | | 64-119 | | |
| bis(2-Chloroethyl)ether | 50 | 36.74 | | | 73 | | 60-110 | | |
| 2-Chloronaphthalene | 50 | 38.76 | | | 78 | | 51-114 | | |
| 2-Chlorophenol | 50 | 36.46 | | | 73 | | 58-108 | | |
| 4-Chlorophenyl-phenylether | 50 | 39.96 | | | 80 | | 58-115 | | |
| 2,2'-oxybis(1-Chloropropane) | 50 | 33.93 | | | 68 | | 48-118 | | |
| Chrysene | 50 | 46 | | | 92 | | 71-123 | | |
| Dibenz(a,h)anthracene | 50 | 44.73 | | | 89 | | 67-123 | | |
| Dibenzofuran | 50 | 40.54 | | | 81 | | 63-117 | | |
| 3,3'-Dichlorobenzidine | 50 | 36.84 | | | 74 | | 36-116 | | |
| 2,4-Dichlorophenol | 50 | 42.32 | | | 85 | | 65-117 | | |
| Diethylphthalate | 50 | 36.47 | | | 73 | | 61-111 | | |
| 2,4-Dimethylphenol | 50 | 32.13 | | | 64 | | 52-106 | | |
| Dimethylphthalate | 50 | 39.28 | | | 79 | | 37-116 | | |
| 4,6-Dinitro-2-methylphenol | 50 | 43.07 | | | 86 | | 63-129 | | |
| 2,4-Dinitrophenol | 100 | 84.52 | | | 85 | | 26-141 | | |
| 2,4-Dinitrotoluene | 50 | 39.69 | | | 79 | | 69-117 | | |
| 2,6-Dinitrotoluene | 50 | 41.04 | | | 82 | | 69-122 | | |
| 1,4-Dioxane | 50 | 20.06 | | | 40 | | 29-59 | | |
| bis(2-Ethylhexyl)phthalate | 50 | 45.81 | | | 92 | | 68-120 | | |
| Fluoranthene | 50 | 41.62 | | | 83 | | 70-124 | | |
| Fluorene | 50 | 41.69 | | | 83 | | 62-116 | | |
| Hexachlorobenzene | 50 | 39.09 | | | 78 | | 65-121 | | |
| Hexachlorobutadiene | 50 | 28.45 | | | 57 | | 21-114 | | |
| Hexachlorocyclopentadiene | 100 | 19.01 | | | 19 | | 10-117 | | |
| Hexachloroethane | 50 | 26.63 | | | 53 | | 24-100 | | |
| Indeno(1,2,3-cd)pyrene | 50 | 41.02 | | | 82 | | 61-121 | | |
| Isophorone | 50 | 39.95 | | | 80 | | 65-123 | | |
| 2-Methylnaphthalene | 50 | 36.66 | | | 73 | | 51-112 | | |
| 2-Methylphenol | 50 | 36.97 | | | 74 | | 59-109 | | |
| 4-Methylphenol | 50 | 35.68 | | | 71 | | 56-108 | | |
| Naphthalene | 50 | 35.37 | | | 71 | | 54-107 | | |
| 2-Nitroaniline | 50 | 42.69 | | | 85 | | 66-126 | | |
| 3-Nitroaniline | 50 | 38.64 | | | 77 | | 51-120 | | |
| 4-Nitroaniline | 50 | 34.46 | | | 69 | | 53-111 | | |
| Nitrobenzene | 50 | 39.53 | | | 79 | | 59-117 | | |
| 2-Nitrophenol | 50 | 43.26 | | | 87 | | 63-121 | | |
| 4-Nitrophenol | 50 | 23.27 | | | 47 | | 28-88 | | |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| N-Nitroso-di-n-propylamine | 50 | 38.72 | | | 77 | | 61-118 | | |
| N-Nitrosodiphenylamine | 50 | 43.29 | | | 87 | | 68-122 | | |
| Di-n-octylphthalate | 50 | 43.5 | | | 87 | | 67-120 | | |
| Pentachlorophenol | 50 | 37.87 | | | 76 | | 64-130 | | |
| Phenanthrene | 50 | 39.58 | | | 79 | | 68-118 | | |
| Phenol | 50 | 21.55 | | | 43 | | 23-82 | | |
| Pyrene | 50 | 41.43 | | | 83 | | 68-118 | | |
| 1,2,4,5-Tetrachlorobenzene | 50 | 34.12 | | | 68 | | 39-112 | | |
| 2,3,4,6-Tetrachlorophenol | 50 | 48.54 | | | 97 | | 69-125 | | |
| 2,4,5-Trichlorophenol | 50 | 47.1 | | | 94 | | 73-124 | | |
| 2,4,6-Trichlorophenol | 50 | 46.31 | | | 93 | | 69-122 | | |
| | ng/l | ng/l | ng/l | ng/l | | | | | |
| Batch number: 18289002 | Sample number(s): 9851709-9851718 | | | | | | | | |
| 10:2-Fluorotelomersulfonic Ac | 15.42 | 12.39 | 15.42 | 12.38 | 80 | 80 | 49-186 | 0 | 30 |
| 4:2-Fluorotelomersulfonic Ac | 14.94 | 15.15 | 14.94 | 16.18 | 101 | 108 | 82-152 | 7 | 30 |
| 8:2-Fluorotelomersulfonic Ac | 15.33 | 12.72 | 15.33 | 14.62 | 83 | 95 | 66-148 | 14 | 30 |
| 6:2-Fluorotelomersulfonic acid | 15.17 | 12.47 | 15.17 | 15.42 | 82 | 102 | 66-155 | 21 | 30 |
| HFPODA | 5.44 | 4.93 | 5.44 | 4.55 | 91 | 84 | 70-130 | 8 | 30 |
| NaDONA | 5.12 | 4.79 | 5.12 | 4.81 | 94 | 94 | 70-130 | 0 | 30 |
| NEtFOSAA | 5.44 | 5.91 | 5.44 | 6.58 | 109 | 121 | 55-169 | 11 | 30 |
| NEtPFOSA | 5.44 | 5.92 | 5.44 | 6.22 | 109 | 114 | 70-130 | 5 | 30 |
| NEtPFOSAE | 5.44 | 4.51 | 5.44 | 4.39 | 83 | 81 | 70-130 | 3 | 30 |
| NMeFOSAA | 5.44 | 5.12 | 5.44 | 4.90 | 94 | 90 | 62-167 | 4 | 30 |
| NMePFOSA | 5.44 | 6.98 | 5.44 | 7.37 | 128 | 135* | 70-130 | 5 | 30 |
| NMePFOSAE | 5.44 | 6.06 | 5.44 | 6.76 | 111 | 124 | 70-130 | 11 | 30 |
| Perfluorobutanesulfonic acid | 4.81 | 4.46 | 4.81 | 4.89 | 93 | 102 | 73-128 | 9 | 30 |
| Perfluorobutanoic acid | 5.44 | 5.87 | 5.44 | 6.31 | 108 | 116 | 74-142 | 7 | 30 |
| Perfluorodecanesulfonic acid | 5.24 | 4.91 | 5.24 | 4.99 | 94 | 95 | 60-135 | 1 | 30 |
| Perfluorodecanoic acid | 5.44 | 4.73 | 5.44 | 4.63 | 87 | 85 | 69-148 | 2 | 30 |
| Perfluorododecanesulfonic acid | 5.26 | 4.45 | 5.26 | 4.38 | 85 | 83 | 70-130 | 2 | 30 |
| Perfluorododecanoic acid | 5.44 | 5.06 | 5.44 | 5.56 | 93 | 102 | 75-136 | 9 | 30 |
| Perfluoroheptanesulfonic acid | 5.18 | 4.54 | 5.18 | 5.13 | 88 | 99 | 64-135 | 12 | 30 |
| Perfluoroheptanoic acid | 5.44 | 5.45 | 5.44 | 5.75 | 100 | 106 | 76-140 | 5 | 30 |
| Perfluorohexadecanoic acid | 5.44 | 5.71 | 5.44 | 5.90 | 105 | 108 | 21-151 | 3 | 30 |
| Perfluorohexanesulfonic acid | 5.14 | 4.37 | 5.14 | 5.14 | 85 | 100 | 71-131 | 16 | 30 |
| Perfluorohexanoic acid | 5.44 | 4.94 | 5.44 | 5.33 | 91 | 98 | 75-135 | 8 | 30 |
| Perfluorononanesulfonic acid | 5.22 | 5.10 | 5.22 | 5.02 | 98 | 96 | 66-133 | 1 | 30 |
| Perfluorononanoic acid | 5.44 | 5.37 | 5.44 | 6.04 | 99 | 111 | 72-148 | 12 | 30 |
| Perfluorooctadecanoic acid | 5.44 | 5.25 | 5.44 | 5.61 | 97 | 103 | 70-130 | 6 | 30 |
| Perfluorooctanesulfonamide | 5.44 | 5.06 | 5.44 | 5.49 | 93 | 101 | 65-164 | 8 | 30 |
| Perfluorooctanesulfonic acid | 5.20 | 4.96 | 5.20 | 5.41 | 95 | 104 | 67-138 | 9 | 30 |
| Perfluorooctanoic acid | 5.44 | 4.15 | 5.44 | 4.90 | 76 | 90 | 72-138 | 17 | 30 |
| Perfluoropentanesulfonic acid | 5.10 | 5.08 | 5.10 | 5.29 | 100 | 104 | 76-127 | 4 | 30 |

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(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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## LCS/LCSD (continued)

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| Perfluoropentanoic acid | 5.44 | 5.50 | 5.44 | 5.86 | 101 | 108 | 74-134 | 6 | 30 |
| Perfluorotetradecanoic acid | 5.44 | 5.55 | 5.44 | 6.03 | 102 | 111 | 74-135 | 8 | 30 |
| Perfluorotridecanoic acid | 5.44 | 5.88 | 5.44 | 5.96 | 108 | 110 | 61-145 | 1 | 30 |
| Perfluoroundecanoic acid | 5.44 | 5.07 | 5.44 | 5.48 | 93 | 101 | 75-146 | 8 | 30 |
| | mg/l | mg/l | mg/l | mg/l | | | | | |
| Batch number: 182880571310 | Sample number(s): 9851711-9851714 | | | | | | | | |
| Mercury | 0.00100 | 0.000934 | | | 93 | | 80-114 | | |
| Batch number: 182881063601 | Sample number(s): 9851711-9851714 | | | | | | | | |
| Aluminum | 2.00 | 2.02 | | | 101 | | 80-120 | | |
| Calcium | 4.00 | 4.09 | | | 102 | | 88-112 | | |
| Iron | 1.00 | 1.04 | | | 104 | | 80-114 | | |
| Magnesium | 2.00 | 2.08 | | | 104 | | 88-114 | | |
| Manganese | 0.500 | 0.520 | | | 104 | | 90-112 | | |
| Potassium | 10 | 9.84 | | | 98 | | 88-112 | | |
| Sodium | 10 | 9.79 | | | 98 | | 87-112 | | |
| Zinc | 0.500 | 0.527 | | | 105 | | 89-111 | | |
| Batch number: 182881063902A | Sample number(s): 9851711-9851714 | | | | | | | | |
| Antimony | 0.00600 | 0.00519 | | | 87 | | 80-120 | | |
| Arsenic | 0.0100 | 0.0109 | | | 109 | | 80-120 | | |
| Beryllium | 0.00400 | 0.00392 | | | 98 | | 90-112 | | |
| Cadmium | 0.00500 | 0.00515 | | | 103 | | 84-120 | | |
| Chromium | 0.0500 | 0.0543 | | | 109 | | 90-112 | | |
| Cobalt | 0.250 | 0.259 | | | 104 | | 86-113 | | |
| Copper | 0.0500 | 0.0531 | | | 106 | | 89-120 | | |
| Lead | 0.0150 | 0.0154 | | | 103 | | 90-110 | | |
| Nickel | 0.0500 | 0.0557 | | | 111 | | 90-114 | | |
| Silver | 0.0500 | 0.0516 | | | 103 | | 88-113 | | |
| Thallium | 0.00200 | 0.00213 | | | 107 | | 80-120 | | |
| Vanadium | 0.0500 | 0.0483 | | | 97 | | 90-112 | | |
| Batch number: 182881063902B | Sample number(s): 9851711-9851714 | | | | | | | | |
| Selenium | 0.0100 | 0.0109 | | | 109 | | 90-113 | | |
| Batch number: 182881063902D | Sample number(s): 9851711-9851714 | | | | | | | | |
| Barium | 0.0500 | 0.0491 | | | 98 | | 80-120 | | |

## MS/MSD

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

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REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## MS/MSD

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Batch number: E182961AA | Sample number(s): 9851711 UNSPK: P847515 | | | | | | | | | |
| Acetone | 2.02 | 150 | 123.8 | 150 | 150.19 | 81 | 99 | 54-157 | 19 | 30 |
| Benzene | 0.2 U | 20 | 23.7 | 20 | 22.1 | 118 | 110 | 80-120 | 7 | 30 |
| Bromochloromethane | 0.2 U | 20 | 17.97 | 20 | 19.49 | 90 | 97 | 80-120 | 8 | 30 |
| Bromodichloromethane | 0.2 U | 20 | 24.98 | 20 | 27.9 | 125* | 140* | 71-120 | 11 | 30 |
| Bromoform | 0.2 U | 20 | 23.07 | 20 | 22.76 | 115 | 114 | 51-120 | 1 | 30 |
| Bromomethane | 0.3 U | 20 | 13.28 | 20 | 14.5 | 66 | 72 | 53-128 | 9 | 30 |
| 2-Butanone | 0.3 U | 150 | 207.89 | 150 | 181.19 | 139* | 121 | 59-135 | 14 | 30 |
| Carbon Disulfide | 0.2 U | 20 | 22.76 | 20 | 19.83 | 114 | 99 | 65-128 | 14 | 30 |
| Carbon Tetrachloride | 0.2 U | 20 | 26.57 | 20 | 27.33 | 133 | 137* | 64-134 | 3 | 30 |
| Chlorobenzene | 0.2 U | 20 | 21.96 | 20 | 22.06 | 110 | 110 | 80-120 | 0 | 30 |
| Chloroethane | 0.2 U | 20 | 17.86 | 20 | 19.25 | 89 | 96 | 55-123 | 7 | 30 |
| Chloroform | 0.2 U | 20 | 24.8 | 20 | 24.94 | 124* | 125* | 80-120 | 1 | 30 |
| Chloromethane | 13.26 | 20 | 44.06 | 20 | 26.45 | 154* | 66 | 56-121 | 50* | 30 |
| Cyclohexane | 0.2 U | 20 | 27.63 | 20 | 24.09 | 138* | 120 | 68-126 | 14 | 30 |
| 1,2-Dibromo-3-chloropropane | 0.3 U | 20 | 21.55 | 20 | 21.91 | 108 | 110 | 47-131 | 2 | 30 |
| Dibromochloromethane | 0.2 U | 20 | 26.62 | 20 | 24.05 | 133* | 120 | 71-120 | 10 | 30 |
| 1,2-Dibromoethane | 0.2 U | 20 | 24.95 | 20 | 22.13 | 125* | 111 | 77-120 | 12 | 30 |
| 1,2-Dichlorobenzene | 0.2 U | 20 | 21.51 | 20 | 21.6 | 108 | 108 | 80-120 | 0 | 30 |
| 1,3-Dichlorobenzene | 0.2 U | 20 | 21.53 | 20 | 21.74 | 108 | 109 | 80-120 | 1 | 30 |
| 1,4-Dichlorobenzene | 0.2 U | 20 | 21.65 | 20 | 21.31 | 108 | 107 | 80-120 | 2 | 30 |
| Dichlorodifluoromethane | 0.2 U | 20 | 8.98 | 20 | 10.17 | 45 | 51 | 41-127 | 12 | 30 |
| 1,1-Dichloroethane | 0.2 U | 20 | 27.6 | 20 | 23.82 | 138* | 119 | 80-120 | 15 | 30 |
| 1,2-Dichloroethane | 0.3 U | 20 | 28.24 | 20 | 26.13 | 141* | 131* | 73-124 | 8 | 30 |
| 1,1-Dichloroethene | 0.2 U | 20 | 21.34 | 20 | 22.44 | 107 | 112 | 80-131 | 5 | 30 |
| cis-1,2-Dichloroethene | 0.2 U | 20 | 22.63 | 20 | 22.39 | 113 | 112 | 80-120 | 1 | 30 |
| trans-1,2-Dichloroethene | 0.2 U | 20 | 23.35 | 20 | 21.28 | 117 | 106 | 80-120 | 9 | 30 |
| 1,2-Dichloropropane | 0.2 U | 20 | 27.23 | 20 | 30.82 | 136* | 154* | 80-120 | 12 | 30 |
| cis-1,3-Dichloropropene | 0.2 U | 20 | 24.06 | 20 | 26.91 | 120 | 135* | 75-120 | 11 | 30 |
| trans-1,3-Dichloropropene | 0.2 U | 20 | 30.64 | 20 | 26.29 | 153* | 131* | 67-120 | 15 | 30 |
| Ethylbenzene | 0.4 U | 20 | 21.84 | 20 | 22.14 | 109 | 111 | 80-120 | 1 | 30 |
| Freon 113 | 0.2 U | 20 | 20.38 | 20 | 21.23 | 102 | 106 | 73-139 | 4 | 30 |
| 2-Hexanone | 0.3 U | 100 | 183.98 | 100 | 129.69 | 184* | 130 | 56-135 | 35* | 30 |
| Isopropylbenzene | 0.2 U | 20 | 22.09 | 20 | 22.58 | 110 | 113 | 80-120 | 2 | 30 |
| Methyl Acetate | 0.2 U | 20 | 28.08 | 20 | 17.52 | 140* | 88 | 54-136 | 46* | 30 |
| Methyl Tertiary Butyl Ether | 0.2 U | 20 | 23.5 | 20 | 19.84 | 117 | 99 | 69-122 | 17 | 30 |
| 4-Methyl-2-pentanone | 0.5 U | 100 | 146.85 | 100 | 160.39 | 147* | 160* | 62-133 | 9 | 30 |
| Methylcyclohexane | 0.2 U | 20 | 19.88 | 20 | 22.89 | 99 | 114 | 67-121 | 14 | 30 |
| Methylene Chloride | 0.3 U | 20 | 23.1 | 20 | 18.54 | 115 | 93 | 80-120 | 22 | 30 |
| Styrene | 0.2 U | 20 | 21.77 | 20 | 22.07 | 109 | 110 | 80-120 | 1 | 30 |
| 1,1,2,2-Tetrachloroethane | 0.2 U | 20 | 18.6 | 20 | 18.87 | 93 | 94 | 72-120 | 1 | 30 |
| Tetrachloroethene | 0.2 U | 20 | 27.11 | 20 | 26.15 | 136* | 131* | 80-120 | 4 | 30 |
| Toluene | 0.2 U | 20 | 28.49 | 20 | 28.17 | 142* | 141* | 80-120 | 1 | 30 |

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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.

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,3-Trichlorobenzene | 0.4 U | 20 | 20.07 | 20 | 21.01 | 100 | 105 | 66-120 | 5 | 30 |
| 1,2,4-Trichlorobenzene | 0.3 U | 20 | 21.37 | 20 | 22.16 | 107 | 111 | 63-120 | 4 | 30 |
| 1,1,1-Trichloroethane | 0.3 U | 20 | 26.93 | 20 | 26.16 | 135* | 131* | 67-126 | 3 | 30 |
| 1,1,2-Trichloroethane | 0.2 U | 20 | 27.64 | 20 | 23.27 | 138* | 116 | 80-120 | 17 | 30 |
| Trichloroethene | 0.2 U | 20 | 22.97 | 20 | 22.22 | 115 | 111 | 80-120 | 3 | 30 |
| Trichlorofluoromethane | 0.2 U | 20 | 16.51 | 20 | 18.38 | 83 | 92 | 55-135 | 11 | 30 |
| Vinyl Chloride | 0.2 U | 20 | 16.1 | 20 | 17.46 | 81 | 87 | 56-120 | 8 | 30 |
| m+p-Xylene | 1 U | 40 | 43.69 | 40 | 44.27 | 109 | 111 | 80-120 | 1 | 30 |
| o-Xylene | 0.4 U | 20 | 21.65 | 20 | 21.93 | 108 | 110 | 80-120 | 1 | 30 |
| Batch number: L182984AA | Sample number(s): 9851714,9851718 UNSPK: P851737 | | | | | | | | | |
| Acetone | 0.7 U | 150 | 159.17 | 150 | 139.57 | 106 | 93 | 54-157 | 13 | 30 |
| Benzene | 0.2 U | 20 | 22.08 | 20 | 21.56 | 110 | 108 | 80-120 | 2 | 30 |
| Bromochloromethane | 0.2 U | 20 | 20.46 | 20 | 20.02 | 102 | 100 | 80-120 | 2 | 30 |
| Bromodichloromethane | 0.2 U | 20 | 23.99 | 20 | 23.3 | 120 | 116 | 71-120 | 3 | 30 |
| Bromoform | 0.2 U | 20 | 18.13 | 20 | 17.75 | 91 | 89 | 51-120 | 2 | 30 |
| Bromomethane | 0.3 U | 20 | 18.74 | 20 | 18.24 | 94 | 91 | 53-128 | 3 | 30 |
| 2-Butanone | 0.3 U | 150 | 143.22 | 150 | 139.27 | 95 | 93 | 59-135 | 3 | 30 |
| Carbon Disulfide | 0.2 U | 20 | 21.55 | 20 | 20.74 | 108 | 104 | 65-128 | 4 | 30 |
| Carbon Tetrachloride | 0.2 U | 20 | 26.75 | 20 | 26.17 | 134 | 131 | 64-134 | 2 | 30 |
| Chlorobenzene | 0.2 U | 20 | 23.64 | 20 | 22.9 | 118 | 115 | 80-120 | 3 | 30 |
| Chloroethane | 0.2 U | 20 | 19.19 | 20 | 18.42 | 96 | 92 | 55-123 | 4 | 30 |
| Chloroform | 0.2 U | 20 | 24.06 | 20 | 23.49 | 120 | 117 | 80-120 | 2 | 30 |
| Chloromethane | 0.2 U | 20 | 19.27 | 20 | 18.88 | 96 | 94 | 56-121 | 2 | 30 |
| Cyclohexane | 0.2 U | 20 | 21.91 | 20 | 21.86 | 110 | 109 | 68-126 | 0 | 30 |
| 1,2-Dibromo-3-chloropropane | 0.3 U | 20 | 21.84 | 20 | 21.67 | 109 | 108 | 47-131 | 1 | 30 |
| Dibromochloromethane | 0.2 U | 20 | 23.04 | 20 | 22.41 | 115 | 112 | 71-120 | 3 | 30 |
| 1,2-Dibromoethane | 0.2 U | 20 | 22.49 | 20 | 21.76 | 112 | 109 | 77-120 | 3 | 30 |
| 1,2-Dichlorobenzene | 0.2 U | 20 | 23.37 | 20 | 22.34 | 117 | 112 | 80-120 | 5 | 30 |
| 1,3-Dichlorobenzene | 0.2 U | 20 | 22.98 | 20 | 22.65 | 115 | 113 | 80-120 | 1 | 30 |
| 1,4-Dichlorobenzene | 0.2 U | 20 | 23.61 | 20 | 22.82 | 118 | 114 | 80-120 | 3 | 30 |
| Dichlorodifluoromethane | 0.2 U | 20 | 20.13 | 20 | 19.55 | 101 | 98 | 41-127 | 3 | 30 |
| 1,1-Dichloroethane | 0.2 U | 20 | 22.3 | 20 | 21.7 | 112 | 108 | 80-120 | 3 | 30 |
| 1,2-Dichloroethane | 0.3 U | 20 | 24.36 | 20 | 23.81 | 122 | 119 | 73-124 | 2 | 30 |
| 1,1-Dichloroethene | 0.2 U | 20 | 25.33 | 20 | 24.21 | 127 | 121 | 80-131 | 5 | 30 |
| cis-1,2-Dichloroethene | 0.2 U | 20 | 23.32 | 20 | 22.68 | 117 | 113 | 80-120 | 3 | 30 |
| trans-1,2-Dichloroethene | 0.2 U | 20 | 23.85 | 20 | 22.94 | 119 | 115 | 80-120 | 4 | 30 |
| 1,2-Dichloropropane | 0.2 U | 20 | 22 | 20 | 21.18 | 110 | 106 | 80-120 | 4 | 30 |
| cis-1,3-Dichloropropene | 0.2 U | 20 | 21.25 | 20 | 21.28 | 106 | 106 | 75-120 | 0 | 30 |
| trans-1,3-Dichloropropene | 0.2 U | 20 | 21.61 | 20 | 21.37 | 108 | 107 | 67-120 | 1 | 30 |
| Ethylbenzene | 0.4 U | 20 | 24.19 | 20 | 23.56 | 121* | 118 | 80-120 | 3 | 30 |
| Freon 113 | 0.2 U | 20 | 25.79 | 20 | 24.71 | 129 | 124 | 73-139 | 4 | 30 |
| 2-Hexanone | 0.3 U | 100 | 97.29 | 100 | 94.78 | 97 | 95 | 56-135 | 3 | 30 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Isopropylbenzene | 0.2 U | 20 | 25.44 | 20 | 24.92 | 127* | 125* | 80-120 | 2 | 30 |
| Methyl Acetate | 0.2 U | 20 | 19.62 | 20 | 18.83 | 98 | 94 | 54-136 | 4 | 30 |
| Methyl Tertiary Butyl Ether | 0.2 U | 20 | 21.07 | 20 | 20.66 | 105 | 103 | 69-122 | 2 | 30 |
| 4-Methyl-2-pentanone | 0.5 U | 100 | 95.55 | 100 | 93.02 | 96 | 93 | 62-133 | 3 | 30 |
| Methylcyclohexane | 0.2 U | 20 | 23.01 | 20 | 22.59 | 115 | 113 | 67-121 | 2 | 30 |
| Methylene Chloride | 0.3 U | 20 | 21.7 | 20 | 21.2 | 109 | 106 | 80-120 | 2 | 30 |
| Styrene | 0.2 U | 20 | 23.6 | 20 | 23 | 118 | 115 | 80-120 | 3 | 30 |
| 1,1,2,2-Tetrachloroethane | 0.2 U | 20 | 21.52 | 20 | 20.8 | 108 | 104 | 72-120 | 3 | 30 |
| Tetrachloroethene | 0.2 U | 20 | 23.51 | 20 | 22.55 | 118 | 113 | 80-120 | 4 | 30 |
| Toluene | 0.2 U | 20 | 23.02 | 20 | 22.44 | 115 | 112 | 80-120 | 3 | 30 |
| 1,2,3-Trichlorobenzene | 0.4 U | 20 | 19.06 | 20 | 18.94 | 95 | 95 | 66-120 | 1 | 30 |
| 1,2,4-Trichlorobenzene | 0.3 U | 20 | 19.59 | 20 | 19.5 | 98 | 97 | 63-120 | 0 | 30 |
| 1,1,1-Trichloroethane | 0.3 U | 20 | 24.55 | 20 | 23.9 | 123 | 119 | 67-126 | 3 | 30 |
| 1,1,2-Trichloroethane | 0.2 U | 20 | 23.06 | 20 | 22.2 | 115 | 111 | 80-120 | 4 | 30 |
| Trichloroethene | 0.2 U | 20 | 23.64 | 20 | 23.2 | 118 | 116 | 80-120 | 2 | 30 |
| Trichlorofluoromethane | 0.2 U | 20 | 25.07 | 20 | 24.44 | 125 | 122 | 55-135 | 3 | 30 |
| Vinyl Chloride | 0.2 U | 20 | 21.43 | 20 | 21.27 | 107 | 106 | 56-120 | 1 | 30 |
| m+p-Xylene | 1 U | 40 | 48.99 | 40 | 47.88 | 122* | 120 | 80-120 | 2 | 30 |
| o-Xylene | 0.4 U | 20 | 23.74 | 20 | 22.91 | 119 | 115 | 80-120 | 4 | 30 |
| | ug/l | ug/l | ug/l | ug/l | ug/l | | | | | |
| Batch number: 18288WAN026 | Sample number(s): 9851711-9851713 UNSPK: P851220 | | | | | | | | | |
| Acenaphthene | 3.13 | 49.6 | 43.71 | 50.4 | 43.65 | 82 | 80 | 62-119 | 0 | 30 |
| Acenaphthylene | 0.1 U | 49.6 | 45.81 | 50.4 | 46 | 92 | 91 | 66-125 | 0 | 30 |
| Acetophenone | 4 U | 49.6 | 42.82 | 50.4 | 43.48 | 86 | 86 | 62-114 | 2 | 30 |
| Anthracene | 0.112 | 49.6 | 43.73 | 50.4 | 44.33 | 88 | 88 | 70-118 | 1 | 30 |
| Atrazine | 2 U | 49.6 | 47.25 | 50.4 | 45.59 | 95 | 90 | 71-133 | 4 | 30 |
| Benzaldehyde | 3 U | 49.6 | 32.83 | 50.4 | 31.05 | 66 | 62 | 56-117 | 6 | 30 |
| Benzo(a)anthracene | 0.1 U | 49.6 | 49.71 | 50.4 | 49.97 | 100 | 99 | 70-123 | 1 | 30 |
| Benzo(a)pyrene | 0.1 U | 49.6 | 45.54 | 50.4 | 45.93 | 92 | 91 | 71-122 | 1 | 30 |
| Benzo(b)fluoranthene | 0.1 U | 49.6 | 44.31 | 50.4 | 44.46 | 89 | 88 | 70-120 | 0 | 30 |
| Benzo(g,h,i)perylene | 0.1 U | 49.6 | 35.86 | 50.4 | 34.04 | 72 | 68 | 64-119 | 5 | 30 |
| Benzo(k)fluoranthene | 0.1 U | 49.6 | 44.3 | 50.4 | 44.03 | 89 | 87 | 73-122 | 1 | 30 |
| 1,1'-Biphenyl | 3 U | 49.6 | 40.14 | 50.4 | 40.89 | 81 | 81 | 54-116 | 2 | 30 |
| 4-Bromophenyl-phenylether | 0.5 U | 49.6 | 39.18 | 50.4 | 40.39 | 79 | 80 | 64-119 | 3 | 30 |
| Butylbenzylphthalate | 2 U | 49.6 | 49.49 | 50.4 | 43.24 | 100 | 86 | 57-119 | 13 | 30 |
| Di-n-butylphthalate | 2 U | 49.6 | 45.69 | 50.4 | 43.48 | 92 | 86 | 71-113 | 5 | 30 |
| Caprolactam | 5 U | 49.6 | 13.81 | 50.4 | 13.19 | 28 | 26 | 13-37 | 5 | 30 |
| Carbazole | 1.22 | 49.6 | 52.89 | 50.4 | 52.09 | 104 | 101 | 71-128 | 2 | 30 |
| 4-Chloro-3-methylphenol | 0.5 U | 49.6 | 42.69 | 50.4 | 42.79 | 86 | 85 | 65-122 | 0 | 30 |
| 4-Chloroaniline | 4 U | 49.6 | 27.13 | 50.4 | 25.51 | 55 | 51 | 42-110 | 6 | 30 |
| bis(2-Chloroethoxy)methane | 0.5 U | 49.6 | 39 | 50.4 | 39.46 | 79 | 78 | 64-119 | 1 | 30 |
| bis(2-Chloroethyl)ether | 0.5 U | 49.6 | 38.48 | 50.4 | 38.27 | 78 | 76 | 60-110 | 1 | 30 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| 2-Chloronaphthalene | 0.4 U | 49.6 | 43.81 | 50.4 | 43.35 | 88 | 86 | 51-114 | 1 | 30 |
| 2-Chlorophenol | 0.5 U | 49.6 | 39.02 | 50.4 | 39.82 | 79 | 79 | 58-108 | 2 | 30 |
| 4-Chlorophenyl-phenylether | 0.5 U | 49.6 | 37.98 | 50.4 | 38.16 | 77 | 76 | 58-115 | 0 | 30 |
| 2,2'-oxybis(1-Chloropropane) | 0.5 U | 49.6 | 37.57 | 50.4 | 37.82 | 76 | 75 | 48-118 | 1 | 30 |
| Chrysene | 0.1 U | 49.6 | 48.04 | 50.4 | 47.98 | 97 | 95 | 71-123 | 0 | 30 |
| Dibenz(a,h)anthracene | 0.1 U | 49.6 | 38.66 | 50.4 | 38.03 | 78 | 75 | 67-123 | 2 | 30 |
| Dibenzofuran | 1.96 | 49.6 | 41.37 | 50.4 | 42.01 | 79 | 79 | 63-117 | 2 | 30 |
| 3,3'-Dichlorobenzidine | 3 U | 49.6 | 25.45 | 50.4 | 25.03 | 51 | 50 | 36-116 | 2 | 30 |
| 2,4-Dichlorophenol | 0.5 U | 49.6 | 39.07 | 50.4 | 39.99 | 79 | 79 | 65-117 | 2 | 30 |
| Diethylphthalate | 2 U | 49.6 | 35.7 | 50.4 | 32.45 | 72 | 64 | 61-111 | 10 | 30 |
| 2,4-Dimethylphenol | 3 U | 49.6 | 32.98 | 50.4 | 31.99 | 66 | 63 | 52-106 | 3 | 30 |
| Dimethylphthalate | 2 U | 49.6 | 29.4 | 50.4 | 22.21 | 59 | 44 | 37-116 | 28 | 30 |
| 4,6-Dinitro-2-methylphenol | 8 U | 49.6 | 48.3 | 50.4 | 48.85 | 97 | 97 | 63-129 | 1 | 30 |
| 2,4-Dinitrophenol | 14 U | 99.21 | 92.78 | 100.81 | 95.19 | 94 | 94 | 26-141 | 3 | 30 |
| 2,4-Dinitrotoluene | 1 U | 49.6 | 35.36 | 50.4 | 38.78 | 71 | 77 | 69-117 | 9 | 30 |
| 2,6-Dinitrotoluene | 0.5 U | 49.6 | 40.6 | 50.4 | 41.17 | 82 | 82 | 69-122 | 1 | 30 |
| 1,4-Dioxane | 2 U | 49.6 | 18.26 | 50.4 | 19.31 | 37 | 38 | 29-59 | 6 | 30 |
| bis(2-Ethylhexyl)phthalate | 5 U | 49.6 | 52.66 | 50.4 | 50.68 | 106 | 101 | 68-120 | 4 | 30 |
| Fluoranthene | 0.134 | 49.6 | 50.19 | 50.4 | 49.2 | 101 | 97 | 70-124 | 2 | 30 |
| Fluorene | 2.93 | 49.6 | 45.51 | 50.4 | 45.3 | 86 | 84 | 62-116 | 0 | 30 |
| Hexachlorobenzene | 0.1 U | 49.6 | 39.52 | 50.4 | 40 | 80 | 79 | 65-121 | 1 | 30 |
| Hexachlorobutadiene | 0.5 U | 49.6 | 28.74 | 50.4 | 28.85 | 58 | 57 | 21-114 | 0 | 30 |
| Hexachlorocyclopentadiene | 5 U | 99.21 | 31.34 | 100.81 | 30.41 | 32 | 30 | 10-117 | 3 | 30 |
| Hexachloroethane | 1 U | 49.6 | 30.03 | 50.4 | 30.3 | 61 | 60 | 24-100 | 1 | 30 |
| Indeno(1,2,3-cd)pyrene | 0.1 U | 49.6 | 38.43 | 50.4 | 37.68 | 77 | 75 | 61-121 | 2 | 30 |
| Isophorone | 0.5 U | 49.6 | 71.61 | 50.4 | 50.35 | 144* | 100 | 65-123 | 35* | 30 |
| 2-Methylnaphthalene | 0.1 U | 49.6 | 36.47 | 50.4 | 36.84 | 74 | 73 | 51-112 | 1 | 30 |
| 2-Methylphenol | 0.5 U | 49.6 | 34.68 | 50.4 | 35.73 | 70 | 71 | 59-109 | 3 | 30 |
| 4-Methylphenol | 0.5 U | 49.6 | 32.37 | 50.4 | 33.11 | 65 | 66 | 56-108 | 2 | 30 |
| Naphthalene | 0.1 U | 49.6 | 36.92 | 50.4 | 37.49 | 74 | 74 | 54-107 | 2 | 30 |
| 2-Nitroaniline | 2 U | 49.6 | 50.29 | 50.4 | 50.56 | 101 | 100 | 66-126 | 1 | 30 |
| 3-Nitroaniline | 3 U | 49.6 | 37.28 | 50.4 | 33.78 | 75 | 67 | 51-120 | 10 | 30 |
| 4-Nitroaniline | 0.9 U | 49.6 | 38.31 | 50.4 | 36.84 | 77 | 73 | 53-111 | 4 | 30 |
| Nitrobenzene | 0.5 U | 49.6 | 39.98 | 50.4 | 40.27 | 81 | 80 | 59-117 | 1 | 30 |
| 2-Nitrophenol | 3 U | 49.6 | 42.3 | 50.4 | 44.58 | 85 | 88 | 63-121 | 5 | 30 |
| 4-Nitrophenol | 10 U | 49.6 | 27.51 | 50.4 | 28.3 | 55 | 56 | 28-88 | 3 | 30 |
| N-Nitroso-di-n-propylamine | 0.7 U | 49.6 | 38.82 | 50.4 | 39.63 | 78 | 79 | 61-118 | 2 | 30 |
| N-Nitrosodiphenylamine | 0.7 U | 49.6 | 45.16 | 50.4 | 46.76 | 91 | 93 | 68-122 | 3 | 30 |
| Di-n-octylphthalate | 5 U | 49.6 | 44.96 | 50.4 | 44.18 | 91 | 88 | 67-120 | 2 | 30 |
| Pentachlorophenol | 1 U | 49.6 | 52.44 | 50.4 | 51.3 | 106 | 102 | 64-130 | 2 | 30 |
| Phenanthrene | 0.274 | 49.6 | 43.93 | 50.4 | 43.43 | 88 | 86 | 68-118 | 1 | 30 |
| Phenol | 0.5 U | 49.6 | 21.28 | 50.4 | 21.85 | 43 | 43 | 23-82 | 3 | 30 |
| Pyrene | 0.167 | 49.6 | 44.53 | 50.4 | 43.75 | 89 | 86 | 68-118 | 2 | 30 |

*- Outside of specification
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(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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,4,5-Tetrachlorobenzene | 0.5 U | 49.6 | 33.55 | 50.4 | 34.38 | 68 | 68 | 39-112 | 2 | 30 |
| 2,3,4,6-Tetrachlorophenol | 4 U | 49.6 | 44.7 | 50.4 | 45.34 | 90 | 90 | 69-125 | 1 | 30 |
| 2,4,5-Trichlorophenol | 0.5 U | 49.6 | 44.14 | 50.4 | 45.47 | 89 | 90 | 73-124 | 3 | 30 |
| 2,4,6-Trichlorophenol | 0.5 U | 49.6 | 48.61 | 50.4 | 49.63 | 98 | 98 | 69-122 | 2 | 30 |
| Batch number: 18290WAF026 | Sample number(s): 9851714 UNSPK: P854805 | | | | | | | | | |
| Acenaphthene | 0.1 U | 52.74 | 40.82 | 52.08 | 41.07 | 77 | 79 | 62-119 | 1 | 30 |
| Acenaphthylene | 0.1 U | 52.74 | 43.35 | 52.08 | 45.09 | 82 | 87 | 66-125 | 4 | 30 |
| Acetophenone | 4 U | 52.74 | 42.42 | 52.08 | 42.18 | 80 | 81 | 62-114 | 1 | 30 |
| Anthracene | 0.1 U | 52.74 | 42.97 | 52.08 | 41.41 | 81 | 80 | 70-118 | 4 | 30 |
| Atrazine | 2 U | 52.74 | 47.02 | 52.08 | 46.33 | 89 | 89 | 71-133 | 1 | 30 |
| Benzaldehyde | 3 U | 52.74 | 40.04 | 52.08 | 40.65 | 76 | 78 | 56-117 | 2 | 30 |
| Benzo(a)anthracene | 0.1 U | 52.74 | 43.22 | 52.08 | 46.71 | 82 | 90 | 70-123 | 8 | 30 |
| Benzo(a)pyrene | 0.1 U | 52.74 | 43.42 | 52.08 | 43.27 | 82 | 83 | 71-122 | 0 | 30 |
| Benzo(b)fluoranthene | 0.1 U | 52.74 | 44.57 | 52.08 | 42.62 | 84 | 82 | 70-120 | 4 | 30 |
| Benzo(g,h,i)perylene | 0.1 U | 52.74 | 37.25 | 52.08 | 37.39 | 71 | 72 | 64-119 | 0 | 30 |
| Benzo(k)fluoranthene | 0.1 U | 52.74 | 44.19 | 52.08 | 44.85 | 84 | 86 | 73-122 | 1 | 30 |
| 1,1'-Biphenyl | 3 U | 52.74 | 38.29 | 52.08 | 39.51 | 73 | 76 | 54-116 | 3 | 30 |
| 4-Bromophenyl-phenylether | 0.5 U | 52.74 | 41.42 | 52.08 | 41.11 | 79 | 79 | 64-119 | 1 | 30 |
| Butylbenzylphthalate | 2 U | 52.74 | 40.97 | 52.08 | 42.82 | 78 | 82 | 57-119 | 4 | 30 |
| Di-n-butylphthalate | 2 U | 52.74 | 43.68 | 52.08 | 40.98 | 83 | 79 | 71-113 | 6 | 30 |
| Caprolactam | 5 U | 52.74 | 15.52 | 52.08 | 12.55 | 29 | 24 | 13-37 | 21 | 30 |
| Carbazole | 0.5 U | 52.74 | 46.67 | 52.08 | 45.14 | 88 | 87 | 71-128 | 3 | 30 |
| 4-Chloro-3-methylphenol | 0.5 U | 52.74 | 39.22 | 52.08 | 30.22 | 74 | 58* | 65-122 | 26 | 30 |
| 4-Chloroaniline | 4 U | 52.74 | 34.57 | 52.08 | 32.52 | 66 | 62 | 42-110 | 6 | 30 |
| bis(2-Chloroethoxy)methane | 0.5 U | 52.74 | 42.18 | 52.08 | 42.39 | 80 | 81 | 64-119 | 0 | 30 |
| bis(2-Chloroethyl)ether | 0.5 U | 52.74 | 38.87 | 52.08 | 37.45 | 74 | 72 | 60-110 | 4 | 30 |
| 2-Chloronaphthalene | 0.4 U | 52.74 | 35.69 | 52.08 | 37.52 | 68 | 72 | 51-114 | 5 | 30 |
| 2-Chlorophenol | 0.5 U | 52.74 | 35.08 | 52.08 | 27.34 | 67 | 52* | 58-108 | 25 | 30 |
| 4-Chlorophenyl-phenylether | 0.5 U | 52.74 | 43.51 | 52.08 | 42.99 | 82 | 83 | 58-115 | 1 | 30 |
| 2,2'-oxybis(1-Chloropropane) | 0.5 U | 52.74 | 35.3 | 52.08 | 34.27 | 67 | 66 | 48-118 | 3 | 30 |
| Chrysene | 0.1 U | 52.74 | 43 | 52.08 | 46.14 | 82 | 89 | 71-123 | 7 | 30 |
| Dibenz(a,h)anthracene | 0.1 U | 52.74 | 39.08 | 52.08 | 38.94 | 74 | 75 | 67-123 | 0 | 30 |
| Dibenzofuran | 0.5 U | 52.74 | 43.4 | 52.08 | 43.65 | 82 | 84 | 63-117 | 1 | 30 |
| 3,3'-Dichlorobenzidine | 3 U | 52.74 | 33.32 | 52.08 | 38.14 | 63 | 73 | 36-116 | 14 | 30 |
| 2,4-Dichlorophenol | 0.5 U | 52.74 | 39.49 | 52.08 | 31.76 | 75 | 61* | 65-117 | 22 | 30 |
| Diethylphthalate | 2 U | 52.74 | 43.41 | 52.08 | 42.01 | 82 | 81 | 61-111 | 3 | 30 |
| 2,4-Dimethylphenol | 3 U | 52.74 | 29.3 | 52.08 | 27.75 | 56 | 53 | 52-106 | 5 | 30 |
| Dimethylphthalate | 2 U | 52.74 | 38.82 | 52.08 | 40.21 | 74 | 77 | 37-116 | 4 | 30 |
| 4,6-Dinitro-2-methylphenol | 8 U | 52.74 | 45.96 | 52.08 | 42.72 | 87 | 82 | 63-129 | 7 | 30 |
| 2,4-Dinitrophenol | 14 U | 105.49 | 99.14 | 104.17 | 77.23 | 94 | 74 | 26-141 | 25 | 30 |
| 2,4-Dinitrotoluene | 1 U | 52.74 | 48.28 | 52.08 | 48.53 | 92 | 93 | 69-117 | 1 | 30 |
| 2,6-Dinitrotoluene | 0.5 U | 52.74 | 45.65 | 52.08 | 46.27 | 87 | 89 | 69-122 | 1 | 30 |

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(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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | 2 U | 52.74 | 19.56 | 52.08 | 18.66 | 37 | 36 | 29-59 | 5 | 30 |
| bis(2-Ethylhexyl)phthalate | 5 U | 52.74 | 41.22 | 52.08 | 43.47 | 78 | 83 | 68-120 | 5 | 30 |
| Fluoranthene | 0.1 U | 52.74 | 45.68 | 52.08 | 43.66 | 87 | 84 | 70-124 | 5 | 30 |
| Fluorene | 0.1 U | 52.74 | 44.95 | 52.08 | 44.72 | 85 | 86 | 62-116 | 1 | 30 |
| Hexachlorobenzene | 0.1 U | 52.74 | 40.12 | 52.08 | 40.27 | 76 | 77 | 65-121 | 0 | 30 |
| Hexachlorobutadiene | 0.5 U | 52.74 | 28.8 | 52.08 | 28.37 | 55 | 54 | 21-114 | 2 | 30 |
| Hexachlorocyclopentadiene | 5 U | 105.49 | 34.18 | 104.17 | 32 | 32 | 31 | 10-117 | 7 | 30 |
| Hexachloroethane | 1 U | 52.74 | 26.82 | 52.08 | 26.51 | 51 | 51 | 24-100 | 1 | 30 |
| Indeno(1,2,3-cd)pyrene | 0.1 U | 52.74 | 36.23 | 52.08 | 37.24 | 69 | 71 | 61-121 | 3 | 30 |
| Isophorone | 0.5 U | 52.74 | 43.09 | 52.08 | 42.66 | 82 | 82 | 65-123 | 1 | 30 |
| 2-Methylnaphthalene | 0.1 U | 52.74 | 37.04 | 52.08 | 36.31 | 70 | 70 | 51-112 | 2 | 30 |
| 2-Methylphenol | 0.5 U | 52.74 | 32.13 | 52.08 | 23.84 | 61 | 46* | 59-109 | 30 | 30 |
| 4-Methylphenol | 0.5 U | 52.74 | 31.56 | 52.08 | 21.31 | 60 | 41* | 56-108 | 39* | 30 |
| Naphthalene | 0.1 U | 52.74 | 35.91 | 52.08 | 35.47 | 68 | 68 | 54-107 | 1 | 30 |
| 2-Nitroaniline | 2 U | 52.74 | 45.98 | 52.08 | 48.05 | 87 | 92 | 66-126 | 4 | 30 |
| 3-Nitroaniline | 3 U | 52.74 | 45.48 | 52.08 | 43.95 | 86 | 84 | 51-120 | 3 | 30 |
| 4-Nitroaniline | 0.9 U | 52.74 | 40.44 | 52.08 | 39.83 | 77 | 76 | 53-111 | 2 | 30 |
| Nitrobenzene | 0.5 U | 52.74 | 38.62 | 52.08 | 40.14 | 73 | 77 | 59-117 | 4 | 30 |
| 2-Nitrophenol | 3 U | 52.74 | 45.09 | 52.08 | 46.7 | 85 | 90 | 63-121 | 3 | 30 |
| 4-Nitrophenol | 10 U | 52.74 | 32.19 | 52.08 | 27.48 | 61 | 53 | 28-88 | 16 | 30 |
| N-Nitroso-di-n-propylamine | 0.7 U | 52.74 | 44.62 | 52.08 | 43.19 | 85 | 83 | 61-118 | 3 | 30 |
| N-Nitrosodiphenylamine | 0.7 U | 52.74 | 44.27 | 52.08 | 45.07 | 84 | 87 | 68-122 | 2 | 30 |
| Di-n-octylphthalate | 5 U | 52.74 | 44.25 | 52.08 | 44.42 | 84 | 85 | 67-120 | 0 | 30 |
| Pentachlorophenol | 1 U | 52.74 | 37.23 | 52.08 | 34.49 | 71 | 66 | 64-130 | 8 | 30 |
| Phenanthrene | 0.1 U | 52.74 | 41.8 | 52.08 | 42.05 | 79 | 81 | 68-118 | 1 | 30 |
| Phenol | 0.5 U | 52.74 | 20.25 | 52.08 | 12.49 | 38 | 24 | 23-82 | 47* | 30 |
| Pyrene | 0.1 U | 52.74 | 41.83 | 52.08 | 42.19 | 79 | 81 | 68-118 | 1 | 30 |
| 1,2,4,5-Tetrachlorobenzene | 0.5 U | 52.74 | 32.8 | 52.08 | 33.14 | 62 | 64 | 39-112 | 1 | 30 |
| 2,3,4,6-Tetrachlorophenol | 4 U | 52.74 | 45.38 | 52.08 | 40.4 | 86 | 78 | 69-125 | 12 | 30 |
| 2,4,5-Trichlorophenol | 0.5 U | 52.74 | 44.88 | 52.08 | 41.04 | 85 | 79 | 73-124 | 9 | 30 |
| 2,4,6-Trichlorophenol | 0.5 U | 52.74 | 40.6 | 52.08 | 36.4 | 77 | 70 | 69-122 | 11 | 30 |
| | **mg/l** | **mg/l** | **mg/l** | **mg/l** | **mg/l** | | | | | |
| Batch number: 182880571310 | Sample number(s): 9851711-9851714 UNSPK: P851303 | | | | | | | | | |
| Mercury | 0.000050 U | 0.00100 | 0.000927 | 0.00100 | 0.000951 | 93 | 95 | 80-120 | 3 | 20 |
| Batch number: 182881063601 | Sample number(s): 9851711-9851714 UNSPK: P848116 | | | | | | | | | |
| Aluminum | 0.153 U | 2.00 | 2.06 | 2.00 | 2.08 | 103 | 104 | 75-125 | 1 | 20 |
| Calcium | 17.19 | 4.00 | 20.9 | 4.00 | 21.46 | 93 (2) | 107 (2) | 75-125 | 3 | 20 |
| Iron | 19.78 | 1.00 | 20.26 | 1.00 | 21.04 | 48 (2) | 126 (2) | 75-125 | 4 | 20 |
| Magnesium | 13.92 | 2.00 | 15.86 | 2.00 | 16.3 | 97 (2) | 119 (2) | 75-125 | 3 | 20 |
| Manganese | 0.313 | 0.500 | 0.813 | 0.500 | 0.842 | 100 | 106 | 75-125 | 4 | 20 |

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(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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc mg/l | MS Spike Added mg/l | MS Conc mg/l | MSD Spike Added mg/l | MSD Conc mg/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 1.85 | 10 | 12.15 | 10 | 12.29 | 103 | 104 | 75-125 | 1 | 20 |
| Sodium | 102.3 | 10 | 112.64 | 10 | 115.51 | 103 (2) | 132 (2) | 75-125 | 3 | 20 |
| Zinc | 0.00342 | 0.500 | 0.539 | 0.500 | 0.539 | 107 | 107 | 75-125 | 0 | 20 |
| Batch number: 182881063902A | Sample number(s): 9851711-9851714 UNSPK: P851736 | | | | | | | | | |
| Antimony | 0.00041 U | 0.00600 | 0.00542 | 0.00600 | 0.00556 | 90 | 93 | 75-125 | 3 | 20 |
| Arsenic | 0.00068 U | 0.0100 | 0.0121 | 0.0100 | 0.0120 | 121 | 120 | 75-125 | 1 | 20 |
| Beryllium | 0.000091 U | 0.00400 | 0.00438 | 0.00400 | 0.00418 | 109 | 104 | 75-125 | 5 | 20 |
| Cadmium | 0.00015 U | 0.00500 | 0.00469 | 0.00500 | 0.00479 | 94 | 96 | 75-125 | 2 | 20 |
| Chromium | 0.000917 | 0.0500 | 0.0479 | 0.0500 | 0.0507 | 94 | 100 | 75-125 | 6 | 20 |
| Cobalt | 0.00016 U | 0.250 | 0.255 | 0.250 | 0.242 | 102 | 97 | 80-120 | 5 | 20 |
| Copper | 0.0099 U | 0.0500 | 0.0526 | 0.0500 | 0.0508 | 105 | 102 | 75-125 | 4 | 20 |
| Lead | 0.0011 U | 0.0150 | 0.0153 | 0.0150 | 0.0150 | 102 | 100 | 75-125 | 2 | 20 |
| Nickel | 0.00060 U | 0.0500 | 0.0524 | 0.0500 | 0.0502 | 105 | 100 | 75-125 | 4 | 20 |
| Silver | 0.00017 U | 0.0500 | 0.0501 | 0.0500 | 0.0481 | 100 | 96 | 75-125 | 4 | 20 |
| Thallium | 0.00011 U | 0.00200 | 0.00222 | 0.00200 | 0.00215 | 111 | 107 | 75-125 | 3 | 20 |
| Vanadium | 0.00206 | 0.0500 | 0.0515 | 0.0500 | 0.0511 | 99 | 98 | 75-125 | 1 | 20 |
| Batch number: 182881063902B | Sample number(s): 9851711-9851714 UNSPK: P851736 | | | | | | | | | |
| Selenium | 0.00065 U | 0.0100 | 0.0110 | 0.0100 | 0.0109 | 110 | 109 | 75-125 | 1 | 20 |
| Batch number: 182881063902D | Sample number(s): 9851711-9851714 UNSPK: P851736 | | | | | | | | | |
| Barium | 0.170 | 0.0500 | 0.214 | 0.0500 | 0.226 | 88 | 112 | 75-125 | 6 | 20 |

## Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

| Analysis Name | BKG Conc mg/l | DUP Conc mg/l | DUP RPD | DUP RPD Max |
|---|---|---|---|---|
| Batch number: 182880571310 | Sample number(s): 9851711-9851714 BKG: P851303 | | | |
| Mercury | 0.000050 U | 0.000050 U | 0 (1) | 20 |
| Batch number: 182881063601 | Sample number(s): 9851711-9851714 BKG: P848116 | | | |
| Aluminum | 0.153 U | 0.153 U | 0 (1) | 20 |
| Calcium | 17.19 | 18.08 | 5 | 20 |
| Iron | 19.78 | 20.71 | 5 | 20 |
| Magnesium | 13.92 | 14.64 | 5 | 20 |
| Manganese | 0.313 | 0.329 | 5 | 20 |
| Potassium | 1.85 | 1.95 | 5 (1) | 20 |

*- Outside of specification
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(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.

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

| Analysis Name | BKG Conc mg/l | DUP Conc mg/l | DUP RPD | DUP RPD Max |
|---|---|---|---|---|
| Sodium | 102.3 | 107.69 | 5 | 20 |
| Zinc | 0.00342 | 0.00363 | 6 (1) | 20 |
| Batch number: 182881063902A | Sample number(s): 9851711-9851714 BKG: P851736 | | | |
| Antimony | 0.00041 U | 0.00041 U | 0 (1) | 20 |
| Arsenic | 0.00068 U | 0.00068 U | 0 (1) | 20 |
| Beryllium | 0.000091 U | 0.000091 U | 0 (1) | 20 |
| Cadmium | 0.00015 U | 0.00015 U | 0 (1) | 20 |
| Chromium | 0.000917 | 0.000978 | 6 (1) | 20 |
| Cobalt | 0.00016 U | 0.00016 U | 0 (1) | 20 |
| Copper | 0.0099 U | 0.0099 U | 0 (1) | 20 |
| Lead | 0.0011 U | 0.0011 U | 0 (1) | 20 |
| Nickel | 0.00060 U | 0.00060 U | 0 (1) | 20 |
| Silver | 0.00017 U | 0.00017 U | 0 (1) | 20 |
| Thallium | 0.00011 U | 0.00011 U | 0 (1) | 20 |
| Vanadium | 0.00206 | 0.00206 | 0 (1) | 20 |
| Batch number: 182881063902B | Sample number(s): 9851711-9851714 BKG: P851736 | | | |
| Selenium | 0.00065 U | 0.00065 U | 0 (1) | 20 |
| Batch number: 182881063902D | Sample number(s): 9851711-9851714 BKG: P851736 | | | |
| Barium | 0.170 | 0.170 | 0 | 20 |

## 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: TCL Volatiles 8260C
Batch number: E182961AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 9851711 | 112 | 111 | 96 | 86 |
| Blank | 87 | 88 | 99 | 99 |
| LCS | 92 | 91 | 91 | 105 |
| MS | 98 | 100 | 126* | 98 |
| MSD | 95 | 96 | 126* | 99 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: TCL Volatiles 8260C
Batch number: L182971AA

*- Outside of specification
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(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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## 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: TCL Volatiles 8260C
Batch number: L182971AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 9851712 | 102 | 103 | 100 | 98 |
| 9851713 | 103 | 102 | 100 | 97 |
| Blank | 102 | 102 | 100 | 99 |
| LCS | 102 | 100 | 99 | 100 |
| LCSD | 102 | 103 | 101 | 101 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: TCL Volatiles 8260C
Batch number: L182984AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 9851714 | 104 | 103 | 101 | 98 |
| 9851718 | 102 | 103 | 102 | 98 |
| Blank | 103 | 103 | 100 | 98 |
| LCS | 104 | 102 | 101 | 101 |
| MS | 102 | 102 | 101 | 102 |
| MSD | 103 | 101 | 100 | 102 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: TC: SVOA 8270D
Batch number: 18288WAN026

| | Phenol-d6 | 2-Fluorophenol | 2,4,6-Tribromophenol | Nitrobenzene-d5 | 2-Fluorobiphenyl | Terphenyl-d14 |
|---|---|---|---|---|---|---|
| 9851711 | 29 | 42 | 90 | 72 | 75 | 90 |
| 9851712 | 33 | 48 | 90 | 73 | 80 | 88 |
| 9851713 | 31 | 44 | 88 | 70 | 74 | 68 |
| Blank | 27 | 39 | 77 | 58 | 65 | 88 |
| LCS | 38 | 50 | 80 | 65 | 70 | 89 |
| MS | 39 | 54 | 81 | 77 | 77 | 75 |
| MSD | 41 | 56 | 77 | 76 | 77 | 74 |
| Limits: | 10-72 | 10-85 | 29-133 | 30-111 | 39-105 | 27-126 |

Analysis Name: TC: SVOA 8270D
Batch number: 18290WAF026

| | Phenol-d6 | 2-Fluorophenol | 2,4,6-Tribromophenol | Nitrobenzene-d5 | 2-Fluorobiphenyl | Terphenyl-d14 |
|---|---|---|---|---|---|---|
| 9851714 | 23 | 32 | 64 | 61 | 61 | 72 |
| Blank | 22 | 29 | 71 | 47 | 49 | 81 |
| LCS | 40 | 50 | 93 | 77 | 74 | 91 |
| MS | 37 | 45 | 74 | 73 | 70 | 65 |
| MSD | 23 | 29 | 66 | 73 | 75 | 64 |

*- 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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## 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: TC: SVOA 8270D
Batch number: 18290WAF026

| | | | | | | |
|---|---|---|---|---|---|---|
| Limits: | 10-72 | 10-85 | 29-133 | 30-111 | 39-105 | 27-126 |

Analysis Name: 16 PFAS Compounds
Batch number: 18289002

| | 13C4-PFBA | 13C5-PFPeA | 13C3-PFBS | 13C5-PFHxA | 13C3-PFHxS |
|---|---|---|---|---|---|
| 9851709 | 90 | 105 | 130 | 90 | 107 |
| 9851710 | 92 | 73 | 162* | 111 | 155* |
| 9851712 | 100 | 83 | 114 | 103 | 121 |
| 9851713 | 100 | 85 | 111 | 104 | 126 |
| 9851714 | 100 | 124 | 161* | 115 | 121 |
| 9851715 | 88 | 85 | 85 | 87 | 92 |
| 9851716 | 90 | 91 | 86 | 89 | 89 |
| 9851717 | 90 | 87 | 89 | 89 | 90 |
| 9851718 | 87 | 85 | 88 | 82 | 88 |
| Limits: | 33-123 | 31-157 | 26-148 | 35-138 | 34-126 |

| | 13C4-PFHpA | 13C8-PFOA | 13C8-PFOS | 13C9-PFNA | 13C6-PFDA |
|---|---|---|---|---|---|
| 9851709 | 103 | 91 | 92 | 106 | 97 |
| 9851710 | 157* | 82 | 97 | 105 | 85 |
| 9851712 | 117 | 98 | 99 | 89 | 87 |
| 9851713 | 115 | 96 | 99 | 100 | 90 |
| 9851714 | 122 | 100 | 97 | 108 | 96 |
| 9851715 | 82 | 86 | 85 | 87 | 89 |
| 9851716 | 81 | 89 | 88 | 97 | 88 |
| 9851717 | 86 | 90 | 87 | 95 | 93 |
| 9851718 | 77 | 85 | 87 | 91 | 82 |
| Limits: | 35-126 | 48-122 | 50-121 | 41-144 | 47-125 |

| | d3-NMeFOSAA | 13C7-PFUnDA | d5-NEtFOSAA | 13C2-PFDoDA | 13C2-PFTeDA |
|---|---|---|---|---|---|
| 9851709 | 90 | 95 | 93 | 91 | 87 |
| 9851710 | 99 | 86 | 79 | 86 | 86 |
| 9851712 | 96 | 85 | 87 | 92 | 92 |
| 9851713 | 110 | 90 | 78 | 100 | 97 |
| 9851714 | 98 | 96 | 94 | 93 | 83 |
| 9851715 | 96 | 84 | 75 | 90 | 78 |
| 9851716 | 93 | 81 | 77 | 80 | 82 |
| 9851717 | 101 | 98 | 89 | 92 | 86 |
| 9851718 | 97 | 89 | 82 | 81 | 81 |
| Limits: | 30-127 | 30-128 | 30-142 | 39-130 | 26-119 |

*- 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.

REVISED

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/05/2018 12:18

Group Number: 1998361

## Labeled Isotope Quality Control (continued)

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 16 PFAS Compounds
Batch number: 18289002

| | 13C4-PFBA | 13C5-PFPeA | 13C3-PFBS | 13C2-4:2-FTS | 13C5-PFHxA | 13C3-PFHxS |
|---|---|---|---|---|---|---|
| 9851711 | 83 | 91 | 118 | 248* | 98 | 111 |
| Blank | 85 | 88 | 87 | 85 | 79 | 86 |
| LCS | 91 | 91 | 94 | 98 | 90 | 93 |
| LCSD | 90 | 93 | 89 | 106 | 96 | 99 |
| Limits: | 33-123 | 31-157 | 26-148 | 21-182 | 35-138 | 34-126 |

| | 13C4-PFHpA | 13C2-6:2-FTS | 13C8-PFOA | 13C8-PFOS | 13C9-PFNA | 13C6-PFDA |
|---|---|---|---|---|---|---|
| 9851711 | 117 | 120 | 75 | 81 | 83 | 78 |
| Blank | 80 | 119 | 86 | 81 | 87 | 83 |
| LCS | 87 | 137 | 96 | 93 | 101 | 94 |
| LCSD | 93 | 137 | 100 | 84 | 92 | 95 |
| Limits: | 35-126 | 32-170 | 48-122 | 50-121 | 41-144 | 47-125 |

| | 13C2-8:2-FTS | d3-NMeFOSAA | 13C7-PFUnDA | d5-NEtFOSAA | 13C2-PFDoDA | 13C2-PFTeDA |
|---|---|---|---|---|---|---|
| 9851711 | 142 | 82 | 79 | 83 | 74 | 68 |
| Blank | 141 | 85 | 85 | 70 | 78 | 79 |
| LCS | 147 | 100 | 96 | 85 | 91 | 85 |
| LCSD | 156 | 99 | 92 | 81 | 86 | 86 |
| Limits: | 27-164 | 30-127 | 30-128 | 30-142 | 39-130 | 26-119 |

| | 13C8-PFOSA | d7-NMePFOSAE | d3-NMePFOSA | d9-NEtPFOSAE | d5-NEtPFOSA | 13C3-HFPODA |
|---|---|---|---|---|---|---|
| 9851711 | 70 | 58 | 28 | 63 | 29 | 123 |
| Blank | 71 | 66 | 44 | 73 | 45 | 85 |
| LCS | 80 | 71 | 42 | 76 | 47 | 80 |
| LCSD | 82 | 75 | 40 | 80 | 48 | 90 |
| Limits: | 11-127 | 10-128 | 10-104 | 10-121 | 10-106 | 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.

# Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10253 Group # 1998361 Sample # 985179-18

**COC #** 578335

## Client Information

| | |
|---|---|
| Client: Golder Associates | Acct. #: |
| Project Name/#: SGPP | PWSID #: |
| Project Manager: Jim Peace | P.O. #: |
| Sampler: Luke Lampo | Quote #: |
| State where samples were collected: NH | For Compliance: Yes ☐ No ☐ |

**Matrix:** Soil ☐ Sediment ☐ Tissue ☐ | Water ☒ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: ____

**Analysis Requested** — Preservation and Filtration Codes

**For Lab Use Only**

FSC: ____

SCR#: ____

**Preservation Codes**

H=HCl T=Thiosulfate
N=$HNO_3$ B=NaOH
S=$H_2SO_4$ P=$H_3PO_4$
F=Field Filtered O=Other

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total # of Containers | PFAS (16 compounds) | PFAS (32 compounds) | HFPODA/ADONA | VOCs | SVOCs | TAL Metals | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TMW-A | 10/10/18 | 1146 | X | | 2 | X | | | | | | |
| TMW-B | 10/10/18 | 1335 | X | | 2 | X | | | | | | |
| TMW-C | 10/10/18 | 1550 | X | | 8 | | X | X | X | X | X | |
| TMW-E | 10/11/18 | 1055 | X | | 8 | X | | | X | X | X | |
| TMW-F | 10/11/18 | 1340 | X | | 8 | X | | | X | X | X | |
| TMW-G | 10/12/18 | 1115 | X | | 8 | X | | | X | X | X | |
| FB-1 | 10/10/18 | 1625 | X | | 2 | X | | | | | | |
| FB-2 | 10/11/18 | 1425 | X | | 2 | X | | | | | | |
| EB-1 | 10/10/18 | 1620 | X | | 2 | X | | | | | | |
| TB-1 | 10/12/18 | 1530 | X | | 4 | X | | | X | | | |

**Turnaround Time (TAT) Requested** (please circle)

(Standard) Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: ____

E-mail address: rbennett@golder.com jpeace@golder.com scott_drew@golder.com

**Data Package Options** (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| | 10/12/18 | 1600 | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | Date | Time |
| | | | | 10/13/18 | 930 |

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other ____

Temperature upon receipt 3.6-0.9 °C

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# Sample Administration Receipt Documentation Log

Doc Log ID: 230016

Group Number(s): 1998361

Client: Golder Associates

## Delivery and Receipt Information

| | | | |
|---|---|---|---|
| Delivery Method: | Fed Ex | Arrival Timestamp: | 10/13/2018 9:30 |
| Number of Packages: | 2 | Number of Projects: | 1 |
| State/Province of Origin: | NH | | |

## Arrival Condition Summary

| | | | |
|---|---|---|---|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 4 |
| Paperwork Enclosed: | Yes | Trip Blank Type: | See Below |
| Samples Intact: | Yes | Air Quality Samples Present: | No |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Trip Blank Type(s): 2-40 mL vials (HCl),2-250 mL plastic bottles (unpre)

*Unpacked by Melvin Sanchez (8943) at 14:11 on 10/13/2018*

## 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 | DT131 | 0.6 | DT | Wet | Y | Bagged | N |
| 2 | DT131 | 0.9 | DT | 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 | **mL** | milliliter(s) |
| **C** | degrees Celsius | **MPN** | Most Probable Number |
| **cfu** | colony forming units | **N.D.** | non-detect |
| **CP Units** | cobalt-chloroplatinate units | **ng** | nanogram(s) |
| **F** | degrees Fahrenheit | **NTU** | nephelometric turbidity units |
| **g** | gram(s) | **pg/L** | picogram/liter |
| **IU** | International Units | **RL** | Reporting Limit |
| **kg** | kilogram(s) | **TNTC** | Too Numerous To Count |
| **L** | liter(s) | **µg** | microgram(s) |
| **lb.** | pound(s) | **µL** | microliter(s) |
| **m3** | cubic meter(s) | **umhos/cm** | micromhos/cm |
| **meq** | milliequivalents | **MCL** | Maximum Contamination Limit |
| **mg** | milligram(s) | | |

| | |
|---|---|
| **<** | 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. |

**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.

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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.

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# Data Qualifiers

| Qualifier | Definition |
|---|---|
| C | Result confirmed by reanalysis |
| D1 | Indicates for dual column analyses that the result is reported from column 1 |
| D2 | Indicates for dual column analyses that the result is reported from column 2 |
| E | Concentration exceeds the calibration range |
| K1 | Initial Calibration Blank is above the QC limit and the sample result is ND |
| K2 | Continuing Calibration Blank is above the QC limit and the sample result is ND |
| K3 | Initial Calibration Verification is above the QC limit and the sample result is ND |
| K4 | Continuing Calibration Verification is above the QC limit and the sample result is ND |
| 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. |
| P^ | Concentration difference between the primary and confirmation column > 40%. The higher 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. |
| Z | Laboratory Defined - see analysis report |

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.

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# ANALYSIS REPORT

Prepared by:

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

Prepared for:

Golder Associates
670 North Commercial Street
Suite 103
Manchester NH 03101

Report Date: November 02, 2018 11:12

**Project: SGPP-Merrimack NH**

Account #: 10253
Group Number: 2000029
SDG: GOA42
PO Number: PROJECT: 166-8623
State of Sample Origin: NH

| | | |
|---|---|---|
| Electronic Copy To | Golder Associates | Attn: Jim Peace |
| Electronic Copy To | Environmental Standards | Attn: Meg Michell |
| Electronic Copy To | Environmental Standards | Attn: SaintGobain |
| Electronic Copy To | Golder Associates | Attn: Ross Bennett |
| Electronic Copy To | Golder Associates | Attn: Scott Drew |
| Electronic Copy To | Golder Associates | Attn: Jen Fisher |
| Electronic Copy To | Golder Associates | Attn: McKenzie Sheldon |

Respectfully Submitted,

Kay Hower

(717) 556-7364

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## SAMPLE INFORMATION

| Client Sample Description | Sample Collection Date/Time | ELLE# |
|---|---|---|
| TMW-H Grab Groundwater | 10/17/2018 13:35 | 9858439 |
| TMW-D Grab Groundwater | 10/16/2018 15:07 | 9858440 |
| DUP-1 Grab Groundwater | 10/16/2018 15:07 | 9858441 |
| EB-1 Grab Water | 10/16/2018 15:00 | 9858442 |
| FB-1 Grab Water | 10/16/2018 15:30 | 9858443 |
| TB-1 Grab Water | 10/16/2018 16:00 | 9858444 |
| FB-2 Grab Water | 10/17/2018 14:00 | 9858445 |
| TB-2 Grab Water | 10/17/2018 14:05 | 9858446 |

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

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Project Name: SGPP-Merrimack NH
ELLE Group #: 2000029

**General Comments:**

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if 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.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

**Analysis Specific Comments:**

**SW-846 8260C, GC/MS Volatiles**

Batch #: 5183031AA (Sample number(s): 9858439 UNSPK: P856951)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Cyclohexane, Methylcyclohexane, trans-1,2-Dichloroethene

**SW-846 8270D, GC/MS Semivolatiles**

Sample #s: 9858439, 9858440

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial.

Sample #s: 9858441

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Batch #: 18295WAH026 (Sample number(s): 9858440-9858441)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Hexachlorocyclopentadiene, Diethylphthalate, Di-n-butylphthalate, Pentachlorophenol, 2,4-Dinitrotoluene, Anthracene, Pyrene, Butylbenzylphthalate, Benzo(k)fluoranthene, Benzo(a)pyrene, Carbazole, Atrazine

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: 2,4-Dinitrotoluene

Batch #: 18296WAA026 (Sample number(s): 9858439 UNSPK: P856951)

The recovery(ies) for the following analyte(s) in the LCS were below the acceptance window: Hexachlorocyclopentadiene

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Acetophenone, 2-Methylnaphthalene, Naphthalene, Acenaphthene, Fluorene, N-Nitrosodiphenylamine, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Di-n-octylphthalate, Benzo(a)pyrene, Caprolactam

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: 2,3,4,6-Tetrachlorophenol, 4-Chloroaniline, 2-Nitroaniline, 3-Nitroaniline, 2-Nitrophenol, 2,4-Dinitrophenol, 4-Nitrophenol, 4,6-Dinitro-2-methylphenol, Hexachlorocyclopentadiene, 2,6-Dinitrotoluene, 3,3'-Dichlorobenzidine, Caprolactam

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Acetophenone, 2-Methylnaphthalene, 2-Nitroaniline, 3-Nitroaniline, 4-Nitroaniline, 2-Nitrophenol, Naphthalene, 2,6-Dinitrotoluene, Acenaphthene, Fluorene, N-Nitrosodiphenylamine, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, 3,3'-Dichlorobenzidine, Benzo(a)pyrene, Caprolactam

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) MSD

**EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous**

Sample #s: 9858439, 9858440, 9858441

The recovery for labeled compound used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Batch #: 18292002 (Sample number(s): 9858439-9858446)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9858439, 9858440, 9858441

**SW-846 6010C, Metals**

Batch #: 182971063602 (Sample number(s): 9858440-9858441 UNSPK: 9858440 BKG: 9858440)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Sodium

**SM 2320 B-2011, Wet Chemistry**

Batch #: 18292005205A (Sample number(s): 9858440-9858441 UNSPK: P854192 BKG: P854192, P855867)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

**Sample Description:** **TMW-H Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 13:35
SDG#: GOA42-01

**Golder Associates**
**ELLE Sample #: WW 9858439**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

**Sample Description:** **TMW-H Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 13:35
SDG#: GOA42-01

**Golder Associates**
**ELLE Sample #: WW 9858439**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Acenaphthene | 83-32-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acenaphthylene | 208-96-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acetophenone | 98-86-2 | 4 U | 4 | 10 | 1 |
| 14242 | Anthracene | 120-12-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Atrazine | 1912-24-9 | 2 U | 2 | 5 | 1 |
| 14242 | Benzaldehyde | 100-52-7 | 3 U | 3 | 10 | 1 |
| 14242 | Benzo(a)anthracene | 56-55-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(a)pyrene | 50-32-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(b)fluoranthene | 205-99-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(g,h,i)perylene | 191-24-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(k)fluoranthene | 207-08-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,1'-Biphenyl | 92-52-4 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Bromophenyl-phenylether | 101-55-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Butylbenzylphthalate | 85-68-7 | 2 U | 2 | 5 | 1 |
| 14242 | Di-n-butylphthalate | 84-74-2 | 2 U | 2 | 5 | 1 |
| 14242 | Caprolactam | 105-60-2 | 5 U | 5 | 11 | 1 |
| 14242 | Carbazole | 86-74-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloro-3-methylphenol | 59-50-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloroaniline | 106-47-8 | 4 U | 4 | 10 | 1 |
| 14242 | bis(2-Chloroethoxy)methane | 111-91-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | bis(2-Chloroethyl)ether | 111-44-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Chloronaphthalene | 91-58-7 | 0.4 U | 0.4 | 1 | 1 |
| 14242 | 2-Chlorophenol | 95-57-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chlorophenyl-phenylether | 7005-72-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,2'-oxybis(1-Chloropropane) | 108-60-1 | 0.5 U | 0.5 | 2 | 1 |
| | Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds. | | | | | |
| 14242 | Chrysene | 218-01-9 | 0.1 U | 0.1 | 0.5 | 1 |

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

**Sample Description:** **TMW-H Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 13:35
SDG#: GOA42-01

**Golder Associates**
**ELLE Sample #: WW 9858439**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Dibenz(a,h)anthracene | 53-70-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenzofuran | 132-64-9 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 3,3'-Dichlorobenzidine | 91-94-1 | 3 U | 3 | 10 | 1 |
| 14242 | 2,4-Dichlorophenol | 120-83-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Diethylphthalate | 84-66-2 | 2 U | 2 | 5 | 1 |
| 14242 | 2,4-Dimethylphenol | 105-67-9 | 3 U | 3 | 10 | 1 |
| 14242 | Dimethylphthalate | 131-11-3 | 2 U | 2 | 5 | 1 |
| 14242 | 4,6-Dinitro-2-methylphenol | 534-52-1 | 8 U | 8 | 22 | 1 |
| 14242 | 2,4-Dinitrophenol | 51-28-5 | 15 U | 15 | 31 | 1 |
| 14242 | 2,4-Dinitrotoluene | 121-14-2 | 1 U | 1 | 5 | 1 |
| 14242 | 2,6-Dinitrotoluene | 606-20-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 1,4-Dioxane | 123-91-1 | 2 U | 2 | 5 | 1 |
| 14242 | bis(2-Ethylhexyl)phthalate | 117-81-7 | 5 U | 5 | 11 | 1 |
| 14242 | Fluoranthene | 206-44-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Fluorene | 86-73-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobenzene | 118-74-1 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobutadiene | 87-68-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Hexachlorocyclopentadiene | 77-47-4 | 5 U | 5 | 11 | 1 |
| 14242 | Hexachloroethane | 67-72-1 | 1 U | 1 | 5 | 1 |
| 14242 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Isophorone | 78-59-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Methylnaphthalene | 91-57-6 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Methylphenol | 95-48-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Methylphenol | 106-44-5 | 0.5 U | 0.5 | 2 | 1 |
| | 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds. | | | | | |
| 14242 | Naphthalene | 91-20-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Nitroaniline | 88-74-4 | 2 U | 2 | 7 | 1 |
| 14242 | 3-Nitroaniline | 99-09-2 | 3 U | 3 | 7 | 1 |
| 14242 | 4-Nitroaniline | 100-01-6 | 0.9 U | 0.9 | 3 | 1 |
| 14242 | Nitrobenzene | 98-95-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Nitrophenol | 88-75-5 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Nitrophenol | 100-02-7 | 10 U | 10 | 31 | 1 |
| 14242 | N-Nitroso-di-n-propylamine | 621-64-7 | 0.7 U | 0.7 | 3 | 1 |
| 14242 | N-Nitrosodiphenylamine | 86-30-6 | 0.7 U | 0.7 | 3 | 1 |
| | N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds. | | | | | |
| 14242 | Di-n-octylphthalate | 117-84-0 | 5 U | 5 | 11 | 1 |
| 14242 | Pentachlorophenol | 87-86-5 | 1 U | 1 | 5 | 1 |
| 14242 | Phenanthrene | 85-01-8 | 0.1 U | 0.1 | 0.5 | 1 |

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

**Sample Description:** **TMW-H Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 13:35
SDG#: GOA42-01

**Golder Associates**
**ELLE Sample #: WW 9858439**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Phenol | 108-95-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Pyrene | 129-00-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 4 U | 4 | 10 | 1 |
| 14242 | 2,4,5-Trichlorophenol | 95-95-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,4,6-Trichlorophenol | 88-06-2 | 0.5 U | 0.5 | 2 | 1 |

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial.

| | | | | | | |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | NEtFOSAA | 2991-50-6 | 26 | 0.85 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 7.0 | 0.26 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 130 | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 24 | 0.77 | 1.7 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 2.5 | 0.43 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 230 | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 15 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 490 | 3.4 | 17 | 10 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 46 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic acid | 1763-23-1 | 470 | 3.4 | 17 | 10 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 1,600 | 2.6 | 8.5 | 10 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 410 | 17 | 51 | 10 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 5.7 | 0.34 | 1.7 | 1 |

The recovery for labeled compound used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | 5183031AA | 10/30/2018 18:01 | Kevin A Sposito | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | 5183031AA | 10/30/2018 18:01 | Kevin A Sposito | 1 |
| 14242 | TC: SVOA 8270D | SW-846 8270D | 1 | 18296WAA026 | 10/25/2018 01:49 | Ashley R Transue | 1 |
| 00813 | BNA Water Extraction | SW-846 3510C | 1 | 18296WAA026 | 10/23/2018 18:00 | Mathias Okpo | 1 |

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

**Sample Description:** **TMW-H Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 13:35
SDG#: GOA42-01

**Golder Associates**
**ELLE Sample #: WW 9858439**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 00:50 | Jason W Knight | 1 |
| 14473 | 16 PFAS Compounds | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/24/2018 06:05 | Jason W Knight | 10 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |

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

**Sample Description:** **TMW-D Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-02

**Golder Associates**
**ELLE Sample #: WW 9858440**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

**Sample Description:** **TMW-D Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-02

**Golder Associates**
**ELLE Sample #: WW 9858440**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Acenaphthene | 83-32-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acenaphthylene | 208-96-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acetophenone | 98-86-2 | 4 U | 4 | 10 | 1 |
| 14242 | Anthracene | 120-12-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Atrazine | 1912-24-9 | 2 U | 2 | 5 | 1 |
| 14242 | Benzaldehyde | 100-52-7 | 3 U | 3 | 10 | 1 |
| 14242 | Benzo(a)anthracene | 56-55-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(a)pyrene | 50-32-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(b)fluoranthene | 205-99-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(g,h,i)perylene | 191-24-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(k)fluoranthene | 207-08-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,1'-Biphenyl | 92-52-4 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Bromophenyl-phenylether | 101-55-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Butylbenzylphthalate | 85-68-7 | 2 U | 2 | 5 | 1 |
| 14242 | Di-n-butylphthalate | 84-74-2 | 2 U | 2 | 5 | 1 |
| 14242 | Caprolactam | 105-60-2 | 5 U | 5 | 11 | 1 |
| 14242 | Carbazole | 86-74-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloro-3-methylphenol | 59-50-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloroaniline | 106-47-8 | 4 U | 4 | 10 | 1 |
| 14242 | bis(2-Chloroethoxy)methane | 111-91-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | bis(2-Chloroethyl)ether | 111-44-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Chloronaphthalene | 91-58-7 | 0.4 U | 0.4 | 1 | 1 |
| 14242 | 2-Chlorophenol | 95-57-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chlorophenyl-phenylether | 7005-72-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,2'-oxybis(1-Chloropropane) | 108-60-1 | 0.5 U | 0.5 | 2 | 1 |
| | Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds. | | | | | |
| 14242 | Chrysene | 218-01-9 | 0.1 U | 0.1 | 0.5 | 1 |

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

**Sample Description:** **TMW-D Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-02

**Golder Associates**
**ELLE Sample #: WW 9858440**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Dibenz(a,h)anthracene | 53-70-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenzofuran | 132-64-9 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 3,3'-Dichlorobenzidine | 91-94-1 | 3 U | 3 | 10 | 1 |
| 14242 | 2,4-Dichlorophenol | 120-83-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Diethylphthalate | 84-66-2 | 2 U | 2 | 5 | 1 |
| 14242 | 2,4-Dimethylphenol | 105-67-9 | 3 U | 3 | 10 | 1 |
| 14242 | Dimethylphthalate | 131-11-3 | 2 U | 2 | 5 | 1 |
| 14242 | 4,6-Dinitro-2-methylphenol | 534-52-1 | 8 U | 8 | 21 | 1 |
| 14242 | 2,4-Dinitrophenol | 51-28-5 | 14 U | 14 | 30 | 1 |
| 14242 | 2,4-Dinitrotoluene | 121-14-2 | 1 U | 1 | 5 | 1 |
| 14242 | 2,6-Dinitrotoluene | 606-20-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 1,4-Dioxane | 123-91-1 | 2 U | 2 | 5 | 1 |
| 14242 | bis(2-Ethylhexyl)phthalate | 117-81-7 | 5 U | 5 | 11 | 1 |
| 14242 | Fluoranthene | 206-44-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Fluorene | 86-73-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobenzene | 118-74-1 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobutadiene | 87-68-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Hexachlorocyclopentadiene | 77-47-4 | 5 U | 5 | 11 | 1 |
| 14242 | Hexachloroethane | 67-72-1 | 1 U | 1 | 5 | 1 |
| 14242 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Isophorone | 78-59-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Methylnaphthalene | 91-57-6 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Methylphenol | 95-48-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Methylphenol | 106-44-5 | 0.5 U | 0.5 | 2 | 1 |
| | 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds. | | | | | |
| 14242 | Naphthalene | 91-20-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Nitroaniline | 88-74-4 | 2 U | 2 | 7 | 1 |
| 14242 | 3-Nitroaniline | 99-09-2 | 3 U | 3 | 7 | 1 |
| 14242 | 4-Nitroaniline | 100-01-6 | 0.9 U | 0.9 | 3 | 1 |
| 14242 | Nitrobenzene | 98-95-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Nitrophenol | 88-75-5 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Nitrophenol | 100-02-7 | 10 U | 10 | 30 | 1 |
| 14242 | N-Nitroso-di-n-propylamine | 621-64-7 | 0.7 U | 0.7 | 3 | 1 |
| 14242 | N-Nitrosodiphenylamine | 86-30-6 | 0.7 U | 0.7 | 3 | 1 |
| | N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds. | | | | | |
| 14242 | Di-n-octylphthalate | 117-84-0 | 5 U | 5 | 11 | 1 |
| 14242 | Pentachlorophenol | 87-86-5 | 1 U | 1 | 5 | 1 |
| 14242 | Phenanthrene | 85-01-8 | 0.1 U | 0.1 | 0.5 | 1 |

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

**Sample Description:** **TMW-D Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-02

**Golder Associates**
**ELLE Sample #: WW 9858440**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Phenol | 108-95-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Pyrene | 129-00-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 4 U | 4 | 10 | 1 |
| 14242 | 2,4,5-Trichlorophenol | 95-95-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,4,6-Trichlorophenol | 88-06-2 | 0.5 U | 0.5 | 2 | 1 |
| | The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. | | | | | |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 0.87 U | 0.87 | 2.6 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 0.87 U | 0.87 | 2.6 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 130 | 0.87 | 1.7 | 1 |
| 14473 | HFPODA | 13252-13-6 | 3.5 | 0.44 | 1.7 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.26 U | 0.26 | 0.87 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.87 U | 0.87 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 2.6 U | 2.6 | 7.8 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.0 U | 1.0 | 2.6 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.87 U | 0.87 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 2.6 U | 2.6 | 7.8 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 0.87 U | 0.87 | 2.6 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 22 | 0.26 | 0.87 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 190 | 1.7 | 5.2 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 180 | 0.78 | 1.7 | 1 |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.44 U | 0.44 | 1.7 | 1 |

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

**Sample Description:** **TMW-D Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-02

**Golder Associates**
**ELLE Sample #: WW 9858440**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 13 | 0.35 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 320 | 0.35 | 0.87 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 91 | 0.35 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 520 | 3.5 | 17 | 10 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 200 | 0.35 | 1.7 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.44 U | 0.44 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 7.1 | 0.44 | 2.6 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 1,100 | 3.5 | 17 | 10 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 2,600 | 2.6 | 8.7 | 10 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 22 | 0.35 | 1.7 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 500 | 17 | 52 | 10 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.35 U | 0.35 | 0.87 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.54 J | 0.35 | 1.7 | 1 |

The recovery for labeled compound used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010C** | | **mg/l** | **mg/l** | **mg/l** | |
| 01743 | Aluminum | 7429-90-5 | 0.153 U | 0.153 | 0.300 | 1 |
| 01750 | Calcium | 7440-70-2 | 14.8 | 0.0330 | 0.500 | 1 |
| 01754 | Iron | 7439-89-6 | 0.0400 U | 0.0400 | 0.200 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.74 | 0.0190 | 0.100 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.0184 J | 0.0011 | 0.0200 | 1 |
| 01762 | Potassium | 7440-09-7 | 2.28 | 0.203 | 0.500 | 1 |
| 01767 | Sodium | 7440-23-5 | 51.1 | 0.326 | 1.00 | 1 |
| 07072 | Zinc | 7440-66-6 | 0.0030 U | 0.0030 | 0.0200 | 1 |
| | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06024 | Antimony | 7440-36-0 | 0.00041 U | 0.00041 | 0.0020 | 1 |
| 06025 | Arsenic | 7440-38-2 | 0.00068 U | 0.00068 | 0.0020 | 1 |
| 06026 | Barium | 7440-39-3 | 0.0315 | 0.00075 | 0.0040 | 1 |
| 06027 | Beryllium | 7440-41-7 | 0.000091 U | 0.000091 | 0.00050 | 1 |
| 06028 | Cadmium | 7440-43-9 | 0.00015 U | 0.00015 | 0.0010 | 1 |
| 06031 | Chromium | 7440-47-3 | 0.00070 U | 0.00070 | 0.0040 | 1 |
| 06032 | Cobalt | 7440-48-4 | 0.00016 U | 0.00016 | 0.0010 | 1 |
| 06033 | Copper | 7440-50-8 | 0.0099 U | 0.0099 | 0.0400 | 1 |
| 06035 | Lead | 7439-92-1 | 0.0011 U | 0.0011 | 0.0030 | 1 |
| 06039 | Nickel | 7440-02-0 | 0.00060 U | 0.00060 | 0.0040 | 1 |

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

**Sample Description:** **TMW-D Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-02

**Golder Associates**
**ELLE Sample #: WW 9858440**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06041 | Selenium | 7782-49-2 | 0.00065 U | 0.00065 | 0.0020 | 1 |
| 06042 | Silver | 7440-22-4 | 0.00017 U | 0.00017 | 0.00050 | 1 |
| 06045 | Thallium | 7440-28-0 | 0.00011 U | 0.00011 | 0.00050 | 1 |
| 06048 | Vanadium | 7440-62-2 | 0.00024 U | 0.00024 | 0.0010 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | 0.000050 U | 0.000050 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **mg/l** | **mg/l** | **mg/l** | |
| 00224 | Chloride | 16887-00-6 | 115 | 10.0 | 20.0 | 50 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1.8 | 0.25 | 0.50 | 5 |
| 01506 | Nitrite Nitrogen | 14797-65-0 | 0.25 U | 0.25 | 0.50 | 5 |
| 00228 | Sulfate | 14808-79-8 | 6.3 | 1.5 | 5.0 | 5 |
| | **EPA 350.1** | | **mg/l** | **mg/l** | **mg/l** | |
| 12892 | Ammonia Nitrogen | 7664-41-7 | 0.050 U | 0.050 | 0.10 | 1 |
| | **EPA 351.2** | | **mg/l** | **mg/l** | **mg/l** | |
| 00217 | Kjeldahl Nitrogen | n.a. | 0.50 U | 0.50 | 1.0 | 1 |
| | **SM 2320 B-2011** | | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 10.3 | 1.7 | 5.0 | 1 |
| 12149 | Bicarbonate Alkalinity | n.a. | 10.3 | 1.7 | 5.0 | 1 |
| | **SM 2540 D-2011** | | **mg/l** | **mg/l** | **mg/l** | |
| 13858 | Total Suspended Solids | n.a. | 1.04 J | 1.00 | 3.00 | 1 |
| | **SM 4500-SO3 B-2011** | | **mg/l** | **mg/l** | **mg/l** | |
| 00229 | Sulfite | 14265-45-3 | 1.5 U | 1.5 | 5.0 | 1 |

The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | 5183022AA | 10/30/2018 04:27 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | 5183022AA | 10/30/2018 04:27 | Corie Mellinger | 1 |
| 14242 | TC: SVOA 8270D | SW-846 8270D | 1 | 18295WAH026 | 10/24/2018 03:43 | Brandon K Cordova | 1 |
| 00813 | BNA Water Extraction | SW-846 3510C | 1 | 18295WAH026 | 10/22/2018 19:05 | Christine E Gleim | 1 |
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 00:59 | Jason W Knight | 1 |

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

**Sample Description:** **TMW-D Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-02

**Golder Associates**
**ELLE Sample #: WW 9858440**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/24/2018 06:14 | Jason W Knight | 10 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |
| 01743 | Aluminum | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 01750 | Calcium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 01754 | Iron | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 01757 | Magnesium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 07058 | Manganese | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 01762 | Potassium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 01767 | Sodium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 07072 | Zinc | SW-846 6010C | 1 | 182971063602 | 10/30/2018 11:52 | Jonathan J Allen | 1 |
| 06024 | Antimony | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06025 | Arsenic | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06026 | Barium | SW-846 6020A | 1 | 182971063902D | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06027 | Beryllium | SW-846 6020A | 1 | 182971063902A | 11/01/2018 08:51 | Choon Y Tian | 1 |
| 06028 | Cadmium | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06031 | Chromium | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06032 | Cobalt | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06033 | Copper | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06035 | Lead | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06039 | Nickel | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06041 | Selenium | SW-846 6020A | 1 | 182971063902B | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06042 | Silver | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06045 | Thallium | SW-846 6020A | 1 | 182971063902B | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 06048 | Vanadium | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:18 | Choon Y Tian | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 182960571301 | 10/24/2018 14:56 | Damary Valentin | 1 |
| 10636 | ICP-WW/TL, 3010A (tot) - U4 | SW-846 3010A | 1 | 182971063602 | 10/24/2018 15:25 | JoElla L Rice | 1 |
| 10639 | ICPMS - Water, 3020A - U4 | SW-846 3020A | 1 | 182971063902 | 10/25/2018 07:35 | Denise L Trimby | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 182960571301 | 10/24/2018 08:15 | Denise L Trimby | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 18291520209A | 10/28/2018 10:27 | Ashlynn M Cornelius | 50 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 18291520209A | 10/18/2018 13:47 | Ashlynn M Cornelius | 5 |
| 01506 | Nitrite Nitrogen | EPA 300.0 | 1 | 18291520209A | 10/18/2018 13:47 | Ashlynn M Cornelius | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 18291520209A | 10/18/2018 13:47 | Ashlynn M Cornelius | 5 |
| 12892 | Ammonia Nitrogen | EPA 350.1 | 1 | 18295107104A | 10/22/2018 20:10 | Gregory Baldree | 1 |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 18292108102A | 10/23/2018 10:55 | Joseph E McKenzie | 1 |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 1 | 18292108102A | 10/19/2018 08:15 | Nancy J Shoop | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-2011 | 1 | 18292005205A | 10/20/2018 02:36 | Jeremy L Bolf | 1 |
| 12149 | Bicarbonate Alkalinity | SM 2320 B-2011 | 1 | 18292005205A | 10/20/2018 02:36 | Jeremy L Bolf | 1 |
| 13858 | Total Suspended Solids | SM 2540 D-2011 | 1 | 18292385801A | 10/19/2018 12:33 | Alexa Sanchez | 1 |
| 00229 | Sulfite | SM 4500-SO3 B-2011 | 1 | 18295022901A | 10/22/2018 08:45 | Michelle L Lalli | 1 |

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

**Sample Description:** **DUP-1 Grab Groundwater 1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-03FD

**Golder Associates**
**ELLE Sample #: WW 9858441**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

**Sample Description:** **DUP-1 Grab Groundwater 1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-03FD

**Golder Associates**
**ELLE Sample #: WW 9858441**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Acenaphthene | 83-32-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acenaphthylene | 208-96-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Acetophenone | 98-86-2 | 4 U | 4 | 10 | 1 |
| 14242 | Anthracene | 120-12-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Atrazine | 1912-24-9 | 2 U | 2 | 5 | 1 |
| 14242 | Benzaldehyde | 100-52-7 | 3 U | 3 | 10 | 1 |
| 14242 | Benzo(a)anthracene | 56-55-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(a)pyrene | 50-32-8 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(b)fluoranthene | 205-99-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(g,h,i)perylene | 191-24-2 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Benzo(k)fluoranthene | 207-08-9 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,1'-Biphenyl | 92-52-4 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Bromophenyl-phenylether | 101-55-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Butylbenzylphthalate | 85-68-7 | 2 U | 2 | 5 | 1 |
| 14242 | Di-n-butylphthalate | 84-74-2 | 2 U | 2 | 5 | 1 |
| 14242 | Caprolactam | 105-60-2 | 5 U | 5 | 11 | 1 |
| 14242 | Carbazole | 86-74-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloro-3-methylphenol | 59-50-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chloroaniline | 106-47-8 | 4 U | 4 | 10 | 1 |
| 14242 | bis(2-Chloroethoxy)methane | 111-91-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | bis(2-Chloroethyl)ether | 111-44-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Chloronaphthalene | 91-58-7 | 0.4 U | 0.4 | 1 | 1 |
| 14242 | 2-Chlorophenol | 95-57-8 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Chlorophenyl-phenylether | 7005-72-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,2'-oxybis(1-Chloropropane) | 108-60-1 | 0.5 U | 0.5 | 2 | 1 |
| | Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds. | | | | | |
| 14242 | Chrysene | 218-01-9 | 0.1 U | 0.1 | 0.5 | 1 |

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

**Sample Description:** **DUP-1 Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-03FD

**Golder Associates**
**ELLE Sample #: WW 9858441**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Dibenz(a,h)anthracene | 53-70-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Dibenzofuran | 132-64-9 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 3,3'-Dichlorobenzidine | 91-94-1 | 3 U | 3 | 10 | 1 |
| 14242 | 2,4-Dichlorophenol | 120-83-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Diethylphthalate | 84-66-2 | 2 U | 2 | 5 | 1 |
| 14242 | 2,4-Dimethylphenol | 105-67-9 | 3 U | 3 | 10 | 1 |
| 14242 | Dimethylphthalate | 131-11-3 | 2 U | 2 | 5 | 1 |
| 14242 | 4,6-Dinitro-2-methylphenol | 534-52-1 | 8 U | 8 | 21 | 1 |
| 14242 | 2,4-Dinitrophenol | 51-28-5 | 14 U | 14 | 30 | 1 |
| 14242 | 2,4-Dinitrotoluene | 121-14-2 | 1 U | 1 | 5 | 1 |
| 14242 | 2,6-Dinitrotoluene | 606-20-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 1,4-Dioxane | 123-91-1 | 2 U | 2 | 5 | 1 |
| 14242 | bis(2-Ethylhexyl)phthalate | 117-81-7 | 5 U | 5 | 11 | 1 |
| 14242 | Fluoranthene | 206-44-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Fluorene | 86-73-7 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobenzene | 118-74-1 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Hexachlorobutadiene | 87-68-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Hexachlorocyclopentadiene | 77-47-4 | 5 U | 5 | 11 | 1 |
| 14242 | Hexachloroethane | 67-72-1 | 1 U | 1 | 5 | 1 |
| 14242 | Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | Isophorone | 78-59-1 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Methylnaphthalene | 91-57-6 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Methylphenol | 95-48-7 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 4-Methylphenol | 106-44-5 | 0.5 U | 0.5 | 2 | 1 |
| | 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds. | | | | | |
| 14242 | Naphthalene | 91-20-3 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 2-Nitroaniline | 88-74-4 | 2 U | 2 | 7 | 1 |
| 14242 | 3-Nitroaniline | 99-09-2 | 3 U | 3 | 7 | 1 |
| 14242 | 4-Nitroaniline | 100-01-6 | 0.9 U | 0.9 | 3 | 1 |
| 14242 | Nitrobenzene | 98-95-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2-Nitrophenol | 88-75-5 | 3 U | 3 | 10 | 1 |
| 14242 | 4-Nitrophenol | 100-02-7 | 10 U | 10 | 30 | 1 |
| 14242 | N-Nitroso-di-n-propylamine | 621-64-7 | 0.7 U | 0.7 | 3 | 1 |
| 14242 | N-Nitrosodiphenylamine | 86-30-6 | 0.7 U | 0.7 | 3 | 1 |
| | N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds. | | | | | |
| 14242 | Di-n-octylphthalate | 117-84-0 | 5 U | 5 | 11 | 1 |
| 14242 | Pentachlorophenol | 87-86-5 | 1 U | 1 | 5 | 1 |
| 14242 | Phenanthrene | 85-01-8 | 0.1 U | 0.1 | 0.5 | 1 |

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

**Sample Description:** **DUP-1 Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-03FD

**Golder Associates**
**ELLE Sample #: WW 9858441**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Semivolatiles** | **SW-846 8270D** | | **ug/l** | **ug/l** | **ug/l** | |
| 14242 | Phenol | 108-95-2 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | Pyrene | 129-00-0 | 0.1 U | 0.1 | 0.5 | 1 |
| 14242 | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 4 U | 4 | 10 | 1 |
| 14242 | 2,4,5-Trichlorophenol | 95-95-4 | 0.5 U | 0.5 | 2 | 1 |
| 14242 | 2,4,6-Trichlorophenol | 88-06-2 | 0.5 U | 0.5 | 2 | 1 |
| | The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis. | | | | | |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 0.85 U | 0.85 | 2.6 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 0.85 U | 0.85 | 2.6 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 120 | 0.85 | 1.7 | 1 |
| 14473 | HFPODA | 13252-13-6 | 2.0 | 0.43 | 1.7 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.26 U | 0.26 | 0.85 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.85 U | 0.85 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 2.6 U | 2.6 | 7.7 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.0 U | 1.0 | 2.6 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.85 U | 0.85 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 2.6 U | 2.6 | 7.7 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 0.85 U | 0.85 | 2.6 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 21 | 0.26 | 0.85 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 180 | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.51 U | 0.51 | 1.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 170 | 0.77 | 1.7 | 1 |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.26 U | 0.26 | 0.85 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 13 | 0.34 | 1.7 | 1 |

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

**Sample Description:** **DUP-1 Grab Groundwater 1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-03FD

**Golder Associates**
**ELLE Sample #: WW 9858441**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 300 | 0.34 | 0.85 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.26 U | 0.26 | 0.85 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 87 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 500 | 3.4 | 17 | 10 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.51 U | 0.51 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 210 | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 6.7 | 0.43 | 2.6 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 1,100 | 3.4 | 17 | 10 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 2,200 | 2.6 | 8.5 | 10 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 21 | 0.34 | 1.7 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 500 | 17 | 51 | 10 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.85 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.85 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.57 J | 0.34 | 1.7 | 1 |
| | The recovery for labeled compound used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample. | | | | | |
| **Metals** | **SW-846 6010C** | | **mg/l** | **mg/l** | **mg/l** | |
| 01743 | Aluminum | 7429-90-5 | 0.153 U | 0.153 | 0.300 | 1 |
| 01750 | Calcium | 7440-70-2 | 15.8 | 0.0330 | 0.500 | 1 |
| 01754 | Iron | 7439-89-6 | 0.0400 U | 0.0400 | 0.200 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.97 | 0.0190 | 0.100 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.0174 J | 0.0011 | 0.0200 | 1 |
| 01762 | Potassium | 7440-09-7 | 2.42 | 0.203 | 0.500 | 1 |
| 01767 | Sodium | 7440-23-5 | 55.8 | 0.326 | 1.00 | 1 |
| 07072 | Zinc | 7440-66-6 | 0.0030 U | 0.0030 | 0.0200 | 1 |
| | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06024 | Antimony | 7440-36-0 | 0.00041 U | 0.00041 | 0.0020 | 1 |
| 06025 | Arsenic | 7440-38-2 | 0.00068 U | 0.00068 | 0.0020 | 1 |
| 06026 | Barium | 7440-39-3 | 0.0341 | 0.00075 | 0.0040 | 1 |
| 06027 | Beryllium | 7440-41-7 | 0.000091 U | 0.000091 | 0.00050 | 1 |
| 06028 | Cadmium | 7440-43-9 | 0.00015 U | 0.00015 | 0.0010 | 1 |
| 06031 | Chromium | 7440-47-3 | 0.00070 U | 0.00070 | 0.0040 | 1 |
| 06032 | Cobalt | 7440-48-4 | 0.00016 U | 0.00016 | 0.0010 | 1 |
| 06033 | Copper | 7440-50-8 | 0.0099 U | 0.0099 | 0.0400 | 1 |
| 06035 | Lead | 7439-92-1 | 0.0011 U | 0.0011 | 0.0030 | 1 |
| 06039 | Nickel | 7440-02-0 | 0.00060 U | 0.00060 | 0.0040 | 1 |
| 06041 | Selenium | 7782-49-2 | 0.00065 U | 0.00065 | 0.0020 | 1 |

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

**Sample Description:** **DUP-1 Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-03FD

**Golder Associates**
**ELLE Sample #: WW 9858441**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6020A** | | **mg/l** | **mg/l** | **mg/l** | |
| 06042 | Silver | 7440-22-4 | 0.00017 U | 0.00017 | 0.00050 | 1 |
| 06045 | Thallium | 7440-28-0 | 0.00011 U | 0.00011 | 0.00050 | 1 |
| 06048 | Vanadium | 7440-62-2 | 0.00024 U | 0.00024 | 0.0010 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | 0.000050 U | 0.000050 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **mg/l** | **mg/l** | **mg/l** | |
| 00224 | Chloride | 16887-00-6 | 93.3 | 10.0 | 20.0 | 50 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1.7 | 0.25 | 0.50 | 5 |
| 01506 | Nitrite Nitrogen | 14797-65-0 | 0.25 U | 0.25 | 0.50 | 5 |
| 00228 | Sulfate | 14808-79-8 | 7.0 | 1.5 | 5.0 | 5 |
| | **EPA 350.1** | | **mg/l** | **mg/l** | **mg/l** | |
| 12892 | Ammonia Nitrogen | 7664-41-7 | 0.050 U | 0.050 | 0.10 | 1 |
| | **EPA 351.2** | | **mg/l** | **mg/l** | **mg/l** | |
| 00217 | Kjeldahl Nitrogen | n.a. | 0.60 J | 0.50 | 1.0 | 1 |
| | **SM 2320 B-2011** | | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 7.7 | 1.7 | 5.0 | 1 |
| 12149 | Bicarbonate Alkalinity | n.a. | 7.7 | 1.7 | 5.0 | 1 |
| | **SM 2540 D-2011** | | **mg/l** | **mg/l** | **mg/l** | |
| 13858 | Total Suspended Solids | n.a. | 1.00 U | 1.00 | 3.00 | 1 |
| | **SM 4500-SO3 B-2011** | | **mg/l** | **mg/l** | **mg/l** | |
| 00229 | Sulfite | 14265-45-3 | 1.5 U | 1.5 | 5.0 | 1 |

The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | 5183022AA | 10/30/2018 04:49 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | 5183022AA | 10/30/2018 04:49 | Corie Mellinger | 1 |
| 14242 | TC: SVOA 8270D | SW-846 8270D | 1 | 18295WAH026 | 10/24/2018 04:12 | Brandon K Cordova | 1 |
| 00813 | BNA Water Extraction | SW-846 3510C | 1 | 18295WAH026 | 10/22/2018 19:05 | Christine E Gleim | 1 |
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 01:08 | Jason W Knight | 1 |

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

**Sample Description:** **DUP-1 Grab Groundwater**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:07
SDG#: GOA42-03FD

**Golder Associates**
**ELLE Sample #: WW 9858441**
**ELLE Group #: 2000029**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/24/2018 06:23 | Jason W Knight | 10 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |
| 01743 | Aluminum | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 01750 | Calcium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 01754 | Iron | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 01757 | Magnesium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 07058 | Manganese | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 01762 | Potassium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 01767 | Sodium | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 07072 | Zinc | SW-846 6010C | 1 | 182971063602 | 10/30/2018 12:09 | Jonathan J Allen | 1 |
| 06024 | Antimony | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06025 | Arsenic | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06026 | Barium | SW-846 6020A | 1 | 182971063902D | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06027 | Beryllium | SW-846 6020A | 1 | 182971063902A | 11/01/2018 09:05 | Choon Y Tian | 1 |
| 06028 | Cadmium | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06031 | Chromium | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06032 | Cobalt | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06033 | Copper | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06035 | Lead | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06039 | Nickel | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06041 | Selenium | SW-846 6020A | 1 | 182971063902B | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06042 | Silver | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06045 | Thallium | SW-846 6020A | 1 | 182971063902B | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 06048 | Vanadium | SW-846 6020A | 1 | 182971063902A | 10/26/2018 12:31 | Choon Y Tian | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 182960571301 | 10/24/2018 14:58 | Damary Valentin | 1 |
| 10636 | ICP-WW/TL, 3010A (tot) - U4 | SW-846 3010A | 1 | 182971063602 | 10/24/2018 15:25 | JoElla L Rice | 1 |
| 10639 | ICPMS - Water, 3020A - U4 | SW-846 3020A | 1 | 182971063902 | 10/25/2018 07:35 | Denise L Trimby | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 182960571301 | 10/24/2018 08:15 | Denise L Trimby | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 18291520209A | 10/28/2018 10:44 | Ashlynn M Cornelius | 50 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 18291520209A | 10/18/2018 14:05 | Ashlynn M Cornelius | 5 |
| 01506 | Nitrite Nitrogen | EPA 300.0 | 1 | 18291520209A | 10/18/2018 14:05 | Ashlynn M Cornelius | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 18291520209A | 10/18/2018 14:05 | Ashlynn M Cornelius | 5 |
| 12892 | Ammonia Nitrogen | EPA 350.1 | 1 | 18295107104A | 10/22/2018 20:16 | Gregory Baldree | 1 |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 18292108102A | 10/23/2018 10:54 | Joseph E McKenzie | 1 |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 1 | 18292108102A | 10/19/2018 08:15 | Nancy J Shoop | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-2011 | 1 | 18292005205A | 10/20/2018 02:42 | Jeremy L Bolf | 1 |
| 12149 | Bicarbonate Alkalinity | SM 2320 B-2011 | 1 | 18292005205A | 10/20/2018 02:42 | Jeremy L Bolf | 1 |
| 13858 | Total Suspended Solids | SM 2540 D-2011 | 1 | 18292385801A | 10/19/2018 12:33 | Alexa Sanchez | 1 |
| 00229 | Sulfite | SM 4500-SO3 B-2011 | 1 | 18295022901A | 10/22/2018 08:45 | Michelle L Lalli | 1 |

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

**Sample Description:** **EB-1 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:00
SDG#: GOA42-04EB

**Golder Associates**
**ELLE Sample #:** **WW 9858442**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 0.84 U | 0.84 | 2.5 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 0.84 U | 0.84 | 2.5 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 0.84 U | 0.84 | 1.7 | 1 |
| 14473 | HFPODA | 13252-13-6 | 0.42 U | 0.42 | 1.7 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.25 U | 0.25 | 0.84 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.84 U | 0.84 | 2.5 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 2.5 U | 2.5 | 7.6 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.0 U | 1.0 | 2.5 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.84 U | 0.84 | 2.5 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 2.5 U | 2.5 | 7.6 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 0.84 U | 0.84 | 2.5 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.25 U | 0.25 | 0.84 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.51 U | 0.51 | 1.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.76 U | 0.76 | 1.7 | 1 |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.25 U | 0.25 | 0.84 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.34 U | 0.34 | 0.84 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.25 U | 0.25 | 0.84 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.51 U | 0.51 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.42 U | 0.42 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 0.42 U | 0.42 | 2.5 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.25 U | 0.25 | 0.84 | 1 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 0.34 U | 0.34 | 1.7 | 1 |

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

**Sample Description:** **EB-1 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:00
SDG#: GOA42-04EB

**Golder Associates**
**ELLE Sample #:** **WW 9858442**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.7 U | 1.7 | 5.1 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.25 U | 0.25 | 0.84 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.84 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 01:17 | Jason W Knight | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |

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

**Sample Description:** **FB-1 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:30
SDG#: GOA42-05FB

**Golder Associates**
**ELLE Sample #:** **WW 9858443**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 0.87 U | 0.87 | 2.6 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 0.87 U | 0.87 | 2.6 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 0.87 U | 0.87 | 1.7 | 1 |
| 14473 | HFPODA | 13252-13-6 | 0.43 U | 0.43 | 1.7 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.26 U | 0.26 | 0.87 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.87 U | 0.87 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 2.6 U | 2.6 | 7.8 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.0 U | 1.0 | 2.6 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.87 U | 0.87 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 2.6 U | 2.6 | 7.8 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 0.87 U | 0.87 | 2.6 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.78 U | 0.78 | 1.7 | 1 |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.35 U | 0.35 | 0.87 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 0.43 U | 0.43 | 2.6 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 0.35 U | 0.35 | 1.7 | 1 |

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

**Sample Description:** **FB-1 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 15:30
SDG#: GOA42-05FB

**Golder Associates**
**ELLE Sample #: WW 9858443**
**ELLE Group #: 2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.35 U | 0.35 | 0.87 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.35 U | 0.35 | 1.7 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 01:26 | Jason W Knight | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |

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

**Sample Description:** **TB-1 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 16:00
SDG#: GOA42-06TB

**Golder Associates**
**ELLE Sample #:** **WW 9858444**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 0.7 | U | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromochloromethane | 74-97-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | 0.2 | U | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 0.3 | U | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | 0.4 | U | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | 0.2 | U | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | 0.3 | U | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | 0.5 | U | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | 0.3 | U | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | 0.2 | U | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.2 | U | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | 0.2 | U | 0.2 | 1 | 1 |

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

**Sample Description:** **TB-1 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 16:00
SDG#: GOA42-06TB

**Golder Associates**
**ELLE Sample #:** **WW 9858444**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Toluene | 108-88-3 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | 1,2,3-Trichlorobenzene | 87-61-6 | 0.4 U | 0.4 | 5 | 1 |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | 0.3 U | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | 0.3 U | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | 0.2 U | 0.2 | 1 | 1 |
| 11997 | m+p-Xylene | 179601-23-1 | 1 U | 1 | 5 | 1 |
| 11997 | o-Xylene | 95-47-6 | 0.4 U | 0.4 | 1 | 1 |
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 0.87 U | 0.87 | 2.6 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 0.87 U | 0.87 | 2.6 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 0.87 U | 0.87 | 1.7 | 1 |
| 14473 | HFPODA | 13252-13-6 | 0.43 U | 0.43 | 1.7 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.26 U | 0.26 | 0.87 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.87 U | 0.87 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 2.6 U | 2.6 | 7.8 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.0 U | 1.0 | 2.6 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.87 U | 0.87 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 2.6 U | 2.6 | 7.8 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 0.87 U | 0.87 | 2.6 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.78 U | 0.78 | 1.7 | 1 |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.43 U | 0.43 | 1.7 | 1 |

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

**Sample Description:** **TB-1 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/16/2018 16:00
SDG#: GOA42-06TB

**Golder Associates**
**ELLE Sample #:** **WW 9858444**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.35 U | 0.35 | 0.87 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 0.43 U | 0.43 | 2.6 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 0.35 U | 0.35 | 1.7 | 1 |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.87 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.35 U | 0.35 | 0.87 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.35 U | 0.35 | 1.7 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | TCL Volatiles 8260C | SW-846 8260C | 1 | 5183022AA | 10/30/2018 00:33 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | 5183022AA | 10/30/2018 00:33 | Corie Mellinger | 1 |
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 01:35 | Jason W Knight | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |

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

**Sample Description:** **FB-2 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 14:00
SDG#: GOA42-07FB

**Golder Associates**
**ELLE Sample #: WW 9858445**
**ELLE Group #: 2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 0.86 U | 0.86 | 2.6 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 0.86 U | 0.86 | 2.6 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 0.86 U | 0.86 | 1.7 | 1 |
| 14473 | HFPODA | 13252-13-6 | 0.43 U | 0.43 | 1.7 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.26 U | 0.26 | 0.86 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 0.86 U | 0.86 | 2.6 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 2.6 U | 2.6 | 7.7 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.0 U | 1.0 | 2.6 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 0.86 U | 0.86 | 2.6 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 2.6 U | 2.6 | 7.7 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 0.86 U | 0.86 | 2.6 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.26 U | 0.26 | 0.86 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.77 U | 0.77 | 1.7 | 1 |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.26 U | 0.26 | 0.86 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.34 U | 0.34 | 0.86 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.26 U | 0.26 | 0.86 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.52 U | 0.52 | 1.7 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.43 U | 0.43 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 0.43 U | 0.43 | 2.6 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 0.34 U | 0.34 | 1.7 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.26 U | 0.26 | 0.86 | 1 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 0.34 U | 0.34 | 1.7 | 1 |

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

**Sample Description:** **FB-2 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 14:00
SDG#: GOA42-07FB

**Golder Associates**
**ELLE Sample #: WW 9858445**
**ELLE Group #: 2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 1.7 U | 1.7 | 5.2 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.26 U | 0.26 | 0.86 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.34 U | 0.34 | 0.86 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.34 U | 0.34 | 1.7 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 01:44 | Jason W Knight | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |

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

**Sample Description:** **TB-2 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 14:05
SDG#: GOA42-08TB

**Golder Associates**
**ELLE Sample #:** **WW 9858446**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | 10:2-Fluorotelomersulfonic Ac | 120226-60-0 | 1.0 U | 1.0 | 3.0 | 1 |
| 14473 | 4:2-Fluorotelomersulfonic Ac | 757124-72-4 | 1.0 U | 1.0 | 3.0 | 1 |
| 14473 | 8:2-Fluorotelomersulfonic Ac | 39108-34-4 | 2.0 U | 2.0 | 6.0 | 1 |
| 14473 | 6:2-Fluorotelomersulfonic acid | 27619-97-2 | 1.0 U | 1.0 | 2.0 | 1 |
| 14473 | HFPODA | 13252-13-6 | 0.50 U | 0.50 | 2.0 | 1 |
| | HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid | | | | | |
| 14473 | NaDONA | 958445-44-8 | 0.30 U | 0.30 | 1.0 | 1 |
| | NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate | | | | | |
| 14473 | NEtFOSAA | 2991-50-6 | 1.0 U | 1.0 | 3.0 | 1 |
| | NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NEtPFOSA | 4151-50-2 | 3.0 U | 3.0 | 9.0 | 1 |
| | NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NEtPFOSAE | 1691-99-2 | 1.2 U | 1.2 | 3.0 | 1 |
| | NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | NMeFOSAA | 2355-31-9 | 1.0 U | 1.0 | 3.0 | 1 |
| | NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid. | | | | | |
| 14473 | NMePFOSA | 31506-32-8 | 3.0 U | 3.0 | 9.0 | 1 |
| | NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide | | | | | |
| 14473 | NMePFOSAE | 24448-09-7 | 1.0 U | 1.0 | 3.0 | 1 |
| | NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol | | | | | |
| 14473 | Perfluorobutanesulfonic acid | 375-73-5 | 0.30 U | 0.30 | 1.0 | 1 |
| 14473 | Perfluorobutanoic acid | 375-22-4 | 2.0 U | 2.0 | 6.0 | 1 |
| 14473 | Perfluorodecanesulfonic acid | 335-77-3 | 0.60 U | 0.60 | 2.0 | 1 |
| 14473 | Perfluorodecanoic acid | 335-76-2 | 0.90 U | 0.90 | 2.0 | 1 |
| 14473 | Perfluorododecanesulfonic acid | 79780-39-5 | 0.30 U | 0.30 | 1.0 | 1 |
| 14473 | Perfluorododecanoic acid | 307-55-1 | 0.50 U | 0.50 | 2.0 | 1 |
| 14473 | Perfluoroheptanesulfonic acid | 375-92-8 | 0.40 U | 0.40 | 2.0 | 1 |
| 14473 | Perfluoroheptanoic acid | 375-85-9 | 0.40 U | 0.40 | 1.0 | 1 |
| 14473 | Perfluorohexadecanoic acid | 67905-19-5 | 0.30 U | 0.30 | 1.0 | 1 |
| 14473 | Perfluorohexanesulfonic acid | 355-46-4 | 0.40 U | 0.40 | 2.0 | 1 |
| 14473 | Perfluorohexanoic acid | 307-24-4 | 0.40 U | 0.40 | 2.0 | 1 |
| 14473 | Perfluorononanesulfonic acid | 68259-12-1 | 0.60 U | 0.60 | 2.0 | 1 |
| 14473 | Perfluorononanoic acid | 375-95-1 | 0.40 U | 0.40 | 2.0 | 1 |
| 14473 | Perfluorooctadecanoic acid | 16517-11-6 | 0.50 U | 0.50 | 2.0 | 1 |
| 14473 | Perfluorooctanesulfonamide | 754-91-6 | 0.50 U | 0.50 | 3.0 | 1 |
| 14473 | Perfluoro-Octanesulfonic acid | 1763-23-1 | 0.40 U | 0.40 | 2.0 | 1 |
| 14473 | Perfluorooctanoic acid | 335-67-1 | 0.30 U | 0.30 | 1.0 | 1 |
| 14473 | Perfluoropentanesulfonic acid | 2706-91-4 | 0.40 U | 0.40 | 2.0 | 1 |

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

**Sample Description:** **TB-2 Grab Water**
**1668623181**

**Project Name:** **SGPP-Merrimack NH**

Submittal Date/Time: 10/18/2018 10:20
Collection Date/Time: 10/17/2018 14:05
SDG#: GOA42-08TB

**Golder Associates**
**ELLE Sample #:** **WW 9858446**
**ELLE Group #:** **2000029**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluoropentanoic acid | 2706-90-3 | 2.0 U | 2.0 | 6.0 | 1 |
| 14473 | Perfluorotetradecanoic acid | 376-06-7 | 0.30 U | 0.30 | 1.0 | 1 |
| 14473 | Perfluorotridecanoic acid | 72629-94-8 | 0.40 U | 0.40 | 1.0 | 1 |
| 14473 | Perfluoroundecanoic acid | 2058-94-8 | 0.40 U | 0.40 | 2.0 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | 32 PFAS + GenX/Adona | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/23/2018 02:02 | Jason W Knight | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18292002 | 10/19/2018 07:40 | Courtney J Fatta | 1 |

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

# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

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 |
|---|---|---|---|---|
| | ug/l | | ug/l | ug/l |
| Batch number: 5183022AA | Sample number(s): 9858440-9858441,9858444 | | | |
| Acetone | 0.7 | U | 0.7 | 20 |
| Benzene | 0.2 | U | 0.2 | 1 |
| Bromochloromethane | 0.2 | U | 0.2 | 5 |
| Bromodichloromethane | 0.2 | U | 0.2 | 1 |
| Bromoform | 0.2 | U | 0.2 | 4 |
| Bromomethane | 0.3 | U | 0.3 | 1 |
| 2-Butanone | 0.3 | U | 0.3 | 10 |
| Carbon Disulfide | 0.2 | U | 0.2 | 5 |
| Carbon Tetrachloride | 0.2 | U | 0.2 | 1 |
| Chlorobenzene | 0.2 | U | 0.2 | 1 |
| Chloroethane | 0.2 | U | 0.2 | 1 |
| Chloroform | 0.2 | U | 0.2 | 1 |
| Chloromethane | 0.2 | U | 0.2 | 1 |
| Cyclohexane | 0.2 | U | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | 0.3 | U | 0.3 | 5 |
| Dibromochloromethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dibromoethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,3-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,4-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| Dichlorodifluoromethane | 0.2 | U | 0.2 | 1 |
| 1,1-Dichloroethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloroethane | 0.3 | U | 0.3 | 1 |
| 1,1-Dichloroethene | 0.2 | U | 0.2 | 1 |
| cis-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| trans-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloropropane | 0.2 | U | 0.2 | 1 |
| cis-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| trans-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| Ethylbenzene | 0.4 | U | 0.4 | 1 |
| Freon 113 | 0.2 | U | 0.2 | 10 |
| 2-Hexanone | 0.3 | U | 0.3 | 10 |
| Isopropylbenzene | 0.2 | U | 0.2 | 5 |
| Methyl Acetate | 0.2 | U | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | 0.2 | U | 0.2 | 1 |
| 4-Methyl-2-pentanone | 0.5 | U | 0.5 | 10 |
| Methylcyclohexane | 0.2 | U | 0.2 | 5 |
| Methylene Chloride | 0.3 | U | 0.3 | 1 |
| Styrene | 0.2 | U | 0.2 | 5 |

*- Outside of specification
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(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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Method Blank (continued)

| Analysis Name | Result | | MDL** | LOQ |
|---|---|---|---|---|
| | ug/l | | ug/l | ug/l |
| 1,1,2,2-Tetrachloroethane | 0.2 | U | 0.2 | 1 |
| Tetrachloroethene | 0.2 | U | 0.2 | 1 |
| Toluene | 0.2 | U | 0.2 | 1 |
| 1,2,3-Trichlorobenzene | 0.4 | U | 0.4 | 5 |
| 1,2,4-Trichlorobenzene | 0.3 | U | 0.3 | 5 |
| 1,1,1-Trichloroethane | 0.3 | U | 0.3 | 1 |
| 1,1,2-Trichloroethane | 0.2 | U | 0.2 | 1 |
| Trichloroethene | 0.2 | U | 0.2 | 1 |
| Trichlorofluoromethane | 0.2 | U | 0.2 | 1 |
| Vinyl Chloride | 0.2 | U | 0.2 | 1 |
| m+p-Xylene | 1 | U | 1 | 5 |
| o-Xylene | 0.4 | U | 0.4 | 1 |
| Batch number: 5183031AA | Sample number(s): 9858439 | | | |
| Acetone | 0.7 | U | 0.7 | 20 |
| Benzene | 0.2 | U | 0.2 | 1 |
| Bromochloromethane | 0.2 | U | 0.2 | 5 |
| Bromodichloromethane | 0.2 | U | 0.2 | 1 |
| Bromoform | 0.2 | U | 0.2 | 4 |
| Bromomethane | 0.3 | U | 0.3 | 1 |
| 2-Butanone | 0.3 | U | 0.3 | 10 |
| Carbon Disulfide | 0.2 | U | 0.2 | 5 |
| Carbon Tetrachloride | 0.2 | U | 0.2 | 1 |
| Chlorobenzene | 0.2 | U | 0.2 | 1 |
| Chloroethane | 0.2 | U | 0.2 | 1 |
| Chloroform | 0.2 | U | 0.2 | 1 |
| Chloromethane | 0.2 | U | 0.2 | 1 |
| Cyclohexane | 0.2 | U | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | 0.3 | U | 0.3 | 5 |
| Dibromochloromethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dibromoethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,3-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| 1,4-Dichlorobenzene | 0.2 | U | 0.2 | 5 |
| Dichlorodifluoromethane | 0.2 | U | 0.2 | 1 |
| 1,1-Dichloroethane | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloroethane | 0.3 | U | 0.3 | 1 |
| 1,1-Dichloroethene | 0.2 | U | 0.2 | 1 |
| cis-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| trans-1,2-Dichloroethene | 0.2 | U | 0.2 | 1 |
| 1,2-Dichloropropane | 0.2 | U | 0.2 | 1 |
| cis-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| trans-1,3-Dichloropropene | 0.2 | U | 0.2 | 1 |
| Ethylbenzene | 0.4 | U | 0.4 | 1 |
| Freon 113 | 0.2 | U | 0.2 | 10 |

*- Outside of specification
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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| 2-Hexanone | 0.3 U | 0.3 | 10 |
| Isopropylbenzene | 0.2 U | 0.2 | 5 |
| Methyl Acetate | 0.2 U | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | 0.2 U | 0.2 | 1 |
| 4-Methyl-2-pentanone | 0.5 U | 0.5 | 10 |
| Methylcyclohexane | 0.2 U | 0.2 | 5 |
| Methylene Chloride | 0.3 U | 0.3 | 1 |
| Styrene | 0.2 U | 0.2 | 5 |
| 1,1,2,2-Tetrachloroethane | 0.2 U | 0.2 | 1 |
| Tetrachloroethene | 0.2 U | 0.2 | 1 |
| Toluene | 0.2 U | 0.2 | 1 |
| 1,2,3-Trichlorobenzene | 0.4 U | 0.4 | 5 |
| 1,2,4-Trichlorobenzene | 0.3 U | 0.3 | 5 |
| 1,1,1-Trichloroethane | 0.3 U | 0.3 | 1 |
| 1,1,2-Trichloroethane | 0.2 U | 0.2 | 1 |
| Trichloroethene | 0.2 U | 0.2 | 1 |
| Trichlorofluoromethane | 0.2 U | 0.2 | 1 |
| Vinyl Chloride | 0.2 U | 0.2 | 1 |
| m+p-Xylene | 1 U | 1 | 5 |
| o-Xylene | 0.4 U | 0.4 | 1 |
| Batch number: 18295WAH026 | Sample number(s): 9858440-9858441 | | |
| Acenaphthene | 0.1 U | 0.1 | 0.5 |
| Acenaphthylene | 0.1 U | 0.1 | 0.5 |
| Acetophenone | 4 U | 4 | 10 |
| Anthracene | 0.1 U | 0.1 | 0.5 |
| Atrazine | 2 U | 2 | 5 |
| Benzaldehyde | 3 U | 3 | 10 |
| Benzo(a)anthracene | 0.1 U | 0.1 | 0.5 |
| Benzo(a)pyrene | 0.1 U | 0.1 | 0.5 |
| Benzo(b)fluoranthene | 0.1 U | 0.1 | 0.5 |
| Benzo(g,h,i)perylene | 0.1 U | 0.1 | 0.5 |
| Benzo(k)fluoranthene | 0.1 U | 0.1 | 0.5 |
| 1,1'-Biphenyl | 3 U | 3 | 10 |
| 4-Bromophenyl-phenylether | 0.5 U | 0.5 | 2 |
| Butylbenzylphthalate | 2 U | 2 | 5 |
| Di-n-butylphthalate | 2 U | 2 | 5 |
| Caprolactam | 5 U | 5 | 11 |
| Carbazole | 0.5 U | 0.5 | 2 |
| 4-Chloro-3-methylphenol | 0.5 U | 0.5 | 2 |
| 4-Chloroaniline | 4 U | 4 | 10 |
| bis(2-Chloroethoxy)methane | 0.5 U | 0.5 | 2 |
| bis(2-Chloroethyl)ether | 0.5 U | 0.5 | 2 |
| 2-Chloronaphthalene | 0.4 U | 0.4 | 1 |
| 2-Chlorophenol | 0.5 U | 0.5 | 2 |

*- Outside of specification
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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| 4-Chlorophenyl-phenylether | 0.5 U | 0.5 | 2 |
| 2,2'-oxybis(1-Chloropropane) | 0.5 U | 0.5 | 2 |
| Chrysene | 0.1 U | 0.1 | 0.5 |
| Dibenz(a,h)anthracene | 0.1 U | 0.1 | 0.5 |
| Dibenzofuran | 0.5 U | 0.5 | 2 |
| 3,3'-Dichlorobenzidine | 3 U | 3 | 10 |
| 2,4-Dichlorophenol | 0.5 U | 0.5 | 2 |
| Diethylphthalate | 2 U | 2 | 5 |
| 2,4-Dimethylphenol | 3 U | 3 | 10 |
| Dimethylphthalate | 2 U | 2 | 5 |
| 4,6-Dinitro-2-methylphenol | 8 U | 8 | 21 |
| 2,4-Dinitrophenol | 14 U | 14 | 30 |
| 2,4-Dinitrotoluene | 1 U | 1 | 5 |
| 2,6-Dinitrotoluene | 0.5 U | 0.5 | 2 |
| 1,4-Dioxane | 2 U | 2 | 5 |
| bis(2-Ethylhexyl)phthalate | 5 U | 5 | 11 |
| Fluoranthene | 0.1 U | 0.1 | 0.5 |
| Fluorene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobenzene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobutadiene | 0.5 U | 0.5 | 2 |
| Hexachlorocyclopentadiene | 5 U | 5 | 11 |
| Hexachloroethane | 1 U | 1 | 5 |
| Indeno(1,2,3-cd)pyrene | 0.1 U | 0.1 | 0.5 |
| Isophorone | 0.5 U | 0.5 | 2 |
| 2-Methylnaphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Methylphenol | 0.5 U | 0.5 | 2 |
| 4-Methylphenol | 0.5 U | 0.5 | 2 |
| Naphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Nitroaniline | 2 U | 2 | 7 |
| 3-Nitroaniline | 3 U | 3 | 7 |
| 4-Nitroaniline | 0.9 U | 0.9 | 3 |
| Nitrobenzene | 0.5 U | 0.5 | 2 |
| 2-Nitrophenol | 3 U | 3 | 10 |
| 4-Nitrophenol | 10 U | 10 | 30 |
| N-Nitroso-di-n-propylamine | 0.7 U | 0.7 | 3 |
| N-Nitrosodiphenylamine | 0.7 U | 0.7 | 3 |
| Di-n-octylphthalate | 5 U | 5 | 11 |
| Pentachlorophenol | 1 U | 1 | 5 |
| Phenanthrene | 0.1 U | 0.1 | 0.5 |
| Phenol | 0.5 U | 0.5 | 2 |
| Pyrene | 0.1 U | 0.1 | 0.5 |
| 1,2,4,5-Tetrachlorobenzene | 0.5 U | 0.5 | 2 |
| 2,3,4,6-Tetrachlorophenol | 4 U | 4 | 10 |
| 2,4,5-Trichlorophenol | 0.5 U | 0.5 | 2 |
| 2,4,6-Trichlorophenol | 0.5 U | 0.5 | 2 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Batch number: 18296WAA026 | Sample number(s): 9858439 | | |
| Acenaphthene | 0.1 U | 0.1 | 0.5 |
| Acenaphthylene | 0.1 U | 0.1 | 0.5 |
| Acetophenone | 4 U | 4 | 10 |
| Anthracene | 0.1 U | 0.1 | 0.5 |
| Atrazine | 2 U | 2 | 5 |
| Benzaldehyde | 3 U | 3 | 10 |
| Benzo(a)anthracene | 0.1 U | 0.1 | 0.5 |
| Benzo(a)pyrene | 0.1 U | 0.1 | 0.5 |
| Benzo(b)fluoranthene | 0.1 U | 0.1 | 0.5 |
| Benzo(g,h,i)perylene | 0.1 U | 0.1 | 0.5 |
| Benzo(k)fluoranthene | 0.1 U | 0.1 | 0.5 |
| 1,1'-Biphenyl | 3 U | 3 | 10 |
| 4-Bromophenyl-phenylether | 0.5 U | 0.5 | 2 |
| Butylbenzylphthalate | 2 U | 2 | 5 |
| Di-n-butylphthalate | 2 U | 2 | 5 |
| Caprolactam | 5 U | 5 | 11 |
| Carbazole | 0.5 U | 0.5 | 2 |
| 4-Chloro-3-methylphenol | 0.5 U | 0.5 | 2 |
| 4-Chloroaniline | 4 U | 4 | 10 |
| bis(2-Chloroethoxy)methane | 0.5 U | 0.5 | 2 |
| bis(2-Chloroethyl)ether | 0.5 U | 0.5 | 2 |
| 2-Chloronaphthalene | 0.4 U | 0.4 | 1 |
| 2-Chlorophenol | 0.5 U | 0.5 | 2 |
| 4-Chlorophenyl-phenylether | 0.5 U | 0.5 | 2 |
| 2,2'-oxybis(1-Chloropropane) | 0.5 U | 0.5 | 2 |
| Chrysene | 0.1 U | 0.1 | 0.5 |
| Dibenz(a,h)anthracene | 0.1 U | 0.1 | 0.5 |
| Dibenzofuran | 0.5 U | 0.5 | 2 |
| 3,3'-Dichlorobenzidine | 3 U | 3 | 10 |
| 2,4-Dichlorophenol | 0.5 U | 0.5 | 2 |
| Diethylphthalate | 2 U | 2 | 5 |
| 2,4-Dimethylphenol | 3 U | 3 | 10 |
| Dimethylphthalate | 2 U | 2 | 5 |
| 4,6-Dinitro-2-methylphenol | 8 U | 8 | 21 |
| 2,4-Dinitrophenol | 14 U | 14 | 30 |
| 2,4-Dinitrotoluene | 1 U | 1 | 5 |
| 2,6-Dinitrotoluene | 0.5 U | 0.5 | 2 |
| 1,4-Dioxane | 2 U | 2 | 5 |
| bis(2-Ethylhexyl)phthalate | 5 U | 5 | 11 |
| Fluoranthene | 0.1 U | 0.1 | 0.5 |
| Fluorene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobenzene | 0.1 U | 0.1 | 0.5 |
| Hexachlorobutadiene | 0.5 U | 0.5 | 2 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Hexachlorocyclopentadiene | 5 U | 5 | 11 |
| Hexachloroethane | 1 U | 1 | 5 |
| Indeno(1,2,3-cd)pyrene | 0.1 U | 0.1 | 0.5 |
| Isophorone | 0.5 U | 0.5 | 2 |
| 2-Methylnaphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Methylphenol | 0.5 U | 0.5 | 2 |
| 4-Methylphenol | 0.5 U | 0.5 | 2 |
| Naphthalene | 0.1 U | 0.1 | 0.5 |
| 2-Nitroaniline | 2 U | 2 | 7 |
| 3-Nitroaniline | 3 U | 3 | 7 |
| 4-Nitroaniline | 0.9 U | 0.9 | 3 |
| Nitrobenzene | 0.5 U | 0.5 | 2 |
| 2-Nitrophenol | 3 U | 3 | 10 |
| 4-Nitrophenol | 10 U | 10 | 30 |
| N-Nitroso-di-n-propylamine | 0.7 U | 0.7 | 3 |
| N-Nitrosodiphenylamine | 0.7 U | 0.7 | 3 |
| Di-n-octylphthalate | 5 U | 5 | 11 |
| Pentachlorophenol | 1 U | 1 | 5 |
| Phenanthrene | 0.1 U | 0.1 | 0.5 |
| Phenol | 0.5 U | 0.5 | 2 |
| Pyrene | 0.1 U | 0.1 | 0.5 |
| 1,2,4,5-Tetrachlorobenzene | 0.5 U | 0.5 | 2 |
| 2,3,4,6-Tetrachlorophenol | 4 U | 4 | 10 |
| 2,4,5-Trichlorophenol | 0.5 U | 0.5 | 2 |
| 2,4,6-Trichlorophenol | 0.5 U | 0.5 | 2 |
| | ng/l | ng/l | ng/l |
| Batch number: 18292002 | Sample number(s): 9858439-9858446 | | |
| 10:2-Fluorotelomersulfonic Ac | 1.0 U | 1.0 | 3.0 |
| 4:2-Fluorotelomersulfonic Ac | 1.0 U | 1.0 | 3.0 |
| 8:2-Fluorotelomersulfonic Ac | 2.0 U | 2.0 | 6.0 |
| 6:2-Fluorotelomersulfonic acid | 1.0 U | 1.0 | 2.0 |
| HFPODA | 0.50 U | 0.50 | 2.0 |
| NaDONA | 0.30 U | 0.30 | 1.0 |
| NEtFOSAA | 1.0 U | 1.0 | 3.0 |
| NEtPFOSA | 3.0 U | 3.0 | 9.0 |
| NEtPFOSAE | 1.2 U | 1.2 | 3.0 |
| NMeFOSAA | 1.0 U | 1.0 | 3.0 |
| NMePFOSA | 3.0 U | 3.0 | 9.0 |
| NMePFOSAE | 1.0 U | 1.0 | 3.0 |
| Perfluorobutanesulfonic acid | 0.30 U | 0.30 | 1.0 |
| Perfluorobutanoic acid | 2.0 U | 2.0 | 6.0 |
| Perfluorodecanesulfonic acid | 0.60 U | 0.60 | 2.0 |
| Perfluorodecanoic acid | 0.90 U | 0.90 | 2.0 |
| Perfluorododecanesulfonic acid | 0.30 U | 0.30 | 1.0 |

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# Quality Control Summary

Client Name: Golder Associates
Group Number: 2000029
Reported: 11/02/2018 11:12

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ng/l | ng/l | ng/l |
| Perfluorododecanoic acid | 0.50 U | 0.50 | 2.0 |
| Perfluoroheptanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluoroheptanoic acid | 0.40 U | 0.40 | 1.0 |
| Perfluorohexadecanoic acid | 0.30 U | 0.30 | 1.0 |
| Perfluorohexanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorohexanoic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorononanesulfonic acid | 0.60 U | 0.60 | 2.0 |
| Perfluorononanoic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorooctadecanoic acid | 0.50 U | 0.50 | 2.0 |
| Perfluorooctanesulfonamide | 0.50 U | 0.50 | 3.0 |
| Perfluoro-Octanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluorooctanoic acid | 0.30 U | 0.30 | 1.0 |
| Perfluoropentanesulfonic acid | 0.40 U | 0.40 | 2.0 |
| Perfluoropentanoic acid | 2.0 U | 2.0 | 6.0 |
| Perfluorotetradecanoic acid | 0.30 U | 0.30 | 1.0 |
| Perfluorotridecanoic acid | 0.40 U | 0.40 | 1.0 |
| Perfluoroundecanoic acid | 0.40 U | 0.40 | 2.0 |
| | mg/l | mg/l | mg/l |
| Batch number: 182960571301 | Sample number(s): 9858440-9858441 | | |
| Mercury | 0.000050 U | 0.000050 | 0.00020 |
| Batch number: 182971063602 | Sample number(s): 9858440-9858441 | | |
| Aluminum | 0.153 U | 0.153 | 0.300 |
| Calcium | 0.0330 U | 0.0330 | 0.500 |
| Iron | 0.0400 U | 0.0400 | 0.200 |
| Magnesium | 0.0190 U | 0.0190 | 0.100 |
| Manganese | 0.0011 U | 0.0011 | 0.0200 |
| Potassium | 0.203 U | 0.203 | 0.500 |
| Sodium | 0.326 U | 0.326 | 1.00 |
| Zinc | 0.0033 J | 0.0030 | 0.0200 |
| Batch number: 182971063902A | Sample number(s): 9858440-9858441 | | |
| Antimony | 0.00041 U | 0.00041 | 0.0020 |
| Arsenic | 0.00068 U | 0.00068 | 0.0020 |
| Beryllium | 0.000091 U | 0.000091 | 0.00050 |
| Cadmium | 0.00015 U | 0.00015 | 0.0010 |
| Chromium | 0.00070 U | 0.00070 | 0.0040 |
| Cobalt | 0.00016 U | 0.00016 | 0.0010 |
| Copper | 0.0099 U | 0.0099 | 0.0400 |
| Lead | 0.0011 U | 0.0011 | 0.0030 |
| Nickel | 0.00060 U | 0.00060 | 0.0040 |
| Silver | 0.00017 U | 0.00017 | 0.00050 |
| Vanadium | 0.00024 U | 0.00024 | 0.0010 |
| Batch number: 182971063902B | Sample number(s): 9858440-9858441 | | |
| Selenium | 0.00065 U | 0.00065 | 0.0020 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | mg/l | mg/l | mg/l |
| Thallium | 0.00011 U | 0.00011 | 0.00050 |
| Batch number: 182971063902D | Sample number(s): 9858440-9858441 | | |
| Barium | 0.00075 U | 0.00075 | 0.0040 |
| Batch number: 18291520209A | Sample number(s): 9858440-9858441 | | |
| Chloride | 0.20 U | 0.20 | 0.40 |
| Nitrate Nitrogen | 0.050 U | 0.050 | 0.10 |
| Nitrite Nitrogen | 0.050 U | 0.050 | 0.10 |
| Sulfate | 0.30 U | 0.30 | 1.0 |
| Batch number: 18292108102A | Sample number(s): 9858440-9858441 | | |
| Kjeldahl Nitrogen | 0.50 U | 0.50 | 1.0 |
| Batch number: 18295107104A | Sample number(s): 9858440-9858441 | | |
| Ammonia Nitrogen | 0.050 U | 0.050 | 0.10 |
| Batch number: 18292385801A | Sample number(s): 9858440-9858441 | | |
| Total Suspended Solids | 1.00 U | 1.00 | 3.00 |
| Batch number: 18295022901A | Sample number(s): 9858440-9858441 | | |
| Sulfite | 1.5 U | 1.5 | 5.0 |
| | mg/l as CaCO3 | mg/l as CaCO3 | mg/l as CaCO3 |
| Batch number: 18292005205A | Sample number(s): 9858440-9858441 | | |
| Total Alkalinity to pH 4.5 | 1.7 U | 1.7 | 5.0 |

## LCS/LCSD

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: 5183022AA | Sample number(s): 9858440-9858441,9858444 | | | | | | | | |
| Acetone | 150 | 181 | 150 | 175.13 | 121 | 117 | 54-157 | 3 | 30 |
| Benzene | 20 | 20.88 | 20 | 21.19 | 104 | 106 | 80-120 | 1 | 30 |
| Bromochloromethane | 20 | 17.61 | 20 | 18.4 | 88 | 92 | 80-120 | 4 | 30 |
| Bromodichloromethane | 20 | 20.4 | 20 | 20.64 | 102 | 103 | 71-120 | 1 | 30 |
| Bromoform | 20 | 16.17 | 20 | 16.72 | 81 | 84 | 51-120 | 3 | 30 |
| Bromomethane | 20 | 18.14 | 20 | 17.86 | 91 | 89 | 53-128 | 2 | 30 |
| 2-Butanone | 150 | 149.63 | 150 | 150.23 | 100 | 100 | 59-135 | 0 | 30 |
| Carbon Disulfide | 20 | 17.91 | 20 | 18.6 | 90 | 93 | 65-128 | 4 | 30 |
| Carbon Tetrachloride | 20 | 19.78 | 20 | 20.43 | 99 | 102 | 64-134 | 3 | 30 |
| Chlorobenzene | 20 | 20.3 | 20 | 20.47 | 102 | 102 | 80-120 | 1 | 30 |
| Chloroethane | 20 | 18.6 | 20 | 18.3 | 93 | 92 | 55-123 | 2 | 30 |

*- Outside of specification
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(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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 20 | 21.32 | 20 | 21.69 | 107 | 108 | 80-120 | 2 | 30 |
| Chloromethane | 20 | 17.62 | 20 | 17.87 | 88 | 89 | 56-121 | 1 | 30 |
| Cyclohexane | 20 | 21.49 | 20 | 21.91 | 107 | 110 | 68-126 | 2 | 30 |
| 1,2-Dibromo-3-chloropropane | 20 | 19.34 | 20 | 19.48 | 97 | 97 | 47-131 | 1 | 30 |
| Dibromochloromethane | 20 | 19.4 | 20 | 19.79 | 97 | 99 | 71-120 | 2 | 30 |
| 1,2-Dibromoethane | 20 | 20.9 | 20 | 20.94 | 105 | 105 | 77-120 | 0 | 30 |
| 1,2-Dichlorobenzene | 20 | 20.14 | 20 | 20.23 | 101 | 101 | 80-120 | 0 | 30 |
| 1,3-Dichlorobenzene | 20 | 19.61 | 20 | 19.99 | 98 | 100 | 80-120 | 2 | 30 |
| 1,4-Dichlorobenzene | 20 | 20.11 | 20 | 20.5 | 101 | 103 | 80-120 | 2 | 30 |
| Dichlorodifluoromethane | 20 | 15.72 | 20 | 16.16 | 79 | 81 | 41-127 | 3 | 30 |
| 1,1-Dichloroethane | 20 | 21.24 | 20 | 21.54 | 106 | 108 | 80-120 | 1 | 30 |
| 1,2-Dichloroethane | 20 | 22.45 | 20 | 22.61 | 112 | 113 | 73-124 | 1 | 30 |
| 1,1-Dichloroethene | 20 | 21.49 | 20 | 22.07 | 107 | 110 | 80-131 | 3 | 30 |
| cis-1,2-Dichloroethene | 20 | 20.89 | 20 | 21.42 | 104 | 107 | 80-120 | 2 | 30 |
| trans-1,2-Dichloroethene | 20 | 21 | 20 | 21.51 | 105 | 108 | 80-120 | 2 | 30 |
| 1,2-Dichloropropane | 20 | 22.07 | 20 | 22.27 | 110 | 111 | 80-120 | 1 | 30 |
| cis-1,3-Dichloropropene | 20 | 20.11 | 20 | 20.64 | 101 | 103 | 75-120 | 3 | 30 |
| trans-1,3-Dichloropropene | 20 | 19.52 | 20 | 19.96 | 98 | 100 | 67-120 | 2 | 30 |
| Ethylbenzene | 20 | 20.17 | 20 | 20.58 | 101 | 103 | 80-120 | 2 | 30 |
| Freon 113 | 20 | 21.82 | 20 | 22.72 | 109 | 114 | 73-139 | 4 | 30 |
| 2-Hexanone | 100 | 107.33 | 100 | 106.8 | 107 | 107 | 56-135 | 0 | 30 |
| Isopropylbenzene | 20 | 20.41 | 20 | 20.63 | 102 | 103 | 80-120 | 1 | 30 |
| Methyl Acetate | 20 | 18.48 | 20 | 18.51 | 92 | 93 | 54-136 | 0 | 30 |
| Methyl Tertiary Butyl Ether | 20 | 19.61 | 20 | 19.94 | 98 | 100 | 69-122 | 2 | 30 |
| 4-Methyl-2-pentanone | 100 | 105.42 | 100 | 105.28 | 105 | 105 | 62-133 | 0 | 30 |
| Methylcyclohexane | 20 | 18.28 | 20 | 18.77 | 91 | 94 | 67-121 | 3 | 30 |
| Methylene Chloride | 20 | 21.05 | 20 | 21.28 | 105 | 106 | 80-120 | 1 | 30 |
| Styrene | 20 | 19.96 | 20 | 20.07 | 100 | 100 | 80-120 | 1 | 30 |
| 1,1,2,2-Tetrachloroethane | 20 | 21.98 | 20 | 22.04 | 110 | 110 | 72-120 | 0 | 30 |
| Tetrachloroethene | 20 | 18.77 | 20 | 19.44 | 94 | 97 | 80-120 | 3 | 30 |
| Toluene | 20 | 20.36 | 20 | 20.85 | 102 | 104 | 80-120 | 2 | 30 |
| 1,2,3-Trichlorobenzene | 20 | 19.64 | 20 | 19.87 | 98 | 99 | 66-120 | 1 | 30 |
| 1,2,4-Trichlorobenzene | 20 | 19.41 | 20 | 19.85 | 97 | 99 | 63-120 | 2 | 30 |
| 1,1,1-Trichloroethane | 20 | 20.31 | 20 | 20.6 | 102 | 103 | 67-126 | 1 | 30 |
| 1,1,2-Trichloroethane | 20 | 22.23 | 20 | 22.18 | 111 | 111 | 80-120 | 0 | 30 |
| Trichloroethene | 20 | 20.38 | 20 | 20.81 | 102 | 104 | 80-120 | 2 | 30 |
| Trichlorofluoromethane | 20 | 18.54 | 20 | 18.9 | 93 | 94 | 55-135 | 2 | 30 |
| Vinyl Chloride | 20 | 18.06 | 20 | 18.54 | 90 | 93 | 56-120 | 3 | 30 |
| m+p-Xylene | 40 | 40.48 | 40 | 41.12 | 101 | 103 | 80-120 | 2 | 30 |
| o-Xylene | 20 | 19.67 | 20 | 20.1 | 98 | 100 | 80-120 | 2 | 30 |
| Batch number: 5183031AA | Sample number(s): 9858439 | | | | | | | | |
| Acetone | 150 | 167.61 | | | 112 | | 54-157 | | |
| Benzene | 20 | 21.56 | | | 108 | | 80-120 | | |

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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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | 20 | 18.31 | | | 92 | | 80-120 | | |
| Bromodichloromethane | 20 | 20.68 | | | 103 | | 71-120 | | |
| Bromoform | 20 | 16.81 | | | 84 | | 51-120 | | |
| Bromomethane | 20 | 16.86 | | | 84 | | 53-128 | | |
| 2-Butanone | 150 | 151.65 | | | 101 | | 59-135 | | |
| Carbon Disulfide | 20 | 18.2 | | | 91 | | 65-128 | | |
| Carbon Tetrachloride | 20 | 21.18 | | | 106 | | 64-134 | | |
| Chlorobenzene | 20 | 20.73 | | | 104 | | 80-120 | | |
| Chloroethane | 20 | 19.09 | | | 95 | | 55-123 | | |
| Chloroform | 20 | 21.85 | | | 109 | | 80-120 | | |
| Chloromethane | 20 | 17.21 | | | 86 | | 56-121 | | |
| Cyclohexane | 20 | 23.27 | | | 116 | | 68-126 | | |
| 1,2-Dibromo-3-chloropropane | 20 | 19.69 | | | 98 | | 47-131 | | |
| Dibromochloromethane | 20 | 19.66 | | | 98 | | 71-120 | | |
| 1,2-Dibromoethane | 20 | 20.67 | | | 103 | | 77-120 | | |
| 1,2-Dichlorobenzene | 20 | 20.39 | | | 102 | | 80-120 | | |
| 1,3-Dichlorobenzene | 20 | 19.93 | | | 100 | | 80-120 | | |
| 1,4-Dichlorobenzene | 20 | 20.53 | | | 103 | | 80-120 | | |
| Dichlorodifluoromethane | 20 | 16.24 | | | 81 | | 41-127 | | |
| 1,1-Dichloroethane | 20 | 21.72 | | | 109 | | 80-120 | | |
| 1,2-Dichloroethane | 20 | 22.83 | | | 114 | | 73-124 | | |
| 1,1-Dichloroethene | 20 | 22.09 | | | 110 | | 80-131 | | |
| cis-1,2-Dichloroethene | 20 | 21.52 | | | 108 | | 80-120 | | |
| trans-1,2-Dichloroethene | 20 | 21.61 | | | 108 | | 80-120 | | |
| 1,2-Dichloropropane | 20 | 22.63 | | | 113 | | 80-120 | | |
| cis-1,3-Dichloropropene | 20 | 20.59 | | | 103 | | 75-120 | | |
| trans-1,3-Dichloropropene | 20 | 19.65 | | | 98 | | 67-120 | | |
| Ethylbenzene | 20 | 20.84 | | | 104 | | 80-120 | | |
| Freon 113 | 20 | 23.88 | | | 119 | | 73-139 | | |
| 2-Hexanone | 100 | 106.91 | | | 107 | | 56-135 | | |
| Isopropylbenzene | 20 | 21.05 | | | 105 | | 80-120 | | |
| Methyl Acetate | 20 | 18.69 | | | 93 | | 54-136 | | |
| Methyl Tertiary Butyl Ether | 20 | 19.67 | | | 98 | | 69-122 | | |
| 4-Methyl-2-pentanone | 100 | 106.04 | | | 106 | | 62-133 | | |
| Methylcyclohexane | 20 | 19.86 | | | 99 | | 67-121 | | |
| Methylene Chloride | 20 | 21.39 | | | 107 | | 80-120 | | |
| Styrene | 20 | 20.23 | | | 101 | | 80-120 | | |
| 1,1,2,2-Tetrachloroethane | 20 | 22.09 | | | 110 | | 72-120 | | |
| Tetrachloroethene | 20 | 19.78 | | | 99 | | 80-120 | | |
| Toluene | 20 | 21.08 | | | 105 | | 80-120 | | |
| 1,2,3-Trichlorobenzene | 20 | 19.63 | | | 98 | | 66-120 | | |
| 1,2,4-Trichlorobenzene | 20 | 19.47 | | | 97 | | 63-120 | | |
| 1,1,1-Trichloroethane | 20 | 21.21 | | | 106 | | 67-126 | | |
| 1,1,2-Trichloroethane | 20 | 22.31 | | | 112 | | 80-120 | | |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Trichloroethene | 20 | 21.25 | | | 106 | | 80-120 | | |
| Trichlorofluoromethane | 20 | 20.28 | | | 101 | | 55-135 | | |
| Vinyl Chloride | 20 | 18.39 | | | 92 | | 56-120 | | |
| m+p-Xylene | 40 | 41.62 | | | 104 | | 80-120 | | |
| o-Xylene | 20 | 19.84 | | | 99 | | 80-120 | | |
| | ug/l | ug/l | ug/l | ug/l | | | | | |
| Batch number: 18295WAH026 | Sample number(s): 9858440-9858441 | | | | | | | | |
| Acenaphthene | 50 | 31.95 | 50 | 36.29 | 64 | 73 | 62-119 | 13 | 30 |
| Acenaphthylene | 50 | 34.87 | 50 | 39.47 | 70 | 79 | 66-125 | 12 | 30 |
| Acetophenone | 50 | 32.64 | 50 | 36.42 | 65 | 73 | 62-114 | 11 | 30 |
| Anthracene | 50 | 33.45 | 50 | 38.21 | 67* | 76 | 70-118 | 13 | 30 |
| Atrazine | 50 | 33.33 | 50 | 38.65 | 67* | 77 | 71-133 | 15 | 30 |
| Benzaldehyde | 50 | 29.69 | 50 | 32.31 | 59 | 65 | 56-117 | 8 | 30 |
| Benzo(a)anthracene | 50 | 38.01 | 50 | 43.34 | 76 | 87 | 70-123 | 13 | 30 |
| Benzo(a)pyrene | 50 | 35.12 | 50 | 40.89 | 70* | 82 | 71-122 | 15 | 30 |
| Benzo(b)fluoranthene | 50 | 36.11 | 50 | 41.43 | 72 | 83 | 70-120 | 14 | 30 |
| Benzo(g,h,i)perylene | 50 | 34.92 | 50 | 39.77 | 70 | 80 | 64-119 | 13 | 30 |
| Benzo(k)fluoranthene | 50 | 35.07 | 50 | 41.42 | 70* | 83 | 73-122 | 17 | 30 |
| 1,1'-Biphenyl | 50 | 30.82 | 50 | 35.2 | 62 | 70 | 54-116 | 13 | 30 |
| 4-Bromophenyl-phenylether | 50 | 33.36 | 50 | 38.08 | 67 | 76 | 64-119 | 13 | 30 |
| Butylbenzylphthalate | 50 | 28.03 | 50 | 33.38 | 56* | 67 | 57-119 | 17 | 30 |
| Di-n-butylphthalate | 50 | 29.74 | 50 | 35.23 | 59* | 70* | 71-113 | 17 | 30 |
| Caprolactam | 50 | 12.24 | 50 | 13.94 | 24 | 28 | 13-37 | 13 | 30 |
| Carbazole | 50 | 32.84 | 50 | 39.44 | 66* | 79 | 71-128 | 18 | 30 |
| 4-Chloro-3-methylphenol | 50 | 40.86 | 50 | 44.69 | 82 | 89 | 65-122 | 9 | 30 |
| 4-Chloroaniline | 50 | 28.76 | 50 | 30.36 | 58 | 61 | 42-110 | 5 | 30 |
| bis(2-Chloroethoxy)methane | 50 | 33.04 | 50 | 38.6 | 66 | 77 | 64-119 | 16 | 30 |
| bis(2-Chloroethyl)ether | 50 | 31.14 | 50 | 33.8 | 62 | 68 | 60-110 | 8 | 30 |
| 2-Chloronaphthalene | 50 | 29.09 | 50 | 32.51 | 58 | 65 | 51-114 | 11 | 30 |
| 2-Chlorophenol | 50 | 34.99 | 50 | 34.58 | 70 | 69 | 58-108 | 1 | 30 |
| 4-Chlorophenyl-phenylether | 50 | 33.06 | 50 | 38.04 | 66 | 76 | 58-115 | 14 | 30 |
| 2,2'-oxybis(1-Chloropropane) | 50 | 27.78 | 50 | 29.69 | 56 | 59 | 48-118 | 7 | 30 |
| Chrysene | 50 | 36.87 | 50 | 43.14 | 74 | 86 | 71-123 | 16 | 30 |
| Dibenz(a,h)anthracene | 50 | 35.12 | 50 | 40.11 | 70 | 80 | 67-123 | 13 | 30 |
| Dibenzofuran | 50 | 32.91 | 50 | 38.35 | 66 | 77 | 63-117 | 15 | 30 |
| 3,3'-Dichlorobenzidine | 50 | 34.2 | 50 | 38.45 | 68 | 77 | 36-116 | 12 | 30 |
| 2,4-Dichlorophenol | 50 | 40.84 | 50 | 43.14 | 82 | 86 | 65-117 | 5 | 30 |
| Diethylphthalate | 50 | 25.07 | 50 | 29.64 | 50* | 59* | 61-111 | 17 | 30 |
| 2,4-Dimethylphenol | 50 | 30.42 | 50 | 31.96 | 61 | 64 | 52-106 | 5 | 30 |
| Dimethylphthalate | 50 | 19.81 | 50 | 24.52 | 40 | 49 | 37-116 | 21 | 30 |
| 4,6-Dinitro-2-methylphenol | 50 | 42.01 | 50 | 44.71 | 84 | 89 | 63-129 | 6 | 30 |
| 2,4-Dinitrophenol | 100 | 85.71 | 100 | 89.7 | 86 | 90 | 26-141 | 5 | 30 |
| 2,4-Dinitrotoluene | 50 | 31.04 | 50 | 44 | 62* | 88 | 69-117 | 35* | 30 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| 2,6-Dinitrotoluene | 50 | 34.85 | 50 | 41.53 | 70 | 83 | 69-122 | 17 | 30 |
| 1,4-Dioxane | 50 | 15.44 | 50 | 19.62 | 31 | 39 | 29-59 | 24 | 30 |
| bis(2-Ethylhexyl)phthalate | 50 | 37.09 | 50 | 42.23 | 74 | 84 | 68-120 | 13 | 30 |
| Fluoranthene | 50 | 35.55 | 50 | 41.14 | 71 | 82 | 70-124 | 15 | 30 |
| Fluorene | 50 | 34.22 | 50 | 39.68 | 68 | 79 | 62-116 | 15 | 30 |
| Hexachlorobenzene | 50 | 32.7 | 50 | 37.45 | 65 | 75 | 65-121 | 14 | 30 |
| Hexachlorobutadiene | 50 | 24.37 | 50 | 29.22 | 49 | 58 | 21-114 | 18 | 30 |
| Hexachlorocyclopentadiene | 100 | 7.23 | 100 | 8.80 | 7* | 9* | 10-117 | 20 | 30 |
| Hexachloroethane | 50 | 21.53 | 50 | 24.37 | 43 | 49 | 24-100 | 12 | 30 |
| Indeno(1,2,3-cd)pyrene | 50 | 33.9 | 50 | 38.98 | 68 | 78 | 61-121 | 14 | 30 |
| Isophorone | 50 | 33.58 | 50 | 39.7 | 67 | 79 | 65-123 | 17 | 30 |
| 2-Methylnaphthalene | 50 | 30.23 | 50 | 35.28 | 60 | 71 | 51-112 | 15 | 30 |
| 2-Methylphenol | 50 | 34.29 | 50 | 34.8 | 69 | 70 | 59-109 | 1 | 30 |
| 4-Methylphenol | 50 | 32.74 | 50 | 33.87 | 65 | 68 | 56-108 | 3 | 30 |
| Naphthalene | 50 | 28.13 | 50 | 33.06 | 56 | 66 | 54-107 | 16 | 30 |
| 2-Nitroaniline | 50 | 36.1 | 50 | 41.55 | 72 | 83 | 66-126 | 14 | 30 |
| 3-Nitroaniline | 50 | 35.73 | 50 | 36.19 | 71 | 72 | 51-120 | 1 | 30 |
| 4-Nitroaniline | 50 | 31.33 | 50 | 32.85 | 63 | 66 | 53-111 | 5 | 30 |
| Nitrobenzene | 50 | 30.86 | 50 | 36.57 | 62 | 73 | 59-117 | 17 | 30 |
| 2-Nitrophenol | 50 | 40.3 | 50 | 42.51 | 81 | 85 | 63-121 | 5 | 30 |
| 4-Nitrophenol | 50 | 21.9 | 50 | 25.95 | 44 | 52 | 28-88 | 17 | 30 |
| N-Nitroso-di-n-propylamine | 50 | 33.75 | 50 | 37.78 | 68 | 76 | 61-118 | 11 | 30 |
| N-Nitrosodiphenylamine | 50 | 35.04 | 50 | 40.92 | 70 | 82 | 68-122 | 15 | 30 |
| Di-n-octylphthalate | 50 | 35.07 | 50 | 40.61 | 70 | 81 | 67-120 | 15 | 30 |
| Pentachlorophenol | 50 | 28.94 | 50 | 35.01 | 58* | 70 | 64-130 | 19 | 30 |
| Phenanthrene | 50 | 33.77 | 50 | 39.15 | 68 | 78 | 68-118 | 15 | 30 |
| Phenol | 50 | 17.2 | 50 | 19.26 | 34 | 39 | 23-82 | 11 | 30 |
| Pyrene | 50 | 33.1 | 50 | 39.01 | 66* | 78 | 68-118 | 16 | 30 |
| 1,2,4,5-Tetrachlorobenzene | 50 | 27.45 | 50 | 32.08 | 55 | 64 | 39-112 | 16 | 30 |
| 2,3,4,6-Tetrachlorophenol | 50 | 44.14 | 50 | 47.89 | 88 | 96 | 69-125 | 8 | 30 |
| 2,4,5-Trichlorophenol | 50 | 42.5 | 50 | 46.04 | 85 | 92 | 73-124 | 8 | 30 |
| 2,4,6-Trichlorophenol | 50 | 42.46 | 50 | 44.51 | 85 | 89 | 69-122 | 5 | 30 |
| Batch number: 18296WAA026 | Sample number(s): 9858439 | | | | | | | | |
| Acenaphthene | 50 | 38.65 | | | 77 | | 62-119 | | |
| Acenaphthylene | 50 | 43.7 | | | 87 | | 66-125 | | |
| Acetophenone | 50 | 40.14 | | | 80 | | 62-114 | | |
| Anthracene | 50 | 41.72 | | | 83 | | 70-118 | | |
| Atrazine | 50 | 47.25 | | | 95 | | 71-133 | | |
| Benzaldehyde | 50 | 37.57 | | | 75 | | 56-117 | | |
| Benzo(a)anthracene | 50 | 49.12 | | | 98 | | 70-123 | | |
| Benzo(a)pyrene | 50 | 47.15 | | | 94 | | 71-122 | | |
| Benzo(b)fluoranthene | 50 | 44.52 | | | 89 | | 70-120 | | |
| Benzo(g,h,i)perylene | 50 | 41.17 | | | 82 | | 64-119 | | |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Benzo(k)fluoranthene | 50 | 47.3 | | | 95 | | 73-122 | | |
| 1,1'-Biphenyl | 50 | 37.14 | | | 74 | | 54-116 | | |
| 4-Bromophenyl-phenylether | 50 | 38.99 | | | 78 | | 64-119 | | |
| Butylbenzylphthalate | 50 | 45.11 | | | 90 | | 57-119 | | |
| Di-n-butylphthalate | 50 | 43.37 | | | 87 | | 71-113 | | |
| Caprolactam | 50 | 13.38 | | | 27 | | 13-37 | | |
| Carbazole | 50 | 47.52 | | | 95 | | 71-128 | | |
| 4-Chloro-3-methylphenol | 50 | 40.23 | | | 80 | | 65-122 | | |
| 4-Chloroaniline | 50 | 28.45 | | | 57 | | 42-110 | | |
| bis(2-Chloroethoxy)methane | 50 | 40.16 | | | 80 | | 64-119 | | |
| bis(2-Chloroethyl)ether | 50 | 38.61 | | | 77 | | 60-110 | | |
| 2-Chloronaphthalene | 50 | 32.68 | | | 65 | | 51-114 | | |
| 2-Chlorophenol | 50 | 38.37 | | | 77 | | 58-108 | | |
| 4-Chlorophenyl-phenylether | 50 | 34.8 | | | 70 | | 58-115 | | |
| 2,2'-oxybis(1-Chloropropane) | 50 | 36.52 | | | 73 | | 48-118 | | |
| Chrysene | 50 | 50.45 | | | 101 | | 71-123 | | |
| Dibenz(a,h)anthracene | 50 | 42.79 | | | 86 | | 67-123 | | |
| Dibenzofuran | 50 | 39.12 | | | 78 | | 63-117 | | |
| 3,3'-Dichlorobenzidine | 50 | 36.71 | | | 73 | | 36-116 | | |
| 2,4-Dichlorophenol | 50 | 38.1 | | | 76 | | 65-117 | | |
| Diethylphthalate | 50 | 37.49 | | | 75 | | 61-111 | | |
| 2,4-Dimethylphenol | 50 | 32.29 | | | 65 | | 52-106 | | |
| Dimethylphthalate | 50 | 26.63 | | | 53 | | 37-116 | | |
| 4,6-Dinitro-2-methylphenol | 50 | 46.67 | | | 93 | | 63-129 | | |
| 2,4-Dinitrophenol | 100 | 91.25 | | | 91 | | 26-141 | | |
| 2,4-Dinitrotoluene | 50 | 42.9 | | | 86 | | 69-117 | | |
| 2,6-Dinitrotoluene | 50 | 45.62 | | | 91 | | 69-122 | | |
| 1,4-Dioxane | 50 | 20.57 | | | 41 | | 29-59 | | |
| bis(2-Ethylhexyl)phthalate | 50 | 55.04 | | | 110 | | 68-120 | | |
| Fluoranthene | 50 | 46.68 | | | 93 | | 70-124 | | |
| Fluorene | 50 | 40.99 | | | 82 | | 62-116 | | |
| Hexachlorobenzene | 50 | 40.73 | | | 81 | | 65-121 | | |
| Hexachlorobutadiene | 50 | 16.67 | | | 33 | | 21-114 | | |
| Hexachlorocyclopentadiene | 100 | 4.84 | | | 5* | | 10-117 | | |
| Hexachloroethane | 50 | 18.26 | | | 37 | | 24-100 | | |
| Indeno(1,2,3-cd)pyrene | 50 | 42 | | | 84 | | 61-121 | | |
| Isophorone | 50 | 41.79 | | | 84 | | 65-123 | | |
| 2-Methylnaphthalene | 50 | 31.37 | | | 63 | | 51-112 | | |
| 2-Methylphenol | 50 | 35.94 | | | 72 | | 59-109 | | |
| 4-Methylphenol | 50 | 32.29 | | | 65 | | 56-108 | | |
| Naphthalene | 50 | 32.68 | | | 65 | | 54-107 | | |
| 2-Nitroaniline | 50 | 50.01 | | | 100 | | 66-126 | | |
| 3-Nitroaniline | 50 | 39.81 | | | 80 | | 51-120 | | |
| 4-Nitroaniline | 50 | 37.24 | | | 74 | | 53-111 | | |

*- Outside of specification
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(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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Nitrobenzene | 50 | 37.92 | | | 76 | | 59-117 | | |
| 2-Nitrophenol | 50 | 41.56 | | | 83 | | 63-121 | | |
| 4-Nitrophenol | 50 | 24.15 | | | 48 | | 28-88 | | |
| N-Nitroso-di-n-propylamine | 50 | 39.46 | | | 79 | | 61-118 | | |
| N-Nitrosodiphenylamine | 50 | 47.84 | | | 96 | | 68-122 | | |
| Di-n-octylphthalate | 50 | 43.57 | | | 87 | | 67-120 | | |
| Pentachlorophenol | 50 | 44.66 | | | 89 | | 64-130 | | |
| Phenanthrene | 50 | 40.77 | | | 82 | | 68-118 | | |
| Phenol | 50 | 20.81 | | | 42 | | 23-82 | | |
| Pyrene | 50 | 44.54 | | | 89 | | 68-118 | | |
| 1,2,4,5-Tetrachlorobenzene | 50 | 25.74 | | | 51 | | 39-112 | | |
| 2,3,4,6-Tetrachlorophenol | 50 | 44.05 | | | 88 | | 69-125 | | |
| 2,4,5-Trichlorophenol | 50 | 45.03 | | | 90 | | 73-124 | | |
| 2,4,6-Trichlorophenol | 50 | 45.99 | | | 92 | | 69-122 | | |
| | **ng/l** | **ng/l** | **ng/l** | **ng/l** | | | | | |
| Batch number: 18292002 | Sample number(s): 9858439-9858446 | | | | | | | | |
| 10:2-Fluorotelomersulfonic Ac | 15.42 | 11.83 | 15.42 | 12.38 | 77 | 80 | 49-186 | 5 | 30 |
| 4:2-Fluorotelomersulfonic Ac | 14.94 | 14.93 | 14.94 | 16.46 | 100 | 110 | 82-152 | 10 | 30 |
| 8:2-Fluorotelomersulfonic Ac | 15.33 | 14.18 | 15.33 | 13.4 | 93 | 87 | 66-148 | 6 | 30 |
| 6:2-Fluorotelomersulfonic acid | 15.17 | 14.28 | 15.17 | 14.71 | 94 | 97 | 66-155 | 3 | 30 |
| HFPODA | 5.44 | 6.93 | 5.44 | 5.66 | 127 | 104 | 70-130 | 20 | 30 |
| NaDONA | 5.12 | 5.16 | 5.12 | 5.29 | 101 | 103 | 70-130 | 3 | 30 |
| NEtFOSAA | 5.44 | 5.90 | 5.44 | 5.39 | 108 | 99 | 55-169 | 9 | 30 |
| NEtPFOSA | 5.44 | 6.92 | 5.44 | 7.07 | 127 | 130 | 70-130 | 2 | 30 |
| NEtPFOSAE | 5.44 | 4.54 | 5.44 | 4.36 | 84 | 80 | 70-130 | 4 | 30 |
| NMeFOSAA | 5.44 | 4.52 | 5.44 | 4.65 | 83 | 86 | 62-167 | 3 | 30 |
| NMePFOSA | 5.44 | 6.09 | 5.44 | 5.86 | 112 | 108 | 70-130 | 4 | 30 |
| NMePFOSAE | 5.44 | 6.40 | 5.44 | 6.29 | 118 | 116 | 70-130 | 2 | 30 |
| Perfluorobutanesulfonic acid | 4.81 | 4.73 | 4.81 | 4.70 | 98 | 98 | 73-128 | 0 | 30 |
| Perfluorobutanoic acid | 5.44 | 6.13 | 5.44 | 6.19 | 113 | 114 | 74-142 | 1 | 30 |
| Perfluorodecanesulfonic acid | 5.24 | 4.58 | 5.24 | 4.98 | 87 | 95 | 60-135 | 8 | 30 |
| Perfluorodecanoic acid | 5.44 | 5.10 | 5.44 | 5.21 | 94 | 96 | 69-148 | 2 | 30 |
| Perfluorododecanesulfonic acid | 5.26 | 4.61 | 5.26 | 4.21 | 88 | 80 | 70-130 | 9 | 30 |
| Perfluorododecanoic acid | 5.44 | 5.70 | 5.44 | 5.87 | 105 | 108 | 75-136 | 3 | 30 |
| Perfluoroheptanesulfonic acid | 5.18 | 5.32 | 5.18 | 5.22 | 103 | 101 | 64-135 | 2 | 30 |
| Perfluoroheptanoic acid | 5.44 | 6.29 | 5.44 | 6.12 | 116 | 112 | 76-140 | 3 | 30 |
| Perfluorohexadecanoic acid | 5.44 | 6.21 | 5.44 | 6.31 | 114 | 116 | 21-151 | 2 | 30 |
| Perfluorohexanesulfonic acid | 5.14 | 5.46 | 5.14 | 5.04 | 106 | 98 | 71-131 | 8 | 30 |
| Perfluorohexanoic acid | 5.44 | 5.47 | 5.44 | 5.45 | 100 | 100 | 75-135 | 0 | 30 |
| Perfluorononanesulfonic acid | 5.22 | 4.92 | 5.22 | 5.23 | 94 | 100 | 66-133 | 6 | 30 |
| Perfluorononanoic acid | 5.44 | 6.14 | 5.44 | 6.19 | 113 | 114 | 72-148 | 1 | 30 |
| Perfluorooctadecanoic acid | 5.44 | 5.97 | 5.44 | 6.52 | 110 | 120 | 70-130 | 9 | 30 |
| Perfluorooctanesulfonamide | 5.44 | 5.16 | 5.44 | 4.81 | 95 | 88 | 65-164 | 7 | 30 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| Perfluoro-Octanesulfonic acid | 5.20 | 5.31 | 5.20 | 4.99 | 102 | 96 | 67-138 | 6 | 30 |
| Perfluorooctanoic acid | 5.44 | 4.85 | 5.44 | 5.04 | 89 | 93 | 72-138 | 4 | 30 |
| Perfluoropentanesulfonic acid | 5.10 | 5.73 | 5.10 | 5.48 | 112 | 107 | 76-127 | 5 | 30 |
| Perfluoropentanoic acid | 5.44 | 5.80 | 5.44 | 6.12 | 107 | 113 | 74-134 | 5 | 30 |
| Perfluorotetradecanoic acid | 5.44 | 5.64 | 5.44 | 5.54 | 104 | 102 | 74-135 | 2 | 30 |
| Perfluorotridecanoic acid | 5.44 | 5.85 | 5.44 | 6.19 | 107 | 114 | 61-145 | 6 | 30 |
| Perfluoroundecanoic acid | 5.44 | 5.37 | 5.44 | 5.45 | 99 | 100 | 75-146 | 1 | 30 |
| | **mg/l** | **mg/l** | **mg/l** | **mg/l** | | | | | |
| Batch number: 182960571301 | Sample number(s): 9858440-9858441 | | | | | | | | |
| Mercury | 0.00100 | 0.000848 | | | 85 | | 80-114 | | |
| Batch number: 182971063602 | Sample number(s): 9858440-9858441 | | | | | | | | |
| Aluminum | 2.00 | 2.01 | | | 100 | | 80-120 | | |
| Calcium | 4.00 | 3.96 | | | 99 | | 88-112 | | |
| Iron | 1.00 | 0.997 | | | 100 | | 85-115 | | |
| Magnesium | 2.00 | 1.98 | | | 99 | | 88-114 | | |
| Manganese | 0.500 | 0.500 | | | 100 | | 90-112 | | |
| Potassium | 10 | 9.87 | | | 99 | | 88-112 | | |
| Sodium | 10 | 9.56 | | | 96 | | 87-112 | | |
| Zinc | 0.500 | 0.488 | | | 98 | | 89-111 | | |
| Batch number: 182971063902A | Sample number(s): 9858440-9858441 | | | | | | | | |
| Antimony | 0.00600 | 0.00594 | | | 99 | | 80-120 | | |
| Arsenic | 0.0100 | 0.0106 | | | 106 | | 85-120 | | |
| Beryllium | 0.00400 | 0.00423 | | | 106 | | 90-112 | | |
| Cadmium | 0.00500 | 0.00497 | | | 99 | | 84-120 | | |
| Chromium | 0.0500 | 0.0512 | | | 102 | | 90-115 | | |
| Cobalt | 0.250 | 0.244 | | | 97 | | 86-113 | | |
| Copper | 0.0500 | 0.0518 | | | 104 | | 89-120 | | |
| Lead | 0.0150 | 0.0155 | | | 103 | | 90-110 | | |
| Nickel | 0.0500 | 0.0520 | | | 104 | | 90-114 | | |
| Silver | 0.0500 | 0.0496 | | | 99 | | 88-113 | | |
| Vanadium | 0.0500 | 0.0507 | | | 101 | | 90-115 | | |
| Batch number: 182971063902B | Sample number(s): 9858440-9858441 | | | | | | | | |
| Selenium | 0.0100 | 0.0103 | | | 103 | | 90-113 | | |
| Thallium | 0.00200 | 0.00206 | | | 103 | | 80-120 | | |
| Batch number: 182971063902D | Sample number(s): 9858440-9858441 | | | | | | | | |
| Barium | 0.0500 | 0.0489 | | | 98 | | 80-120 | | |
| | **mg/l** | **mg/l** | **mg/l** | **mg/l** | | | | | |
| Batch number: 18291520209A | Sample number(s): 9858440-9858441 | | | | | | | | |
| Chloride | 3.00 | 2.80 | | | 93 | | 90-110 | | |

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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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added mg/l | LCS Conc mg/l | LCSD Spike Added mg/l | LCSD Conc mg/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate Nitrogen | 0.750 | 0.723 | | | 96 | | 90-110 | | |
| Nitrite Nitrogen | 0.750 | 0.709 | | | 95 | | 90-110 | | |
| Sulfate | 7.50 | 7.33 | | | 98 | | 90-110 | | |
| Batch number: 18292108102A | Sample number(s): 9858440-9858441 | | | | | | | | |
| Kjeldahl Nitrogen | 5.00 | 5.20 | | | 104 | | 90-110 | | |
| Batch number: 18295107104A | Sample number(s): 9858440-9858441 | | | | | | | | |
| Ammonia Nitrogen | 1.50 | 1.52 | | | 101 | | 90-110 | | |
| | **mg/l** | **mg/l** | **mg/l** | **mg/l** | | | | | |
| Batch number: 18292385801A | Sample number(s): 9858440-9858441 | | | | | | | | |
| Total Suspended Solids | 150 | 145.2 | 150 | 146.8 | 97 | 98 | 89-105 | 1 | 5 |
| Batch number: 18295022901A | Sample number(s): 9858440-9858441 | | | | | | | | |
| Sulfite | 50 | 49.5 | | | 99 | | 79-105 | | |
| | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | | | | | |
| Batch number: 18292005205A | Sample number(s): 9858440-9858441 | | | | | | | | |
| Total Alkalinity to pH 4.5 | 188 | 183.34 | | | 98 | | 77-109 | | |

## MS/MSD

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Batch number: 5183031AA | Sample number(s): 9858439 UNSPK: P856951 | | | | | | | | | |
| Acetone | 23.06 | 1500 | 1721.73 | 1500 | 1784.81 | 113 | 117 | 54-157 | 4 | 30 |
| Benzene | 3.00 | 200 | 230.13 | 200 | 234.11 | 114 | 116 | 80-120 | 2 | 30 |
| Bromochloromethane | 2 U | 200 | 188.18 | 200 | 194.5 | 94 | 97 | 80-120 | 3 | 30 |
| Bromodichloromethane | 2 U | 200 | 214.61 | 200 | 216.65 | 107 | 108 | 71-120 | 1 | 30 |
| Bromoform | 2 U | 200 | 165.39 | 200 | 169.77 | 83 | 85 | 51-120 | 3 | 30 |
| Bromomethane | 3 U | 200 | 187.08 | 200 | 183.83 | 94 | 92 | 53-128 | 2 | 30 |
| 2-Butanone | 3 U | 1500 | 1442.53 | 1500 | 1426.7 | 96 | 95 | 59-135 | 1 | 30 |
| Carbon Disulfide | 2 U | 200 | 204.51 | 200 | 218.15 | 102 | 109 | 65-128 | 6 | 30 |
| Carbon Tetrachloride | 2 U | 200 | 228.89 | 200 | 233.05 | 114 | 117 | 64-134 | 2 | 30 |
| Chlorobenzene | 2 U | 200 | 217.18 | 200 | 222.02 | 109 | 111 | 80-120 | 2 | 30 |
| Chloroethane | 2 U | 200 | 201.13 | 200 | 192.31 | 101 | 96 | 55-123 | 4 | 30 |
| Chloroform | 2 U | 200 | 229.69 | 200 | 232 | 115 | 116 | 80-120 | 1 | 30 |
| Chloromethane | 2 U | 200 | 183.42 | 200 | 186.75 | 92 | 93 | 56-121 | 2 | 30 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Cyclohexane | 23.5 | 200 | 268.87 | 200 | 277.47 | 123 | 127* | 68-126 | 3 | 30 |
| 1,2-Dibromo-3-chloropropane | 3 U | 200 | 194.84 | 200 | 190.85 | 97 | 95 | 47-131 | 2 | 30 |
| Dibromochloromethane | 2 U | 200 | 197.76 | 200 | 204.91 | 99 | 102 | 71-120 | 4 | 30 |
| 1,2-Dibromoethane | 2 U | 200 | 211.64 | 200 | 215.13 | 106 | 108 | 77-120 | 2 | 30 |
| 1,2-Dichlorobenzene | 2 U | 200 | 209.27 | 200 | 213.18 | 105 | 107 | 80-120 | 2 | 30 |
| 1,3-Dichlorobenzene | 2 U | 200 | 207.67 | 200 | 212.7 | 104 | 106 | 80-120 | 2 | 30 |
| 1,4-Dichlorobenzene | 2 U | 200 | 211.24 | 200 | 216.18 | 106 | 108 | 80-120 | 2 | 30 |
| Dichlorodifluoromethane | 2 U | 200 | 168.95 | 200 | 168.62 | 84 | 84 | 41-127 | 0 | 30 |
| 1,1-Dichloroethane | 2 U | 200 | 229.17 | 200 | 232.81 | 115 | 116 | 80-120 | 2 | 30 |
| 1,2-Dichloroethane | 3 U | 200 | 230.79 | 200 | 230.41 | 115 | 115 | 73-124 | 0 | 30 |
| 1,1-Dichloroethene | 2 U | 200 | 248.69 | 200 | 255.31 | 124 | 128 | 80-131 | 3 | 30 |
| cis-1,2-Dichloroethene | 2 U | 200 | 228.58 | 200 | 234.58 | 114 | 117 | 80-120 | 3 | 30 |
| trans-1,2-Dichloroethene | 2 U | 200 | 233.91 | 200 | 242.36 | 117 | 121* | 80-120 | 4 | 30 |
| 1,2-Dichloropropane | 2 U | 200 | 231.93 | 200 | 233.19 | 116 | 117 | 80-120 | 1 | 30 |
| cis-1,3-Dichloropropene | 2 U | 200 | 207.37 | 200 | 214.28 | 104 | 107 | 75-120 | 3 | 30 |
| trans-1,3-Dichloropropene | 2 U | 200 | 196.68 | 200 | 201.19 | 98 | 101 | 67-120 | 2 | 30 |
| Ethylbenzene | 4 U | 200 | 219.61 | 200 | 225.02 | 110 | 113 | 80-120 | 2 | 30 |
| Freon 113 | 2 U | 200 | 266.02 | 200 | 272.48 | 133 | 136 | 73-139 | 2 | 30 |
| 2-Hexanone | 3 U | 1000 | 1052.04 | 1000 | 1044.68 | 105 | 104 | 56-135 | 1 | 30 |
| Isopropylbenzene | 15.4 | 200 | 247.96 | 200 | 253.41 | 116 | 119 | 80-120 | 2 | 30 |
| Methyl Acetate | 2 U | 200 | 172.07 | 200 | 173.38 | 86 | 87 | 54-136 | 1 | 30 |
| Methyl Tertiary Butyl Ether | 2 U | 200 | 198.44 | 200 | 203.09 | 99 | 102 | 69-122 | 2 | 30 |
| 4-Methyl-2-pentanone | 5 U | 1000 | 1031.8 | 1000 | 1020.66 | 103 | 102 | 62-133 | 1 | 30 |
| Methylcyclohexane | 24.53 | 200 | 260.65 | 200 | 268.89 | 118 | 122* | 67-121 | 3 | 30 |
| Methylene Chloride | 3 U | 200 | 226.69 | 200 | 230.09 | 113 | 115 | 80-120 | 1 | 30 |
| Styrene | 2 U | 200 | 211.82 | 200 | 216.82 | 106 | 108 | 80-120 | 2 | 30 |
| 1,1,2,2-Tetrachloroethane | 2 U | 200 | 220.44 | 200 | 217.1 | 110 | 109 | 72-120 | 2 | 30 |
| Tetrachloroethene | 2 U | 200 | 213.71 | 200 | 222.59 | 107 | 111 | 80-120 | 4 | 30 |
| Toluene | 2 U | 200 | 222.95 | 200 | 229.24 | 111 | 115 | 80-120 | 3 | 30 |
| 1,2,3-Trichlorobenzene | 4 U | 200 | 207.22 | 200 | 215.71 | 104 | 108 | 66-120 | 4 | 30 |
| 1,2,4-Trichlorobenzene | 3 U | 200 | 213.52 | 200 | 221.55 | 107 | 111 | 63-120 | 4 | 30 |
| 1,1,1-Trichloroethane | 3 U | 200 | 226.7 | 200 | 232.35 | 113 | 116 | 67-126 | 2 | 30 |
| 1,1,2-Trichloroethane | 2 U | 200 | 224.49 | 200 | 230.01 | 112 | 115 | 80-120 | 2 | 30 |
| Trichloroethene | 2 U | 200 | 224.7 | 200 | 230.92 | 112 | 115 | 80-120 | 3 | 30 |
| Trichlorofluoromethane | 2 U | 200 | 208.49 | 200 | 207.05 | 104 | 104 | 55-135 | 1 | 30 |
| Vinyl Chloride | 2 U | 200 | 200.32 | 200 | 202.44 | 100 | 101 | 56-120 | 1 | 30 |
| m+p-Xylene | 10 U | 400 | 439.97 | 400 | 451.08 | 110 | 113 | 80-120 | 2 | 30 |
| o-Xylene | 4 U | 200 | 213.45 | 200 | 218.58 | 107 | 109 | 80-120 | 2 | 30 |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 18296WAA026 | Sample number(s): 9858439 UNSPK: P856951 | | | | | | | | | |
| Acenaphthene | 9.28 | 52.3 | 49.95 | 51.65 | 77.74 | 78 | 133* | 62-119 | 44* | 30 |
| Acenaphthylene | 1 U | 52.3 | 48.82 | 51.65 | 54.98 | 93 | 106 | 66-125 | 12 | 30 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetophenone | 41 U | 52.3 | 45.12 | 51.65 | 77.28 | 86 | 150* | 62-114 | 53* | 30 |
| Anthracene | 6.18 | 52.3 | 50.88 | 51.65 | 75.55 | 85 | 134* | 70-118 | 39* | 30 |
| Atrazine | 21 U | 52.3 | 56.67 | 51.65 | 59.79 | 108 | 116 | 71-133 | 5 | 30 |
| Benzaldehyde | 31 U | 52.3 | 40.69 | 51.65 | 39.86 | 78 | 77 | 56-117 | 2 | 30 |
| Benzo(a)anthracene | 6.99 | 52.3 | 57.84 | 51.65 | 82.24 | 97 | 146* | 70-123 | 35* | 30 |
| Benzo(a)pyrene | 7.53 | 52.3 | 50.12 | 51.65 | 82.83 | 81 | 146* | 71-122 | 49* | 30 |
| Benzo(b)fluoranthene | 2.98 | 52.3 | 43.39 | 51.65 | 56.26 | 77 | 103 | 70-120 | 26 | 30 |
| Benzo(g,h,i)perylene | 4.96 | 52.3 | 43.66 | 51.65 | 48.27 | 74 | 84 | 64-119 | 10 | 30 |
| Benzo(k)fluoranthene | 1 U | 52.3 | 44.09 | 51.65 | 45.6 | 84 | 88 | 73-122 | 3 | 30 |
| 1,1'-Biphenyl | 31 U | 52.3 | 40.7 | 51.65 | 39.59 | 78 | 77 | 54-116 | 3 | 30 |
| 4-Bromophenyl-phenylether | 5 U | 52.3 | 43.55 | 51.65 | 39.22 | 83 | 76 | 64-119 | 10 | 30 |
| Butylbenzylphthalate | 21 U | 52.3 | 50.08 | 51.65 | 49.8 | 96 | 96 | 57-119 | 1 | 30 |
| Di-n-butylphthalate | 21 U | 52.3 | 44.84 | 51.65 | 46.98 | 86 | 91 | 71-113 | 5 | 30 |
| Caprolactam | 51 U | 52.3 | 52 U | 51.65 | 56.63 | 0* | 110* | 13-37 | 200* | 30 |
| Carbazole | 9.13 | 52.3 | 56.86 | 51.65 | 66.87 | 91 | 112 | 71-128 | 16 | 30 |
| 4-Chloro-3-methylphenol | 5 U | 52.3 | 48.73 | 51.65 | 44.99 | 93 | 87 | 65-122 | 8 | 30 |
| 4-Chloroaniline | 41 U | 52.3 | 42 U | 51.65 | 41 U | 0* | 0* | 42-110 | 0 | 30 |
| bis(2-Chloroethoxy)methane | 5 U | 52.3 | 43.48 | 51.65 | 48.04 | 83 | 93 | 64-119 | 10 | 30 |
| bis(2-Chloroethyl)ether | 5 U | 52.3 | 41.95 | 51.65 | 38.57 | 80 | 75 | 60-110 | 8 | 30 |
| 2-Chloronaphthalene | 4 U | 52.3 | 38.59 | 51.65 | 43.29 | 74 | 84 | 51-114 | 11 | 30 |
| 2-Chlorophenol | 5 U | 52.3 | 36.42 | 51.65 | 36.19 | 70 | 70 | 58-108 | 1 | 30 |
| 4-Chlorophenyl-phenylether | 5 U | 52.3 | 38.99 | 51.65 | 36.79 | 75 | 71 | 58-115 | 6 | 30 |
| 2,2'-oxybis(1-Chloropropane) | 5 U | 52.3 | 37.72 | 51.65 | 37.07 | 72 | 72 | 48-118 | 2 | 30 |
| Chrysene | 14.84 | 52.3 | 63.53 | 51.65 | 123.64 | 93 | 211* | 71-123 | 64* | 30 |
| Dibenz(a,h)anthracene | 1.72 | 52.3 | 38.61 | 51.65 | 36.86 | 71 | 68 | 67-123 | 5 | 30 |
| Dibenzofuran | 5 U | 52.3 | 46.34 | 51.65 | 53.36 | 89 | 103 | 63-117 | 14 | 30 |
| 3,3'-Dichlorobenzidine | 31 U | 52.3 | 31 U | 51.65 | 39.06 | 0* | 76 | 36-116 | 200* | 30 |
| 2,4-Dichlorophenol | 5 U | 52.3 | 38.43 | 51.65 | 43.12 | 73 | 83 | 65-117 | 11 | 30 |
| Diethylphthalate | 21 U | 52.3 | 42.49 | 51.65 | 40.7 | 81 | 79 | 61-111 | 4 | 30 |
| 2,4-Dimethylphenol | 31 U | 52.3 | 35.16 | 51.65 | 35.38 | 67 | 68 | 52-106 | 1 | 30 |
| Dimethylphthalate | 21 U | 52.3 | 40.03 | 51.65 | 36.4 | 77 | 70 | 37-116 | 10 | 30 |
| 4,6-Dinitro-2-methylphenol | 82 U | 52.3 | 84 U | 51.65 | 83 U | 0* | 0* | 63-129 | 0 | 30 |
| 2,4-Dinitrophenol | 140 U | 104.6 | 150 U | 103.31 | 140 U | 0* | 0* | 26-141 | 0 | 30 |
| 2,4-Dinitrotoluene | 10 U | 52.3 | 48.26 | 51.65 | 47.4 | 92 | 92 | 69-117 | 2 | 30 |
| 2,6-Dinitrotoluene | 5 U | 52.3 | 44.86 | 51.65 | 5 U | 86 | 0* | 69-122 | 200* | 30 |
| 1,4-Dioxane | 21 U | 52.3 | 23.63 | 51.65 | 24.99 | 45 | 48 | 29-59 | 6 | 30 |
| bis(2-Ethylhexyl)phthalate | 51 U | 52.3 | 59.67 | 51.65 | 62.19 | 114 | 120 | 68-120 | 4 | 30 |
| Fluoranthene | 3.94 | 52.3 | 49.55 | 51.65 | 71.92 | 87 | 132* | 70-124 | 37* | 30 |
| Fluorene | 16.9 | 52.3 | 60.47 | 51.65 | 104.07 | 83 | 169* | 62-116 | 53* | 30 |
| Hexachlorobenzene | 1 U | 52.3 | 41.48 | 51.65 | 38.84 | 79 | 75 | 65-121 | 7 | 30 |
| Hexachlorobutadiene | 5 U | 52.3 | 23.43 | 51.65 | 26.03 | 45 | 50 | 21-114 | 11 | 30 |
| Hexachlorocyclopentadiene | 51 U | 104.6 | 52 U | 103.31 | 52 U | 0* | 0* | 10-117 | 0 | 30 |
| Hexachloroethane | 10 U | 52.3 | 22.87 | 51.65 | 20.35 | 44 | 39 | 24-100 | 12 | 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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 1.06 | 52.3 | 37.73 | 51.65 | 33.36 | 70 | 63 | 61-121 | 12 | 30 |
| Isophorone | 5 U | 52.3 | 43.47 | 51.65 | 43.15 | 83 | 84 | 65-123 | 1 | 30 |
| 2-Methylnaphthalene | 68.48 | 52.3 | 107.31 | 51.65 | 182.9 | 74 | 222* | 51-112 | 52* | 30 |
| 2-Methylphenol | 5 U | 52.3 | 39.48 | 51.65 | 37.67 | 75 | 73 | 59-109 | 5 | 30 |
| 4-Methylphenol | 5 U | 52.3 | 37.77 | 51.65 | 37.89 | 72 | 73 | 56-108 | 0 | 30 |
| Naphthalene | 1 U | 52.3 | 38.13 | 51.65 | 56.23 | 73 | 109* | 54-107 | 38* | 30 |
| 2-Nitroaniline | 21 U | 52.3 | 54 | 51.65 | 21 U | 103 | 0* | 66-126 | 200* | 30 |
| 3-Nitroaniline | 31 U | 52.3 | 60.99 | 51.65 | 31 U | 117 | 0* | 51-120 | 200* | 30 |
| 4-Nitroaniline | 9 U | 52.3 | 49.44 | 51.65 | 27.95 | 95 | 54 | 53-111 | 56* | 30 |
| Nitrobenzene | 5 U | 52.3 | 56.66 | 51.65 | 55.64 | 108 | 108 | 59-117 | 2 | 30 |
| 2-Nitrophenol | 31 U | 52.3 | 39.45 | 51.65 | 31 U | 75 | 0* | 63-121 | 200* | 30 |
| 4-Nitrophenol | 100 U | 52.3 | 100 U | 51.65 | 100 U | 0* | 0* | 28-88 | 0 | 30 |
| N-Nitroso-di-n-propylamine | 7 U | 52.3 | 42.88 | 51.65 | 50.75 | 82 | 98 | 61-118 | 17 | 30 |
| N-Nitrosodiphenylamine | 7 U | 52.3 | 71.56 | 51.65 | 161.72 | 137* | 313* | 68-122 | 77* | 30 |
| Di-n-octylphthalate | 51 U | 52.3 | 84.14 | 51.65 | 84.59 | 161* | 164* | 67-120 | 1 | 30 |
| Pentachlorophenol | 10 U | 52.3 | 44.18 | 51.65 | 45.48 | 84 | 88 | 64-130 | 3 | 30 |
| Phenanthrene | 43.36 | 52.3 | 84.75 | 51.65 | 224.3 | 79 | 350* | 68-118 | 90* | 30 |
| Phenol | 5 U | 52.3 | 33.2 | 51.65 | 36.4 | 63 | 70 | 23-82 | 9 | 30 |
| Pyrene | 14.68 | 52.3 | 56.42 | 51.65 | 112.28 | 80 | 189* | 68-118 | 66* | 30 |
| 1,2,4,5-Tetrachlorobenzene | 5 U | 52.3 | 31.87 | 51.65 | 34.15 | 61 | 66 | 39-112 | 7 | 30 |
| 2,3,4,6-Tetrachlorophenol | 41 U | 52.3 | 42 U | 51.65 | 41 U | 0* | 0* | 69-125 | 0 | 30 |
| 2,4,5-Trichlorophenol | 5 U | 52.3 | 49.42 | 51.65 | 44.62 | 94 | 86 | 73-124 | 10 | 30 |
| 2,4,6-Trichlorophenol | 5 U | 52.3 | 46.74 | 51.65 | 44.84 | 89 | 87 | 69-122 | 4 | 30 |
| | **mg/l** | **mg/l** | **mg/l** | **mg/l** | **mg/l** | | | | | |
| Batch number: 182960571301 | Sample number(s): 9858440-9858441 UNSPK: P856229 | | | | | | | | | |
| Mercury | 0.000050 U | 0.00100 | 0.000873 | 0.00100 | 0.000860 | 87 | 86 | 80-120 | 2 | 20 |
| Batch number: 182971063602 | Sample number(s): 9858440-9858441 UNSPK: 9858440 | | | | | | | | | |
| Aluminum | 0.153 U | 2.00 | 1.92 | 2.00 | 1.89 | 96 | 94 | 75-125 | 2 | 20 |
| Calcium | 14.83 | 4.00 | 19.56 | 4.00 | 19.77 | 118 | 124 | 75-125 | 1 | 20 |
| Iron | 0.0400 U | 1.00 | 1.01 | 1.00 | 1.01 | 101 | 101 | 75-125 | 0 | 20 |
| Magnesium | 2.74 | 2.00 | 4.86 | 2.00 | 4.86 | 106 | 106 | 75-125 | 0 | 20 |
| Manganese | 0.0184 | 0.500 | 0.527 | 0.500 | 0.520 | 102 | 100 | 75-125 | 1 | 20 |
| Potassium | 2.28 | 10 | 12.6 | 10 | 12.44 | 103 | 102 | 75-125 | 1 | 20 |
| Sodium | 51.07 | 10 | 63.22 | 10 | 63.75 | 121 (2) | 127 (2) | 75-125 | 1 | 20 |
| Zinc | 0.0030 U | 0.500 | 0.503 | 0.500 | 0.493 | 101 | 99 | 75-125 | 2 | 20 |
| Batch number: 182971063902A | Sample number(s): 9858440-9858441 UNSPK: 9858440 | | | | | | | | | |
| Antimony | 0.00041 U | 0.00600 | 0.00618 | 0.00600 | 0.00624 | 103 | 104 | 75-125 | 1 | 20 |
| Arsenic | 0.00068 U | 0.0100 | 0.0107 | 0.0100 | 0.0107 | 107 | 107 | 75-125 | 0 | 20 |

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(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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc mg/l | MS Spike Added mg/l | MS Conc mg/l | MSD Spike Added mg/l | MSD Conc mg/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 0.000091 U | 0.00400 | 0.00421 | 0.00400 | 0.00422 | 105 | 106 | 75-125 | 0 | 20 |
| Cadmium | 0.00015 U | 0.00500 | 0.00522 | 0.00500 | 0.00508 | 104 | 102 | 75-125 | 3 | 20 |
| Chromium | 0.00070 U | 0.0500 | 0.0535 | 0.0500 | 0.0531 | 107 | 106 | 75-125 | 1 | 20 |
| Cobalt | 0.00016 U | 0.250 | 0.247 | 0.250 | 0.249 | 99 | 100 | 80-120 | 1 | 20 |
| Copper | 0.0099 U | 0.0500 | 0.0530 | 0.0500 | 0.0534 | 106 | 107 | 75-125 | 1 | 20 |
| Lead | 0.0011 U | 0.0150 | 0.0153 | 0.0150 | 0.0154 | 102 | 103 | 75-125 | 1 | 20 |
| Nickel | 0.00060 U | 0.0500 | 0.0523 | 0.0500 | 0.0521 | 105 | 104 | 75-125 | 0 | 20 |
| Silver | 0.00017 U | 0.0500 | 0.0499 | 0.0500 | 0.0502 | 100 | 100 | 75-125 | 1 | 20 |
| Vanadium | 0.00024 U | 0.0500 | 0.0523 | 0.0500 | 0.0520 | 105 | 104 | 75-125 | 1 | 20 |
| Batch number: 182971063902B | Sample number(s): 9858440-9858441 UNSPK: 9858440 | | | | | | | | | |
| Selenium | 0.00065 U | 0.0100 | 0.0101 | 0.0100 | 0.0106 | 101 | 106 | 75-125 | 5 | 20 |
| Thallium | 0.00011 U | 0.00200 | 0.00205 | 0.00200 | 0.00208 | 103 | 104 | 75-125 | 1 | 20 |
| Batch number: 182971063902D | Sample number(s): 9858440-9858441 UNSPK: 9858440 | | | | | | | | | |
| Barium | 0.0315 | 0.0500 | 0.0827 | 0.0500 | 0.0858 | 102 | 109 | 75-125 | 4 | 20 |
| | **mg/l** | **mg/l** | **mg/l** | **mg/l** | **mg/l** | | | | | |
| Batch number: 18291520209A | Sample number(s): 9858440-9858441 UNSPK: P856993 | | | | | | | | | |
| Chloride | 11.09 | 10 | 20.41 | | | 93 | | 90-110 | | |
| Nitrate Nitrogen | 0.25 U | 2.50 | 2.58 | | | 103 | | 90-110 | | |
| Nitrite Nitrogen | 0.25 U | 2.50 | 2.36 | | | 95 | | 90-110 | | |
| Sulfate | 31.39 | 25 | 56.51 | | | 100 | | 90-110 | | |
| Batch number: 18292108102A | Sample number(s): 9858440-9858441 UNSPK: P857088 | | | | | | | | | |
| Kjeldahl Nitrogen | 0.939 | 5.00 | 5.92 | | | 100 | | 90-110 | | |
| Batch number: 18295107104A | Sample number(s): 9858440-9858441 UNSPK: P858022 | | | | | | | | | |
| Ammonia Nitrogen | 0.050 U | 1.00 | 1.10 | | | 110 | | 90-110 | | |
| | **mg/l** | **mg/l** | **mg/l** | **mg/l** | **mg/l** | | | | | |
| Batch number: 18295022901A | Sample number(s): 9858440-9858441 UNSPK: 9858441 | | | | | | | | | |
| Sulfite | 1.5 U | 50 | 49.5 | 50 | 49 | 99 | 98 | 79-105 | 1 | 5 |
| | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | | | | | |
| Batch number: 18292005205A | Sample number(s): 9858440-9858441 UNSPK: P854192 | | | | | | | | | |
| Total Alkalinity to pH 4.5 | 378.1 | 188 | 419.74 | | | 22* | | 77-109 | | |

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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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

| Analysis Name | BKG Conc | DUP Conc | DUP RPD | DUP RPD Max |
|---|---|---|---|---|
| | mg/l | mg/l | | |
| Batch number: 182960571301 | Sample number(s): 9858440-9858441 BKG: P856229 | | | |
| Mercury | 0.000050 U | 0.000050 U | 0 (1) | 20 |
| Batch number: 182971063602 | Sample number(s): 9858440-9858441 BKG: 9858440 | | | |
| Aluminum | 0.153 U | 0.153 U | 0 (1) | 20 |
| Calcium | 14.83 | 15.48 | 4 | 20 |
| Iron | 0.0400 U | 0.0400 U | 0 (1) | 20 |
| Magnesium | 2.74 | 2.89 | 5 | 20 |
| Manganese | 0.0184 | 0.0191 | 4 (1) | 20 |
| Potassium | 2.28 | 2.40 | 5 (1) | 20 |
| Sodium | 51.07 | 53.57 | 5 | 20 |
| Zinc | 0.0030 U | 0.0030 U | 0 (1) | 20 |
| Batch number: 182971063902A | Sample number(s): 9858440-9858441 BKG: 9858440 | | | |
| Antimony | 0.00041 U | 0.00041 U | 0 (1) | 20 |
| Arsenic | 0.00068 U | 0.00068 U | 0 (1) | 20 |
| Beryllium | 0.000091 U | 0.000091 U | 0 (1) | 20 |
| Cadmium | 0.00015 U | 0.00015 U | 0 (1) | 20 |
| Chromium | 0.00070 U | 0.00070 U | 0 (1) | 20 |
| Cobalt | 0.00016 U | 0.00016 U | 0 (1) | 20 |
| Copper | 0.0099 U | 0.0099 U | 0 (1) | 20 |
| Lead | 0.0011 U | 0.0011 U | 0 (1) | 20 |
| Nickel | 0.00060 U | 0.00060 U | 0 (1) | 20 |
| Silver | 0.00017 U | 0.00017 U | 0 (1) | 20 |
| Vanadium | 0.00024 U | 0.00024 U | 0 (1) | 20 |
| Batch number: 182971063902B | Sample number(s): 9858440-9858441 BKG: 9858440 | | | |
| Selenium | 0.00065 U | 0.00065 U | 0 (1) | 20 |
| Thallium | 0.00011 U | 0.00011 U | 0 (1) | 20 |
| Batch number: 182971063902D | Sample number(s): 9858440-9858441 BKG: 9858440 | | | |
| Barium | 0.0315 | 0.0318 | 1 | 20 |
| | mg/l | mg/l | | |
| Batch number: 18291520209A | Sample number(s): 9858440-9858441 BKG: P856993 | | | |
| Chloride | 11.09 | 11.15 | 1 | 15 |
| Nitrate Nitrogen | 0.25 U | 0.25 U | 0 (1) | 15 |
| Nitrite Nitrogen | 0.25 U | 0.25 U | 0 (1) | 15 |
| Sulfate | 31.39 | 31.59 | 1 | 15 |
| Batch number: 18292108102A | Sample number(s): 9858440-9858441 BKG: P857088 | | | |
| Kjeldahl Nitrogen | 0.939 | 0.979 | 4 (1) | 20 |
| Batch number: 18295107104A | Sample number(s): 9858440-9858441 BKG: P858022 | | | |
| Ammonia Nitrogen | 0.050 U | 0.050 U | 0 (1) | 20 |

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# Quality Control Summary

Client Name: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

| Analysis Name | BKG Conc | DUP Conc | DUP RPD | DUP RPD Max |
|---|---|---|---|---|
| | mg/l | mg/l | | |
| Batch number: 18295022901A | Sample number(s): 9858440-9858441 BKG: 9858441 | | | |
| Sulfite | 1.5 U | 1.5 U | 0 (1) | 20 |
| | mg/l as CaCO3 | mg/l as CaCO3 | | |
| Batch number: 18292005205A | Sample number(s): 9858440-9858441 BKG: P854192 | | | |
| Total Alkalinity to pH 4.5 | 378.1 | 381.26 | 1 | 5 |

## 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: TCL Volatiles 8260C
Batch number: 5183022AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 9858440 | 100 | 100 | 104 | 97 |
| 9858441 | 100 | 101 | 105 | 97 |
| 9858444 | 98 | 100 | 104 | 97 |
| Blank | 98 | 100 | 103 | 99 |
| LCS | 101 | 101 | 104 | 102 |
| LCSD | 100 | 101 | 103 | 102 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: TCL Volatiles 8260C
Batch number: 5183031AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 9858439 | 98 | 100 | 103 | 96 |
| Blank | 99 | 100 | 103 | 97 |
| LCS | 101 | 100 | 103 | 101 |
| MS | 101 | 101 | 103 | 101 |
| MSD | 100 | 101 | 103 | 101 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: TC: SVOA 8270D
Batch number: 18295WAH026

| | Phenol-d6 | 2-Fluorophenol | 2,4,6-Tribromophenol | Nitrobenzene-d5 | 2-Fluorobiphenyl | Terphenyl-d14 |
|---|---|---|---|---|---|---|
| 9858440 | 29 | 40 | 98 | 70 | 68 | 92 |
| 9858441 | 28 | 41 | 95 | 71 | 65 | 91 |
| Blank | 27 | 38 | 92 | 66 | 59 | 84 |

*- 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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## 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: TC: SVOA 8270D
Batch number: 18295WAH026

| | Phenol-d6 | 2-Fluorophenol | 2,4,6-Tribromophenol | Nitrobenzene-d5 | 2-Fluorobiphenyl | Terphenyl-d14 |
|---|---|---|---|---|---|---|
| LCS | 34 | 45 | 88 | 61 | 56 | 79 |
| LCSD | 37 | 51 | 93 | 72 | 63 | 86 |
| Limits: | 10-72 | 10-85 | 29-133 | 30-111 | 39-105 | 27-126 |

Analysis Name: TC: SVOA 8270D
Batch number: 18296WAA026

| | Phenol-d6 | 2-Fluorophenol | 2,4,6-Tribromophenol | Nitrobenzene-d5 | 2-Fluorobiphenyl | Terphenyl-d14 |
|---|---|---|---|---|---|---|
| 9858439 | 30 | 43 | 79 | 68 | 65 | 67 |
| Blank | 28 | 42 | 87 | 73 | 70 | 92 |
| LCS | 39 | 53 | 87 | 76 | 74 | 88 |
| MS | 52 | 49 | 80 | 76 | 69 | 65 |
| MSD | 56 | 51 | 79 | 23* | 71 | 51 |
| Limits: | 10-72 | 10-85 | 29-133 | 30-111 | 39-105 | 27-126 |

Analysis Name: 32 PFAS + GenX/Adona
Batch number: 18292002

| | 13C4-PFBA | 13C5-PFPeA | 13C3-PFBS | 13C5-PFHxA | 13C3-PFHxS |
|---|---|---|---|---|---|
| 9858439 | 93 | 97 | 132 | 111 | 115 |
| Limits: | 33-123 | 31-157 | 26-148 | 35-138 | 34-126 |

| | 13C4-PFHpA | 13C8-PFOA | 13C8-PFOS | 13C9-PFNA | 13C6-PFDA |
|---|---|---|---|---|---|
| 9858439 | 129* | 87 | 91 | 96 | 90 |
| Limits: | 35-126 | 48-122 | 50-121 | 41-144 | 47-125 |

| | d3-NMeFOSAA | 13C7-PFUnDA | d5-NEtFOSAA | 13C2-PFDoDA | 13C2-PFTeDA |
|---|---|---|---|---|---|
| 9858439 | 96 | 100 | 97 | 91 | 99 |
| Limits: | 30-127 | 30-128 | 30-142 | 39-130 | 26-119 |

| | 13C4-PFBA | 13C5-PFPeA | 13C3-PFBS | 13C2-4:2-FTS | 13C5-PFHxA | 13C3-PFHxS |
|---|---|---|---|---|---|---|
| 9858440 | 95 | 89 | 125 | 164 | 126 | 130* |
| 9858441 | 91 | 84 | 119 | 148 | 122 | 118 |
| 9858442 | 97 | 89 | 90 | 96 | 95 | 84 |
| 9858443 | 92 | 87 | 86 | 97 | 93 | 84 |
| 9858444 | 90 | 90 | 88 | 85 | 89 | 81 |
| 9858445 | 93 | 89 | 89 | 91 | 92 | 85 |
| 9858446 | 96 | 96 | 89 | 92 | 92 | 88 |

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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: Golder Associates
Reported: 11/02/2018 11:12

Group Number: 2000029

## Labeled Isotope Quality Control (continued)

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 32 PFAS + GenX/Adona
Batch number: 18292002

| | 13C4-PFBA | 13C5-PFPeA | 13C3-PFBS | 13C2-4:2-FTS | 13C5-PFHxA | 13C3-PFHxS |
|---|---|---|---|---|---|---|
| Blank | 85 | 80 | 79 | 83 | 85 | 78 |
| LCS | 111 | 111 | 107 | 120 | 112 | 102 |
| LCSD | 96 | 90 | 90 | 89 | 91 | 87 |
| Limits: | 33-123 | 31-157 | 26-148 | 21-182 | 35-138 | 34-126 |

| | 13C4-PFHpA | 13C2-6:2-FTS | 13C8-PFOA | 13C8-PFOS | 13C9-PFNA | 13C6-PFDA |
|---|---|---|---|---|---|---|
| 9858440 | 141* | 95 | 90 | 95 | 104 | 89 |
| 9858441 | 133* | 91 | 85 | 87 | 94 | 84 |
| 9858442 | 84 | 116 | 98 | 95 | 88 | 90 |
| 9858443 | 82 | 120 | 90 | 82 | 83 | 94 |
| 9858444 | 80 | 115 | 94 | 89 | 88 | 96 |
| 9858445 | 89 | 112 | 92 | 88 | 87 | 92 |
| 9858446 | 89 | 115 | 96 | 97 | 96 | 94 |
| Blank | 81 | 104 | 79 | 85 | 85 | 88 |
| LCS | 109 | 145 | 116 | 105 | 101 | 109 |
| LCSD | 86 | 113 | 92 | 95 | 94 | 94 |
| Limits: | 35-126 | 32-170 | 48-122 | 50-121 | 41-144 | 47-125 |

| | 13C2-8:2-FTS | d3-NMeFOSAA | 13C7-PFUnDA | d5-NEtFOSAA | 13C2-PFDoDA | 13C2-PFTeDA |
|---|---|---|---|---|---|---|
| 9858440 | 117 | 119 | 119 | 126 | 103 | 101 |
| 9858441 | 108 | 98 | 94 | 102 | 90 | 89 |
| 9858442 | 139 | 102 | 103 | 112 | 88 | 93 |
| 9858443 | 139 | 93 | 85 | 85 | 88 | 94 |
| 9858444 | 143 | 95 | 99 | 99 | 98 | 95 |
| 9858445 | 135 | 101 | 99 | 84 | 92 | 96 |
| 9858446 | 134 | 86 | 90 | 82 | 89 | 92 |
| Blank | 128 | 84 | 91 | 75 | 78 | 86 |
| LCS | 163 | 110 | 109 | 101 | 101 | 108 |
| LCSD | 138 | 96 | 91 | 94 | 86 | 89 |
| Limits: | 27-164 | 30-127 | 30-128 | 30-142 | 39-130 | 26-119 |

| | 13C8-PFOSA | d7-NMePFOSAE | d3-NMePFOSA | d9-NEtPFOSAE | d5-NEtPFOSA | 13C3-HFPODA |
|---|---|---|---|---|---|---|
| 9858440 | 110 | 103 | 76 | 107 | 78 | 157* |
| 9858441 | 95 | 93 | 81 | 97 | 78 | 153* |
| 9858442 | 98 | 88 | 47 | 90 | 48 | 92 |
| 9858443 | 96 | 94 | 63 | 99 | 68 | 97 |
| 9858444 | 102 | 95 | 79 | 103 | 83 | 91 |
| 9858445 | 103 | 89 | 68 | 100 | 69 | 98 |
| 9858446 | 90 | 82 | 63 | 90 | 67 | 93 |

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(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: Golder Associates
Group Number: 2000029
Reported: 11/02/2018 11:12

## Labeled Isotope Quality Control (continued)

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 32 PFAS + GenX/Adona
Batch number: 18292002

| | 13C8-PFOSA | d7-NMePFOSAE | d3-NMePFOSA | d9-NEtPFOSAE | d5-NEtPFOSA | 13C3-HFPODA |
|---|---|---|---|---|---|---|
| Blank | 90 | 79 | 59 | 84 | 64 | 91 |
| LCS | 114 | 106 | 73 | 112 | 84 | 110 |
| LCSD | 104 | 97 | 70 | 101 | 77 | 101 |
| Limits: | 11-127 | 10-128 | 10-104 | 10-121 | 10-106 | 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.

# Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 10253 Group # 2000029 Sample # 9858439-46

**COC #** 566773

## Client Information

| | |
|---|---|
| Client: Golder Associates | Acct. #: |
| Project Name/#: 16686231 81 | PWSID #: |
| Project Manager: Jim Peace | P.O. #: |
| Sampler: Andrew Briner / Tom Brigham | Quote #: |
| State where samples were collected: NH | For Compliance: Yes ☐ No ☐ |

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☒ NPDES ☐ Surface ☐ | Other: Blank Water | Total # of Containers | PFAS Short list | PFAS expanded list | HFPODA/ADONA | VOCs | SVOCs | Metals (Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn, Hg) | TKN | TSS | Principal Ions (Alkalinity as CaCO3, NH4, Cl, F, Mn, NO2, NO3, P, K, SO4) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TMW-H | 10/17/18 | 13:35 | X | | | X | | 7 | X | | | X | X | | | | | |
| TMW-D | 10/16/18 | 16:07 | X | | | X | | 21[2] | | X | X | X | X | X | X | X | X | |
| Dup-1 | 10/16/18 | 15:07 | X | | | X | | 5 | | 2 | X | X | X | X | X | X | X | |
| EB-1 | 10/16/18 | 15:00 | X | | | | X | 2 | X | X | X | | | | | | | |
| FB-1 | 10/16/18 | 15:30 | X | | | | X | 2 | X | X | X | | | | | | | |
| TB-1 | 10/16/18 | 16:00 | X | | | | X | 8[4] | X | X | X | X | X | | | | | |
| FB-2 | 10/17/18 | 14:00 | X | | | | X | 2 | X | X | X | | | | | | | |
| TB-2 | 10/17/18 | 14:05 | X | | | | X | 2 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

**Analysis Requested** — Preservation and Filtration Codes

**For Lab Use Only**
FSC:
SCR#:

**Preservation Codes**

| | |
|---|---|
| H=HCl | T=Thiosulfate |
| N=$HNO_3$ | B=NaOH |
| S=$H_2SO_4$ | P=$H_3PO_4$ |
| F=Field Filtered | O=Other |

**Remarks**

**Turnaround Time (TAT) Requested** (please circle)
(Standard) Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days:

E-mail address: sdrew@golder.com jpeace@golder.com rbennett@golder.com

**Data Package Options** (circle if required)

| | | |
|---|---|---|
| Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only) | |
| Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13 |
| NYSDEC Category A or B | MA MCP | CT RCP |

| | Date | Time |
|---|---|---|
| Relinquished by | 10/17/18 | 16:20 |
| Relinquished by | | |
| Relinquished by | | |
| Relinquished by | | |
| Relinquished by | | |

| | Date | Time |
|---|---|---|
| Received by | | |
| Received by | | |
| Received by | | |
| Received by | | |
| Received by | 10/18/18 | 1020 |

EDD Required? (Yes) No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 1.9 °C

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# Sample Administration Receipt Documentation Log

Doc Log ID: 230418

Group Number(s): 2000029

Client: Golder Assoc.

**1668623181**

## Delivery and Receipt Information

| | | | |
|---|---|---|---|
| Delivery Method: | Fed Ex | Arrival Timestamp: | 10/18/2018 10:20 |
| Number of Packages: | 1 | Number of Projects: | 1 |
| State/Province of Origin: | NH | | |

## Arrival Condition Summary

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

Trip Blank Type(s): 4 Unpreserved, 2 HCl

*Unpacked by Nicole Reiff (25684) at 12:18 on 10/18/2018*

## Samples Chilled Details: 1668623181

*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 | DT146 | 1.4 | DT | Wet | Y | Bagged | N |

## Samples Not Intact Details: 1668623181

| Sample ID on Label | Bottle Code | Bottle Quantity | Container Salvageable? | Comments |
|---|---|---|---|---|
| TMW-D | 40 ml glass vial (GC/MS) - HCl | 1 | N | |

## Container Quantity Discrepancy Details: 1668623181

| Sample ID on COC | Container Qty. Received | Container Qty. on COC | Comments |
|---|---|---|---|
| TMW-D | 21 | 22 | |



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 | **mL** | milliliter(s) |
| **C** | degrees Celsius | **MPN** | Most Probable Number |
| **cfu** | colony forming units | **N.D.** | non-detect |
| **CP Units** | cobalt-chloroplatinate units | **ng** | nanogram(s) |
| **F** | degrees Fahrenheit | **NTU** | nephelometric turbidity units |
| **g** | gram(s) | **pg/L** | picogram/liter |
| **IU** | International Units | **RL** | Reporting Limit |
| **kg** | kilogram(s) | **TNTC** | Too Numerous To Count |
| **L** | liter(s) | **µg** | microgram(s) |
| **lb.** | pound(s) | **µL** | microliter(s) |
| **m3** | cubic meter(s) | **umhos/cm** | micromhos/cm |
| **meq** | milliequivalents | **MCL** | Maximum Contamination Limit |
| **mg** | milligram(s) | | |

| | |
|---|---|
| **<** | 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. |

**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.

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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.

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# Data Qualifiers

| Qualifier | Definition |
|---|---|
| C | Result confirmed by reanalysis |
| D1 | Indicates for dual column analyses that the result is reported from column 1 |
| D2 | Indicates for dual column analyses that the result is reported from column 2 |
| E | Concentration exceeds the calibration range |
| K1 | Initial Calibration Blank is above the QC limit and the sample result is ND |
| K2 | Continuing Calibration Blank is above the QC limit and the sample result is ND |
| K3 | Initial Calibration Verification is above the QC limit and the sample result is ND |
| K4 | Continuing Calibration Verification is above the QC limit and the sample result is ND |
| 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. |
| P^ | Concentration difference between the primary and confirmation column > 40%. The higher 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. |
| Z | Laboratory Defined - see analysis report |

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.

# Attachment B - Temporary Well Field Sampling Forms

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW-A | Sample Source: | **GW** |
| Golder Personnel Present: | L. Lampo A. Briner | | |

## PURGING INFORMATION (IF APPLICABLE)

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/10/18 | Time (24 hr): | 1055 | Elapsed hours/min: | 50 mins |
| Purging Device: | C | Dedicated?: | **Yes** | | |
| Casing Vol (Gal.): | — | Tubing Vol. (L) | — | Vol Purged (L): | ~15 |
| Material: | **1/4" OD HDPE tubing** | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/10/18 | Time (24 hr): | 1145 | Matrix: | **GW** |
| Sampling Device | C | Dedicated?: | **Yes** | Filtered?: | **No** |
| Material: | **1/4" OD HDPE tubing** | | | Sample Type: | **Grab** |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS | | | | |

## WELL INFORMATION (IF APPLICABLE)

| | | | | |
|---|---|---|---|---|
| Reference Point: | **TPVC** | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | 17.11 | Common casing vol. factors |
| Depth to Water (ft): | -13.09 | Sounded Well Depth (ft): | - | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 17.11-7.11 | Stickup (ft): | **Flush** | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 15ft | Well Diameter (in): | **2.00** | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | **0.25** | |

## FINAL FIELD MEASUREMENTS

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | **(°C)** | | pH | **(S.U.)** | |
| Spec Cond | **(uS/cm)** | | ORP | **(mV)** | See Back |
| Dissolved Oxygen | **(mg/L)** | See Back | Eh | **(mV)** | - |
| Flow Rate | **(mL/min)** | | Turbidity | **(NTU)** | |
| | | | Drawdown | **(Ft)** | - |

## COMMENTS / CALCULATIONS

Weather: Sunny, humid, 80's

Sample Description:

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/10/18

# PURGING AND STABILIZATION INFORMATION

| | |
|---|---|
| Sample ID: | TMW-A |
| Initial DTW (ft): | 13.04 - |
| Final DTW( ft): | 13.14 - |

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 1055 | | 250 | 21.08 | 463 | 5.25 | 6.26 | 192.0 | 18.7 | 13.11 | |
| 1100 | | 300 | 20.48 | 486 | 4.95 | 6.28 | 129.6 | 20.7 | 13.11 | |
| 1105 | | 300 | 20.56 | 483 | 4.74 | 6.32 | 65.2 | 15.7 | 13.11 | |
| 1110 | | 300 | 20.34 | 458 | 5.09 | 6.37 | ~~96.3~~ 96.3 | 7.73 | 13.12 | |
| 1115 | | 300 | 20.36 | 437 | 4.97 | 6.41 | 25.4 | 4.03 | 13.14 | |
| 420 | | 300 | 20.17 | 426 | 4.90 | 6.45 | 98.3 | 2.76 | 13.15 | |
| 1125 | | 300 | 20.20 | 419 | 4.90 | 6.46 | 86.4 | 1.98 | 13.15 | |
| 1130 | | 300 | 20.09 | 412 | 4.85 | 6.48 | 86.2 | 1.57 | 13.14 | |
| 1135 | | 300 | 20.09 | 412 | 4.85 | 6.49 | 85.6 | 1.34 | 13.15 | |
| 1140 | | 300 | 20.09 | 412 | 4.85 | 6.49 | 85.8 | 0.89 | 13.14 | |
| 1145 | | 300 | 20.09 | 412 | 4.85 | 6.49 | 85.8 | 1.00 | 13.14 | |
| Sampled | | | | | | | | | - | |
| | | | | | | | | | - | |
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| | | | | | | | | | - | |
| | | | | | | | | | - | |
| | | | | | | | | | - | |

Comments: ~~Depth to water and sounded well depth measurements are not collected during PFAS sampling.~~

Clear, odorless

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: [signature] Date: 10/10/18

GOLDER

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW-B | Sample Source: | **GW** |
| Golder Personnel Present: | L. Lampe, A. Briner | | |

## PURGING INFORMATION (IF APPLICABLE)

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/10/18 | Time (24 hr): | 1225 | Elapsed hours/min: | 70 mins |
| Purging Device: | **C** | Dedicated?: | **Yes** | | |
| Casing Vol (Gal.): | – | Tubing Vol. (L) | – | Vol Purged (L): | ~21 |
| Material: | **1/4" OD HDPE tubing** | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/10/18 | Time (24 hr): | 1335 | Matrix: | **GW** |
| Sampling Device | **C** | Dedicated?: | **Yes** | Filtered?: | **No** |
| Material: | **1/4" OD HDPE tubing** | | | Sample Type: | **Grab** |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS | | | | |

## WELL INFORMATION (IF APPLICABLE)

| | | | | |
|---|---|---|---|---|
| Reference Point: | **TPVC** | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | 17.12 | Common casing vol. factors |
| Depth to Water (ft): | - 12.96 | Sounded Well Depth (ft): | - | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 17-7 | Stickup (ft): | **Flush** | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 15 | Well Diameter (in): | **2.00** | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | **0.25** | |

## FINAL FIELD MEASUREMENTS

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | **(°C)** | | pH | **(S.U.)** | See Back |
| Spec Cond | **(uS/cm)** | See Back | ORP | **(mV)** | |
| Dissolved Oxygen | **(mg/L)** | | Eh | **(mV)** | - |
| Flow Rate | **(mL/min)** | | Turbidity | **(NTU)** | |
| | | | Drawdown | **(Ft)** | - |

## COMMENTS / CALCULATIONS

Weather: Sunny, humid, 80's

Sample Description:

Clear, no odor, no oil sheen

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/10/18

# PURGING AND STABILIZATION INFORMATION

| | |
|---|---|
| Sample ID: | TMW-B |
| Initial DTW (ft): | 12.96 - |
| Final DTW( ft): | 13.02 - |

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 1225 | | 280 | 20.98 | 174 | 6.51 | 6.49 | 94.7 | 9.94 | 12.99 | |
| 1230 | | 300 | 19.18 | 210 | 4.96 | 6.74 | -33.3 | 4.93 | 13.02 | |
| 1235 | | 300 | 18.66 | 251 | 4.88 | 6.79 | -21.7 | 2.56 | 13.02 | |
| 1240 | | 300 | 18.62 | 259 | 4.78 | 6.81 | -22.2 | 1.13 | 13.02 | |
| 1245 | | 300 | 18.76 | 283 | 4.75 | 6.81 | -24.4 | 0.63 | 13.02 | |
| 1250 | | 300 | 18.21 | 302 | 4.69 | 6.82 | -24.6 | 0.41 | 13.02 | |
| 1255 | | 300 | 18.42 | 299 | 4.70 | 6.78 | -21.6 | 0.25 | 13.02 | |
| 1300 | | 300 | 18.46 | 316 | 4.62 | 6.75 | -18.0 | 0.27 | 13.02 | |
| 1305 | | 300 | 18.56 | 306 | 4.66 | 6.76 | -20.6 | 0.28 | 13.02 | |
| 1310 | | 300 | 18.52 | 320 | 4.88 | 6.77 | -19.7 | 3.73 | 13.02 | |
| 1315 | | 300 | 18.28 | 327 | 4.84 | 6.80 | -20.0 | 3.38 | 12.02 | |
| 1320 | | 300 | 18.36 | 316 | 4.62 | 6.83 | -22.0 | 0.71 | 1302 | |
| 1325 | | 300 | 18.37 | 316 | 4.62 | 6.83 | -22.0 | 0.30 | 1302 | |
| 1330 | | 300 | 18.37 | 316 | 4.62 | 6.83 | -22.0 | 0.17 | 1302 | |
| 1335 | | 300 | 18.37 | 316 | 4.62 | 6.83 | -22.0 | 0.20 | 13.02 | |
| Sampled | | | | | | | | | - | |
| | | | | | | | | | - | |
| | | | | | | | | | - | |
| | | | | | | | | | - | |
| | | | | | | | | | - | |
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| | | | | | | | | | - | |
| | | | | | | | | | - | |
| | | | | | | | | | - | |
| | | | | | | | | | - | |

Comments: Depth to water and sounded well depth measurements are not collected during PFAS sampling.

Pumped turned off ~2 min after 1305 reading.
Clear, odorless

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: [signature] Date: 10/10/18

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW-C | Sample Source: | **GW** |
| Golder Personnel Present: | L. Lampo, A. Briner | | |

## PURGING INFORMATION (IF APPLICABLE)

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/10/18 | Time (24 hr): | 1410 | Elapsed hours/min: | 100 |
| Purging Device: | C | Dedicated?: | **Yes** | | |
| Casing Vol (Gal.): | - | Tubing Vol. (L) | ~ | Vol Purged (L): | 30 |
| Material: | **1/4" OD HDPE tubing** | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/10/18 | Time (24 hr): | 1550 | Matrix: | **GW** |
| Sampling Device | C | Dedicated?: | **Yes** | Filtered?: | **No** |
| Material: | **1/4" OD HDPE tubing** | | | Sample Type: | **Grab** |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS, ADONA/HFPODA | | | | |

## WELL INFORMATION (IF APPLICABLE)

| | | | | |
|---|---|---|---|---|
| Reference Point: | **TPVC** | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | 17.15 | Common casing vol. factors |
| Depth to Water (ft): | - 12.21 | Sounded Well Depth (ft): | - | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 16-6 | Stickup (ft): | **Flush** | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 14 | Well Diameter (in): | **2.00** | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | **0.25** | |

## FINAL FIELD MEASUREMENTS

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | **(°C)** | | pH | **(S.U.)** | |
| Spec Cond | **(uS/cm)** | Seebaik | ORP | **(mV)** | Seebaik |
| Dissolved Oxygen | **(mg/L)** | | Eh | **(mV)** | - |
| Flow Rate | **(mL/min)** | | Turbidity | **(NTU)** | |
| | | | Drawdown | **(Ft)** | - |

## COMMENTS / CALCULATIONS

Weather: Sunny, humid, 80's

Sample Description: Clear, odorless

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/10/18

# PURGING AND STABILIZATION INFORMATION

| | |
|---|---|
| Sample ID: | TMW-C |
| Initial DTW (ft): | 12.21 - |
| Final DTW( ft): | 12.22 - |

17.13

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 1410 | | 300 | 17.93 | 520 | 3.12 | 6.81 | 42.0 | 57.2 | 12.24 | |
| 1415 | | 300 | 17.67 | 529 | 2.95 | 6.83 | 3.6 | 74.7 | 12.25 | |
| 1420 | | 300 | 17.72 | 527 | 2.86 | 6.81 | -3.4 | 25.5 | 12.21 | |
| 1425 | | 300 | 17.98 | 523 | 2.79 | 6.84 | -13.2 | 13.8 | 12.21 | |
| 1430 | | 300 | 17.76 | 520 | 2.71 | 6.87 | -15.1 | 7.70 | 12.23 | |
| 1435 | | 300 | 18.09 | 509 | 2.62 | 7.02 | -20.9 | 178 | 12.23 | |
| 1440 | | 300 | 18.06 | 522 | 2.62 | 7.02 | -20.3 | 142 | 12.22 | |
| 1445 | | 300 | 17.97 | 523 | 2.62 | 7.06 | -21.3 | 93.6 | 12.22 | |
| 1450 | | 300 | 18.23 | 526 | 2.61 | 7.07 | -29.0 | 54.4 | 12.23 | |
| 1455 | | 300 | 18.07 | 524 | 2.46 | 7.11 | -27.1 | 34.4 | 12.23 | |
| 1500 | | 300 | 18.01 | 525 | 2.45 | 7.12 | -27.2 | 17.8 | 12.22 | |
| 1505 | | 300 | 18.08 | 524 | 2.44 | 7.13 | -25.3 | 10.2 | 12.22 | |
| 1510 | | 300 | 17.97 | 521 | 2.40 | 7.17 | -27.7 | 6.06 | 12.22 | |
| 1515 | | 300 | 18.00 | 524 | 2.40 | 7.19 | -27.7 | 4.71 | 12.22 | |
| 1520 | | 300 | 18.02 | 520 | 2.41 | 7.21 | -22.2 | 2.78 | 12.22 | |
| 1525 | | 300 | 17.67 | 519 | 2.41 | 7.26 | -24.0 | 1.91 | 12.22 | |
| 1530 | | 300 | 17.51 | 520 | 2.42 | 7.25 | -27.1 | 2.41 | 12.22 | |
| 1535 | | 300 | 17.57 | 521 | 2.42 | 7.17 | -22.0 | 1.30 | 12.22 | |
| 1540 | | 300 | 17.43 | 520 | 2.42 | 7.09 | -18.2 | 0.84 | 12.22 | |
| 1545 | | 300 | 17.58 | 519 | 2.42 | 7.04 | -17.2 | 1.15 | 12.22 | |
| 1550 | | 300 | 17.70 | 517 | 2.42 | 7.02 | -17.3 | 1.15 | 12.22 | |
| | | | | | | | | | | |
| Sampled | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Comments: ~~Depth to water and sounded well depth measurements are not collected during PFAS sampling.~~

Clear, odorless

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: [signature] Date: 10/10/18

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW-D | Sample Source: | **GW** |
| Golder Personnel Present: | TGB | | |

## PURGING INFORMATION (IF APPLICABLE)

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/16/18 | Time (24 hr): | 14:10 | Elapsed hours/min: | 0:55 |
| Purging Device: | **C** | Dedicated?: | **Yes** | | |
| Casing Vol (Gal.): | — | Tubing Vol. (L) | — | Vol Purged (L): | 16.5 |
| Material: | **1/4" OD HDPE tubing** | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/16/18 | Time (24 hr): | 15:05 | Matrix: | **GW** |
| Sampling Device | **C** | Dedicated?: | **Yes** | Filtered?: | **No** |
| Material: | **1/4" OD HDPE tubing** | | | Sample Type: | **Grab** |
| (A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS | | | | |

## WELL INFORMATION (IF APPLICABLE)

| | | | | |
|---|---|---|---|---|
| Reference Point: | **TPVC** | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | 15.22 | Common casing vol. factors |
| Depth to Water (ft): | 10.65 | Sounded Well Depth (ft): | - | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 3-13 | Stickup (ft): | **Flush** | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 12 | Well Diameter (in): | **2.00** | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | **0.25** | |

## FINAL FIELD MEASUREMENTS

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | **(°C)** | 19.65 | pH | **(S.U.)** | 6.01 |
| Spec Cond | **(uS/cm)** | 0.403 | ORP | **(mV)** | 203.8 |
| Dissolved Oxygen | **(mg/L)** | 3.83 | Eh | **(mV)** | - |
| Flow Rate | **(mL/min)** | 300 | Turbidity | **(NTU)** | 0.39 |
| | | | Drawdown | **(Ft)** | - |

## COMMENTS / CALCULATIONS

Weather: Sunny 50F°

Sample Description:

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/16/18

# PURGING AND STABILIZATION INFORMATION

| | |
|---|---|
| Sample ID: | TMW-D |
| Initial DTW (ft): | 10.65 - |
| Final DTW( ft): | 10.68 - |

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 1410 | 1.5 | 300 | 19.09 | 1.315 | 6.79 | 6.62 | 220.9 | 49 | 10.65 | |
| 1415 | 3.0 | 300 | 19.86 | 0.567 | 6.00 | 6.00 | 220.9 | 17.5 | 10.68 | |
| 1420 | 4.5 | 300 | 19.82 | 0.430 | 6.17 | 5.97 | 194.2 | 4.23 | 10.68 | |
| 1425 | 6.0 | 300 | 19.78 | 0.417 | 4.84 | 5.99 | 188.5 | 1.17 | 10.69 | |
| 1430 | 7.5 | 300 | 19.17 | 0.415 | 4.54 | 6.00 | 185.8 | 0.87 | 10.68 | |
| 1435 | 9.0 | 300 | 19.66 | 0.410 | 4.43 | 6.00 | 180.0 | 1.06 | 10.68 | |
| 1440 | 10.5 | 300 | 19.61 | 0.416 | 4.30 | 6.01 | 177.1 | 0.41 | 10.68 | |
| 1445 | 12.0 | 300 | 19.47 | 0.406 | 4.13 | 6.01 | 175.7 | 0.34 | 10.68 | |
| 1450 | 13.5 | 300 | 19.49 | 0.408 | 4.02 | 6.01 | 194.2 | 0.36 | 10.68 | |
| 1455 | 15.0 | 300 | 19.67 | 0.409 | 3.96 | 6.01 | 200.5 | 0.34 | 10.68 | |
| 1500 | 16.5 | 300 | 19.65 | 0.403 | 3.83 | 6.01 | 203.8 | 0.39 | 10.68 | |
| 1505 | | | Started Sampling | | | | | | | |

Comments: Depth to water and sounded well depth measurements are not collected during PFAS sampling.

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: [signature] Date: 10/16/18

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW-E | Sample Source: | **GW** |
| Golder Personnel Present: | L. Lampo A. Briner | | |

## PURGING INFORMATION (IF APPLICABLE)

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/11/18 | Time (24 hr): | 655 | Elapsed hours/min: | 120 min |
| Purging Device: | C | Dedicated?: | Yes | | |
| Casing Vol (Gal.): | — | Tubing Vol. (L) | — | Vol Purged (L): | 36 |
| Material: | 1/4" OD HDPE tubing | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/11/18 | Time (24 hr): | 1055 | Matrix: | **GW** |
| Sampling Device | C | Dedicated?: | Yes | Filtered?: | No |
| Material: | 1/4" OD HDPE tubing | | | Sample Type: | Grab |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS, VOCs, SVOCs, TAL metals | | | | |

## WELL INFORMATION (IF APPLICABLE)

| | | | | |
|---|---|---|---|---|
| Reference Point: | TPVC | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | 17.11 | Common casing vol. factors |
| Depth to Water (ft): | -8.08 | Sounded Well Depth (ft): | - | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 17-7 | Stickup (ft): | Flush | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 12.5 | Well Diameter (in): | 2.00 | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | 0.25 | |

## FINAL FIELD MEASUREMENTS

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | (°C) | | pH | (S.U.) | |
| Spec Cond | (uS/cm) | See back | ORP | (mV) | See back |
| Dissolved Oxygen | (mg/L) | | Eh | (mV) | - |
| Flow Rate | (mL/min) | | Turbidity | (NTU) | |
| | | | Drawdown | (Ft) | - |

## COMMENTS / CALCULATIONS

Weather: Partly cloudy, 80's

Sample Description: Clear, odorless

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/11/18

# PURGING AND STABILIZATION INFORMATION

| | |
|---|---|
| Sample ID: | TMW-E |
| Initial DTW (ft): | 8.08 - |
| Final DTW( ft): | 8.10 - |

17-7

17.10 12.5ft

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 855 | | 300 | 19.53 | 307 | 9.31 | 5.51 | 222.0 | 48.9 | 8.10 | |
| 900 | | 300 | 19.44 | 82 | 8.31 | 5.37 | 213.6 | 15.1 | 8.10 | |
| 905 | | 300 | 19.41 | 50 | 7.97 | 5.40 | 208.7 | 11.1 | 8.10 | 8.10 |
| 910 | | 300 | 19.36 | 49 | 7.73 | 5.43 | 202.2 | 7.10 | 8.10 | |
| 915 | | 300 | 19.26 | 49 | 7.29 | 5.44 | 179.8 | 4.91 | 8.10 | |
| 920 | | 300 | 19.39 | 48 | 7.10 | 5.46 | 185.9 | 4.44 | 8.10 | |
| 925 | | 300 | 19.38 | 48 | 6.87 | 5.49 | 175.4 | 3.67 | 8.10 | |
| 930 | | 300 | 19.31 | 47 | 6.68 | 5.49 | 160.5 | 2.62 | 8.10 | |
| 935 | | 300 | 19.26 | 48 | 6.48 | 5.52 | 148.7 | 2.13 | 8.10 | |
| 940 | | 300 | 19.28 | 47 | 6.35 | 5.56 | 140.5 | 1.49 | 8.10 | |
| 945 | | 300 | 19.30 | 47 | 6.29 | 5.57 | 137.0 | 1.53 | 8.10 | |
| 950 | | 300 | 19.34 | 47 | 6.21 | 5.61 | 134.8 | 1.45 | 8.10 | |
| 955 | | 300 | 19.46 | 47 | 6.02 | 5.63 | 134.6 | 1.48 | 8.10 | |
| 1000 | | 300 | 19.49 | 47 | 6.00 | 5.63 | 135.2 | 1.54 | 8.10 | |
| 1005 | | 300 | 19.48 | 47 | 5.89 | 5.68 | 137.0 | 1.44 | 8.10 | |
| 1010 | | 300 | 19.45 | 47 | 5.80 | 5.71 | 133.7 | 1.33 | 8.10 | |
| 1015 | | 300 | 19.47 | 47 | 5.76 | 5.73 | 134.3 | 1.32 | 8.10 | |
| 1020 | | 300 | 19.42 | 47 | 5.70 | 5.73 | 138.6 | 0.85 | 8.10 | |
| 1025 | | 300 | 19.42 | 47 | 5.66 | 5.75 | 140.6 | 0.71 | 8.10 | |
| 1030 | | 300 | 19.50 | 47 | 5.61 | 5.77 | 140.7 | 0.62 | 8.10 | |
| 1035 | | 300 | 19.50 | 47 | 5.58 | 5.80 | 139.8 | 1.51 | 8.10 | |
| 1040 | | 300 | 19.49 | 47 | 5.49 | 5.81 | 140.2 | 0.47 | 8.10 | |
| 1045 | | 300 | 19.45 | 47 | 5.49 | 5.83 | 140.3 | 0.43 | 8.10 | |
| 1050 | | 300 | 19.39 | 47 | 5.44 | 5.83 | 140.8 | 0.49 | 8.10 | |
| 1055 | | 300 | 19.35 | 47 | 5.40 | 5.82 | 144.0 | 0.48 | 8.10 | |

Sample

Comments: ~~Depth to water and sounded well depth measurements are not collected during PFAS sampling.~~

clear, odorless

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: Date: 10/11/18

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW-F | Sample Source: | **GW** |
| Golder Personnel Present: | L. Lampo A. Briner | | |

**PURGING INFORMATION (IF APPLICABLE)**

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/11/18 | Time (24 hr): | 1140 | Elapsed hours/min: | 120 min |
| Purging Device: | **C** | Dedicated?: | **Yes** | | |
| Casing Vol (Gal.): | — | Tubing Vol. (L) | — | Vol Purged (L): | ~36 |
| Material: | **1/4" OD HDPE tubing** | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/11/18 | Time (24 hr): | 1340 | Matrix: | **GW** |
| Sampling Device | **C** | Dedicated?: | **Yes** | Filtered?: | **No** |
| Material: | **1/4" OD HDPE tubing** | | | Sample Type: | **Grab** |
| (A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS, VOCs, SVOCs, TAL metals | | | | |

**WELL INFORMATION (IF APPLICABLE)**

| | | | | |
|---|---|---|---|---|
| Reference Point: | **TPVC** | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | 17.11 | Common casing vol. factors |
| Depth to Water (ft): | -7.59 | Sounded Well Depth (ft): | -17.10 | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 17-7 | Stickup (ft): | **Flush** | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 12.5 | Well Diameter (in): | **2.00** | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | **0.25** | |

**FINAL FIELD MEASUREMENTS**

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | **(°C)** | | pH | **(S.U.)** | |
| Spec Cond | **(uS/cm)** | | ORP | **(mV)** | Seebaek |
| Dissolved Oxygen | **(mg/L)** | Seebaek | Eh | **(mV)** | - |
| Flow Rate | **(mL/min)** | | Turbidity | **(NTU)** | |
| | | | Drawdown | **(Ft)** | - |

**COMMENTS / CALCULATIONS**

Weather: Partly cloudy, 80's

Sample Description: Clear, odorless

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/11/18

# PURGING AND STABILIZATION INFORMATION

| Sample ID: | TMW-F |
|---|---|
| Initial DTW (ft): | 7.59 |
| Final DTW( ft): | 7.61 |

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 1140 | | 300 | 17.04 | 44 | 5.37 | 5.77 | 221.3 | 44.6 | 7.61 | |
| 1145 | | 300 | 17.14 | 38 | 5.62 | 5.76 | 217.1 | 17.4 | 7.61 | |
| 1150 | | 360 | 17.22 | 38 | 5.59 | 5.78 | 211.1 | 6.85 | 7.61 | |
| 1155 | | 360 | 17.30 | 37 | 5.52 | 5.78 | 198.8 | 4.55 | 7.61 | |
| 1200 | | 300 | 17.30 | 38 | 5.47 | 5.76 | 196.1 | 2.37 | 7.61 | |
| 1205 | | 300 | 17.30 | 38 | 5.38 | 5.77 | 183.6 | 2.30 | 7.61 | |
| 1210 | | 300 | 17.22 | 38 | 5.23 | 5.78 | 191.5 | 1.28 | 7.61 | |
| 1215 | 200 | ~~300~~ | 17.19 | 38 | 5.13 | 5.79 | 196.9 | 1.30 | 7.61 | |
| 1220 | | 300 | 17.16 | 38 | 5.18 | 5.78 | 198.6 | 2.71 | 7.61 | |
| 1225 | | 300 | 17.43 | 38 | 5.08 | 5.79 | 179.1 | 1.14 | 7.61 | |
| 1230 | | 300 | 17.43 | 38 | 4.99 | 5.79 | 173.5 | 1.94 | 7.61 | |
| 1235 | | 300 | 17.45 | 38 | 4.98 | 5.81 | 168.1 | 1.24 | 7.61 | |
| 1240 | | 300 | 17.46 | 38 | 4.75 | 5.82 | 163.7 | 1.29 | 7.61 | |
| 1245 | | 300 | 17.45 | 38 | 4.64 | 5.82 | 160.5 | 0.62 | 7.61 | |
| 1250 | | 300 | 17.44 | 38 | 4.54 | 5.83 | 155.5 | 0.51 | 7.61 | |
| 1255 | | 306 | 17.46 | 38 | 4.42 | 5.84 | 152.2 | 0.45 | 7.61 | |
| 1300 | | 300 | 17.48 | 38 | 4.38 | 5.84 | 150.2 | 0.40 | 7.61 | |
| 1305 | | 300 | 17.49 | 38 | 4.33 | 5.84 | 150.0 | 0.42 | 7.61 | |
| 1310 | | 300 | 17.48 | 38 | 4.30 | 5.84 | 147.2 | 0.28 | 7.61 | |
| 1315 | | 300 | 17.45 | 38 | 4.36 | 5.85 | 145.6 | 0.44 | 7.61 | |
| 1320 | | 300 | 17.44 | 38 | 4.25 | 5.87 | 141.3 | 0.79 | 7.61 | |
| 1325 | | 300 | 17.43 | 38 | 4.08 | 5.87 | 141.3 | 0.23 | 7.61 | |
| 1330 | | 300 | 17.43 | 38 | 3.96 | 5.87 | 137.6 | 0.34 | 7.61 | |
| 1335 | | 300 | 17.42 | 38 | 3.87 | 5.87 | 136.8 | 0.24 | 7.61 | |
| 1340 | | 300 | 17.38 | 38 | 3.78 | 5.87 | 134.6 | 0.38 | 7.61 | |

Sampled

Comments: ~~Depth to water and sounded well depth measurements are not collected during PEAS sampling.~~
Clear, odorless

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: [signature] Date: 10/11/18

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW - 6 | Sample Source: | **GW** |
| Golder Personnel Present: | L. Lampe & Brisher | | |

## PURGING INFORMATION (IF APPLICABLE)

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/11/18 | Time (24 hr): | 915 | Elapsed hours/min: | 120 mins |
| Purging Device: | C | Dedicated?: | **Yes** | | |
| Casing Vol (Gal.): | - | Tubing Vol. (L) | - | Vol Purged (L): | ~36 |
| Material: | **1/4" OD HDPE tubing** | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/11/18 | Time (24 hr): | 1115 | Matrix: | **GW** |
| Sampling Device | C | Dedicated?: | **Yes** | Filtered?: | **No** |
| Material: | **1/4" OD HDPE tubing** | | | Sample Type: | **Grab** |
| (A) Air-Lift Pump; (B) Bladder Pump; (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS VOCs SVOCs TAL metals | | | | |

## WELL INFORMATION (IF APPLICABLE)

| | | | | |
|---|---|---|---|---|
| Reference Point: | **TPVC** | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | | Common casing vol. factors |
| Depth to Water (ft): | 9.66 - | Sounded Well Depth (ft): | 17.11 - | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 17.11 - 7.11 | Stickup (ft): | **Flush** | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 13 | Well Diameter (in): | **2.00** | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | **0.25** | |

## FINAL FIELD MEASUREMENTS

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | **(°C)** | | pH | **(S.U.)** | |
| Spec Cond | **(uS/cm)** | See back | ORP | **(mV)** | See back |
| Dissolved Oxygen | **(mg/L)** | | Eh | **(mV)** | - |
| Flow Rate | **(mL/min)** | | Turbidity | **(NTU)** | |
| | | | Drawdown | **(Ft)** | - |

## COMMENTS / CALCULATIONS

Weather: Partly cloudy, 70's

Sample Description: Clear, odorless

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/12/18

# PURGING AND STABILIZATION INFORMATION

| | |
|---|---|
| Sample ID: | TMW-6 |
| Initial DTW (ft): | 8.66 - |
| Final DTW( ft): | 8.77 - |

12.11

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 915 | | 350 | 16.74 | 504 | 23.44 | 6.92 | 207.6 | 38.0 | 8.66 | |
| 920 | | 325 | 16.57 | 372 | ~~22.31~~ | ~~2.23~~ | 206.2 | 26.1 | 8.80 | |
| 925 | | 300 | 16.90 | 308 | 11.86 | 6.72 | 203.1 | 7.91 | 8.77 | |
| 930 | | 300 | 16.83 | 311 | 8.35 | 6.70 | 208.8 | 4.69 | 8.77 | |
| 935 | | 300 | 16.85 | 299 | 6.54 | 6.70 | 213.8 | 2.39 | 8.76 | |
| 940 | | 300 | 16.82 | 294 | 5.76 | 6.69 | 211.5 | 1.36 | 8.77 | |
| 945 | | 300 | 16.83 | 291 | 5.28 | 6.70 | 207.8 | 1.24 | 8.77 | |
| 950 | | 300 | 16.83 | 287 | 4.89 | 6.71 | 204.5 | 0.98 | 8.77 | |
| 955 | | 300 | 16.81 | 285 | 4.51 | 6.71 | 203.2 | 0.61 | 8.77 | |
| 1000 | | 300 | 16.85 | 279 | 4.16 | 6.72 | 201.9 | 0.57 | 8.77 | |
| 1005 | | 300 | 16.85 | 275 | 3.88 | 6.73 | 200.0 | 0.54 | 8.77 | |
| 1010 | | 300 | 16.86 | 271 | 3.58 | 6.73 | 198.8 | 0.91 | 8.77 | |
| 1015 | | 300 | 16.80 | 268 | 3.20 | 6.74 | 198.0 | 0.52 | 8.77 | |
| 1020 | | 300 | 16.84 | 265 | 2.97 | 6.75 | 198.0 | 0.64 | 8.77 | |
| 1025 | | 300 | 16.85 | 263 | 2.70 | 6.75 | 198.2 | 0.68 | 8.77 | |
| 1030 | | 300 | 16.86 | 260 | 2.42 | 6.74 | 199.5 | 0.60 | 8.77 | |
| 1035 | | 300 | 16.87 | 255 | 2.14 | 6.76 | 193.6 | 0.51 | 8.77 | |
| 1040 | | 300 | 16.89 | 253 | 1.98 | 6.76 | 197.2 | 0.52 | 8.77 | |
| 1045 | | 300 | 16.90 | 250 | 1.81 | 6.77 | 197.7 | 0.53 | 8.77 | |
| 1050 | | 300 | 16.91 | 246 | 1.69 | 6.77 | 198.7 | 0.74 | 8.77 | |
| 1055 | | 300 | 16.95 | 243 | 1.58 | 6.77 | 201.6 | 0.75 | 8.77 | |
| 1100 | | 300 | 16.97 | 238 | 1.50 | 6.78 | 201.9 | 0.70 | 8.77 | |
| 1105 | | 300 | 16.97 | 238 | 1.46 | 6.78 | 198.9 | 0.79 | 8.77 | |
| 1110 | | 300 | 16.97 | 233 | 1.46 | 6.77 | 198.4 | 0.76 | 8.77 | |
| 1115 | | 300 | 16.99 | 231 | 1.42 | 6.77 | 194.3 | — | 8.77 | |

Sampling Ended

Comments: Depth to water and sounded well depth measurements are not collected during PFAS sampling.

Clear odorless

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: [signature] Date: 10/17/18

# SAMPLE COLLECTION INFORMATION FORM

| | | | |
|---|---|---|---|
| GAI Project Name: | **Saint-Gobain Performance Plastics** | Project Number: | **166-8623** |
| Sample ID: | TMW-H | Sample Source: | **GW** |
| Golder Personnel Present: | ANB | | |

## PURGING INFORMATION (IF APPLICABLE)

| | | | | | |
|---|---|---|---|---|---|
| Purge Date: | 10/17/18 | Time (24 hr): | 1126 | Elapsed hours/min: | 120 min |
| Purging Device: | C | Dedicated?: | **Yes** | | |
| Casing Vol (Gal.): | — | Tubing Vol. (L) | — | Vol Purged (L): | 36 |
| Material: | **1/4" OD HDPE tubing** | | | | |
| (A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date: | 10/17/18 | Time (24 hr): | 13:35 | Matrix: | **GW** |
| Sampling Device | **C** | Dedicated?: | **Yes** | Filtered?: | **No** |
| Material: | **1/4" OD HDPE tubing** | | | Sample Type: | **Grab** |
| (A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other. | | | | | |
| Analytical Parameters: | PFAS | | | | |

## WELL INFORMATION (IF APPLICABLE)

| | | | | |
|---|---|---|---|---|
| Reference Point: | **TPVC** | Land Elevation (ft): | - | |
| Ref. Elevation (ft): | - | Historical Well Depth (ft): | 14.26 | Common casing vol. factors |
| Depth to Water (ft): | -4.01 | Sounded Well Depth (ft): | - | 1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96 |
| Screen Interval: | 5-15 | Stickup (ft): | **Flush** | 0.25 = .003, 0.5 = 0.01, 1.0 = 0.041 |
| Pump Intake: | 7.5 | Well Diameter (in): | **2.00** | Casing Vol.= 0.163 * $r^2$ |
| GW Elevation (ft): | - | Tubing Diameter (in) | **0.25** | |

## FINAL FIELD MEASUREMENTS

***PLEASE CHECK UNITS VS. METER!!!***

| Parameter | Units (proposed) actual | Result | Parameter | Units (proposed) actual | Result |
|---|---|---|---|---|---|
| Temperature | **(°C)** | | pH | **(S.U.)** | |
| Spec Cond | **(uS/cm)** | | ORP | **(mV)** | |
| Dissolved Oxygen | **(mg/L)** | | Eh | **(mV)** | - |
| Flow Rate | **(mL/min)** | | Turbidity | **(NTU)** | |
| | | | Drawdown | **(Ft)** | - |

## COMMENTS / CALCULATIONS

Weather: 50°, overcast (partially)

Sample Description: clear, odorless

**Insect Repellant Used Today? Yes/No**

Sampler Signature: [signature] Date: 10/17/18

# PURGING AND STABILIZATION INFORMATION

| | |
|---|---|
| Sample ID: | TMW-H |
| Initial DTW (ft): | ~~4.01~~ 4.01 - |
| Final DTW( ft): | 4.05 - |

**FIELD MEASUREMENTS**

| Elapsed Time | Volume Purged | Flow Rate | Temp | Specific Cond. | DO | pH | ORP | Turb | DTW | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Time) | (L) | (mL/min) | (°C) | (uS/cm) | (mg/L) | (S.U.) | (mV) | (NTU) | (ft) | |
| Stabilization Criteria: | | ± 10% | ± 3% | ± 3% | ± 10%** | ± 0.1 SU | ± 10 mV | ± 10%* | <0.3 FT | |
| 11:35 | | 300 | 16.93 | 1.313 | 11.24 | 5.81 | 226.8 | 50.4 | 4.05 | |
| 11:40 | | 300 | 16.92 | 1.219 | 9.14 | 5.88 | 205.2 | 23.9 | 4.05 | |
| 11:45 | | 300 | 16.96 | 1.181 | 8.80 | 5.90 | 203.7 | 14.4 | 4.05 | |
| 11:50 | | 300 | 16.96 | 1.161 | 8.80 | 5.90 | 203.7 | 8.42 | 4.05 | |
| 11:~~55~~ | | 300 | 16.64 | 1.076 | 8.20 | 5.96 | 191.7 | 6.09 | 4.05 | |
| 12:00 | | 300 | 16.72 | 1.046 | 8.17 | 5.98 | 211.8 | 3.39 | 4.05 | |
| 12:05 | | 300 | 16.90 | 1.022 | 8.06 | 5.99 | 196.7 | 2.27 | 4.05 | |
| 12:10 | | 300 | 16.96 | 1.001 | 7.94 | 6.03 | 175.7 | 1.62 | 4.05 | |
| 12:15 | | 300 | 16.98 | 1.012 | 7.90 | 6.03 | 174.0 | 1.10 | 4.05 | |
| 12:20 | | 300 | 17.02 | 0.992 | 7.86 | 6.05 | 168.9 | 1.06 | 4.05 | |
| 12:25 | | 300 | 17.09 | 0.980 | 7.76 | 6.07 | 173.4 | 0.80 | 4.05 | |
| 12:30 | | 300 | 17.12 | 0.980 | 7.71 | 6.08 | 188.4 | 1.00 | 4.05 | |
| 12:35 | | 300 | 17.19 | 0.977 | 7.71 | 6.09 | 200.7 | 0.78 | 4.05 | |
| 12:40 | | 300 | 17.01 | 0.955 | 7.24 | 6.11 | 217.1 | 0.73 | 4.05 | |
| 12:45 | | 300 | 17.11 | 0.959 | 7.61 | 6.12 | 202.2 | 0.57 | 4.05 | |
| 12:50 | | 300 | 17.18 | 0.955 | 7.57 | 6.12 | 186.4 | 0.59 | 4.05 | |
| 12:55 | | 300 | 17.03 | 0.953 | 2.63 | 6.13 | 181.4 | ~~0.39~~ 0.52 | 4.05 | |
| 13:00 | | 300 | 16.94 | 0.948 | 7.65 | 6.15 | 167.2 | 0.55 | 4.05 | |
| 13:05 | | 300 | 16.74 | 0.961 | 7.46 | 6.14 | 179.0 | 0.42 | 4.05 | |
| 13:10 | | 300 | 16.67 | 0.942 | 7.51 | 6.14 | 189.7 | 0.53 | 4.05 | |
| 13:15 | | 300 | 16.65 | 0.945 | 7.55 | 6.13 | 187.4 | 0.77 | 4.05 | |
| 13:20 | | 300 | 16.65 | 0.951 | 7.44 | 6.12 | 207.7 | 1.26 | 4.05 | |
| 13:25 | | 300 | 16.62 | 0.932 | 7.48 | 6.12 | 206.0 | 0.87 | 4.05 | |
| 13:30 | | 300 | 16.62 | 0.918 | 7.50 | 6.12 | 202.3 | 0.91 | 4.05 | |
| 13:35 | | 300 | 16.68 | 0.912 | 7.45 | 6.12 | 204.5 | 0.62 | 4.05 | |

YSI → "froze" turned off then on to reset

Comments: Depth to water and sounded well depth measurements are not collected during PFAS sampling.

Odor coming from the well

Well depth: 14.94 ft.

* ± 10% or 1.00, whichever is greater ** ± 10% or <0.5 for three consecutive readings

Sampler Signature: [signature] Date: 10/12/18

# Attachment C - Figure of Temporary Well Locations

PATH: V:\001 GIS Projects\2016\SaintGobain\1668623_SG_Merrimack\SaintGobain_MerrimackNH\99_PROJECTS\1668623_PFOS_PFOA_Sampling\11_WSPCoordinates\02_PRODUCTION\MXD\1668623-0011-HS-0002.mxd PRINTED ON: 2018-12-14 AT: 3:55:30 PM




**LEGEND**

- Temporary Monitoring Well
- Approximate SGPP Facility Boundary
- Dumping Brook
- Dumping Brook - Underground
- Tax Parcel Boundary

DO NOT RELY ON THIS DOCUMENT

**DRAFT**

0 350 700

1 " = 350 feet

Feet

**NOTE(S)**

1. MONITORING LOCATIONS COLLECTED DURING NOVEMBER 2018 SURVEY BY WSP.

**REFERENCE(S)**

1. 2015 IMAGERY DOWNLOADED FROM NH GRANIT WEBSITE
2. PARCEL DATA RETRIEVED FROM NH GRANIT WEBSITE.

CLIENT

SAINT-GOBAIN PERFORMANCE PLASTICS

PROJECT

SAINT-GOBAIN PERFORMANCE PLASTICS
701 DANIEL WEBSTER HIGHWAY MERRIMACK, NH
MERRIMACK, NH

TITLE

## TEMPORARY MONITORING WELL LOCATIONS

CONSULTANT

GOLDER

| | |
|---|---|
| YYYY-MM-DD | 12/14/2018 |
| DESIGNED | RWB |
| PREPARED | SHL |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | FIGURE |
|---|---|---|---|
| 166-8623181 | - | 0 | A |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM: ANSI A

1 in

0