# SEPTEMBER 2017 GROUNDWATER SAMPLING DATA SUMMARY REPORT

**NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP)**
**SITE 1 OU2**
**BETHPAGE, NY**

**Prepared for:**

**Department of the Navy**
**Naval Facilities Engineering Command, Atlantic**
**9324 Virginia Avenue**
**Building Z-144**
**Norfolk, Virginia 23511**

**March 2018**

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**Prepared by:**


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**Contract Number: N62470-11-D-8013**
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**March 2018**


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## List of Acronyms and Abbreviations

| | |
|---|---|
| DOT | Department of Transportation |
| IDW | Investigation Derived Waste |
| Katahdin | Katahdin Analytical Services |
| NG | Northrop Grumman |
| NWIRP | Naval Weapons Industrial Reserve Plant |
| ONCT | Onsite Containment System |
| OU | Operable Unit |
| POTW | Publicly Owned Treatment Works |
| QA | Quality Assurance |
| QC | Quality Control |
| SAP | Sampling and Analysis Plan |
| UFP | Uniform Federal Policy |
| VOC | Volatile Organic Compounds |



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## 1.0 PROJECT BACKGROUND

Resolution Consultants has prepared this Groundwater Sampling Data Summary Report for the Naval Facilities Engineering Command, Mid-Atlantic under contract task order WE15 Contract N62470-11-D-8013. The report describes quarterly sampling activities in September 2017, which is part of the Navy's ongoing Environmental Restoration Program for the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage Operable Unit (OU) 2 Site 1 offsite plume. NWIRP Bethpage is located in east-central Nassau County, Long Island, New York, approximately 30 miles east of New York City (Figure 1).

This data summary report provides information on quarterly sampling of 49 Navy-owned monitoring wells by Resolution Consultants on behalf of the Navy, and by ARCADIS on behalf of the Navy at the direction of Northrop Grumman (NG) as part of an agreement between the Navy and NG. The purpose of this sampling is to provide information on the extent and magnitude of volatile organic compounds (VOCs) located in a narrow area immediately south of the Onsite Containment System (ONCT) in the western offsite plume, which could represent contamination that has bypassed the ONCT, to evaluate the southernmost extent of the OU2 plume, and to evaluate outpost wells intended to provide early warning of plume migration to public water supply wells. The locations of monitoring wells sampled as part of this effort are shown in Figure 2. Well construction information and sampling responsibility are listed in Table 1.

## 2.0 FIELD PROGRAM

Field tasks were conducted in September 2017 in accordance with the Uniform Federal Policy (UFP) Sampling and Analysis Plan (SAP) Addendum: *Groundwater Sampling Using Low Stress (Low Flow) Purging and Sampling Protocol* (Resolution Consultants, 2013). The field investigation included purging and sampling of monitoring wells in the quarterly groundwater sampling network.

The September 2017 quarterly sampling round consisted of a total of 49 wells (Table 1). Of these, 37 groundwater wells were sampled by Resolution Consultants and 13 were sampled by ARCADIS, the NG consultant.

### 2.1 Sampling

Resolution Consultants purged monitoring wells using a bladder pump with the intake placed at the approximate midpoint of the screened interval. The following field water quality parameters were continuously measured during purging: water temperature, pH, conductivity, oxidation-reduction potential, dissolved oxygen and turbidity. Groundwater analytical samples were collected when field water quality parameters stabilized. Samples were analyzed for VOCs via Method 8260C and 1,4-dioxane via Method 8270D SIM by Katahdin Analytical Services (Katahdin). Bromide was also analyzed at the following wells: RE120D1, RE120D2, RE120D3, RE117D1, RE117D2, and BPOW5-4. All purge water was managed as investigation derived waste (IDW). Quality assurance (QA) and quality control (QC) samples were collected during the sampling effort.

Analytical results and stabilized field parameters for wells sampled by Resolution Consultants are summarized in Table 2 and Table 3, respectively. Groundwater sample forms and data validation packages for wells sampled by Resolution Consultants are included in Appendix A and B, respectively.

Results for ARCADIS-sampled wells are provided in Table 4 and Table 5; data validation packages are included in Appendix C. Samples collected from outpost wells were analyzed for VOCs via method 524.2 and 1,4-dioxane via Method 522 by Accutest Laboratories. Samples collected from remaining wells were analyzed for VOCs via Method 8260C and 1,4-dioxane via Method 8270D SIM by Accutest Laboratories.

Additional Navy-owned wells are sampled by ARCADIS as part of separate and ongoing OU2 monitoring programs, as summarized in the sampling schedule in Appendix D. ARCADIS will

document these activities and results in their 2017 Annual Groundwater Monitoring Report, scheduled for submission to New York State Department of Environmental Conservation in the summer of 2018.

Synoptic water levels were measured on September 7, 2017 as part of a separate task. Tabulated data is presented in Appendix E along with three contoured water level maps for wells screened at shallow (<300 feet bgs), intermediate (300-500 feet bgs) and deep (>500 feet bgs) intervals.

## 2.2 Investigation Derived Waste

Resolution Consultants utilized dedicated and disposable sampling equipment when possible to avoid the potential for cross-contamination of samples. The sampling equipment included dedicated disposable polyethylene tubing, disposable gloves, and laboratory supplied sample bottles. Hand held equipment was decontaminated using a luminox or micro 90 water wash, a potable water rinse, followed by a distilled water rinse. Purge water was collected in 5-gallon pails or 55-gallon drums.

Resolution Consultants transported purge water from point of generation to the designated staging area at NWIRP in Department of Transportation (DOT) approved 5-gallon pails. Purge water was then containerized in a frac tank and stored at NWIRP Bethpage for characterization and ultimate disposal to the Nassau County Publicly Owned Treatment Works (POTW) in accordance with the facility's existing discharge permit. All analytical criteria were met for disposal of water. No solid waste was generated during sampling.

## 3.0 SUMMARY

Well construction information for all wells sampled by Resolution Consultants and ARCADIS is summarized in Table 1.

Analytical results and stabilized field water quality parameters for wells sampled by Resolution Consultants are summarized in Tables 2 and 3, respectively. Groundwater sample forms and data validation packages for wells sampled by Resolution Consultants are included in Appendix A and B, respectively.

Analytical results for wells sampled by ARCADIS are summarized in Table 4 and Table 5. Data validation packages for wells sampled by ARCADIS are included in Appendix C.

The sampling schedule of additional Navy-owned wells by ARCADIS, as part of separate and ongoing OU2 monitoring programs, is summarized in Appendix D. Synoptic water levels measured on September 7, 2017 are summarized in Appendix E.

## 4.0 REFERENCES

Resolution Consultants, 2013. UFP SAP Addendum, *Groundwater Sampling Using Low Stress (Low Flow) Purging and Sampling Protocol.* November.

# Tables

**TABLE 1**
**MONITORING WELL CONSTRUCTION SUMMARY**
2017 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

| Well | Total Depth (ft bgs) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | Mid-screen (ft bgs) | Sump Length (ft) | VPB Affiliation | Sampled By |
|---|---|---|---|---|---|---|---|
| RE103D1 | 645 | 625 | 640 | 632.5 | 5 | VPB137 | Resolution |
| RE103D2 | 673 | 653 | 673 | 663 | 0 | VPB137 | Resolution |
| RE103D3 | 735 | 715 | 730 | 722.5 | 5 | VPB137 | Resolution |
| RE104D1 | 375 | 350 | 370 | 360 | 5 | VPB138 | Resolution |
| RE104D2 | 735 | 710 | 730 | 720 | 5 | VPB138 | Resolution |
| RE104D3 | 785 | 760 | 780 | 770 | 5 | VPB138 | Resolution |
| RE105D1 | 555 | 530 | 550 | 540 | 5 | VPB139 | Resolution |
| RE105D2 | 755 | 730 | 750 | 740 | 5 | VPB139 | Resolution |
| RE108D1 | 555 | 530 | 550 | 540 | 5 | VPB142 | Resolution |
| RE108D2 | 655 | 630 | 650 | 640 | 5 | VPB142 | Resolution |
| RE109D1 | 540 | 660 | 680 | 670 | 5 | VPB143 | Resolution |
| RE109D2 | 575 | 550 | 570 | 560 | 5 | VPB143 | Resolution |
| RE109D3 | 605 | 580 | 600 | 590 | 5 | VPB143 | Resolution |
| RE117D1 | 760 | 730 | 755 | 742.5 | 5 | VPB151 | Resolution |
| RE117D2 | 810 | 780 | 805 | 792.5 | 5 | VPB151 | Resolution |
| RE120D1 | 655 | 630 | 650 | 640 | 5 | VPB154 | Resolution |
| RE120D2 | 713 | 690 | 710 | 700 | 3 | VPB154 | Resolution |
| RE120D3 | 765 | 740 | 760 | 750 | 5 | VPB154 | Resolution |
| RE122D1 | 545 | 520 | 540 | 530 | 5 | VPB156 | Resolution |
| RE122D2 | 615 | 590 | 610 | 600 | 5 | VPB156 | Resolution |
| RE122D3 | 740 | 715 | 735 | 725 | 5 | VPB156 | Resolution |
| RE123D1 | 505 | 480 | 500 | 490 | 5 | VPB157 | Resolution |
| RE123D2 | 660 | 635 | 655 | 645 | 5 | VPB157 | Resolution |
| RE123D3 | 840 | 815 | 835 | 825 | 5 | VPB157 | Resolution |
| RE125D1 | 345 | 320 | 340 | 330 | 5 | VPB159 | Resolution |
| RE125D2 | 605 | 580 | 600 | 590 | 5 | VPB159 | Resolution |
| RE125D3 | 695 | 670 | 690 | 680 | 5 | VPB159 | Resolution |
| RE126D1 | 525 | 500 | 520 | 510 | 5 | VPB160 | Resolution |
| RE126D2 | 580 | 555 | 575 | 565 | 5 | VPB160 | Resolution |
| RE126D3 | 665 | 640 | 660 | 650 | 5 | VPB160 | Resolution |
| RE131D1 | 455 | 430 | 450 | 440 | 5 | VPB165 | Resolution |
| RE131D2 | 595 | 565 | 590 | 577.5 | 5 | VPB165 | Resolution |
| RE131D3 | 685 | 660 | 680 | 670 | 5 | VPB165 | Resolution |
| TT101D | 350 | 325 | 345 | 335 | 5 | VPB129 | Resolution |
| TT101D1 | 595 | 570 | 590 | 580 | 5 | VPB129 | Resolution |
| TT101D2 | 765 | 740 | 760 | 750 | 5 | VPB129 | Resolution |
| BPOW5-1 | 515 | 480 | 510 | 495 | 5 | VPB132 | ARCADIS |

**TABLE 1**
**MONITORING WELL CONSTRUCTION SUMMARY**
2017 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

| Well | Total Depth (ft bgs) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | Mid-screen (ft bgs) | Sump Length (ft) | VPB Affiliation | Sampled By |
|---|---|---|---|---|---|---|---|
| BPOW5-2 | 585 | 540 | 580 | 560 | 5 | VPB132 | ARCADIS |
| BPOW5-3 | 665 | 620 | 660 | 640 | 5 | VPB132 | ARCADIS |
| BPOW5-4 | 575 | 545 | 570 | 557.5 | 5 | VPB151 | Resolution/ARCADIS |
| BPOW5-5 | 545 | 515 | 540 | 527.5 | 5 | VPB152 | ARCADIS |
| BPOW5-6 | 615 | 585 | 610 | 597.5 | 5 | VPB152 | ARCADIS |
| BPOW5-7 | 555 | 525 | 550 | 537.5 | 5 | VPB152 | ARCADIS |
| BPOW6-1 | 580 | 550 | 575 | 562.5 | 5 | VPB145 | ARCADIS |
| BPOW6-2 | 785 | 755 | 780 | 767.5 | 5 | VPB145 | ARCADIS |
| BPOW6-3 | 780 | 750 | 775 | 762.5 | 5 | VPB146 | ARCADIS |
| BPOW6-4 | 575 | 545 | 570 | 557.5 | 5 | VPB146 | ARCADIS |
| BPOW6-5 | 555 | 525 | 550 | 537.5 | 5 | VPB147 | ARCADIS |
| BPOW6-6 | 800 | 770 | 795 | 782.5 | 5 | VPB147 | ARCADIS |

ft bgs - feet below ground surface

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE105D1 | RE105D2 | RE108D1 | RE108D2 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/18/2017 | 9/18/2017 | 9/18/2017 | 9/18/2017 |
| **Sample ID** | | | RE105D1-GW-091817 | RE105D2-GW-091817 | RE108D1-GW-091817 | RE108D2-GW-091817 |
| **Sample type code** | | | N | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | NA | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | **0.27 J** | <2.0 U | <0.50 U | <2.0 U |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **6.7** | **16** | **0.68 J** | **5.8** |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | <0.50 U | **1.8 J** | <0.50 U | **1.6 J** |
| 1,1-DICHLOROETHANE | 8260 C | 5 | <0.50 U | **1.9 J** | <0.50 U | **3.8 J** |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **1.1 J** | **8.1** | <0.50 UJ | **4.7 J** |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<3.0 UJ*** | ***<0.75 U*** | ***<3.0 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **1.5 J** | **4.3 J** | <1.0 U | **7.3 J** |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | ***<2.0 U*** | <0.50 U | ***<2.0 U*** |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **14** | **18 J** | **7.7** | **9.8** |
| 2-BUTANONE | 8260 C | 50 | <2.5 U | <10 U | <2.5 U | <10 U |
| 2-HEXANONE | 8260 C | 50 | <2.5 U | <10 U | <2.5 U | <10 U |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <10 U | <2.5 U | <10 U |
| ACETONE | 8260 C | 50 | <2.5 U | <10 U | <2.5 U | <10 U |
| BENZENE | 8260 C | 1 | <0.50 U | ***<2.0 U*** | <0.50 U | ***<2.0 U*** |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <4.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <4.0 U |
| CHLOROFORM | 8260 C | 7 | <0.50 U | **1.7 J** | <0.50 U | **3.0 J** |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <4.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **1.5** | **4.3** | <0.50 U | **7.3** |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<2.0 U*** | ***<0.50 U*** | ***<2.0 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | **0.68 J** | <4.0 UJ | <1.0 UJ | <4.0 UJ |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <4.0 U | <1.0 U | <4.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <3.0 U | <0.75 U | <3.0 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | ***<10 U*** | <2.5 U | ***<10 U*** |
| O-XYLENE | 8260 C | NL | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| STYRENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| TETRACHLOROETHENE | 8260 C | 5 | <0.50 U | **3.2 J** | **1.6** | **3.0 J** |
| TOLUENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <2.0 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<2.0 U*** | ***<0.50 U*** | ***<2.0 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **92** | **1900** | **39** | **2900** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <4.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | ***<4.0 U*** | <1.0 U | ***<4.0 U*** |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | ***<6.0 U*** | <1.5 U | ***<6.0 U*** |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE108D2 | TT101D | TT101D1 | TT101D2 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/18/2017 | 9/19/2017 | 9/19/2017 | 9/19/2017 |
| **Sample ID** | | | DUP01-GW-091817 | TT101D-GW-091917 | TT101D1-GW-091917 | TT101D2-GW-091917 |
| **Sample type code** | | | FD | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | NA | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | **0.68 J** | <0.50 U | **0.49 J** | **0.39 J** |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **6.8** | **15** | **18** | **26** |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | **1.5** | <0.50 U | **0.68 J** | **0.63 J** |
| 1,1-DICHLOROETHANE | 8260 C | 5 | **4.7** | **0.91 J** | **1.1** | **1.2** |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **6.0 J** | **2.6 J** | **5.8 J** | **5.8 J** |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<0.75 UJ*** | ***<0.75 U*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **8.0** | **3.0** | **2.3** | **2.1** |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **8.7** | **12** | **10** | **4.1** |
| 2-BUTANONE | 8260 C | 50 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| 2-HEXANONE | 8260 C | 50 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | **3.1** | **0.35 J** | **0.92 J** | **0.84 J** |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **8.0** | **3.0** | **2.3** | **2.1** |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 UJ | **3.2 J** | **2.3 J** | <1.0 UJ |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | **2.2 J** | <0.50 U | <0.50 U | **1.4** |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **2800** | **62** | **170** | **630** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE104D1 | RE104D2 | RE104D3 | RE120D1 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/19/2017 | 9/19/2017 | 9/19/2017 | 9/20/2017 |
| **Sample ID** | | | RE104D1-GW-091917 | RE104D2-GW-091917 | RE104D3-GW-091917 | RE120D1-GW-092017 |
| **Sample type code** | | | N | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | **to here** | | |
| BROMIDE | 300 | 2 | NA | NA | NA | <0.40 U |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | **0.98 J** |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **2.8** | <0.50 U | <0.50 U | **20 J** |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | **1.3 J** |
| 1,1-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | **2.3 J** |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **0.50 J** | <0.50 U | <0.50 UJ | **14 J** |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<0.75 UJ*** | ***<0.75 U*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **0.87 J** | **4.2** | <1.0 U | **3.4 J** |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **10** | **0.44** | <0.17 U | **17** |
| 2-BUTANONE | 8260 C | 50 | <2.5 U | <2.5 U | <2.5 U | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 U | <2.5 U | <2.5 U | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 U | <2.5 U | <2.5 U | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | **0.33 J** |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | <0.50 U | **0.60 J** | <0.50 U | **0.75 J** |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **0.87 J** | **4.2** | <0.50 U | **3.4 J** |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 UJ | <1.0 UJ | <1.0 UJ | <1.0 U |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | **2.4** | <0.50 U | <0.50 U | **2.5 J** |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **65** | **13** | <0.50 U | **970 J** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | **0.43 J** |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE120D2 | RE120D3 | RE131D1 | RE131D2 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/20/2017 | 9/20/2017 | 9/20/2017 | 9/20/2017 |
| **Sample ID** | | | RE120D2-GW-092017 | RE120D3-GW-092017 | RE131D1-GW-092017 | RE131D2-GW-092017 |
| **Sample type code** | | | N | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | <0.40 U | <0.40 U | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | **0.24 J** | <0.50 U | <0.50 U | **0.32 J** |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **15 J** | **1.1** | **4.4** | **200 J** |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | **0.53 J** | <0.50 U | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHANE | 8260 C | 5 | **0.94 J** | <0.50 U | **0.56 J** | **0.31 J** |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **4.4 J** | **0.38 J** | **1.1** | **1.9 J** |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **3.1 J** | <1.0 U | **4.7** | **4.5 J** |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **13 J** | **0.41** | **15** | **12 J** |
| 2-BUTANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | **0.38 J** | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | **0.82 J** | <0.50 U | **2.6** | **0.45 J** |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **3.1 J** | <0.50 U | **4.7** | **4.5 J** |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | **0.25 J** | **0.42 J** |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | **0.47 J** | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | **4.4 J** | <0.50 UJ | **10 J** | **7.4 J** |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **690 J** | **44** | **140** | **67 J** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE131D23 | RE109D1 | RE109D2 | RE109D3 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/20/2017 | 9/21/2017 | 9/21/2017 | 9/21/2017 |
| **Sample ID** | | | RE131D3-GW-092017 | RE109D1-GW-092117 | RE109D2-GW-092117 | RE109D3-GW-092117 |
| **Sample type code** | | | N | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | NA | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | **0.62 J** |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **140** | **0.74 J** | **1.3** | **3.8** |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | **0.29 J** |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **1.2** | <0.50 U | <0.50 U | <0.50 U |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **0.52 J** | <1.0 U | <1.0 U | **1.1 J** |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **2.4** | **6.6** | **8.3** | **6.6** |
| 2-BUTANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 UJ | <0.50 UJ | <0.50 UJ | **0.72 J** |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **0.52 J** | <0.50 U | <0.50 U | **1.1** |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | **0.45 J** |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | **2.3 J** | **0.73 J** | <0.50 UJ | **0.43 J** |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **9.1** | **24** | **32** | **65** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE122D1 | RE122D2 | RE122D3 | RE126D1 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/21/2017 | 9/21/2017 | 9/21/2017 | 9/22/2017 |
| **Sample ID** | | | RE122D1-GW-092117 | RE122D2-GW-092117 | RE122D3-GW-092117 | RE126D1-GW-092217 |
| **Sample type code** | | | N | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | NA | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **4.8** | **10 J** | <0.50 U | <0.50 U |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | **0.44 J** | **1.9 J** | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHANE | 8260 C | 5 | **0.27 J** | **1.4 J** | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **1.1** | **6.4 J** | <0.50 U | <0.50 U |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<3.0 U*** | ***<0.75 U*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **2.1 J** | **4.2 J** | <1.0 U | **0.36 J** |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | ***<2.0 U*** | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **8.2** | **14** | <0.17 U | **6.5** |
| 2-BUTANONE | 8260 C | 50 | <2.5 UJ | <10 UJ | <2.5 UJ | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 UJ | <10 UJ | <2.5 UJ | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <10 U | <2.5 U | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 UJ | <10 UJ | <2.5 UJ | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | ***<2.0 U*** | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | **0.53 J** | <2.0 UJ | <0.50 UJ | <0.50 UJ |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | **0.56 J** | **1.8 J** | <0.50 U | <0.50 U |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **1.8** | **4.2 J** | <0.50 U | **0.36 J** |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<2.0 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 UJ | <2.0 UJ | <0.50 UJ | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <1.0 U |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <4.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <3.0 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | ***<10 U*** | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | **1.9 J** | **3.1 J** | <0.50 UJ | **1.0 J** |
| TOLUENE | 8260 C | 5 | <0.50 U | <2.0 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | **0.32 J** | <2.0 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<2.0 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **510 J** | **2200 J** | **7.2** | **65** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <4.0 U | <1.0 U | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | ***<4.0 U*** | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | ***<6.0 U*** | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE126D2 | RE126D3 | RE123D1 | RE123D2 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/22/2017 | 9/22/2017 | 9/22/2017 | 9/22/2017 |
| **Sample ID** | | | RE126D2-GW-092217 | RE126D3-GW-092217 | RE123D1-GW-092217 | RE123D2-GW-092217 |
| **Sample type code** | | | N | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | NA | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | **0.57 J** | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **0.52 J** | **0.49 J** | <0.50 U | <0.50 U |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | **0.49 J** | <0.50 U | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHANE | 8260 C | 5 | **1.9** | <0.50 U | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **1.3** | <0.50 U | <0.50 U | <0.50 U |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **1.7 J** | <1.0 UJ | <1.0 UJ | <1.0 UJ |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **7.2** | **1.6** | **3.6** | **0.71** |
| 2-BUTANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | **0.59 J** | <0.50 U | <0.50 U | <0.50 U |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **1.7** | <0.50 U | <0.50 U | <0.50 U |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | **0.60 J** | **2.6 J** | <0.50 UJ | **1.3 J** |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **460** | **3.7** | **8.0** | **2.1** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE123D3 | RE117D1 | RE117D2 | BPOW5-4 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/22/2017 | 9/25/2017 | 9/25/2017 | 9/25/2017 |
| **Sample ID** | | | RE123D3-GW-092217 | RE117D1-GW-092517 | RE117D2-GW-092517 | BPOW5-4-GW-092517 |
| **Sample type code** | | | N | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | NA | <0.40 U | <0.40 U | <0.40 U |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | <1.0 UJ | <1.0 UJ | <1.0 UJ | <1.0 UJ |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | <0.17 U | <0.17 U | <0.17 U | **0.84** |
| 2-BUTANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | <0.50 U | **14** | **0.51 J** | <0.50 U |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | BPOW5-4 | RE125D1 | RE125D2 | RE125D3 |
|---|---|---|---|---|---|---|
| **Sample Date** | | | 9/25/2017 | 9/25/2017 | 9/25/2017 | 9/25/2017 |
| **Sample ID** | | | DUP02-GW-092517 | RE125D1-GW-092517 | RE125D2-GW-092517 | RE125D3-GW-092517 |
| **Sample type code** | | | FD | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | | |
| BROMIDE | 300 | 2 | <0.40 U | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | **0.62 J** | <0.50 U |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | <0.50 U | **13** | **22 J** | **42** |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | <0.50 U | <0.50 U | **0.46 J** | <0.50 U |
| 1,1-DICHLOROETHANE | 8260 C | 5 | <0.50 U | **2.4** | **0.83 J** | <0.50 U |
| 1,1-DICHLOROETHENE | 8260 C | 5 | <0.50 U | **2.8** | **7.7 J** | **0.90 J** |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 UJ*** | ***<0.75 UJ*** | ***<0.75 UJ*** | ***<0.75 U*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | <1.0 UJ | **4.2 J** | **3.9 J** | **1.6 J** |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **0.83** | **14 J** | **0.21 J** | **2.9** |
| 2-BUTANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 U |
| ACETONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 UJ | <0.50 UJ | **0.61 J** | **0.30 J** |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | <0.50 U | **0.86 J** | **0.57 J** | **0.37 J** |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | **4.2** | **3.9 J** | **1.6** |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 UJ | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 U | **0.36 J** | **0.67 J** | **0.28 J** |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | <0.50 UJ | **7.0 J** | **1.9 J** | **2.0 J** |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | <0.50 U | **170** | **210 J** | **140** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | **0.34 J** | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

| **Location** | | NYSDEC Groundwater Guidance or Standard Value (Note 1) | RE103D1 | RE103D2 | RE103D3 |
|---|---|---|---|---|---|
| **Sample Date** | | | 9/26/2017 | 9/26/2017 | 9/26/2017 |
| **Sample ID** | | | RE103D1-GW-092617 | RE103D2-GW-092617 | RE103D3-GW-092617 |
| **Sample type code** | | | N | N | N |
| **Units ug/L (except Bromide mg/L)** | **Method** | | | | |
| BROMIDE | 300 | 2 | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 8260 C | 5 | **0.33 J** | <0.50 U | <0.50 U |
| 1,1,2,2-TETRACHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 8260 C | 5 | **9.8** | **3.0** | **0.83 J** |
| 1,1,2-TRICHLOROETHANE | 8260 C | 1 | **0.63 J** | **0.44 J** | **0.35 J** |
| 1,1-DICHLOROETHANE | 8260 C | 5 | **0.70 J** | **0.57 J** | <0.50 U |
| 1,1-DICHLOROETHENE | 8260 C | 5 | **6.6** | **0.74 J** | <0.50 U |
| 1,2,4-TRICHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 8260 C | 0.04 | ***<0.75 U*** | ***<0.75 UJ*** | ***<0.75 UJ*** |
| 1,2-DIBROMOETHANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| 1,2-DICHLOROETHENE, TOTAL | 8260 C | 5 | **2.7 J** | **0.67 J** | <1.0 UJ |
| 1,2-DICHLOROPROPANE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U |
| 1,3-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DICHLOROBENZENE | 8260 C | 3 | <0.50 U | <0.50 U | <0.50 U |
| 1,4-DIOXANE | 8270D_SIM | NL | **8.7** | **0.91** | **0.44** |
| 2-BUTANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 2-HEXANONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| 4-METHYL-2-PENTANONE | 8260 C | NL | <2.5 U | <2.5 UJ | <2.5 UJ |
| ACETONE | 8260 C | 50 | <2.5 UJ | <2.5 UJ | <2.5 UJ |
| BENZENE | 8260 C | 1 | <0.50 U | <0.50 U | <0.50 U |
| BROMODICHLOROMETHANE | 8260 C | 50 | <0.50 U | <0.50 U | <0.50 U |
| BROMOFORM | 8260 C | 50 | <0.50 U | <0.50 U | **6.0 J** |
| BROMOMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U |
| CARBON DISULFIDE | 8260 C | 60 | <0.50 U | <0.50 U | <0.50 U |
| CARBON TETRACHLORIDE | 8260 C | 5 | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| CHLOROBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| CHLOROETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U |
| CHLOROFORM | 8260 C | 7 | **0.58 J** | **0.79 J** | **0.66 J** |
| CHLOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U |
| CIS-1,2-DICHLOROETHENE | 8260 C | 5 | **2.7** | **0.67 J** | <0.50 U |
| CIS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| CYCLOHEXANE | 8260 C | NL | <0.50 UJ | <0.50 UJ | <0.50 UJ |
| DIBROMOCHLOROMETHANE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| DICHLORODIFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U |
| ETHYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| ISOPROPYLBENZENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| M- AND P-XYLENE | 8260 C | NL | <1.0 U | <1.0 U | <1.0 U |
| METHYL ACETATE | 8260 C | NL | <0.75 U | <0.75 U | <0.75 U |
| METHYL CYCLOHEXANE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U |
| METHYL TERT-BUTYL ETHER | 8260 C | 10 | <0.50 U | <0.50 U | <0.50 U |
| METHYLENE CHLORIDE | 8260 C | 5 | <2.5 U | <2.5 U | <2.5 U |
| O-XYLENE | 8260 C | NL | <0.50 U | <0.50 U | <0.50 U |
| STYRENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| TETRACHLOROETHENE | 8260 C | 5 | **4.6 J** | **0.77 J** | <0.50 UJ |
| TOLUENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,2-DICHLOROETHENE | 8260 C | 5 | <0.50 U | <0.50 U | <0.50 U |
| TRANS-1,3-DICHLOROPROPENE | 8260 C | 0.4 | ***<0.50 U*** | ***<0.50 U*** | ***<0.50 U*** |
| TRICHLOROETHENE | 8260 C | 5 | **720** | **480** | **240 J** |
| TRICHLOROFLUOROMETHANE | 8260 C | 5 | <1.0 U | <1.0 U | <1.0 U |
| VINYL CHLORIDE | 8260 C | 2 | <1.0 U | <1.0 U | <1.0 U |
| XYLENES, TOTAL | 8260 C | 5 | <1.5 U | <1.5 U | <1.5 U |

**TABLE 2**
**ANALYTICAL DATA SUMMARY FOR**
**WELLS SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION

**Notes:**

**1** New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (6 NYCRR 700-706, Part 703.5 summarized in TOGS 1.1.1)
Ambient water quality standards and groundwater effluent limitations, class GA; NL = Not Listed

Units ug/L except Bromide (mg/L)

NA = not analyzed

**Bold =** Detected; ***Bold and Italics*** =Not detected exceeds NYS Groundwater Standards or guidance value

Yellow highlighted values exceed Groundwater Standards or guidance value

Sample type codes: N - normal environmental sample, FD - field duplicate

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
M = the matrix spike or matrix spike duplicate did not meet recovery or precision requirements.



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**TABLE 3**
**STABILIZED FIELD PARAMETERS FOR WELLS**
**SAMPLED BY RESOLUTION CONSULTANTS**
2017 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

| Well | Date | Temperature (°C) | pH | Specific Conductance (µS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Depth to water (ft bgs) | Purge Flow rate (ml/min) |
|---|---|---|---|---|---|---|---|---|---|
| TT101D | 9/19/2017 | 15.97 | 4.29 | 0.080 | 0.44 | 268.0 | 1.33 | 35.36 | 800 |
| TT101D1 | 9/19/2017 | 16.15 | 4.57 | 0.081 | 0.52 | 203.1 | 1.97 | 37.16 | 800 |
| TT101D2 | 9/19/2017 | 15.88 | 6.43 | 0.037 | 6.75 | 51.2 | 0.76 | 37.92 | 800 |
| RE103D1 | 9/26/2017 | 16.33 | 5.71 | 0.077 | 3.92 | -56.2 | 0.32 | 44.39 | 650 |
| RE103D2 | 9/26/2017 | 15.76 | * | 0.025 | 7.00 | 669.2 | 0.59 | 44.13 | 600 |
| RE103D3 | 9/26/2017 | 17.23 | 5.60 | 0.030 | 2.63 | 222.2 | 1.36 | 44.67 | 500 |
| RE104D1 | 9/19/2017 | 15.19 | 4.55 | 0.063 | 4.95 | 208.6 | 1.11 | 38.17 | 600 |
| RE104D2 | 9/19/2017 | 15.02 | 5.12 | 0.019 | 5.60 | 313.6 | 1.80 | 41.29 | 650 |
| RE104D3 | 9/19/2017 | 15.67 | 5.95 | 0.017 | 6.26 | 68.8 | 5.15 | 42.38 | 600 |
| RE105D1 | 9/18/2017 | 15.53 | 3.20 | 0.084 | 2.67 | 218.1 | 1.81 | 40.68 | 600 |
| RE105D2 | 9/18/2017 | 15.76 | 5.90 | 0.059 | 5.15 | 80.1 | 0.65 | 40.97 | 600 |
| RE108D1 | 9/18/2017 | 15.90 | 2.98 | 0.076 | 7.53 | 239.5 | 0.85 | 41.21 | 600 |
| RE108D2 | 9/18/2017 | 15.94 | 5.03 | 0.065 | 4.26 | 309.3 | 1.59 | 43.30 | 700 |
| RE109D1 | 9/21/2017 | 16.52 | 4.20 | 0.069 | 3.74 | 280.1 | 23.4 | 47.53 | 600 |
| RE109D2 | 9/21/2017 | 16.09 | 4.05 | 0.073 | 1.59 | 210.1 | 23.9 | 47.65 | 650 |
| RE109D3 | 9/21/2017 | 15.18 | 5.08 | 0.061 | 3.15 | -52.3 | 17.6 | 47.72 | 650 |
| RE117D1 | 9/25/2017 | 17.05 | 4.84 | 0.017 | 3.52 | -17.6 | 11.9 | 26.71 | 650 |
| RE117D2 | 9/25/2017 | 18.30 | 5.07 | 0.023 | 0.29 | 215.4 | 4.88 | 25.70 | 600 |
| RE120D1 | 9/20/2017 | 17.47 | 4.61 | 0.092 | 2.81 | 168.4 | 0.88 | 38.01 | 600 |
| RE120D2 | 9/20/2017 | 17.11 | 4.85 | 0.064 | 4.27 | 271.3 | 0.93 | 38.72 | 700 |
| RE120D3 | 9/20/2017 | 16.82 | 4.99 | 0.028 | 5.50 | 30.8 | 3.59 | 39.35 | 650 |
| RE122D1 | 9/21/2017 | 16.01 | 3.30 | 0.069 | 4.61 | 296.6 | 0.97 | 44.75 | 650 |
| RE122D2 | 9/21/2017 | 18.40 | 4.82 | 0.082 | 3.99 | 276.0 | 0.68 | 44.92 | 400 |
| RE122D3 | 9/21/2017 | 16.96 | 3.60 | 0.017 | 2.77 | -168.7 | 3.04 | 46.03 | 550 |
| RE123D1 | 9/22/2017 | 16.01 | 4.92 | 0.093 | 7.28 | 210.5 | 7.56 | 50.05 | 600 |
| RE123D2 | 9/22/2017 | 17.62 | 6.03 | 0.024 | 7.28 | -61.7 | 9.86 | 51.35 | 600 |
| RE123D3 | 9/22/2017 | 17.99 | * | 0.027 | 0.16 | 349.2 | 26.8 | 51.49 | 600 |
| RE125D1 | 9/25/2017 | 16.27 | 4.80 | 0.105 | 1.59 | -77.3 | 4.24 | 37.01 | 600 |
| RE125D2 | 9/25/2017 | 16.20 | 5.49 | 0.061 | 2.88 | 214.8 | 7.90 | 39.61 | 700 |
| RE125D3 | 9/25/2017 | 17.89 | * | 0.036 | 6.37 | 620.1 | 11.01 | 39.82 | 650 |
| RE126D1 | 9/22/2017 | 15.15 | 5.36 | 0.071 | 5.98 | 261.5 | 1.12 | 48.05 | 600 |
| RE126D2 | 9/22/2017 | 16.01 | 4.72 | 0.079 | 2.73 | 242.1 | 0.90 | 46.61 | 600 |
| RE126D3 | 9/22/2017 | 15.01 | 6.09 | 0.029 | 6.80 | -6.5 | 1.02 | 48.37 | 650 |
| RE131D1 | 9/20/2017 | 16.62 | 4.34 | 0.093 | 3.16 | 310.1 | 1.06 | 38.50 | 700 |
| RE131D2 | 9/20/2017 | 15.64 | 5.68 | 0.080 | 5.02 | 20.1 | 11.01 | 39.29 | 650 |
| RE131D3 | 9/20/2017 | 16.73 | 3.49 | 0.033 | 6.35 | 195.8 | 0.78 | 39.55 | 600 |
| BPOW5-4 | 9/25/2017 | 15.99 | 0.23 | 0.147 | 0.10 | 258.6 | 0.90 | 26.80 | 800 |

°C - degrees Celsius
µS/cm - Microsiemens per Centimeter
mg/L - milligrams per liter
mV - Millivolts
NTU - Nephelometric Turbidity Unit
ft bgs - feet below ground surface
ml/min - mililiters per minute
NM - not measured
* sensor not functioning

**Table 4.**
**Concentrations of Volatile Organic Compounds and 1,4-Dioxane in Outpost Wells BPOW 5-1 through BPOW 5-7, Third Quarter 2017**
**Operable Unit 2 (Groundwater), Bethpage, New York**

ARCADIS Design & Consultancy for natural and built assets

| Well / Sample ID / Date / CONSTITUENT / Units (ug/L) | BPOW 5-1 / BPOW 5-1 / 9/13/2017 | BPOW 5-2 / BPOW 5-2 / 9/7/2017 | BPOW 5-3 / BPOW 5-3 / 9/7/2017 | BPOW 5-4 / BPOW 5-4 / 9/1/2017 |
|---|---|---|---|---|
| **Volatile Organic Compounds (VOCs)** [1] | | | | |
| 1,1,1-Trichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1,2,2-Tetrachloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1,2-trichloro-1,2,2-trifluroethane | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 1,1,2-Trichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1-Dichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1-Dichloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,2-Dichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,2-Dichloropropane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 2-Butanone (MEK) | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| 2-Hexanone | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| 4-methyl-2-pentanone (MIK) | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Acetone | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Benzene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Bromodichloromethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Bromoform | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Bromomethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Carbon Disulfide | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Carbon tetrachloride | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chlorobenzene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chloroform | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chloromethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| cis-1,2-dichloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| cis-1,3-dichloropropene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Dibromochloromethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Ethylbenzene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Methylene Chloride | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Styrene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Tetrachloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Toluene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| trans-1,2-dichloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| trans-1,3-dichloropropene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Trichloroethylene | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Vinyl Chloride | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Xylene-o | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Xylenes - m,p | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| **Total VOCs** [2] | 0 | 0 | 0 | 0 |
| **1,4-Dioxane** [3] | < 0.200 | **0.102 J** | **1.02** | **1.13** |

See last page for Notes and Abbreviations

**Table 4.**
**Concentrations of Volatile Organic Compounds and 1,4-Dioxane in Outpost Wells BPOW 5-1 through BPOW 5-7, Third Quarter 2017**
**Operable Unit 2 (Groundwater), Bethpage, New York**

ARCADIS Design & Consultancy for natural and built assets

| Well / Sample ID / Date / CONSTITUENT / Units (ug/L) | BPOW 5-5 / BPOW 5-5 / 9/5/2017 | BPOW 5-6 / BPOW 5-6 / 9/6/2017 | BPOW 5-7 / BPOW 5-7 / 9/6/2017 |
|---|---|---|---|
| **Volatile Organic Compounds (VOCs)** [1] | | | |
| 1,1,1-Trichloroethane | < 0.50 | < 0.50 | < 0.50 |
| 1,1,2,2-Tetrachloroethane | < 0.50 | < 0.50 | < 0.50 |
| 1,1,2-trichloro-1,2,2-trifluroethane | < 1.0 | < 1.0 | < 1.0 |
| 1,1,2-Trichloroethane | < 0.50 | < 0.50 | < 0.50 |
| 1,1-Dichloroethane | < 0.50 | < 0.50 | < 0.50 |
| 1,1-Dichloroethene | < 0.50 | < 0.50 | < 0.50 |
| 1,2-Dichloroethane | < 0.50 | < 0.50 | < 0.50 |
| 1,2-Dichloropropane | < 0.50 | < 0.50 | < 0.50 |
| 2-Butanone (MEK) | < 5.0 | < 5.0 | < 5.0 |
| 2-Hexanone | < 2.0 | < 2.0 | < 2.0 |
| 4-methyl-2-pentanone (MIK) | < 2.0 | < 2.0 | < 2.0 |
| Acetone | < 5.0 | < 5.0 | < 5.0 |
| Benzene | < 0.50 | < 0.50 | < 0.50 |
| Bromodichloromethane | < 0.50 | < 0.50 | < 0.50 |
| Bromoform | < 0.50 | < 0.50 | < 0.50 |
| Bromomethane | < 0.50 | < 0.50 | < 0.50 |
| Carbon Disulfide | < 0.50 | < 0.50 | < 0.50 |
| Carbon tetrachloride | < 0.50 | < 0.50 | < 0.50 |
| Chlorobenzene | < 0.50 | < 0.50 | < 0.50 |
| Chloroethane | < 0.50 | < 0.50 | < 0.50 |
| Chloroform | < 0.50 | < 0.50 | < 0.50 |
| Chloromethane | < 0.50 | < 0.50 | < 0.50 |
| cis-1,2-dichloroethene | < 0.50 | < 0.50 | < 0.50 |
| cis-1,3-dichloropropene | < 0.50 | < 0.50 | < 0.50 |
| Dibromochloromethane | < 0.50 | < 0.50 | < 0.50 |
| Ethylbenzene | < 0.50 | < 0.50 | < 0.50 |
| Methylene Chloride | < 0.50 | < 0.50 | < 0.50 |
| Styrene | < 0.50 | < 0.50 | < 0.50 |
| Tetrachloroethene | < 0.50 | < 0.50 | < 0.50 |
| Toluene | < 0.50 | < 0.50 | < 0.50 |
| trans-1,2-dichloroethene | < 0.50 | < 0.50 | < 0.50 |
| trans-1,3-dichloropropene | < 0.50 | < 0.50 | < 0.50 |
| Trichloroethylene | < 0.50 | < 0.50 | < 0.50 |
| Vinyl Chloride | < 0.50 | < 0.50 | < 0.50 |
| Xylene-o | < 0.50 | < 0.50 | < 0.50 |
| Xylenes - m,p | < 0.50 | < 0.50 | < 0.50 |
| **Total VOCs** [2] | 0 | 0 | 0 |
| **1,4-Dioxane** [3] | **1.50 J** [4] | **0.162 J** [4] | < 0.200 |

See last page for Notes and Abbreviations

**Table 4.**
**Concentrations of Volatile Organic Compounds**
**and 1,4-Dioxane in Outpost Wells BPOW 5-1 through BPOW 5-7,**
**Third Quarter 2017**
**Operable Unit 2 (Groundwater),**
**Bethpage, New York**

**Notes and Abbreviations:**

(1) Samples were analyzed for the TCL VOCs using USEPA Method 524.2.
(2) Total VOCs are rounded to two significant figures.
(3) Samples were analyzed for 1,4-Dioxane using USEPA Method 522.
(4) Samples were collected and re-analyzed on 10/17/2017 due to non-usability of the previous data.

Results validated following protocols specified in OU2 Groundwater Monitoring Plan (ARCADIS 2016).

| | |
|---|---|
| **Bold** | Constituent detected |
| TCL | Target Compound List |
| REP | Blind duplicate sample |
| VOC | Volatile Organic Compound |
| USEPA | United States Environmental Protection Agency |
| µg/L | Micrograms per liter |
| J | Constituent value is estimated |
| <0.50 | Constituent not detected above its laboratory detection limit |

**Table 5.**
**Concentrations of Volatile Organic Compounds and**
**1,4-Dioxane in Outpost Wells BPOW 6-1 through BPOW 6-6, Third Quarter 2017**
**Operable Unit 2 (Groundwater),**
**Bethpage, New York**

ARCADIS Design & Consultancy for natural and built assets

| Well:<br>Sample ID:<br>Date:<br>CONSTITUENT<br>Units (ug/L) | BPOW 6-1<br>BPOW 6-1<br>9/11/2017 | BPOW 6-2<br>BPOW 6-2<br>9/11/2017 | BPOW 6-3<br>BPOW 6-3<br>9/11/2017 | BPOW 6-4<br>BPOW 6-4<br>9/11/2017 | BPOW 6-4<br>REP891117AD1<br>9/11/2017 | BPOW 6-5<br>BPOW 6-5<br>9/8/2017 | BPOW 6-6<br>BPOW 6-6<br>9/8/2017 |
|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds (VOCs)** [1] | | | | | | | |
| 1,1,1-Trichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1,2,2-Tetrachloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1,2-trichloro-1,2,2-trifluroethane | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 1,1,2-Trichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1-Dichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,1-Dichloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,2-Dichloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 1,2-Dichloropropane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| 2-Butanone (MEK) | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| 2-Hexanone | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| 4-methyl-2-pentanone (MIK) | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Acetone | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Benzene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Bromodichloromethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Bromoform | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Bromomethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Carbon Disulfide | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Carbon tetrachloride | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chlorobenzene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chloroform | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Chloromethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| cis-1,2-dichloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| cis-1,3-dichloropropene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Dibromochloromethane | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Ethylbenzene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Methylene Chloride | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Styrene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Tetrachloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Toluene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| trans-1,2-dichloroethene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| trans-1,3-dichloropropene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Trichloroethylene | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Vinyl Chloride | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Xylene-o | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Xylenes - m,p | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Total VOCs [2] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1,4-Dioxane [3] | < 0.200 | < 0.200 | < 0.200 | **0.119 J** | **0.175 J** | < 0.200 | < 0.200 |

See last page for Notes and Abbreviations.

**Table 5.**
**Concentrations of Volatile Organic Compounds and**
**1,4-Dioxane in Outpost Wells BPOW 6-1 through BPOW 6-6, Third Quarter 2017**
**Operable Unit 2 (Groundwater),**
**Bethpage, New York**

**Notes and Abbreviations:**

(1) Samples were analyzed for the TCL VOCs using USEPA Method 524.2.

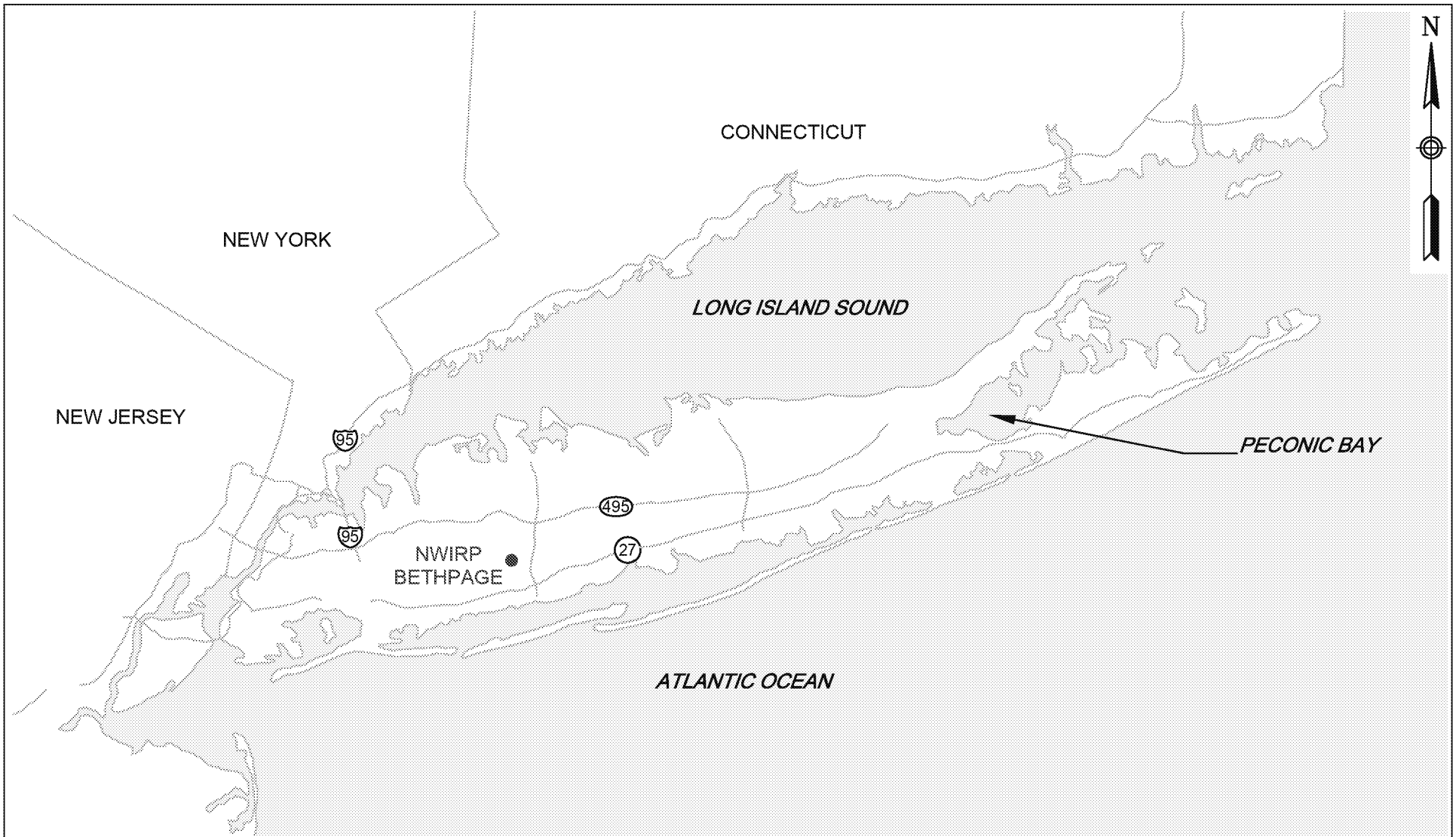
(2) Total VOCs are rounded to two significant figures.

(3) Samples were analyzed for 1,4-Dioxane using USEPA Method 522.

Results validated following protocols specified in OU2 Groundwater Monitoring Plan (ARCADIS 2016).

| | |
|---|---|
| **Bold** | Constituent detected |
| REP | Blind Duplicate Sample |
| TCL | Target Compound List |
| VOC | Volatile Organic Compound |
| USEPA | United States Environmental Protection Agency |
| J | Constituent value is estimated |
| µg/L | Micrograms per liter |
| <0.50 | Constituent not detected above its laboratory detection limit |

# Figures

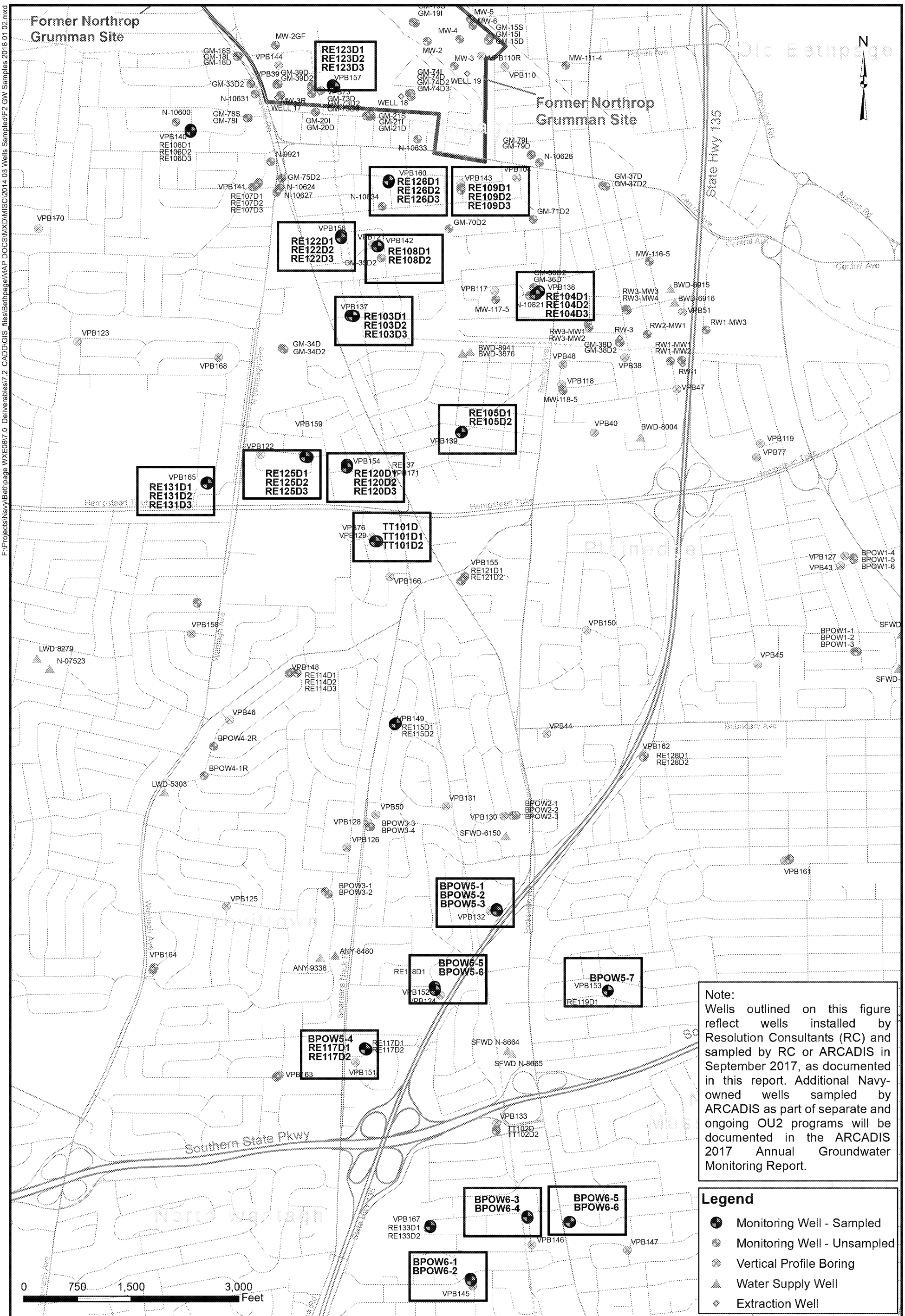



0 15 30
SCALE IN MILES

NAVFAC

GENERAL LOCATION MAP
NWIRP BETHPAGE
BETHPAGE, NEW YORK

| CONTRACT NUMBER | CTO NUMBER |
|---|---|
| N62470–11–D–8013 | WE15 |
| APPROVED BY | DATE |
| –– | –– |
| APPROVED BY | DATE |
| –– | –– |
| FIGURE NO. | REV |
| 1 | 0 |




Note:
Wells outlined on this figure reflect wells installed by Resolution Consultants (RC) and sampled by RC or ARCADIS in September 2017, as documented in this report. Additional Navy-owned wells sampled by ARCADIS as part of separate and ongoing OU2 programs will be documented in the ARCADIS 2017 Annual Groundwater Monitoring Report.

**Legend**

- Monitoring Well - Sampled
- Monitoring Well - Unsampled
- Vertical Profile Boring
- Water Supply Well
- Extraction Well

NAVFAC

LOCATION MAP
SEPTEMBER 2017 GROUNDWATER SAMPLING
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

| CONTRACT NUMBER | CTO NUMBER |
|---|---|
| N62470-11-D8013 | WE15 |
| APPROVED BY: EV | DATE: 1/2/2018 |
| APPROVED BY: — | DATE: — |
| FIGURE NO. 2 | REV 0 |

F:\Projects\Navy\Bethpage WXE08\7.0_Deliverables\7.2_CADD\GIS_files\Bethpage\MAP DOCS\MXD\MISC\2014 03 Wells Sampled\F2 GW Samples 2018 01 02.mxd

# Appendices

# Appendix A

## Groundwater Sampling Forms – Resolution Consultants

Well ID: RE105D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 18 / 17
Time: Start 850 am/pm
Finish 1140 am/pm
Project No: 60266526
Site Location: Lincoln Blvd
Weather Conds: 70° cloudy
Collector(s): Farrell Bell

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 555 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC

b. Water Table Depth 40.53 ft
d. Calculated System Volume (see back) 13.1 gal. 70 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 14J101213 |
| QED | MP10 | U8480.2 |
| L. Motte | 2020 | 84565 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| 1010 | – | 15.77 | 0.086 | 8.59 | 2.70 | 276.5 | 1.09 | 700 | 40.61 | Clear |
| 1015 | – | 15.70 | 0.085 | 5.40 | 2.58 | 210.1 | – | 700 | 40.62 | Clear |
| 1020 | – | 15.69 | 0.085 | 5.32 | 3.02 | 205.5 | 1.17 | 700 | 40.63 | Clear |
| 1025 | | 15.68 | 0.085 | 4.77 | 2.64 | 210.1 | | | | |
| 1030 | 5gal | 15.67 | 0.085 | 4.38 | 1.19 | 260.2 | | | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

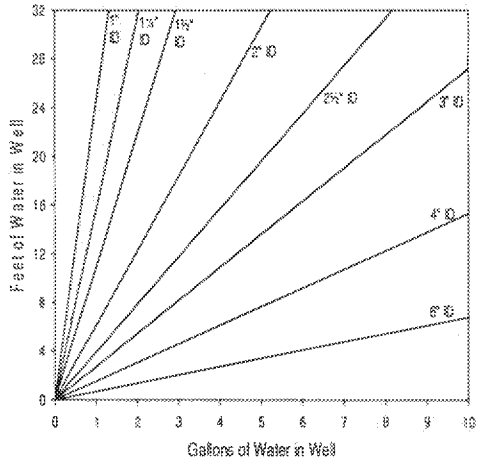
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE105D1-GW-09/18/17 | 40-mL vials | 3 | HCl | VOCs | 1130 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments

Signature [signature] Date 9/18/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE105D1

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1035 | | 15.67 | 0.085 | 3.92 | 3.24 | 196.7 | | | 40.63 | |
| 1040 | | 15.65 | 0.084 | 3.21 | 2.94 | 208.7 | 2.45 | | | |
| 1045 | | 15.62 | 0.084 | 3.21 | 2.91 | 210.5 | | 600 | | |
| 1050 | | 15.69 | 0.085 | 3.42 | 3.01 | 207.1 | | | 40.64 | |
| 1055 | | 15.62 | 0.084 | 3.31 | 3.09 | 205.5 | | | | |
| 1100 | 10 gal | 15.66 | 0.084 | 3.12 | 2.50 | 225.4 | 1.73 | | | |
| 1105 | | 15.64 | 0.084 | 3.06 | 2.81 | 257.9 | | | 40.66 | |
| 1110 | | 15.58 | 0.084 | 2.89 | 3.34 | 202.8 | 1.81 | | | |
| 1115 | | 15.55 | 0.084 | 2.74 | 3.29 | 209.6 | | | | |
| 1120 | 13.5 | 15.53 | 0.084 | 2.67 | 3.20 | 218.1 | | | 40.68 | |
| | | | | | | | | | | |
| 1130 | | | | | | | | 250 | | Sample |

Well ID: RE10502

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 18 / 17
Time: Start 850 am/pm
Finish 1050 am/pm
Project No: 60266526
Site Location: Lincoln Blvd
Weather Conds: 70° cloudy
Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 755 ft
c. Length of Water Column 714 ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 40.91 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| | | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0910 | – | 21.96 | 0.075 | 9.57 | 10.67 | 12.1 | – | 600 | 40.97 | CLEAR/NONE |
| 0915 | | 16.71 | 0.065 | 10.58 | 7.96 | 64.8 | 0.98 | 600 | 40.95 | CLEAR/NONE |
| 0920 | | 15.79 | 0.059 | 9.48 | 6.80 | 58.0 | | 600 | 40.96 | CLEAR/NONE |
| 0925 | | 15.70 | 0.059 | 9.35 | 6.63 | 51.7 | | 600 | 40.97 | CLEAR/NONE |
| 0930 | | 15.72 | 0.059 | 8.87 | 6.52 | 50.5 | 0.91 | 600 | 40.97 | CLEAR/NONE |
| 0935 | | 15.64 | 0.055 | 8.51 | 6.32 | 51.5 | | 600 | 40.97 | CLEAR/NONE |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE10502-GW-091817 | 40-mL vials | 9 | HCl | VOCs | 1040 |
| RE10502-GW-091817 | 1-L amber | 6 | none | 1,4-Dioxane | 1040 |

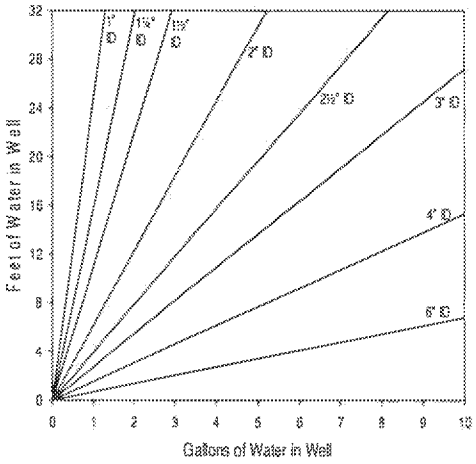
Comments MS/MSD

Signature

Date 9-18-17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE 10502

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0940 | 5 | 15.69 | 0.059 | 8.18 | 6.15 | 68.5 | — | 600 | 40.97 | CLEAR/NONE |
| 0945 | 5.75 | 15.69 | 0.060 | 7.81 | 6.08 | 70.1 | 0.63 | 600 | 40.97 | CLEAR/NONE |
| 0950 | 6.5 | 15.67 | 0.060 | 7.04 | 6.07 | 75.7 | — | 600 | 40.97 | CLEAR/NONE |
| 0955 | 7.25 | 15.70 | 0.059 | 6.60 | 6.06 | 78.3 | — | 600 | 40.97 | CLEAR/NONE |
| 1000 | 8.0 | 15.69 | 0.059 | 6.26 | 6.05 | 79.6 | 0.63 | 600 | 40.97 | CLEAR/NONE |
| 1005 | 8.75 | 15.72 | 0.059 | 5.93 | 6.02 | 80.8 | — | 600 | 40.97 | CLEAR/NONE |
| 1010 | 9.5 | 15.74 | 0.059 | 5.73 | 6.01 | 80.0 | — | 600 | 40.97 | CLEAR/NONE |
| 1015 | 10.25 | 15.71 | 0.059 | 5.45 | 5.98 | 81.1 | 0.65 | 600 | 40.97 | CLEAR/NONE |
| 1020 | [illegible] | 15.76 | 0.059 | 5.27 | 5.95 | 81.6 | — | 600 | 40.97 | CLEAR/NONE |
| 1025 | 11.75 | 15.73 | 0.059 | 5.22 | 5.96 | 80.4 | — | 600 | 40.97 | CLEAR/NONE |
| 1030 | 12.5 | 15.78 | 0.059 | 5.17 | 5.93 | 79.6 | 0.65 | 600 | 40.97 | CLEAR/NONE |
| 1035 | 13.25 | 15.76 | 0.059 | 5.15 | 5.90 | 80.1 | — | 600 | 40.97 | CLEAR/NONE |
| 1040 | | | | | | | | | | |
| | | | | | | | | | | |
| 1040 | | | | | | | | 200 | | [illegible] |

Well ID: RE108D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 18 / 17
Time: Start 1255 am/pm
Finish 1450 am/pm
Project No: 60266526
Site Location: Corona
Weather Conds: 70° cloudy
Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 555 ft
c. Length of Water Column 512 ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 42.92 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1305 | — | 20.62 | 0.090 | 11.59 | 5.48 | 160.8 | — | 400 | 42.41 | CLEAR/NONE |
| 1310 | | 16.66 | 0.079 | 10.47 | 2.81 | 229.3 | — | 600 | 42.27 | CLEAR/NONE |
| 1315 | | 16.33 | 0.078 | 7.14 | 2.72 | 228.4 | 0.94 | 600 | 41.55 | CLEAR/NONE |
| 1320 | | 16.27 | 0.078 | 7.29 | 2.46 | 235.6 | — | 600 | 41.01 | CLEAR/NONE |
| 1325 | | 16.14 | 0.077 | 7.40 | 2.20 | 248.7 | — | 600 | 41.05 | CLEAR/NONE |
| 1330 | | 16.13 | 0.077 | 7.52 | 2.14 | 250.2 | 0.86 | 600 | 41.09 | CLEAR/NONE |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE108D1-GW-091817 | 40-mL vials | 3 | HCl | VOCs | 1440 |
| RE108D1-GW-091817 | 1-L amber | 2 | none | 1,4-Dioxane | 1440 |

Comments

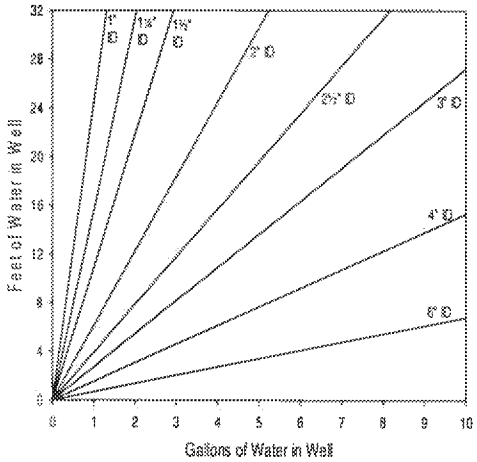
Signature

Date 9-18-17

LowFlow-GWa - Sept 2017.xlsx

RE108D1

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE108D1

| (continued from front) Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1335 | 5 | 16.07 | 0.077 | 7.49 | 2.09 | 255.1 | — | 600 | 41.15 | CLEAR/NONE |
| 1340 | 5.75 | 16.10 | 0.077 | 7.43 | 2.48 | 244.5 | — | 600 | 41.17 | CLEAR/NONE |
| 1345 | 6.5 | 16.08 | 0.077 | 7.39 | 2.62 | 240.2 | 0.91 | 600 | 41.19 | CLEAR/NONE |
| 1350 | 7.25 | 16.06 | 0.077 | 7.36 | 2.87 | 237.1 | — | 600 | 41.20 | CLEAR/NONE |
| 1355 | 8 | 16.03 | 0.076 | 7.37 | 2.93 | 236.2 | — | 600 | 41.21 | CLEAR/NONE |
| 1400 | 8.75 | 15.98 | 0.076 | 7.38 | 2.48 | 257.5 | 0.86 | 600 | 41.21 | CLEAR/NONE |
| 1405 | 9.5 | 15.96 | 0.076 | 7.45 | 2.77 | 244.1 | — | 600 | 41.21 | CLEAR/NONE |
| 1410 | 10.25 | 15.95 | 0.076 | 7.49 | 2.94 | 237.4 | — | 600 | 41.21 | CLEAR/NONE |
| 1415 | 11 | 15.99 | 0.076 | 7.65 | 3.03 | 237.2 | 0.86 | 600 | 41.21 | CLEAR/NONE |
| 1420 | 11.75 | 15.91 | 0.076 | 7.58 | 2.98 | 240.6 | — | 600 | 41.21 | CLEAR/NONE |
| 1425 | 12.5 | 15.90 | 0.076 | 7.55 | 2.99 | 239.9 | — | 600 | 41.21 | CLEAR/NONE |
| 1430 | 13.25 | 15.90 | 0.076 | 7.53 | 2.98 | 239.5 | 0.85 | 600 | 41.21 | CLEAR/NONE |
| ~~1435~~ | | | | | | | | | | |
| ~~1440~~ | | | | | | | | | | |
| 1440 | | | | | | | | 250 | | Sample |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE108D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage Date: 9 / 18 / 17 Time: Start 1245 am/pm
Project No: 60266526 Finish _____ am/pm
Site Location: Corona
Weather Conds: 78° Cloudy Collector(s): Paul Kneth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 65.5 ft c. Length of Water Column _____ ft (a-b) Casing Diameter/Material 4-inch PVC

b. Water Table Depth 43.36 ft d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F 100176 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1305 | ON | | | | | | | | | |
| 1310 | | 16.92 | 0.075 | 8.74 | 5.34 | 229.1 | | 650 | 43.37 | |
| 1315 | | 16.25 | 0.067 | 3.47 | 5.03 | 253.8 | | | | |
| 1320 | | 16.18 | 0.067 | 2.91 | 4.90 | 273.9 | 3.10 | | 43.38 | |
| 1325 | | 16.08 | 0.065 | 3.54 | 4.76 | 290.8 | | | | |
| 1330 | 5gal | 16.07 | 0.065 | 3.96 | 4.75 | 298.7 | | | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

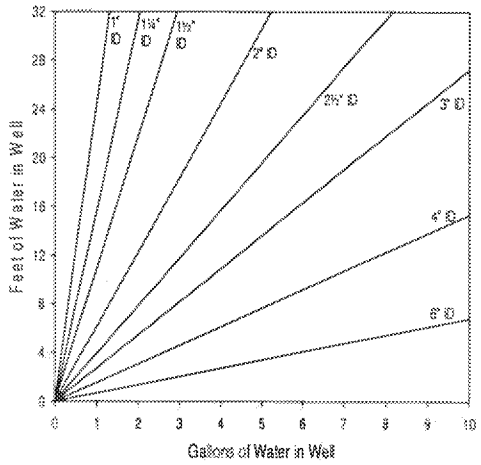
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE108D2-GW-091817 | 40-mL vials | 3 | HCl | VOCs | 1430 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments DUP01-GW-091817 @ 15:30

Signature Paul Kneth Date 9/18/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE108D2 13:10

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1335 | | 16.05 | 0.065 | 3.98 | 4.86 | 299.2 | 1.53 | 700 | 43.34 | |
| 1340 | | 16.07 | 0.065 | 4.03 | 4.85 | 301.1 | | | | |
| 1345 | | 16.06 | 0.065 | 4.09 | 4.85 | 309.7 | | | 43.55 | |
| 1350 | | 16.02 | 0.065 | 4.13 | 4.79 | 313.1 | 1.07 | 700 | | |
| 1355 | 10 gal | 15.94 | 0.064 | 4.16 | 4.87 | 312.4 | | | | |
| 1400 | | 15.95 | 0.065 | 4.16 | 4.96 | 308.3 | 1.83 | | 43.29 | |
| 1405 | | 15.93 | 0.064 | 4.20 | 5.01 | 311.9 | | | | |
| 1410 | | 15.89 | 0.065 | 4.22 | 4.96 | 312.1 | 1.59 | 700 | 43.30 | |
| 1415 | 13.5 | 15.94 | 0.065 | 4.26 | 5.05 | 309.3 | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 1430 | | | | | | | | 200 | | Sample |

Well ID: TT101D

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 19 / 17  Time: Start 845 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location:
Weather Conds: cloudy 70s drizzle  Collector(s):

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 350 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 35.23 ft  d. Calculated System Volume (see back) 131 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F 100176 |
| La Motte | 2020 | 841525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 330 | 6/4 | | | | | | | 900 | | |
| 835 | | 16.09 | 0.079 | 0.71 | 4.64 | 230.2 | | | 35.32 | |
| 840 | | 15.99 | 0.081 | 0.59 | 4.20 | 268.6 | | | | |
| 845 | | 15.98 | 0.080 | 0.59 | 4.19 | 265.4 | | | 35.32 | |
| 850 | 5 gal | 15.95 | 0.080 | 0.51 | 4.18 | 267.2 | 408 | 800 | | |
| 855 | | 15.99 | 0.081 | 0.50 | 4.08 | 274.1 | | | | |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

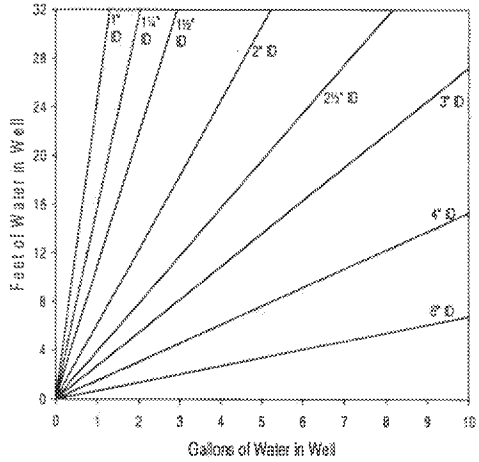
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| TT101D-GW-091917 | 40-mL vials | 3 | HCl | VOCs | 940 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments

Signature Paul Kneath  Date 9/19/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: TT101D

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 900 | | 15.98 | 0.081 | 0.49 | 3.98 | 287.1 | | | | |
| 905 | | 15.97 | 0.081 | 0.48 | 3.75 | 298.3 | 1.33 | 200 | 35.34 | |
| 910 | 10 gal | 15.97 | 0.081 | 0.48 | 3.88 | 290.1 | | | | |
| 915 | | 15.94 | 0.081 | 0.47 | 4.13 | ~~288.1~~ 280.1 | | | | |
| 920 | | 15.95 | 0.080 | 0.46 | 4.14 | 278.3 | | | 35.36 | |
| 925 | 15 gal | 15.95 | 0.080 | 0.45 | 4.20 | 272.5 | | | 35.36 | |
| 930 | | 15.97 | 0.080 | 0.44 | 4.29 | 268.0 | | | | |
| | | | | | | | | | | |
| 940 | | | | | | | | 200 | | Sample time |

Well ID: TT10101

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9/19/17  Time: Start 0820 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: Wadsworth
Weather Conds: Cloudy 70°, drizzle  Collector(s): F. Bull, P. Karcth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 595 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 37.10 ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 14J101213 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0825 | Start pumping | | | | | | | | | |
| 0840 | — | 16.22 | 0.082 | 0.36 | 4.06 | 242.1 | 1.92 | 800 | 37.17 | Clear |
| 0845 | — | 16.20 | 0.081 | 0.21 | 3.13 | 282.1 | - | 800 | — | Clear |
| 0850 | .5 Gal | 16.19 | 0.081 | 0.34 | 4.21 | 256.1 | 2.20 | 800 | 37.17 | Clear |
| 0855 | — | 16.17 | 0.081 | 0.46 | 4.17 | 272.3 | — | 800 | 37.16 | Clear |
| 0900 | — | 16.16 | 0.081 | 0.51 | 4.40 | 241.1 | 2.10 | 800 | — | Clear |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☒ | ☐ | ☐ |
| Has required turbidity been reached | ☒ | ☐ | ☐ |
| Have parameters stabilized | ☒ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:**  Method: Geotech bladder pump with drop tube assembly

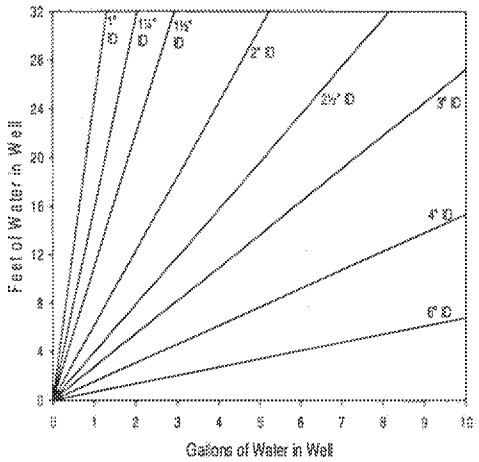
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| TT-101-D1-GW-091917 | 40-mL vials | 3 | HCl | VOCs | 0950 |
| TT101D1-GW-091917 | 1-L amber | 2 | none | 1,4-Dioxane | 0950 |

Comments

Signature [signature]  Date 091917

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: TT 101 D1

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0905 | – | 16.15 | 0.081 | 0.53 | 4.45 | 215.1 | 2.17 | 800 | 37.17 | Clear |
| 0910 | – | 16.17 | 0.081 | 0.52 | 4.42 | 207.1 | – | 800 | 37.17 | Clear |
| 0915 | 10 Gal | 16.18 | 0.081 | 0.54 | 4.14 | 203.4 | – | 800 | 37.16 | Clear |
| 0920 | – | 16.18 | 0.081 | 0.54 | 4.04 | 232.1 | 2.08 | 800 | 37.17 | Clear |
| 0925 | – | 16.16 | 0.081 | 0.54 | 4.56 | 204.6 | 1.98 | 800 | 37.17 | Clear |
| 0930 | 13.25 Gal | 16.15 | 0.081 | 0.52 | 4.57 | 203.1 | 1.87 | 800 | 37.16 | Clear |
| 0935 | | | | | | | | | | |
| 0940 | | | | | | | | | | |
| 0945 | | | | | | | | | | |
| 0950 | Sample | Time. | | | | | | 200 | | |

Well ID: TT101D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage Date: 9/ 19 /17 Time: Start 0820 am/pm
Project No: 60266526 Finish _____ am/pm
Site Location:
Weather Conds: cloudy 20° light rain Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 265 ft c. Length of Water Column _____ ft (a-b) Casing Diameter/Material 4-inch PVC

b. Water Table Depth 37.80 ft d. Calculated System Volume (see back) 131 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11E100917 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0825 | | 16.84 | 0.061 | 7.08 | 10.11 | -21.2 | — | 1,000 | 37.85 | CLEAR/NONE |
| 0830 | | 16.26 | 0.038 | 1.45 | 7.77 | -39.7 | — | 600 | 37.88 | CLEAR/NONE |
| 0835 | | 16.25 | 0.037 | 0.47 | 7.28 | -52.8 | 1.11 | 800 | 37.91 | CLEAR/NONE |
| 0840 | | 16.13 | 0.036 | 0.58 | 6.95 | -38.9 | — | 800 | 37.92 | CLEAR/NONE |
| 0845 | | 16.12 | 0.036 | 1.39 | 6.76 | -20.0 | — | 800 | 37.92 | CLEAR/NONE |
| 0850 | 5 | 15.94 | 0.035 | 1.86 | 6.67 | 2.7 | 1.12 | 800 | 37.92 | CLEAR/NONE |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

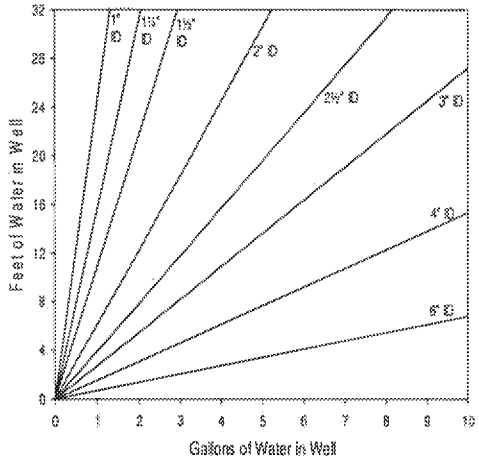
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| TT101D2-GW-091917 | 40-mL vials | 3 | HCl | VOCs | 0930 |
| TT101D2-GW-091917 | 1-L amber | 2 | none | 1,4-Dioxane | 0930 |

Comments

Signature Date 9-19-17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: TY101D2

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0855 | [illegible] | 15.88 | 0.035 | 3.00 | 6.59 | 14.9 | 0.73 | 800 | 37.92 | CLEAR/none |
| 0900 | | 15.90 | 0.036 | 4.56 | 6.53 | 36.0 | — | 800 | 37.92 | CLEAR/none |
| 0905 | | 15.88 | 0.037 | 6.28 | 6.46 | 50.1 | — | 800 | 37.92 | CLEAR/none |
| 0910 | | 15.89 | 0.037 | 6.43 | 6.45 | 52.9 | 0.75 | 800 | 37.92 | CLEAR/none |
| 0915 | 10 | 15.88 | 0.037 | 6.55 | 6.46 | 51.5 | — | 800 | 37.92 | CLEAR/none |
| 0920 | | 15.88 | 0.037 | 6.71 | 6.46 | 51.0 | — | 800 | 37.92 | CLEAR/none |
| 0925 | | 15.88 | 0.037 | 6.74 | 6.44 | 51.3 | 0.76 | 800 | 37.92 | CLEAR/none |
| 0930 | 13.5 | 15.88 | 0.037 | 6.75 | 6.43 | 51.2 | — | 800 | 37.92 | CLEAR/none |
| 0935 | | | | | | | | | | |
| | | | | | | | | | | |
| 0930 | | | | | | | | 250 | | Sample |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE104D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9/19/17
Time: Start 1145 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: Hilltop
Weather Conds: Cloudy, 74,
Collector(s): F. Bell, P. Kareth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 375 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC

b. Water Table Depth 38.66 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 14J101213 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1145 | Start time | | | | | | | | | |
| 1155 | – | 15.50 | 0.065 | 10.84 | – | 547.6 | – | 600 | – | clear |
| 1200 | – | 15.36 | 0.065 | 7.64 | – | 464.1 | – | 600 | 38.63 | clear |
| 1205 | – | 15.29 | 0.065 | 5.99 | 2.24 | 347.2 | – | 600 | 38.52 | Clear |
| 1210 | – | 15.28 | 0.065 | 5.62 | 3.34 | 290.8 | 1.00 | 600 | 38.44 | Clear |
| 1215 | – | 15.27 | 0.064 | 5.37 | 2.65 | 320.6 | 0.98 | 600 | 38.43 | clear |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

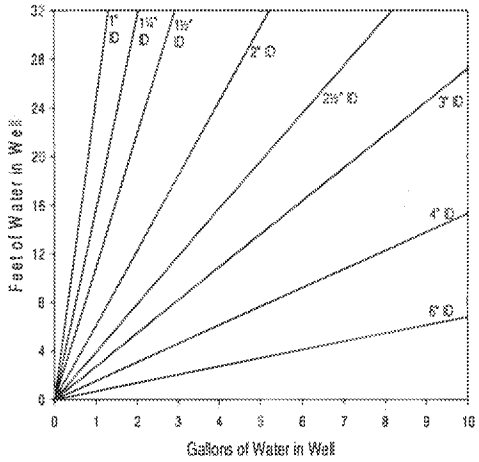
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE104D1-GW-091917 | 40-mL vials | 3 | HCl | VOCs | 1330 |
| RE104D1-GW-091917 | 1-L amber | 2 | none | 1,4-Dioxane | 1330 |

Comments: Reduced Flow Rate to 200 mL/min when sample taken

Signature: [signature]
Date: 09/19/2017

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE104D1

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1200 | – | 15.15 | 0.064 | 5.19 | 3.88 | 232.4 | – | 600 | 38.40 | Clear |
| 1205 | 5 Gal | 15.17 | 0.064 | 5.18 | 3.98 | 240.3 | 0.92 | 600 | 38.38 | clear |
| 1210 | – | 15.21 | 0.064 | 5.15 | 4.05 | 233.9 | – | 600 | 38.34 | clear |
| 1215 | – | 15.23 | 0.064 | 5.13 | 4.23 | 224.6 | 1.11 | 600 | 38.32 | clear |
| 1240 | – | 15.21 | 0.064 | 5.08 | 4.36 | 217.9 | – | 600 | 38.31 | Clear |
| 1245 | – | 15.20 | 0.063 | 5.08 | 4.47 | 205.1 | 1.04 | 600 | 38.29 | Clear |
| 1250 | – | 15.16 | 0.063 | 5.05 | 4.53 | 200.1 | 1.02 | 600 | 38.25 | clear |
| 1255 | 10 Gal | 15.15 | 0.063 | 5.03 | 4.56 | 198.2 | 0.98 | 600 | 38.21 | Clear |
| 1300 | – | 15.16 | 0.063 | 5.04 | 4.55 | 200.1 | – | 600 | 38.20 | Clear |
| 1305 | – | 15.19 | 0.063 | 5.04 | 4.57 | 202.8 | 1.10 | 600 | 38.19 | Clear |
| 1310 | – | 15.19 | 0.063 | 4.97 | 4.55 | 204.2 | 1.07 | 600 | 38.19 | Clear |
| 1315 | | 15.19 | 0.063 | 4.96 | 4.56 | 206.7 | 1.10 | 600 | 38.18 | Clear |
| 1320 | 15.5 | 15.19 | 0.063 | 4.95 | 4.55 | 208.6 | 1.11 | 600 | 38.17 | Clear |
| 1325 | | | | | | | | | | |
| 1330 | Sample Time | | | | | | | 200 | | |

Well ID: RE104D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 19 / 17
Time: Start 1130 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: Hilltop
Weather Conds: cloudy 74°
Collector(s): _____

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 735 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 41.90 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11E100176 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1145 | ON | | | | | | | 600 | | |
| 1150 | | 15.71 | 0.023 | 6.87 | 6.01 | 293.1 | | | | |
| 1155 | | 15.06 | 0.021 | 6.55 | 5.05 | 275.5 | | | 42.78 | |
| 1200 | | 15.03 | 0.020 | 5.37 | 4.87 | 285.3 | 0.86 | | | |
| 1205 | | 15.02 | 0.019 | 4.63 | 4.67 | 297.8 | | | 41.62 | |
| 1210 | | 15.04 | 0.020 | 4.59 | 4.63 | 300.6 | | 650 | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

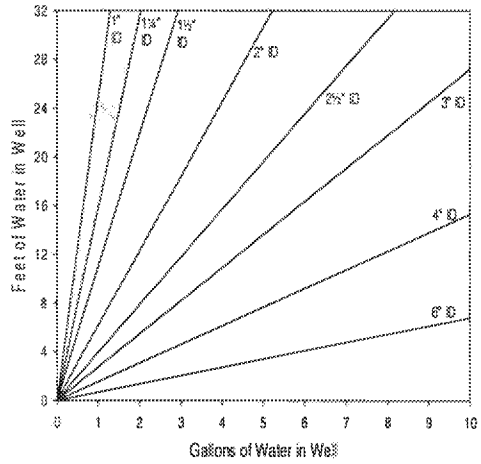
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE104D2GW.091917 | 40-mL vials | 3 | HCl | VOCs | 1310 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments

Signature Paul Koontz
Date 9/19/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE 104 D2

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1215 | | 15.01 | 0.020 | 4.72 | 4.61 | 304.4 | 2.14 | | | |
| 1220 | | 15.03 | 0.020 | 5.03 | 4.62 | 326.8 | | 650 | 41.50 | |
| 1225 | | 15.02 | 0.020 | 5.20 | 4.67 | 331.2 | | | | |
| 1230 | | 15.00 | 0.020 | 5.28 | 4.73 | 330.3 | 2.63 | | | |
| 1235 | | 15.02 | 0.020 | 5.39 | 4.54 | 340.8 | | | 41.41 | |
| 1240 | 10 gal | 14.99 | 0.020 | 5.46 | 4.67 | 330.9 | | | | |
| 1245 | | 15.03 | 0.019 | 5.42 | 4.89 | 321.0 | 1.80 | 650 | ~~42.5~~ | 41.32 |
| 1250 | | 14.99 | 0.019 | 5.53 | 5.03 | 315.4 | | | | |
| 1255 | 13 gal | 15.02 | 0.019 | 5.58 | 5.10 | 314.0 | | | | |
| 1300 | | 15.02 | 0.019 | 5.60 | 5.12 | 315.6 | | | 41.29 | |
| | | | | | | | | | | |
| 1310 | | | | | | | | 200 | | Sample |

Well ID: RE104D3

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 19 / 17  Time: Start 1130 am/pm
Project No: 60266526  Finish 1330 am/pm
Site Location: Hilltop
Weather Conds: Cloudy 74°  Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 78.5 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 42.44 ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| LaMotte | 2020 | 84515 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1145 | — | 21.49 | 0.007 | 8.87 | 5.32 | 199.8 | — | 600 | 42.48 | clear/none |
| 1150 | | 15.84 | 0.023 | 8.47 | 6.64 | 52.4 | — | 600 | 42.48 | clear/none |
| 1155 | | 15.79 | 0.017 | 7.84 | 6.19 | 57.7 | 3.92 | 600 | 42.48 | clear/none |
| 1200 | | 15.73 | 0.017 | 7.12 | 6.08 | 54.8 | — | 600 | 42.45 | clear/none |
| 1205 | | 15.66 | 0.017 | 6.75 | 6.04 | 55.4 | — | 600 | 42.42 | clear/none |
| 1210 | | 15.76 | 0.017 | 6.62 | 6.02 | 61.0 | 6.26 | 600 | 42.40 | clear/none |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE104D3-GW-091917 | 40-mL vials | 3 | HCl | VOCs | 1315 |
| RE104D3-GW-091917 | 1-L amber | 2 | none | 1,4-Dioxane | 1315 |

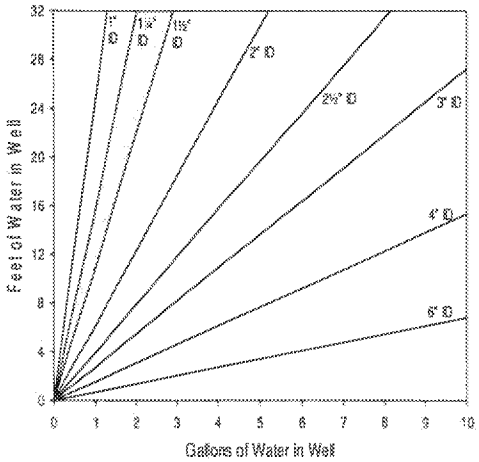
Comments

Signature _____ Date 9-19-17

LowFlow-GWa - Sept 2017.xlsx

RE104D3

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE104D3

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1215 | 5 | 15.67 | 0.017 | 6.48 | 6.00 | 65.9 | — | 600 | 42.38 | CLEAR/NONE |
| 1220 | 6 | 15.73 | 0.017 | 6.45 | 5.99 | 72.7 | — | 600 | 42.38 | CLEAR/NONE |
| 1225 | 7 | 15.72 | 0.017 | 6.43 | 5.98 | 72.1 | 4.27 | 600 | 42.38 | CLEAR/NONE |
| 1230 | 8 | 15.72 | 0.017 | 6.38 | 5.99 | 71.2 | — | 600 | 42.38 | CLEAR/NONE |
| 1235 | 9 | 15.73 | 0.017 | 6.35 | 6.01 | 69.5 | — | 600 | 42.38 | CLEAR/NONE |
| 1240 | 10 | 15.69 | 0.017 | 6.38 | 6.04 | 68.3 | 4.87 | 600 | 42.38 | CLEAR/NONE |
| 1245 | 10.75 | 15.73 | 0.017 | 6.30 | 6.00 | 68.5 | — | 600 | 42.38 | CLEAR/NONE |
| 1250 | 12.5 | 15.70 | 0.017 | 6.31 | 6.01 | 68.8 | — | 600 | 42.38 | CLEAR/NONE |
| 1255 | 13.25 | 15.68 | 0.017 | 6.30 | 5.99 | 68.9 | 5.15 | 600 | 42.38 | CLEAR/NONE |
| 1300 | 13.5 | 15.68 | 0.017 | 6.28 | 5.97 | 68.9 | — | 600 | 42.38 | CLEAR/NONE |
| 1305 | 13.75 | 15.67 | 0.017 | 6.26 | 5.95 | 68.8 | — | 600 | 42.38 | CLEAR/NONE |
| | | | | | | | | | | |
| 1315 | | | | | | | | end | | sample |

Well ID: RE131D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9/20/17  Time: Start 0815 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location:
Weather Conds: Cloudy 70° windy  Collector(s): F. Bell, P. Kareth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 455 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 38.41 ft  d. Calculated System Volume (see back) 131 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| YSI | 556 Field Cable | U868896 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0815 | Start purge | | | | | | | 700 | 38.46 | Clear |
| 0825 | ~~[illegible]~~ | 16.63 | 0.092 | 3.70 | 4.89 | 228.1 | 0.83 | 700 | 38.46 | clear |
| 0830 | – | 16.65 | 0.093 | 3.46 | 4.48 | 252.5 | – | 700 | 38.47 | clear |
| 0835 | – | 16.54 | 0.094 | 3.55 | 4.31 | 276.5 | 1.63 | 700 | 38.46 | clear |
| 0840 | ~~[illegible]~~ | 16.61 | 0.093 | 3.49 | 4.25 | 290.0 | – | 700 | 38.46 | Clear |
| 0845 | 5 Gal | 16.50 | 0.093 | 3.40 | 4.12 | 306.3 | 1.47 | 700 | 38.46 | clear |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:**  Method: Geotech bladder pump with drop tube assembly

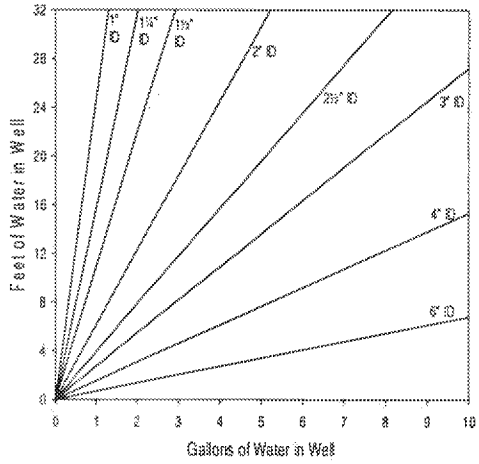
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE131D1-GW-092017 | 40-mL vials | 3 | HCl | VOCs | 940 |
| RE131D1-GW-092017 | 1-L amber | 2 | none | 1,4-Dioxane | 940 |

Comments

Signature Paul Kareth  Date 9/20/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE13101

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0850 | – | 16.43 | 0.093 | 3.42 | 4.12 | 308.9 | – | 700 | 38.46 | clear |
| 0855 | – | 16.60 | 0.093 | 3.38 | 4.14 | 311.1 | 1.04 | 700 | 38.47 | clear |
| 0900 | – | 16.63 | 0.093 | 3.35 | 4.17 | 309.6 | – | 700 | 38.48 | clear |
| 0905 | – | 16.58 | 0.093 | 3.31 | 4.18 | 308.9 | – | – | – | clear |
| 0910 | 10 Gal | 16.57 | 0.093 | 3.29 | 4.19 | 313.3 | 1.02 | 700 | 38.50 | clear |
| 0915 | – | 16.57 | 0.093 | 3.21 | 4.27 | 309.1 | – | 700 | 38.49 | clear |
| 0920 | – | 16.71 | 0.093 | 3.18 | 4.30 | 309.0 | 1.01 | 700 | 38.49 | clear |
| 0925 | – | 16.66 | 0.093 | 3.17 | 4.33 | 309.1 | 1.03 | 700 | 38.50 | clear |
| 0930 | 13 l | 16.62 | 0.093 | 3.16 | 4.34 | 300.1 | 1.06 | 700 | 38.50 | clear |
| 0935 | | | | | | | | | | |
| 0940 | Sample Time | | | | | | | 250 | | |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE1310 2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 20 / 17  Time: Start 800 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: Bank parking lot
Weather Conds: Cloudy, 70° windy  Collector(s): _____

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 595 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 39.12 ft  d. Calculated System Volume (see back) 163 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| Lamotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 820 | | | | | | | ~~560~~ | 600 | | |
| 825 | | 15.75 | 0.082 | 5.55 | 7.17 | -20.3 | | | 39.22 | |
| 830 | | 15.71 | 0.079 | 5.40 | 6.73 | -21.8 | | | | |
| 835 | | 15.66 | 0.079 | 5.56 | 6.55 | -25 | 9.92 | | | |
| 840 | | 15.68 | 0.079 | 5.61 | 6.15 | 10.0 | | 600 | 39.23 | |
| 845 | 5 gal | 15.64 | 0.079 | 5.45 | 6.03 | 18.6 | | | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

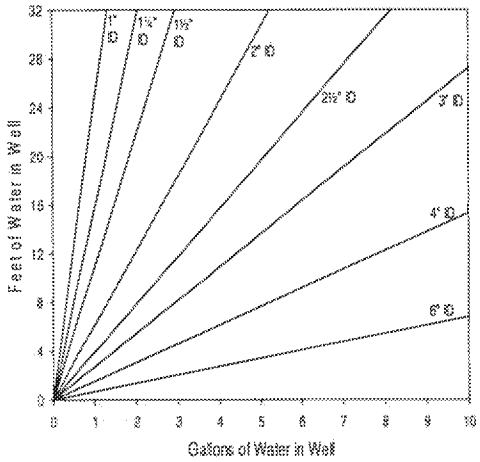
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE1310 2-GW-092017 | 40-mL vials | 3 | HCl | VOCs | 1000 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments _____

Signature Paul Kneeth  Date 9/20/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE13102

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 850 | | 15.61 | 0.078 | 5.81 | 5.77 | 40.0 | 11.38 | 600 | 39.24 | |
| 855 | | 15.69 | 0.079 | 7.03 | 5.69 | 37.3 | | | | |
| 900 | | 15.61 | 0.079 | 6.64 | 5.71 | 32.6 | 11.71 | | | |
| 905 | | 15.64 | 0.079 | 6.40 | 5.69 | 38.0 | | | 39.26 | |
| 910 | | 15.62 | 0.079 | 6.30 | 5.67 | 39.1 | | | | |
| 915 | 10gal | 15.56 | 0.080 | 6.05 | 5.66 | 34.9 | 11.40 | 650 | | |
| 920 | | 15.57 | 0.079 | 5.60 | 5.67 | 27.6 | | | | |
| 925 | | 15.58 | 0.080 | 5.53 | 5.65 | 32.1 | 10.88 | | 39.28 | |
| 930 | | 15.65 | 0.080 | 5.32 | 5.64 | 34.1 | | | | |
| 935 | | 15.76 | 0.080 | 5.27 | 5.69 | 32.0 | | | | |
| 940 | | 15.95 | 0.081 | 5.12 | 5.66 | 33.6 | 12.82 | | | |
| 945 | 15gal | 15.87 | 0.081 | 5.27 | 5.66 | 34.1 | | | 39.29 | |
| 950 | | 15.70 | 0.080 | 5.11 | 5.68 | 25.6 | 11.01 | | | |
| 955 | 17gal | 15.64 | 0.080 | 5.02 | 5.68 | 29.1 | | | | |
| | | | | | | | | | | |
| 1000 | | | | | | | | 200 | | Sample |

Well ID: RE13D3

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 20 / 17
Time: Start 0800 am/pm
Finish 1000 am/pm
Project No: 60266526
Site Location:
Weather Conds: Cloudy 70° windy
Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 68.5 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 39.51 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 14J101213 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0820 | — | 22.75 | 0.043 | 9.61 | 4.81 | 241.6 | — | 500 | 39.51 | clear/none |
| 0825 | | 17.44 | 0.037 | 8.42 | 3.83 | 638.7 | 6.21 | 600 | 39.51 | clear/none |
| 0830 | | 16.77 | 0.035 | 5.91 | 4.48 | 643.3 | — | 600 | 39.51 | clear/none |
| 0835 | | 16.67 | 0.034 | 5.87 | 4.05 | 614.0 | — | 600 | 39.51 | clear/none |
| 0840 | | 16.74 | 0.033 | 6.00 | 3.54 | 524.7 | 1.16 | 600 | 39.52 | clear/none |
| 0845 | | 16.65 | 0.033 | 6.25 | 3.44 | 561.1 | — | 600 | 39.53 | clear/none |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE13D3-GW-092017 | 40-mL vials | 3 | HCl | VOCs | 0945 |
| RE13D3-GW-092017 | 1-L amber | 2 | none | 1,4-Dioxane | 0945 |

Comments

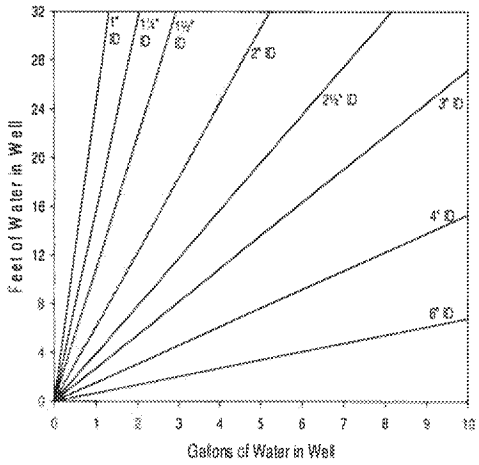
Signature

Date 9-20-17

LowFlow-GWa - Sept 2017.xlsx

RE131 D3

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE13103

| (continued from front) Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0850 | 5 | 16.50 | 0.033 | 6.54 | 3.43 | 586.3 | — | 600 | 39.54 | CLEAR/NONE |
| 0855 | | 16.61 | 0.033 | 6.73 | 3.41 | 520.5 | 1.73 | 600 | 39.55 | CLEAR/NONE |
| 0900 | | 16.63 | 0.033 | 6.69 | 3.42 | 315.2 | — | 600 | 39.55 | CLEAR/NONE |
| 0905 | | 16.73 | 0.033 | 6.51 | 3.42 | 285.1 | — | 600 | 39.55 | CLEAR/NONE |
| 0910 | | 16.65 | 0.033 | 6.45 | 3.42 | 210.2 | 3.18 | 600 | 39.55 | CLEAR/NONE |
| 0915 | | 16.59 | 0.033 | 6.40 | 3.43 | 207.1 | — | 600 | 39.55 | CLEAR/NONE |
| 0920 | 10 | 16.62 | 0.033 | 6.40 | 3.44 | 204.4 | — | 600 | 39.55 | CLEAR/NONE |
| 0925 | 10.75 | 16.68 | 0.033 | 6.39 | 3.45 | 201.8 | 0.61 | 600 | 39.55 | CLEAR/NONE |
| 0930 | 11.5 | 16.70 | 0.033 | 6.37 | 3.47 | 199.9 | — | 600 | 39.55 | CLEAR/NONE |
| 0935 | 12.25 | 16.71 | 0.033 | 6.36 | 3.48 | 197.5 | — | 600 | 39.55 | CLEAR/NONE |
| 0940 | 13 | 16.72 | 0.033 | 6.35 | 3.48 | 196.2 | 0.78 | 600 | 39.55 | CLEAR/NONE |
| 0945 | 13.5 | 16.73 | 0.033 | 6.35 | 3.49 | 195.8 | — | 600 | 39.55 | CLEAR/NONE |
| | | | | | | | | | | |
| 945 | | | | | | | | 250 | | sample |

Well ID: RE120D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 20 / 17  Time: Start 1145 am/pm
Project No: 60266526  Finish 1345 am/pm
Site Location: Shelley
Weather Conds: 75° partly sunny windy  Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 65.5 ft  c. Length of Water Column 61.6 ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 38.95 ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 14J101213 |
| CaMate | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1200 | — | 25.90 | 0.068 | 10.34 | 5.77 | 157.2 | — | 400 | 38.05 | CLEAR/NONE |
| 1205 | | 21.79 | 0.108 | 9.31 | 5.93 | 161.2 | — | 400 | 37.90 | CLEAR/NONE |
| 1210 | | 17.86 | 0.097 | 5.25 | 4.98 | 450.1 | 0.57 | 600 | 37.68 | CLEAR/NONE |
| 1215 | | 17.59 | 0.085 | 3.12 | 4.88 | 438.3 | — | 600 | 37.92 | CLEAR/NONE |
| 1220 | | 17.55 | 0.093 | 2.48 | 4.88 | 397.4 | — | 600 | 38.02 | CLEAR/NONE |
| 1225 | | 17.50 | 0.093 | 2.91 | 4.78 | 397.3 | 0.91 | 600 | 38.00 | CLEAR/NONE |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

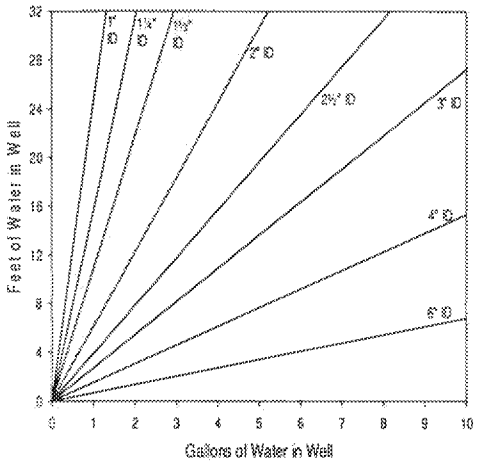
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE120D1-GW-092017 | 40-mL vials | 3 | HCl | VOCs | 1330 |
| RE120D1-GW-092017 | 1-L amber | 2 | none | 1,4-Dioxane | 1330 |
| | 250ml plastic | 1 | none | Bromide | 1330 |

Comments

Signature  Date 9-20-17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: R612001

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1230 | 8.5 | 17.49 | 0.092 | 3.18 | 4.85 | 288.1 | — | 600 | 38.01 | CLEAR/NONE |
| 1235 | | 17.55 | 0.093 | 3.17 | 4.80 | 268.4 | — | 600 | 38.01 | CLEAR/NONE |
| 1240 | | 17.58 | 0.092 | 3.27 | 4.75 | 233.7 | 0.93 | 600 | 38.01 | CLEAR/NONE |
| 1245 | | 17.60 | 0.093 | 3.13 | 4.72 | 212.4 | — | 600 | 38.01 | CLEAR/NONE |
| 1250 | | 17.52 | 0.093 | 2.98 | 4.68 | 195.8 | — | 600 | 38.01 | CLEAR/NONE |
| 1255 | | 17.51 | 0.093 | 2.88 | 4.65 | 189.4 | 0.83 | 600 | 38.01 | CLEAR/NONE |
| 1300 | 10 | 17.51 | 0.093 | 2.82 | 4.63 | 184.4 | — | 600 | 38.01 | CLEAR/NONE |
| 1305 | 10.75 | 17.53 | 0.093 | 2.85 | 4.62 | 179.5 | — | 600 | 38.01 | CLEAR/NONE |
| 1310 | 11.5 | 17.49 | 0.092 | 2.84 | 4.61 | 174.3 | 0.85 | 600 | 38.01 | CLEAR/NONE |
| 1315 | 12.25 | 17.48 | 0.092 | 2.83 | 4.61 | 172.7 | — | 600 | 38.01 | CLEAR/NONE |
| 1320 | 13 | 17.48 | 0.092 | 2.82 | 4.61 | 170.1 | — | 600 | 38.01 | CLEAR/NONE |
| 1325 | 13.5 | 17.47 | 0.092 | 2.81 | 4.61 | 168.4 | 0.88 | 600 | 38.01 | CLEAR/NONE |
| | | | | | | | | | | |
| 1330 | | | | | | | | 200 | | Sample |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE120D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 20 / 17  Time: Start 1150 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: Shelley
Weather Conds: 76° partly sunny windy  Collector(s): _____

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 73 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 38.72' ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| YSI | 556 Field Cable | U86889X |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1150 | Start purge | | | | | | | 200 | | |
| 1210 | — | 17.29 | 0.063 | 3.75 | 4.20 | 311.1 | — | 700 | 38.79 | Clear |
| 1215 | | 17.14 | 0.063 | 0.81 | 4.68 | 305.8 | | | | |
| 1220 | | 17.13 | 0.062 | 0.59 | 4.48 | 305.6 | 0.99 | | 38.80 | |
| 1225 | | 17.10 | 0.063 | 3.51 | 4.38 | 303.4 | | | | |
| 1230 | 5gal | 17.05 | 0.063 | 3.99 | 4.43 | 300.4 | | 700 | 38.80 | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

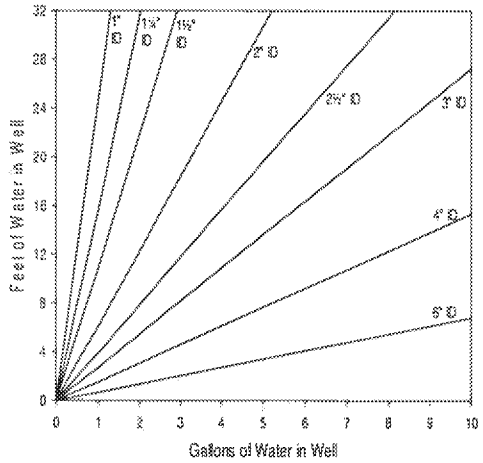
**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE120D2-GW-092016 | 40-mL vials | 3 | HCl | VOCs | 1310 |
| RE120D2-GW-092016 | 1-L amber | 2 | none | 1,4-Dioxane | 1310 |
| | 250mL plastic | 1 | none | Bromide | 1310 |

Comments: Sample collected @ 200 ml/min flow rate.

Signature: [signature]  Date: 9-20-2017

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE170D2

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1235 | — | 17.08 | 0.064 | 4.02 | 4.47 | 303.2 | - | 700 | — | Clear |
| 1240 | — | 17.12 | 0.064 | 4.17 | 4.54 | 291.6 | - | 700 | - | Clear |
| 1245 | — | 17.16 | 0.064 | 4.22 | 4.54 | 287.9 | - | 700 | - | Clear |
| 1250 | 10 Gal | 17.15 | 0.064 | 4.23 | 4.60 | 283.3 | 0.93 | 700 | 38.75 | Clear |
| 1255 | — | 17.14 | 0.064 | 4.25 | 4.73 | 279.6 | - | 700 | 38.74 | Clear |
| 1300 | - | 17.12 | 0.064 | 4.26 | 4.79 | 276.3 | 0.94 | 700 | 38.73 | Clear |
| 1305 | - | 17.11 | 0.064 | 4.27 | 4.85 | 271.3 | 0.93 | 700 | 38.72 | Clear |
| 1310 | Sample Time. | | | | | | | 200 | | |

Well ID: RE12003

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 20 / 17  Time: Start 1140 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: Shelley
Weather Conds: 78°, partly sunny, windy  Collector(s): Paul Kaneth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 765 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 39.26 ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1155 | ON | | | | | | | 600 | | |
| 1200 | | 18.10 | 0.028 | 10.26 | 4.76 | 51.9 | | | | |
| 1205 | | 17.21 | 0.027 | 9.29 | 4.82 | 41.0 | | | 39.34 | |
| 1210 | | 17.06 | 0.027 | 8.33 | 4.85 | 22.8 | | 650 | | |
| 1215 | | 16.95 | 0.026 | 7.58 | 5.06 | 16.8 | 3.51 | | | |
| 1220 | | 16.90 | 0.028 | 7.04 | 5.01 | 22.4 | | | 39.54 | |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

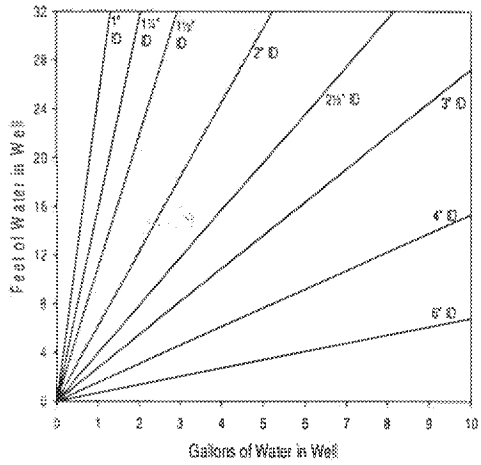
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE12003-GW-092017 | 40-mL vials | 3 | HCl | VOCs | 1315 |
| | 1-L amber | 2 | none | 1,4-Dioxane | 1315 |
| | 250 ml plastic | 1 | none | Bromide | 1315 |

Comments

Signature Paul Kaneth  Date 9/20/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE120 03

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1225 | 5gal | 16.90 | 0.029 | 6.89 | 4.92 | 30.1 | | | | |
| 1230 | | 16.88 | 0.029 | 6.52 | 4.94 | 33.2 | 3.96 | 650 | 39.34 | |
| 1235 | | 16.94 | 0.029 | 6.40 | 4.92 | 33.7 | | | | |
| 1240 | | 16.91 | 0.029 | 6.34 | 4.95 | 33.1 | | | | |
| 1245 | | 16.94 | 0.029 | 6.09 | 4.97 | 31.9 | 3.32 | | 39.36 | |
| 1250 | 10gal | 16.87 | 0.028 | 5.88 | 4.97 | 30.4 | | | | |
| 1255 | | 16.86 | 0.028 | 5.67 | 4.99 | 32.0 | | | | |
| 1300 | | 16.86 | 0.028 | 5.63 | 5.00 | 31.9 | 2.48 | 650 | 39.34 | |
| 1305 | 13gal | 16.88 | 0.028 | 5.54 | 5.00 | 25.2 | | | | |
| 1310 | | 16.82 | 0.028 | 5.50 | 4.99 | 30.8 | 3.59 | | 39.35 | |
| | | | | | | | | | | |
| 1315 | | | | | | | | 250 | | Sample |

Well ID: RE109D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 21 / 17  Time: Start 1200 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location:
Weather Conds: 80, Sun  Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 575 ft  c. Length of Water Column 528 ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 47.29 ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| La Motte | 2020 | 88325 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1030 | — | 23.04 | 0.168 | 11.85 | 6.87 | 158.4 | — | 600 | 47.45 | cloudy ~~clear~~/none |
| 1035 | | 16.75 | 0.073 | 6.82 | 4.33 | 276.3 | — | 600 | 47.45 | cloudy/none |
| 1040 | | 16.59 | 0.071 | 5.23 | 4.10 | 279.2 | 24.1 | 600 | 47.48 | cloudy/none |
| 1045 | | 16.62 | 0.069 | 4.59 | 4.02 | 283.9 | — | 600 | 47.51 | cloudy/none |
| 1050 | | 16.74 | 0.068 | 4.33 | 3.90 | 285.8 | — | 600 | 47.53 | cloudy/none |
| 1055 | | 16.67 | 0.069 | 4.23 | 3.91 | 288.1 | 29.4 | 600 | 47.53 | cloudy/none |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE109D1-GW-092117 | 40-mL vials | 3 | HCl | VOCs | 1200 |
| RE109D1-GW-092117 | 1-L amber | 2 | none | 1,4-Dioxane | 1200 |

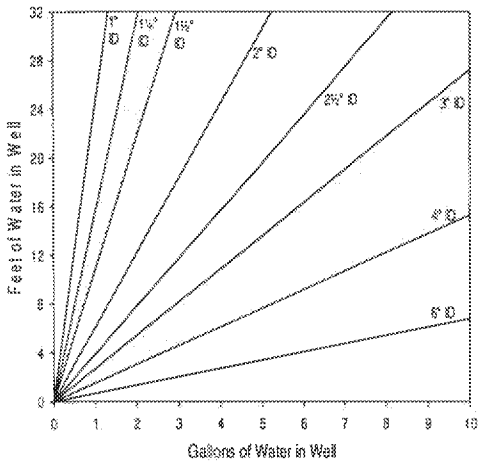
Comments: BUMPED BOTTOM OF WELL DURING INSTALLATION OF NEW TUBING

Signature _____  Date 9-21-17

LowFlow-GWa - Sept 2017.xlsx

RE109D1

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE109D1

| (continued from front) Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 5 | 16.68 | 0.068 | 4.11 | 3.92 | 288.8 | — | 600 | 47.53 | CLOUDY / NONE |
| 1105 | | 16.61 | 0.068 | 3.97 | 3.97 | 286.8 | 26.4 | 600 | 47.53 | CLOUDY / NONE |
| 1110 | | 16.54 | 0.069 | 3.92 | 3.99 | 286.4 | — | 600 | 47.53 | CLOUDY / NONE |
| 1115 | | 16.55 | 0.068 | 3.85 | 4.01 | 285.6 | — | 600 | 47.53 | CLOUDY / NONE |
| 1120 | | 16.53 | 0.069 | 3.84 | 4.03 | 284.9 | 23.4 | 600 | 47.53 | CLOUDY / NONE |
| 1125 | | 16.47 | 0.068 | 3.84 | 4.05 | 284.5 | — | 600 | 47.53 | CLOUDY / NONE |
| 1130 | 10 | 16.70 | 0.069 | 3.69 | 4.07 | 282.7 | — | 600 | 47.53 | CLOUDY / NONE |
| 1135 | 10.75 | 16.65 | 0.069 | 3.75 | 4.12 | 281.6 | 23.0 | 600 | 47.53 | CLOUDY / NONE |
| 1140 | 11.5 | 16.62 | 0.068 | 3.74 | 4.14 | 281.4 | — | 600 | 47.53 | CLOUDY / NONE |
| 1145 | 12.25 | 16.58 | 0.069 | 3.75 | 4.16 | 280.9 | — | 600 | 47.53 | CLOUDY / NONE |
| 1150 | 13 | 16.55 | 0.068 | 3.74 | 4.19 | 280.5 | 23.6 | 600 | 47.53 | CLOUDY / NONE |
| 1155 | 13.5 | 16.52 | 0.069 | 3.74 | 4.20 | 280.1 | 23.4 | 600 | 47.53 | CLOUDY / NONE |
| | | | | | | | | | | |
| 1200 | | | | | | | | 200 | | Sample |

Well ID: RE109D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 21 / 17
Time: Start 11 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: St. Martin St
Weather Conds: _____
Collector(s): E. Bell, D. Mauch

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 575 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC

b. Water Table Depth 47.82 ft
d. Calculated System Volume (see back) _____ gal. _____ screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 MPS | 14J101213 |
| YSI | 556 Field Cable | U86888X |
| QED | MP10 | U554402 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 11:00 | Start purge | | | | | | | | | |
| 1110 | – | 16.63 | 0.069 | 4.50 | – | 555.0 | – | 650 | 47.90 | Silty |
| 1115 | – | 16.67 | 0.072 | 3.60 | -1.54 | 556.7 | 680 | 650 | 47.89 | Slightly cloudy |
| 1120 | – | 16.76 | 0.074 | 2.90 | -1.41 | 517.2 | – | 650 | 47.86 | cloudy |
| 1125 | – | 16.76 | 0.076 | 2.24 | -1.37 | 504.1 | 75.8 | 650 | 47.85 | Cloudy |
| 1130 | 5 Gal | 16.78 | 0.075 | 2.20 | -1.19 | 492.7 | – | 650 | 47.82 | |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

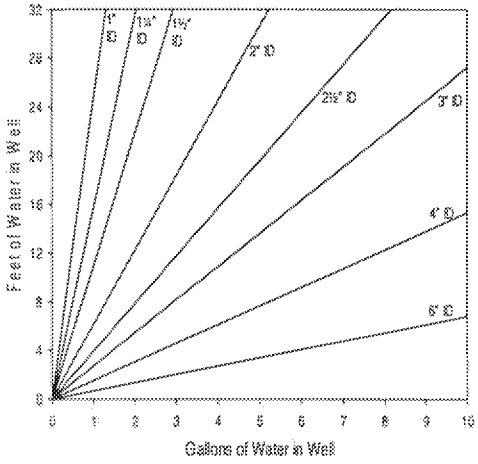
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE109D2-GW-092117 | 40-mL vials | 3 | HCl | VOCs | 1230 |
| RE109D2-GW-092117 | 1-L amber | 2 | none | 1,4-Dioxane | 1230 |

Comments: Screen zone 550-570 ft bgs, measured DTB 574.00 ft bgs
Collected samples @ 200ml/min

Signature: _____ Date: 9/21/2017

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE10902

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1135 | – | 16.52 | 0.075 | 2.08 | 0.92 | 475.6 | 44.1 | 650 | 47.80 | Cloudy |
| 1140 | – | 16.50 | 0.075 | 1.97 | 0.41 | 403.8 | – | 650 | 47.78 | cloudy |
| 1145 | – | 16.23 | 0.075 | 1.86 | 0.92 | 398.6 | – | 650 | 47.76 | cloudy |
| 1150 | – | 16.20 | 0.074 | 1.79 | 1.10 | 372.1 | – | 650 | 47.74 | cloudy |
| 1155 | – | 16.16 | 0.074 | 1.75 | 1.14 | 361.9 | 33.2 | 650 | 47.72 | cloudy |
| 1200 | 10 Gal | 16.16 | 0.074 | 1.75 | 1.18 | 359.6 | 28.6 | 650 | 47.71 | cloudy |
| 1205 | – | 16.15 | 0.073 | 1.72 | 1.59 | 336.1 | – | 650 | 47.70 | cloudy |
| 1210 | – | 16.18 | 0.073 | 1.68 | 3.44 | 240.0 | 23.5 | 650 | 47.70 | cloudy |
| 1215 | – | 16.05 | 0.073 | 1.62 | 3.94 | 216.9 | 23.6 | 650 | 47.68 | cloudy |
| 1220 | 13.5 gal | 16.11 | 0.073 | 1.60 | 4.00 | 202.8 | 24.1 | 650 | 47.66 | cloudy |
| 1225 | 13.7 gal | 16.09 | 0.073 | 1.59 | 4.05 | 210.1 | 23.9 | 650 | 47.65 | cloudy |
| 1230 | Sample Time. | | | | | | | 200 | | |

Well ID: RE10903

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage Date: 9 / 21 / 17 Time: Start 830 am/pm
Project No: 60266526 Finish _____ am/pm
Site Location: Sta Martin
Weather Conds: 70° mostly sunny Collector(s): _____

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 685 ft c. Length of Water Column _____ ft (a-b) Casing Diameter/Material 4-inch PVC

b. Water Table Depth 47.59 ft d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100417 |
| LaMotte | 2020 | |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1040 | OH | 20.86 | 0.099 | 7.84 | 6.01 | -51.4 | — | 400 | 47.59 | cloudy/none |
| 1045 | | 17.10 | 0.065 | 6.45 | 5.35 | -32.6 | — | 400 | 47.85 | clear/none |
| 1050 | | 16.43 | 0.061 | 5.10 | 5.13 | -40.7 | 14.6 | 400 | 47.85 | clear/none |
| 1055 | | 15.81 | 0.060 | 4.59 | 4.95 | -41.6 | — | 500 | 47.85 | clear/none |
| 1100 | | 15.26 | 0.059 | 4.20 | 4.86 | -39.7 | | | | |
| 1105 | | 15.47 | 0.059 | 6.66 | 4.99 | -26.1 | | 650 | | dust/none |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

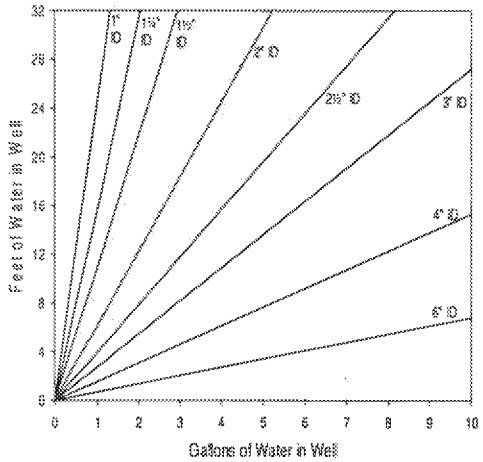
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE10903-GW-092117 | 40-mL vials | 3 | HCl | VOCs | 1210 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments

Signature Paul Kauth Date 9/21/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE109 D3

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1110 | | 15.43 | 0.063 | 5.71 | 5.29 | -51.0 | | | | |
| 1115 | 5gal | 15.41 | 0.062 | 5.25 | 5.30 | -58.5 | 21.4 | | | |
| 1120 | | 15.39 | 0.061 | 4.70 | 5.29 | -61.8 | 16.4 | | 47.91 | |
| 1125 | | 15.40 | 0.062 | 4.66 | 5.22 | -54.3 | | | | |
| 1130 | | 15.41 | 0.061 | 4.27 | 5.12 | -40.1 | 15.4 | 650 | | |
| 1135 | | 15.35 | 0.062 | 3.79 | 5.15 | -52.1 | 14.0 | | | |
| 1140 | 10gal | 15.31 | 0.061 | 3.90 | 5.16 | -51.7 | 12.7 | | 47.96 | |
| 1145 | | 15.29 | 0.061 | 3.57 | 5.07 | -52.9 | 17.1 | | | |
| 1150 | | 15.25 | 0.061 | 3.44 | 5.06 | -44.2 | 17.6 | | | |
| 1155 | | 15.18 | 0.061 | 3.50 | 5.09 | -44.1 | 18.0 | 650 | 47.72 | |
| 1200 | 15gal | 15.18 | 0.061 | 3.15 | 5.08 | -52.3 | 17.6 | | | |
| | | | | | | | | | | |
| 1210 | | | | | | | | 200 | | sample |

Well ID: RE1202D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9/21/17  Time: Start 1410 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: Curtis
Weather Conds: cloudy 75°  Collector(s): T. Bell, D. Kanesh

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 545 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 44.77 ft  d. Calculated System Volume (see back) 13.1 gal.  20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 14J 101213 |
| YSI | 556 Field Cable | 1286888X |
| QED | MP10 | 1155440X |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1420 | ON | | | | | | | | | |
| 1430 | | 16.52 | 0.071 | 6.21 | -1.56 | 543.2 | | 650 | 44.79 | |
| 1435 | | 16.41 | 0.070 | 5.39 | -2.29 | 572.5 | | | | |
| ~~1440~~ | | ~~17.92~~ | ~~0.019~~ | | | | | | | |
| 1440 | | 16.38 | 0.069 | 5.03 | -2.28 | 577.0 | | | 44.77 | |
| 1445 | 5 gal | 16.32 | 0.069 | 4.83 | -2.09 | 567.0 | 1.45 | | | |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

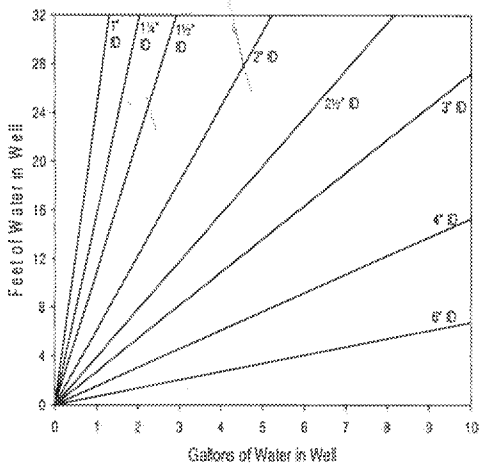
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE1202D1-GW-092117 | 40-mL vials | 3 | HCl | VOCs | 1540 |
| RE1202D1-GW-092117 | 1-L amber | 2 | none | 1,4-Dioxane | 1540 |

Comments: pH meter is malfunctioning
Collected Samples at a flowrate of 200 ml/min

Signature: [signature]  Date: 9/21/2017

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE122D1

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1450 | | 16.30 | 0.069 | 4.82 | -1.91 | 558.4 | — | 650 | 44.75 | |
| 1455 | | 16.24 | 0.069 | 4.79 | -1.59 | 543.0 | — | | | |
| 1500 | — | 16.23 | 0.069 | 4.71 | 7.3 | | 1.10 | | ~~44.74~~ | |
| 1505 | | 16.25 | 0.069 | 4.69 | | | — | | | |
| 1510 | | 16.21 | 0.069 | 4.69 | | | — | | | |
| 1515 | 10 Gal | 16.10 | 0.069 | 4.68 | | | — | | | |
| 1520 | — | 16.09 | 0.069 | 4.68 | 1.79 | 371.0 | — | 650 | 44.74 | Clear |
| 1525 | — | 16.06 | 0.069 | 4.69 | 2.78 | 322.4 | 0.96 | 650 | 44.75 | Clear |
| 1530 | - | 16.08 | 0.069 | 4.64 | 3.18 | 303.5 | 0.92 | 650 | 44.75 | Clear |
| 1535 | 15 Gal | 16.01 | 0.069 | 4.61 | 3.30 | 296.6 | 0.97 | 650 | 44.75 | Clear |
| | | | | | | | | | | |
| Sample Time | | 1540 | | | | | | 200 | | |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RG122D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 21 / 17
Time: Start 1410 am/pm
Finish 1615 am/pm
Project No: 60266526
Site Location: Curtis
Weather Conds: cloudy 75°
Collector(s): S.WRIGHT

## 1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 65 ft
c. Length of Water Column 51.0 ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 44.98 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

## 2. WELL PURGE DATA

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| LaMotte | 2020 | 64525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1420 | — | 27.23 | 0.019 | 6.72 | 6.05 | 208.5 | — | 600 | 44.85 | clear/none |
| 1425 | | 18.09 | 0.083 | 5.51 | 5.06 | 254.4 | — | 600 | 44.80 | clear/none |
| 1430 | | 17.74 | 0.083 | 4.49 | 4.87 | 257.3 | 3.50 | 600 | 44.85 | clear/none |
| 1435 | | 17.91 | 0.083 | 3.61 | 4.87 | 261.5 | — | 600 | 44.90 | clear/none |
| 1440 | | 17.84 | 0.082 | 3.36 | 4.85 | 262.3 | — | 600 | 44.90 | clear/none |
| 1445 | | 17.94 | 0.080 | 3.32 | 4.82 | 263.9 | 0.98 | 600 | 44.90 | clear/none |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

## 3. SAMPLE COLLECTION:

Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RG122D2-GW-092117 | 40-mL vials | 3 | HCl | VOCs | 1615 |
| RG122D2-GW-092117 | 1-L amber | 2 | none | 1,4-Dioxane | 1615 |

Comments

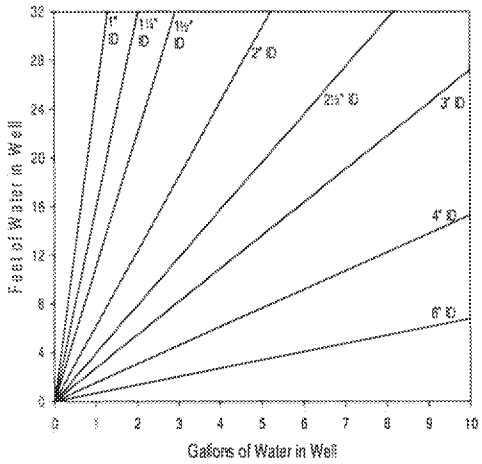
Signature

Date 9-21-17

LowFlow-GWa - Sept 2017.xlsx

RE12202

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE12202

| (continued from front) Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1450 | 5 | 18.13 | 0.080 | 3.58 | 4.80 | 265.2 | — | 600 | 44.90 | CLEAR/NONE |
| 1455 | | 18.74 | 0.082 | 3.69 | 4.80 | 266.0 | — | 600 | 44.90 | CLEAR/NONE |
| 1500 | | 18.70 | 0.082 | 3.81 | 4.81 | 266.5 | 2.02 | 600 | 44.91 | CLEAR/NONE |
| 1505 | | 18.59 | 0.082 | 3.89 | 4.81 | 267.4 | — | 600 | 44.91 | CLEAR/NONE |
| 1510 | | 18.65 | 0.081 | 3.92 | 4.80 | 268.1 | — | 600 | 44.91 | CLEAR/NONE |
| 1515 | | 18.79 | 0.081 | 3.95 | 4.80 | 269.0 | 1.97 | 600 | 44.92 | CLEAR/NONE |
| 1520 | | 18.77 | 0.082 | 3.96 | 4.80 | 270.2 | — | 500 | 44.92 | CLEAR/NONE |
| 1525 | 10 | 18.66 | 0.082 | 3.97 | 4.80 | 270.8 | — | 500 | 44.92 | CLEAR/NONE |
| 1530 | 10.5 | 18.57 | 0.082 | 3.94 | 4.81 | 270.8 | 0.52 | 500 | 44.92 | CLEAR/NONE |
| 1535 | 11 | 18.51 | 0.082 | 3.96 | 4.80 | 272.1 | — | 500 | 44.92 | CLEAR/NONE |
| 1540 | 11.5 | 18.56 | 0.082 | 3.95 | 4.80 | 272.9 | — | 500 | 44.92 | CLEAR/NONE |
| 1545 | 12 | 18.48 | 0.082 | 3.96 | 4.81 | 273.6 | 0.66 | 500 | 44.92 | CLEAR/NONE |
| 1550 | 12.5 | 18.45 | 0.082 | 3.97 | 4.82 | 274.5 | — | 500 | 44.92 | CLEAR/NONE |
| 1555 | 13 | 18.42 | 0.082 | 3.98 | 4.83 | 275.1 | — | 500 | 44.92 | CLEAR/NONE |
| 1600 | 13.5 | 18.40 | 0.082 | 3.99 | 4.82 | 276.0 | 0.68 | 400 | 44.92 | CLEAR/NONE |
| | | | | | | | | | | |
| 1605 | | | | | | | | 200 | | sample |

Well ID: RE12203

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage Date: 9 / 21 / 17 Time: Start 1410 am/pm
Project No: 60266526 Finish _____ am/pm
Site Location: Curtis
Weather Conds: Cloudy 75° Collector(s): Paul Kreth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 240 ft c. Length of Water Column _____ ft (a-b) Casing Diameter/Material 4-inch PVC

b. Water Table Depth 46.10 ft d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1430 | ON | | | | | | | 500 | 46.15 | |
| 1435 | | 18.33 | 0.020 | 6.47 | 3.60 | -191.0 | | | | |
| 1440 | | 17.91 | 0.019 | 4.93 | 3.58 | -176.9 | | | | |
| 1445 | | 17.78 | 0.018 | 4.28 | 3.50 | -192.1 | 236 | 500 | 46.14 | |
| 1450 | | 17.64 | 0.018 | 3.84 | 3.55 | -178.3 | | | | |
| 1455 | | 17.63 | 0.018 | 3.50 | 3.57 | -181.4 | | | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

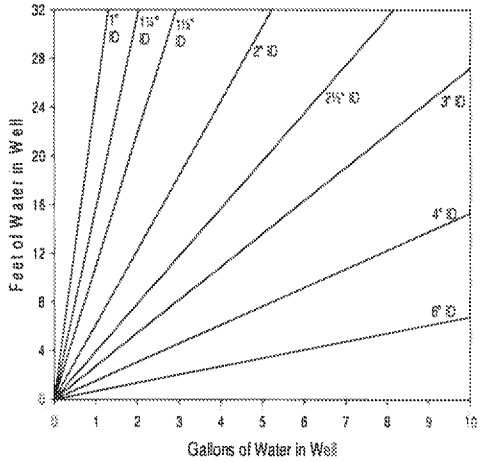
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE12203-GW-092117 | 40-mL vials | 3 | HCl | VOCs | 1610 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments

Signature Paul Kreth Date 9/21/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE122D3

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1500 | | 17.52 | 0.018 | 3.39 | 3.68 | -176.2 | 1.75 | | 46.11 | |
| 1505 | 5gal | 17.44 | 0.018 | 3.15 | 3.64 | -175.9 | | 550 | | |
| 1510 | | 17.44 | 0.018 | 3.13 | 3.55 | -164.9 | | | | |
| | | 17.44 | 0.018 | 3.11 | 3.54 | -160.2 | | | | |
| 1520 | | 17.44 | 0.018 | 3.10 | 3.51 | -158.6 | 2.34 | ~~2.34~~ | | |
| 1525 | | 17.35 | 0.018 | 3.05 | 3.49 | -157.0 | | 550 | 46.09 | |
| 1530 | | 17.24 | 0.018 | 3.01 | 3.53 | -157.1 | 2.66 | | | |
| 1535 | 10gal | 17.17 | 0.018 | 2.94 | 3.55 | -163.9 | | | | |
| 1540 | | 17.20 | 0.018 | 2.91 | 3.55 | -164.6 | | | | |
| 1545 | | 17.13 | 0.017 | 2.83 | 3.54 | -165.3 | 3.04 | | 46.03 | |
| 1550 | | 17.04 | 0.017 | 2.79 | 3.56 | -167.5 | | | | |
| 1555 | 13gal | 17.02 | 0.018 | 2.79 | 3.57 | -167.8 | | 550 | | |
| 1600 | | 16.96 | 0.017 | 2.77 | 3.60 | -168.7 | | | | |
| | | | | | | | | | | |
| 1610 | | | | | | | | 200 | | Sample |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE126D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 22 / 17
Time: Start 0815 am/pm
Finish 1010 am/pm
Project No: 60266526
Site Location: S. Nassau
Weather Conds: sunny 68°
Collector(s): S. WRIGHT

## 1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 52.8 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 48.10 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

## 2. WELL PURGE DATA

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0835 | — | 20.40 | 0.081 | 8.19 | 9.22 | 141.4 | — | 600 | 48.05 | clear/none |
| 0840 | | 15.58 | 0.074 | 6.61 | 6.87 | 185.2 | — | 600 | 48.05 | clear/none |
| 0845 | | 15.36 | 0.072 | 5.74 | 6.35 | 201.3 | 4.46 | 600 | 48.05 | clear/none |
| 0850 | | 15.32 | 0.071 | 5.84 | 5.99 | 217.2 | — | 600 | 48.05 | clear/none |
| 0855 | | 15.50 | 0.072 | 5.88 | 5.83 | 224.3 | — | 600 | 48.05 | clear/none |
| 0900 | | 15.55 | 0.071 | 5.87 | 5.71 | 231.4 | 5.58 | 600 | 48.05 | clear/none |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

## 3. SAMPLE COLLECTION:

Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE126D1-GW-092217 | 40-mL vials | 3 | HCl | VOCs | 1010 |
| RE126D1-GW-092217 | 1-L amber | 2 | none | 1,4-Dioxane | 1010 |

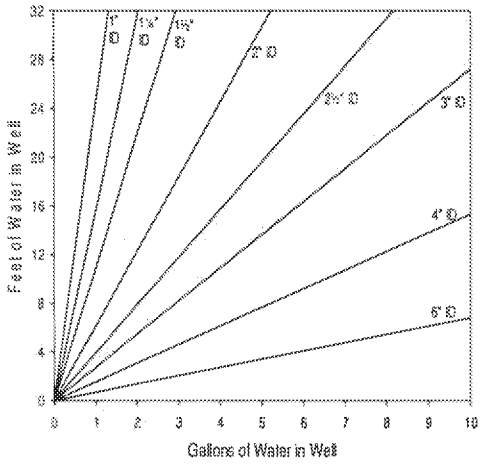
Comments

Signature

Date 9-26-17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE12601

| (continued from front) Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0905 | 5 | 15.26 | 0.071 | 5.95 | 5.65 | 236.2 | — | 600 | 48.05 | CLEAR/NONE |
| 0910 | | 15.21 | 0.070 | 5.86 | 5.57 | 240.6 | — | 600 | 48.05 | CLEAR/NONE |
| 0915 | | 15.32 | 0.071 | 5.85 | 5.52 | 243.7 | 1.49 | 600 | 48.05 | CLEAR/NONE |
| 0920 | | 15.35 | 0.071 | 5.88 | 5.47 | 245.6 | — | 600 | 48.05 | CLEAR/NONE |
| 0925 | | 15.37 | 0.071 | 5.91 | 5.45 | 250.1 | — | 600 | 48.05 | CLEAR/NONE |
| 0930 | | 15.19 | 0.071 | 5.95 | 5.44 | 251.7 | 1.76 | 600 | 48.05 | CLEAR/NONE |
| 0935 | 10 | 15.16 | 0.071 | 6.00 | 5.42 | 254.3 | — | 600 | 48.05 | CLEAR/NONE |
| 0940 | 10.75 | 15.15 | 0.071 | 5.99 | 5.41 | 257.4 | — | 600 | 48.05 | CLEAR/NONE |
| 0945 | 11.5 | 15.14 | 0.071 | 5.98 | 5.40 | 257.6 | 1.06 | 600 | 48.05 | CLEAR/NONE |
| 0950 | 12.25 | 15.10 | 0.071 | 5.99 | 5.38 | 259.3 | — | 600 | 48.05 | CLEAR/NONE |
| 0955 | 13 | 15.14 | 0.071 | 5.98 | 5.37 | 260.5 | — | 600 | 48.05 | CLEAR/NONE |
| 1000 | 13.5 | 15.15 | 0.071 | 5.98 | 5.36 | 261.5 | 1.12 | 600 | 48.05 | CLEAR/NONE |
| | | | | | | | | | | |
| 1010 | | | | | | | | 200 | | Sample |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE126D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9/22/17  Time: Start 0825 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: S. Nassau
Weather Conds: 68°, Sunny  Collector(s): Farrell Bill, P. Karett

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 580 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 48.69 ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 MPS | 14J101213 |
| YSI | 556 Field Cable | U86888X |
| ED | MP10 | U64529X |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0830 | Start GW purge. | | | | | | | | | |
| 0840 | – | 15.83 | 0.081 | 2.70 | -1.65 | 549.6 | – | 600 | 48.78 | Clear |
| 0845 | – | 15.74 | 0.081 | 2.52 | -1.86 | 551.1 | 2.53 | 600 | 48.76 | clear |
| 0850 | – | 15.74 | 0.080 | 2.65 | -1.56 | 539.2 | – | 600 | 48.75 | clear |
| 0855 | – | 15.96 | 0.080 | 2.87 | 0.64 | 432.9 | 1.96 | 600 | 48.73 | clear |
| 0900 | – | 15.78 | 0.080 | 2.87 | 0.93 | 420.5 | – | 600 | 48.71 | clear |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

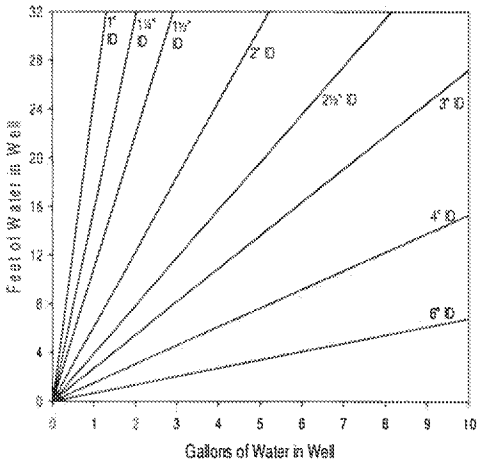
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE126D2-GW-092217 | 40-mL vials | 3 | HCl | VOCs | 10:00 |
| RE126D2-GW-092217 | 1-L amber | 2 | none | 1,4-Dioxane | 10:00 |

Comments: pH meter was calibrated, not working properly in field.

Signature: [signature]  Date: 9/22/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE7602

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0905 | 5 Gal | 15.62 | 0.079 | 2.86 | 2.33 | 351.0 | 1.27 | 600 | 48.66 | clear |
| 0910 | – | 15.63 | 0.078 | 2.77 | 3.05 | 320.0 | – | 600 | 48.67 | clear |
| 0915 | – | 15.62 | 0.078 | 2.78 | 3.56 | 304.2 | 1.21 | 600 | 48.660 | clear |
| 0920 | – | 15.65 | 0.078 | 2.71 | 4.01 | 286.7 | – | 600 | 48.66 | clear |
| 0925 | – | 15.71 | 0.078 | 2.76 | 4.33 | 261.3 | 1.10 | 600 | 48.65 | clear |
| 0930 | 10 Gal | 15.84 | 0.078 | 2.77 | 4.39 | 259.6 | 1.03 | 600 | – | clear |
| 0935 | – | 15.77 | 0.078 | 2.81 | 4.46 | 254.1 | – | 600 | – | clear |
| 0940 | – | 15.80 | 0.079 | 2.75 | 4.66 | 249.8 | 0.91 | 600 | 46.61 | clear |
| 0945 | – | 16.04 | 0.079 | 2.68 | 4.74 | 240.4 | 0.96 | 600 | 46.60 | clear |
| 0950 | 13.1 Gal | 16.01 | 0.079 | 2.73 | 4.72 | 242.1 | 0.90 | 600 | 46.61 | clear |
| 0955 | | | | | | | | | | |
| 1000 | Sample Time (Collected) | | | | | | | 200 | | |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE12603

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage Date: 9 / 22 / 17 Time: Start 800 am/pm
Project No: 60266526 Finish _____ am/pm
Site Location: S. Nassau
Weather Conds: 68° sunny Collector(s): Paul Kaveth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 665 ft c. Length of Water Column _____ ft (a-b) Casing Diameter/Material 4-inch PVC

b. Water Table Depth 48.54 ft d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| LaMotte | 2020 | 34525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0830 | GX | | | | | | | 600 | | |
| 0840 | | 15.23 | 0.025 | 7.43 | 6.67 | 8.0 | | | 48.50 | |
| 0845 | | 15.06 | 0.024 | 7.04 | 6.49 | 8.0 | 1.78 | 650 | | |
| 0850 | | 15.05 | 0.024 | 6.75 | 6.35 | 5.3 | | | 48.49 | |
| 0855 | | 15.12 | 0.027 | 6.64 | 6.23 | 2.1 | | | | |
| 0900 | 5 gal | 14.97 | 0.028 | 6.72 | 6.21 | -0.7 | 1.93 | | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

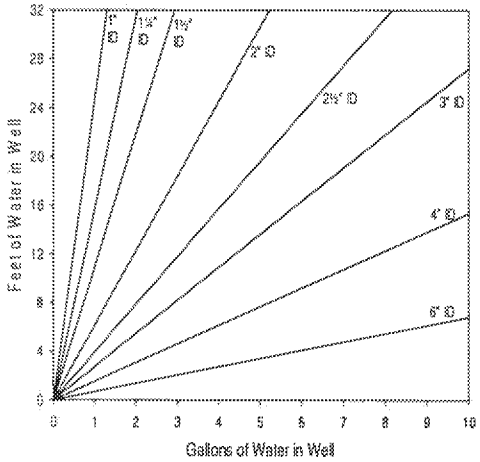
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE12603-GW-092217 | 40-mL vials | 3 | HCl | VOCs | 950 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments

Signature Paul Kaveth Date 9/22/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE12603

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 905 | | 15.04 | 0.028 | 6.66 | 6.18 | -4.2 | | 650 | 48.41 | |
| 910 | | 15.07 | 0.029 | 6.68 | 6.10 | 0.3 | 1.63 | | | |
| 915 | | 15.05 | 0.029 | 6.72 | 6.10 | -0.1 | | | | |
| 920 | | 15.00 | 0.028 | 6.81 | 6.09 | -2.7 | | | | |
| 925 | 1gal | 15.02 | 0.029 | 6.85 | 6.09 | -4.3 | 1.27 | 650 | 48.38 | |
| 930 | | 14.96 | 0.029 | 6.85 | 6.12 | -5.3 | | | | |
| 935 | | 14.91 | 0.029 | 6.75 | 6.08 | -6.8 | | | | |
| 940 | | 15.02 | 0.029 | 6.79 | 6.10 | -7.3 | | | | |
| 945 | 13gal | 15.01 | 0.029 | 6.80 | 6.09 | -6.5 | 1.02 | | 48.37 | |
| | | | | | | | | | | |
| 950 | | | | | | | | | | sample |

Well ID: RE123D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 22 / 17
Time: Start 1145 am/pm
Finish 1330 am/pm
Project No: 60266526
Site Location: MTA Yard
Weather Conds: sunny, 70°
Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 505 ft
c. Length of Water Column 455 ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 50.09 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| LaMotte | 2026 | 8523 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1205 | – | 26.25 | 0.115 | 7.73 | 6.98 | 193.0 | – | 600 | 50.05 | CLEAR/NONE |
| 1210 | | 17.60 | 0.089 | 6.01 | 6.85 | 192.5 | – | 600 | 50.05 | CLEAR/NONE |
| 1215 | | 17.02 | 0.089 | 5.41 | 6.27 | 185.4 | 2.34 | 600 | 50.05 | CLEAR/NONE |
| 1220 | | 16.93 | 0.092 | 5.88 | 5.85 | 190.0 | – | 600 | 50.05 | CLEAR/NONE |
| 1225 | | 16.82 | 0.095 | 6.96 | 5.09 | 193.2 | – | 600 | 50.05 | CLEAR/NONE |
| 1230 | | 16.81 | 0.095 | 7.07 | 5.03 | 195.1 | 8.56 | 600 | 50.05 | CLEAR/NONE |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE123D1-GW-092217 | 40-mL vials | 3 | HCl | VOCs | 1330 |
| RE123D1-GW-092217 | 1-L amber | 2 | none | 1,4-Dioxane | 1330 |

Comments

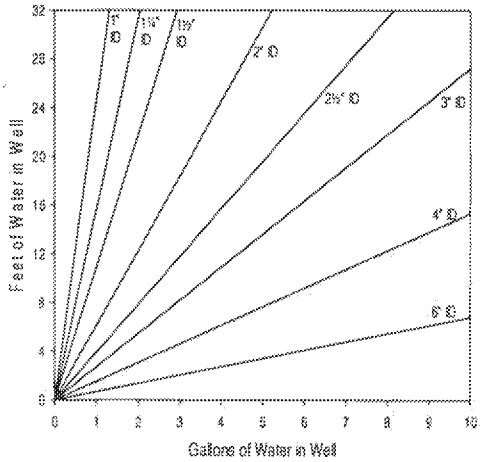
Signature

Date 9-22-17

LowFlow-GWa - Sept 2017.xlsx

PE123D1

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE1230I

| (continued from front) Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1235 | 5 | 16.67 | 0.094 | 7.14 | 5.02 | 195.0 | — | 600 | 50.05 | CLEAR/NONE |
| 1240 | | 16.56 | 0.094 | 7.15 | 5.02 | 195.2 | — | 600 | 50.05 | CLEAR/NONE |
| 1245 | | 16.51 | 0.093 | 7.15 | 5.02 | 195.4 | 7.32 | 600 | 50.05 | CLEAR/NONE |
| 1250 | | 16.48 | 0.093 | 7.21 | 5.04 | 194.9 | — | 600 | 50.05 | CLEAR/NONE |
| 1255 | | 16.44 | 0.093 | 7.23 | 5.01 | 196.2 | — | 600 | 50.05 | CLEAR/NONE |
| 1300 | | 16.36 | 0.093 | 7.25 | 4.96 | 199.8 | 7.12 | 600 | 50.05 | CLEAR/NONE |
| 1305 | 10 | 16.30 | 0.093 | 7.17 | 4.94 | 201.6 | — | 600 | 50.05 | CLEAR/NONE |
| 1310 | | 16.22 | 0.093 | 7.28 | 4.92 | 207.5 | — | 600 | 50.05 | CLEAR/NONE |
| 1315 | | 16.11 | 0.092 | 7.29 | 4.92 | 208.5 | 7.42 | 600 | 50.05 | CLEAR/NONE |
| 1320 | | 16.04 | 0.093 | 7.28 | 4.92 | 209.4 | — | 600 | 50.05 | CLEAR/NONE |
| 1325 | | 16.02 | 0.093 | 7.28 | 4.92 | 209.8 | — | 600 | 50.05 | CLEAR/NONE |
| 1330 | | 16.01 | 0.093 | 7.28 | 4.92 | 210.5 | 7.56 | 600 | 50.05 | CLEAR/NONE |
| | | | | | | | | | | |
| 1330 | | | | | | | | 200 | | Sample |

Well ID: RE123D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9/22/17
Time: Start 1130 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: MTA Yard
Weather Conds: Sunny 70°
Collector(s): Farrenbell, P. Karoch

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 660 ft
c. Length of Water Column 608.66 ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 51.34 ft
d. Calculated System Volume (see back) 18.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 MPS | 11C100917 |
| YSI | 556 Field Cable | U856830X |
| QED | MP10 | U645829X |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1200 | Start Ground water purge | | | | | | | | | |
| 1210 | — | 20.79 | 0.025 | 7.06 | 5.67 | -33.0 | — | 600 | 51.37 | clear |
| 1215 | — | 18.60 | 0.023 | 5.30 | 5.63 | 6.0 | — | 600 | 51.37 | clear |
| 1220 | — | 18.52 | 0.023 | 5.39 | 5.71 | -26.4 | — | 600 | 51.38 | clear |
| 1225 | — | 18.43 | 0.025 | 5.64 | 5.83 | -32.6 | — | 600 | 51.38 | clear |
| 1230 | — | 18.40 | 0.025 | 5.76 | 5.98 | -47.4 | 11.76 | 600 | 51.39 | clear |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

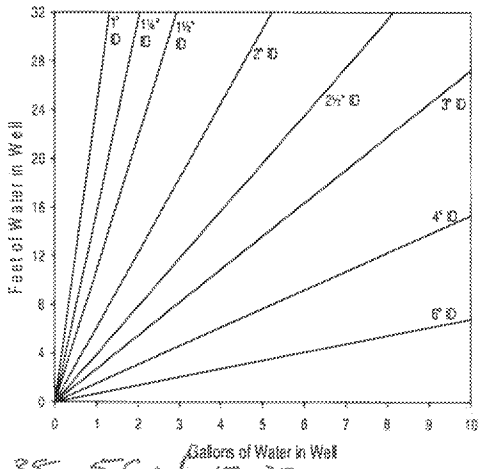
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE123D2-GW-092017 | 40-mL vials | 3 | HCl | VOCs | |
| RE123D2-GW-092217 | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments: Reduced flow rate to 200 ml/min during sample collection.

Signature: [signature]
Date: 9/22/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

1235 5Gal 18.33 0.024 6.60 5.83 -49.1 — 600 51.39

Well ID: AE123-D2

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1240 | [illegible] | | 0.024 | 6.70 | 5.81 | -51.6 | — | 550 | 51.39 | clear |
| 1245 | — | | 0.024 | 6.79 | 5.79 | -52.7 | — | 550 | 51.39 | clear |
| 1250 | — | | 0.024 | 6.96 | 5.80 | -57.1 | — | 550 | 51.39 | clear |
| 1255 | — | 18.02 | 0.024 | 7.09 | 5.80 | -59.1 | — | 550 | 51.39 | clear |
| 1300 | 10 gal | 17.87 | 0.024 | 7.23 | 5.86 | -62.1 | 10.1 | 600 | 51.39 | clear |
| 1305 | — | 17.74 | 0.024 | 7.19 | 5.90 | -60.2 | — | 600 | 51.37 | clear |
| 1310 | — | 17.73 | 0.024 | 7.20 | 5.94 | -58.6 | 9.80 | 600 | 51.37 | clear |
| 1315 | — | 17.67 | 0.024 | 7.18 | 6.07 | -52.2 | 9.69 | 600 | 51.36 | clear |
| 1320 | — | 17.63 | 0.024 | 7.22 | 6.04 | -57.6 | 9.72 | 600 | 51.360 | clear |
| 1325 | 13 gal | 17.62 | 0.024 | 7.28 | 6.03 | -61.7 | 9.86 | 600 | 51.35 | clear |
| 1330 | | | | | | | | | | |
| 1335 | Sample Time. | | | | | | | 200 | | |

Well ID: RE123P3

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9/22/17  Time: Start 1130 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: MTA Yard
Weather Conds: Sunny 70°  Collector(s): Paul Kamath

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 840 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 5.31 ft  d. Calculated System Volume (see back) _____ gal. _____ screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 14J101213 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1200 | ON | | | | | | | | 5.58 | |
| 1205 | OFF | | | | | | | 250 | | pull & reset |
| 1215 | ON | | | | | | | | | |
| 1220 | OFF | | | | | | | 250 | | pull & reset |
| 1230 | ON | | | | | | | | | |
| 1245 | | 16.14 | 0.027 | 7.00 | -2.94 | 361.2 | | 600 | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

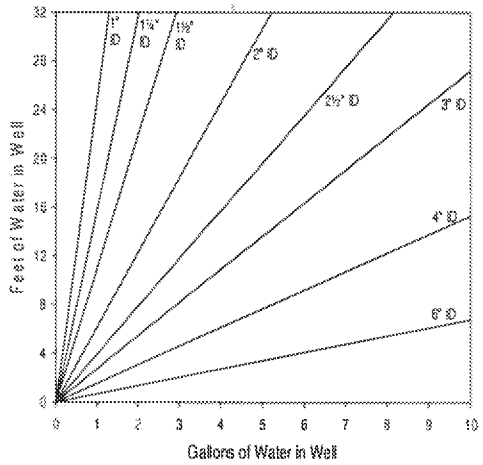
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE123D3-GW-092217 | 40-mL vials | 3 | HCl | VOCs | 1350 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments: pump flow rate was very low, pulled the pump twice to check the bladder and ball valves
pH meter is reading negative

Signature: Paul Kamath  Date: 9/22/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE 12303

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1250 | | 18.18 | 0.030 | 0.51 | -3.41 | 374.1 | 21.7 | 600 | 51.48 | |
| 1255 | 5 gal | 18.12 | 0.033 | 0.37 | -3.56 | 384.7 | 28.1 | | | |
| 1300 | | 18.12 | 0.033 | 0.39 | -3.43 | 381.2 | 28.9 | | 51.49 | |
| 1305 | | 17.89 | 0.032 | 0.25 | -3.49 | 384.0 | 28.5 | | | |
| 1310 | | 17.99 | 0.031 | 0.21 | -3.56 | 384.4 | 30.7 | | | |
| 1315 | | 18.00 | 0.030 | 0.20 | -3.49 | 379.5 | 31.0 | 600 | 51.49 | |
| 1320 | 10 gal | 17.82 | 0.030 | 0.18 | -3.53 | 380.5 | 30.2 | | | |
| 1325 | | 17.78 | 0.029 | 0.20 | -3.51 | 371.7 | 28.6 | | | |
| 1330 | | 17.73 | 0.029 | 0.18 | -3.46 | 366.4 | 28.5 | | 51.49 | |
| 1335 | | 17.84 | 0.029 | 0.17 | -3.38 | 356.8 | 29.5 | | | |
| 1340 | 13 gal | 17.72 | 0.028 | 0.18 | -3.29 | 354.1 | 27.0 | | | |
| 1345 | | 17.99 | 0.027 | 0.16 | -3.24 | 349.2 | 26.8 | | | |
| | | | | | | | | | | Sample |
| 1350 | | | | | | | | 250 | | Sample |

Well ID: RE11701

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 25 / 17
Time: Start 820 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: Susan Ct
Weather Conds: Sunny 70°
Collector(s): Paul Kaveth

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 575 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 26.89 ft
d. Calculated System Volume (see back) 16.3 gal. 25 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| LaMotte | 2020 | 94526 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 850 | 0H | | | | | | | 650 | | |
| 855 | | 17.19 | 0.020 | 4.34 | 5.40 | 7.9 | | | 26.85 | |
| 900 | | 17.21 | 0.019 | 3.04 | 5.19 | 0.2 | | | | |
| 905 | | 17.14 | 0.017 | 3.38 | 4.93 | .21 | | 650 | 26.82 | |
| 910 | | 16.98 | 0.017 | 3.58 | 4.90 | -1.9 | | | | |
| 915 | 3gal | 16.90 | 0.017 | 3.72 | 4.89 | -1.6 | | | 26.81 | |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

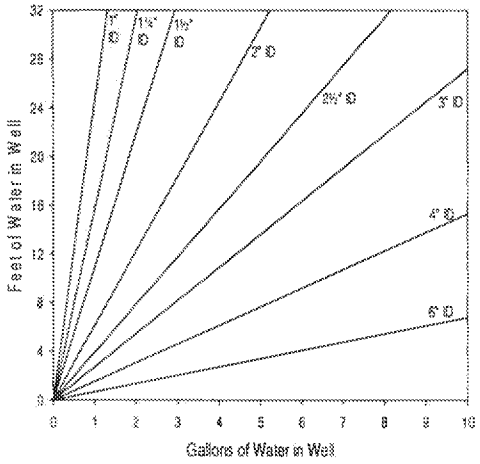
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE11701-GW-092517 | 40-mL vials | 3 | HCl | VOCs | 1035 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |
| | 250 ml plastic | 1 | none | Bromide | |

Comments

Signature Paul Kaveth
Date 9/25/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE1701

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 920 | | 16.92 | 0.017 | 3.71 | 4.87 | -6.7 | 17.0 | | 26.80 | |
| 925 | | 16.79 | 0.017 | 3.67 | 4.88 | -10.9 | 18.9 | | | |
| 930 | | 16.81 | 0.017 | 3.64 | 4.92 | -10.4 | 15.4 | | | |
| 935 | | 16.84 | 0.017 | 3.62 | 4.88 | -13.9 | | | | |
| 940 | 10 gal | 16.88 | 0.017 | 3.60 | 4.88 | -14.5 | 16.5 | | 26.75 | |
| 945 | | 16.83 | 0.017 | 3.58 | 4.88 | -15.7 | ~~14.8~~ | | | |
| 950 | | 16.92 | 0.017 | 3.55 | 4.88 | -16.5 | 11.8 | 650 | | |
| 955 | | 16.92 | 0.017 | 3.53 | 4.88 | -17.5 | 14.3 | | 26.73 | |
| 1000 | | 16.99 | 0.017 | 3.54 | 4.87 | -17.7 | 14.0 | | | |
| 1005 | | 17.04 | 0.017 | 3.45 | 4.83 | -17.8 | 11.9 | | 26.72 | |
| 1010 | | 17.02 | 0.017 | 3.54 | 4.82 | -16.7 | 11.1 | | | |
| 1015 | 15 gal | 16.99 | 0.017 | 3.53 | 4.84 | -17.3 | 11.8 | | | |
| 1020 | | 17.07 | 0.017 | 3.50 | 4.86 | -18.3 | 11.7 | 650 | 26.71 | |
| 1025 | 18 | 17.05 | 0.017 | 3.52 | 4.84 | -17.6 | 11.9 | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 1035 | | | | | | | | 260 | | sample |

Well ID: RE17D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9/25/17
Time: Start 0815 am/pm
Finish 1030 am/pm
Project No: 60266526
Site Location: Susan Ct
Weather Conds: Sunny 70°
Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 76.0 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 25.59 ft
d. Calculated System Volume (see back) 16.3 gal. 25 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0845 | — | 21.85 | 0.030 | 7.12 | 7.13 | 130.7 | — | 600 | 25.70 | CLEAR/NONE |
| 0850 | | 18.08 | 0.022 | 1.60 | 5.15 | 267.5 | 6.69 | 600 | 25.70 | CLEAR/NONE |
| 0855 | | 17.82 | 0.022 | 1.03 | 5.00 | 275.1 | — | 600 | 25.70 | CLEAR/NONE |
| 0900 | | 17.92 | 0.023 | 0.90 | 4.76 | 298.3 | — | 600 | 27.70 | CLEAR/NONE |
| 0905 | | 17.87 | 0.023 | 0.82 | 4.60 | 314.9 | 5.86 | 600 | 27.70 | CLEAR/NONE |
| 0910 | | 17.86 | 0.023 | 0.75 | 4.53 | 316.1 | — | 600 | 27.70 | CLEAR/NONE |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE17D2-GW-092517 | 40-mL vials | 3 | HCl | VOCs | 1030 |
| RE17D2-GW-092517 | 1-L amber | 2 | none | 1,4-Dioxane | 1030 |
| | 250 ml plastic | 1 | none | Bromide | 1030 |

Comments

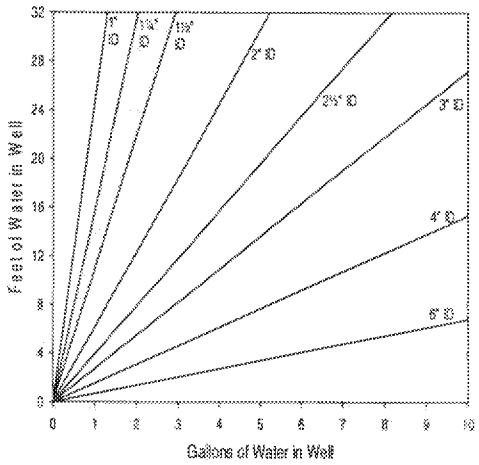
Signature

Date 9-25-17

LowFlow-GWa - Sept 2017.xlsx

RE1170L

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE1170L

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0915 | 5 | 17.74 | 0.022 | 0.68 | 4.50 | 284.9 | — | 600 | 25.70 | CLEAR/NONE |
| 0920 | | 17.77 | 0.023 | 0.59 | 4.47 | 271.5 | 8.08 | 600 | 25.70 | CLEAR/NONE |
| 0925 | | 17.78 | 0.023 | 0.55 | 4.46 | 264.8 | — | 600 | 25.70 | CLEAR/NONE |
| 0930 | | 17.73 | 0.023 | 0.52 | 4.44 | 264.1 | — | 600 | 25.70 | CLEAR/NONE |
| 0935 | | 17.87 | 0.023 | 0.49 | 4.46 | 262.8 | 4.09 | 600 | 25.70 | CLEAR/NONE |
| 0940 | | 17.94 | 0.023 | 0.45 | 4.54 | 255.2 | — | 600 | 25.70 | CLEAR/NONE |
| 0945 | 10 | 18.02 | 0.023 | 0.43 | 4.62 | 246.6 | — | 600 | 25.70 | CLEAR/NONE |
| 0950 | | 18.00 | 0.023 | 0.40 | 4.73 | 236.7 | 3.89 | 600 | 25.70 | CLEAR/NONE |
| 0955 | | 17.91 | 0.023 | 0.38 | 4.81 | 231.4 | — | 600 | 25.70 | CLEAR/NONE |
| 1000 | | 18.13 | 0.023 | 0.37 | 4.84 | 228.4 | — | 600 | 25.70 | CLEAR/NONE |
| 1005 | | 18.13 | 0.023 | 0.35 | 4.89 | 224.5 | 5.04 | 600 | 25.70 | CLEAR/NONE |
| 1010 | | 18.07 | 0.023 | 0.33 | 4.94 | 222.5 | — | 600 | 25.70 | CLEAR/NONE |
| 1015 | 15 | 18.22 | 0.023 | 0.32 | 4.97 | 219.8 | — | 600 | 25.70 | CLEAR/NONE |
| 1020 | | 18.25 | 0.023 | 0.30 | 5.03 | 217.8 | 4.88 | 600 | 25.70 | CLEAR/NONE |
| 1025 | | 18.30 | 0.023 | 0.29 | 5.07 | 215.4 | — | 600 | 25.70 | CLEAR/NONE |
| | | | | | | | | | | |
| 1030 | | | | | | | | 250 | | sample |

Well ID: BPOW5/4

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9/25/17
Time: Start 08:30 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: Susan Gb
Weather Conds: Sunny 70°
Collector(s): _____

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 810 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 26.97 ft
d. Calculated System Volume (see back) 163 gal. 25 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 MPS | 14J101213 |
| YSI | 556 FieldCable | U86888X |
| QED | MP10 | U84801X |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0830 | Start GW Purge | | | | | | | | | |
| 0850 | – | 15.02 | 0.148 | 0.31 | -1.18 | 350.0 | – | 800 | 26.96 | clear |
| 0855 | 5 Gal | 15.00 | 0.147 | 0.24 | -1.17 | 348.5 | 0.91 | 800 | 26.94 | clear |
| 0900 | – | 15.00 | 0.148 | 0.19 | -1.01 | 341.6 | – | 800 | 26.92 | clear |
| 0905 | – | 15.01 | 0.148 | 0.14 | -0.98 | 336.0 | 0.98 | 800 | 26.90 | clear |
| 0910 | – | 14.99 | 0.148 | 0.13 | -0.95 | 333.8 | – | 800 | 26.89 | clear |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

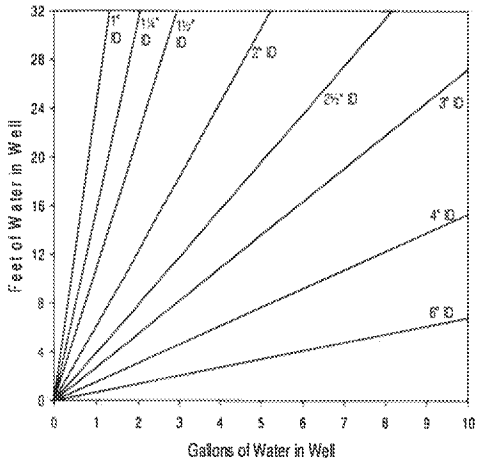
| *Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| BPOW5-4-GW-092517 | 40-mL vials | 3 | HCl | VOCs | 0945 |
| BPOW5-4-GW-092517 | 1-L amber | 2 | none | 1,4-Dioxane | 0945 |
| BPOW5-4-GW-092517 | 125mL Plastic | 1 | none | Bromide | 0945 |

Comments When collecting samples, flow rate was reduced to 200 ml/min
* Dup Was collected here, Bromide, 1,4 Dioxane, VOC

Signature Jandel Lee
Date 9/25/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: BPOW 5/4

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0915 | 10 Gal | 15.00 | 0.148 | 0.13 | 0.77 | 318.9 | — | 800 | 26.84 | clear |
| 0920 | — | 14.99 | 0.148 | 0.14 | 0.75 | 318.8 | — | 800 | 26.85 | clear |
| 0925 | - | 15.02 | 0.147 | 0.10 | 0.58 | 304.5 | 0.98 | 800 | 26.84 | clear |
| 0930 | 15 Gal | 15.10 | 0.147 | 0.13 | 0.09 | 268.5 | 0.92 | 800 | 26.82 | clear |
| 0935 | | 15.00 | 0.147 | 0.11 | 0.18 | 262.5 | 0.89 | 800 | 26.81 | clear |
| 0940 | 16.5 Gal | 15.99 | 0.147 | 0.10 | 0.23 | 258.6 | 0.90 | 800 | 26.80 | Clear |
| 0945 | | Sample Time | | | | | | 200 | | |
| 0950 | | | | | | | | | | |
| 0955 | | | | | | | | | | |
| 1000 | | | | | | | | | | |

Well ID: RE12501

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9 / 25 / 17
Time: Start 1210 am/pm
Finish 1945 am/pm
Project No: 60266526
Site Location: Diana
Weather Conds: Sunny 85°
Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 345 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 36.90 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11010917 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1320 | — | 22.64 | 0.090 | 6.67 | 4.33 | -94.1 | — | 500 | 36.99 | clear/none |
| 1325 | | 20.41 | 0.100 | 5.61 | 4.72 | -188.3 | — | 500 | 36.99 | clear/none |
| 1330 | | 16.90 | 0.107 | 3.47 | 4.96 | -157.7 | 3.66 | 500 | 36.99 | clear/none |
| 1335 | | 16.87 | 0.107 | 3.21 | 4.97 | -176.1 | — | 600 | 36.99 | clear/none |
| 1340 | | 16.85 | 0.108 | 2.26 | 5.00 | -95.3 | — | 600 | 36.99 | clear/none |
| 1345 | | 16.75 | 0.107 | 2.25 | 5.01 | -99.5 | 2.61 | 600 | 37.00 | clear/none |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE12501-GW-092517 | 40-mL vials | 3 | HCl | VOCs | 1945 |
| RE12501-GW-092517 | 1-L amber | 2 | none | 1,4-Dioxane | 1945 |

Comments MS/MSD COLLECTED

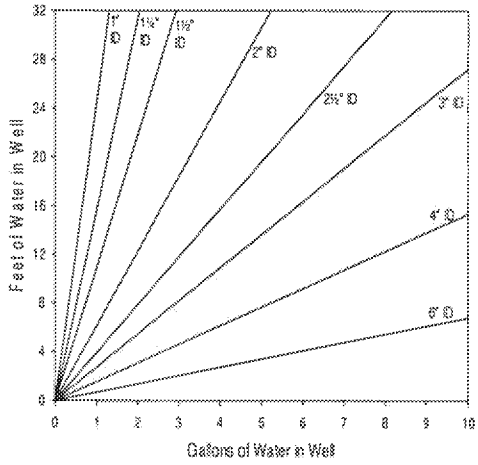
Signature

Date 9-25-17

LowFlow-GWa - Sept 2017.xlsx

RE12501

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE12501

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1350 | 5 | 16.68 | 0.106 | 2.09 | 5.00 | -97.8 | — | 600 | 37.00 | CLEAR/NONE |
| 1355 | | 16.61 | 0.106 | 2.08 | 4.88 | -88.6 | — | 600 | 37.00 | CLEAR/NONE |
| 1400 | | 16.50 | 0.106 | 1.99 | 5.00 | -86.5 | 285 | 600 | 37.00 | CLEAR/NONE |
| 1405 | | 16.50 | 0.106 | 2.00 | 4.86 | -44.3 | — | 600 | 37.00 | CLEAR/NONE |
| 1410 | | 16.44 | 0.105 | 1.80 | 4.83 | -67.7 | — | 600 | 37.00 | CLEAR/NONE |
| 1415 | | 16.39 | 0.105 | 1.77 | 4.82 | -70.1 | 4.15 | 600 | 37.01 | CLEAR/NONE |
| 1420 | 10 | 16.37 | 0.105 | 1.70 | 4.84 | -71.9 | — | 600 | 37.01 | CLEAR/NONE |
| 1425 | | 16.30 | 0.105 | 1.74 | 4.87 | -75.0 | — | 600 | 37.01 | CLEAR/NONE |
| 1430 | | 16.34 | 0.105 | 1.68 | 4.85 | -77.8 | 4.35 | 600 | 37.01 | CLEAR/NONE |
| 1435 | | 16.31 | 0.105 | 1.64 | 4.82 | -80.3 | — | 600 | 37.01 | CLEAR/NONE |
| 1440 | | 16.29 | 0.105 | 1.61 | 4.79 | -78.3 | — | 600 | 37.01 | CLEAR/NONE |
| 1445 | 13.5 | 16.27 | 0.105 | 1.59 | 4.80 | -77.3 | 4.24 | 600 | 37.01 | CLEAR/NONE |
| | | | | | | | | | | |
| 1445 | | | | | | | | [illegible] | | Sample |

LowFlow-GWa - Sept 2017.xlsx

Well ID: RE125D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 25 / 17  Time: Start 1210 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: Dive ab
Weather Conds: sunny 85°  Collector(s): _____

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 605 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 39.75 ft  d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11E100176 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1335 | OH | | | | | | | | | |
| 1340 | | 17.10 | 0.074 | 11.31 | 6.33 | 185.2 | ~~705~~ | 700 | 39.68 | |
| 1345 | | 16.92 | 0.072 | 5.20 | 6.31 | 176.2 | | | | |
| 1350 | | | | | | | | | | |
| 1355 | | 16.64 | 0.062 | 2.92 | 5.11 | 249.1 | 2.80 | 700 | 39.69 | |
| 1400 | 5 gal | 16.68 | 0.063 | 2.93 | 5.09 | 250.6 | — | 700 | 39.69 | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

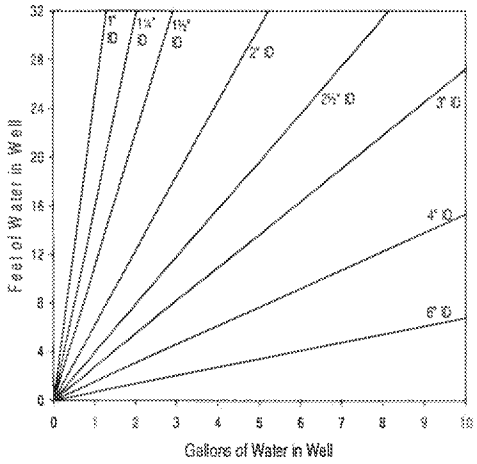
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE125D2-GW-092517 | 40-mL vials | 3 | HCl | VOCs | 1500 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments _____

Signature Paul Karetta  Date 9/25/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE 12502

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1405 | | 16.52 | 0.063 | 2.87 | 5.05 | 254.0 | 4.22 | 700 | 38.69 | |
| 1410 | | 16.42 | 0.063 | 2.80 | 5.07 | 255.1 | 7.16 | | | |
| 1415 | | 16.33 | 0.063 | 2.82 | 5.13 | 246.4 | | | 38.61 | |
| 1420 | | 16.32 | 0.062 | 2.79 | 5.19 | 240.7 | 9.08 | | | |
| 1425 | page 1 | 16.31 | 0.063 | 2.77 | 5.27 | 233.0 | 8.60 | | | |
| 1430 | | 16.28 | 0.062 | 2.71 | 5.36 | 224.0 | 8.61 | | 39.61 | |
| 1435 | | 16.28 | 0.062 | 2.75 | 5.40 | 220.9 | | | | |
| 1440 | | 16.24 | 0.061 | 2.76 | 5.43 | 218.8 | 8.48 | | | |
| 1445 | 13.5 | 16.17 | 0.062 | 2.86 | 5.48 | 215.6 | 8.08 | 700 | 39.61 | |
| 1450 | 15.5 | 16.20 | 0.061 | 2.88 | 5.49 | 214.8 | 7.90 | | | |
| | | | | | | | | | | |
| 1500 | | | | | | | | 250 | | Sample |

Well ID: RE125D3

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9/25/17
Time: Start 1330 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: Riverhead
Weather Conds: sunny 85°
Collector(s): E. Bell, P. Hancock

## 1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 695 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 39.97 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

## 2. WELL PURGE DATA

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 MPS | 14T101013 |
| YSI | 556 Field Cable | U868888X |
| QED | MP10 | U554404X |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1330 | Start purge | | | | | | | | | |
| 1345 | – | 19.09 | 0.042 | 6.58 | 1.62 | 368.9 | – | 650 | 39.91 | clear |
| 1350 | – | 19.10 | 0.040 | 6.40 | 0.96 | 498.6 | – | 650 | 39.91 | clear |
| 1355 | – | 19.14 | 0.039 | 6.45 | -1.32 | 567.2 | – | 650 | 39.90 | Clear |
| 1400 | 5 Gal | 19.16 | 0.037 | 6.47 | -3.88 | 601.8 | 8.22 | 650 | 39.89 | Clear |
| 1405 | – | 19.11 | 0.037 | 6.82 | -3.88 | 601.5 | – | 650 | 39.89 | clear |

(continued on back)

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

## 3. SAMPLE COLLECTION:

Method: Geotech bladder pump with drop tube assembly

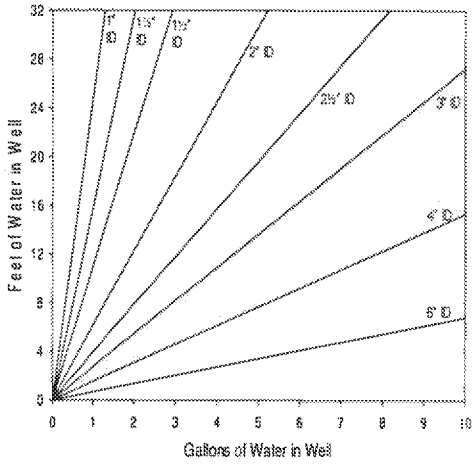
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE125D3-GW-092517 | 40-mL vials | 3 | HCl | VOCs | 1505 |
| RE125D3-GW-092517 | 1-L amber | 2 | none | 1,4-Dioxane | 1505 |

Comments

Signature [signature]
Date 9/25/2017

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE17503

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1410 | — | 18.98 | 0.036 | 6.71 | 3.91 | 622.1 | — | 650 | 39.91 | clear |
| 1415 | — | 18.63 | 0.036 | 6.69 | 3.99 | 630.9 | — | 650 | 39.89 | clear |
| 1420 | — | 18.24 | 0.036 | 6.62 | 4.00 | 638.0 | — | 650 | 39.83 | clear |
| 1425 | — | 18.14 | 0.036 | 6.59 | 3.99 | 638.7 | — | 650 | 39.85 | clear |
| 1430 | 10 Gal | 18.03 | 0.036 | 6.56 | 3.96 | 639.2 | 10.21 | 650 | 39.83 | clear |
| 1435 | — | 18.06 | 0.036 | 6.44 | 3.98 | 641.4 | 11.02 | 650 | 39.80 | clear |
| 1440 | — | 18.14 | 0.037 | 6.44 | 3.67 | 633.7 | 10.01 | 650 | 39.83 | clear |
| 1445 | — | 17.99 | 0.036 | 6.39 | 3.54 | 638.7 | 11.99 | 650 | 39.82 | clear |
| 1450 | 13.5 Gal | 17.89 | 0.036 | 6.37 | 3.44 | 640.1 | 11.01 | 650 | 39.82 | clear |
| | | | | | | | | | | |
| 1505 | Sample Time | | | | | | | 200 | | |

Well ID: AHW RE103D1

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9/26/17
Time: Start 845 am/pm
Finish _____ am/pm
Project No: 60266526
Site Location: Avoca
Weather Conds: fog, 70°
Collector(s): Paul Kurath

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 645 ft
c. Length of Water Column _____ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 44.41 ft
d. Calculated System Volume (see back) 9.8 gal. 15 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11C100917 |
| LaMotte | 2020 | 84525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 910 | ON | | | | | | | 650 | | |
| 920 | | 16.42 | 0.075 | 5.62 | 7.01 | -159.1 | | | | |
| 925 | | 16.26 | 0.075 | 3.15 | 6.35 | 8.3 | | 650 | 44.42 | |
| 930 | | 16.13 | 0.075 | 2.93 | 6.12 | -19.2 | | | | |
| 935 | | 16.14 | 0.075 | 3.62 | 5.82 | -12.4 | 0.74 | | 44.42 | |
| 940 | 5gal | 16.12 | 0.076 | 3.63 | 5.74 | -28.8 | | | | |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

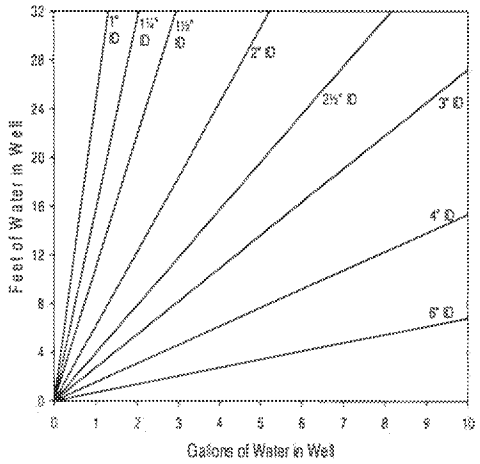
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE103D1-GW-092617 | 40-mL vials | 3 | HCl | VOCs | 1020 |
| | 1-L amber | 2 | none | 1,4-Dioxane | |

Comments

Signature Paul Kurath
Date 9/26/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE10301

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 945 | | 16.12 | 0.076 | 3.63 | 5.74 | -35.4 | 0.64 | 650 | 44.41 | |
| 950 | | 16.13 | 0.076 | 3.64 | 5.73 | -35.5 | | | | |
| 955 | | 16.10 | 0.076 | 3.69 | 5.72 | -37.2 | 0.47 | | | |
| 1000 | 8 gal | 16.33 | 0.076 | 3.68 | 5.74 | -44.2 | | | 44.39 | |
| 1005 | | 16.27 | 0.077 | 3.80 | 5.75 | -53.5 | 0.32 | | | |
| 1010 | 10 gal | 16.27 | 0.077 | 3.91 | 5.72 | -55.1 | | | | |
| 1015 | 11 gal | 16.33 | 0.077 | 3.92 | 5.71 | -56.2 | | | 44.39 | |
| | | | | | | | | | | |
| 1020 | | | | | | | 200 | 200 | | Sample |

Well ID: RE103D2

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage
Date: 9/ 26 /17
Time: Start 0950 am/pm
Finish ___ , ___ am/pm
Project No: 60266526
Site Location: Avoca
Weather Conds: Cloudy, 70°, fog
Collector(s): E. Bell, P. Hacett

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 673 ft
c. Length of Water Column ___ ft (a-b)
Casing Diameter/Material 4-inch PVC
b. Water Table Depth 44.23 ft
d. Calculated System Volume (see back) 13.1 gal. 20 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 MPS | 14J101213 |
| YSI | 556 Field Cable | U36888X |
| QED | MP10 | U645029 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0910 | Start purge | | | | | | | ~~000~~ | | |
| 0920 | — | 15.93 | 0.028 | 10.20 | -0.94 | 528.6 | 0.90 | 600 | 44.27 | clear |
| 0925 | — | 15.91 | 0.028 | 7.64 | -1.26 | 623.9 | — | 600 | 44.25 | clear |
| 0930 | — | 15.85 | 0.027 | 6.92 | -2.41 | 694.7 | — | 600 | 44.23 | clear |
| 0935 | — | 15.83 | 0.027 | 6.40 | -3.57 | 709.3 | — | 600 | 44.22 | clear |
| 0940 | 5 Gal | 15.86 | 0.026 | 6.62 | -3.40 | 695.5 | 0.89 | 600 | — | clear |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

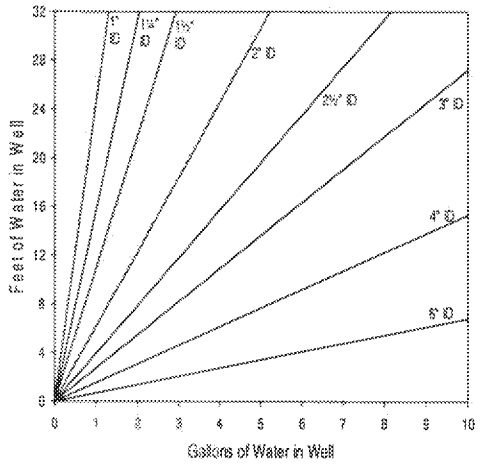
| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE103D2-(GW)-092617 | 40-mL vials | 3 | HCl | VOCs | 10:30 |
| RE103D2-(GW)-092617 | 1-L amber | 2 | none | 1,4-Dioxane | 10:30 |

Comments: During sample collection flowrate was 200 ml/min

Signature: [signature]
Date: 9/26/17

LowFlow-GWa - Sept 2017.xlsx

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE103DL

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0945 | – | 15.84 | 0.026 | 6.60 | -3.42 | 696.2 | – | 600 | – | clear |
| 0950 | – | 15.84 | 0.026 | 6.55 | -3.45 | 697.1 | – | 600 | 44.20 | clear |
| 0955 | – | 15.80 | 0.026 | 6.54 | -3.37 | 679.3 | – | 600 | 44.18 | clear |
| 1000 | – | 15.79 | 0.025 | 6.56 | -3.32 | 686.7 | – | 600 | 44.16 | clear |
| 1005 | 10 Gal | 15.74 | 0.025 | 6.57 | -3.36 | 694.2 | 0.52 | 600 | 44.16 | clear |
| 1010 | – | 15.75 | 0.025 | 6.59 | -3.47 | 700.9 | – | 600 | 44.15 | clear |
| 1015 | – | 15.77 | 0.025 | 6.99 | -2.96 | 674.1 | 0.62 | 600 | 44.14 | clear |
| 1020 | – | 15.76 | 0.025 | 6.93 | -2.95 | 674.5 | 0.54 | 600 | 44.14 | clear |
| 1025 | 15.5 | 15.76 | 0.025 | 7.00 | -2.90 | 669.2 | 0.59 | 600 | 44.13 | clear |
| 1030 | Sample time | | | | | | | 600 | | |

Well ID: RE103D3

RESOLUTION CONSULTANTS

# Low Flow Ground Water Sample Collection Record

Client: Navy NWIRP Bethpage  Date: 9 / 26 / 17  Time: Start 0845 am/pm
Project No: 60266526  Finish _____ am/pm
Site Location: Avoca
Weather Conds: fog 70°  Collector(s): S. WRIGHT

**1. WATER LEVEL DATA: (measured from Top of Casing)**

a. Total Well Length 735 ft  c. Length of Water Column _____ ft (a-b)  Casing Diameter/Material 4-inch PVC

b. Water Table Depth 44.55 ft  d. Calculated System Volume (see back) 9.8 gal.  15 screen length (ft)

**2. WELL PURGE DATA**

a. Purge Method: Geotech bladder pump with drop tube assembly

b. Acceptance Criteria defined (see workplan)

- Temperature ± 3%
- pH ± 0.1 unit
- Conductivity ± 3%
- Turbidity ± 10%
- ORP ± 10mV
- Drawdown < 0.3'
- D.O. ± 10% (values >0.5 mg/L)

Remove a minimum 1 screen volume

c. Field Testing Equipment used:

| Make | Model | Serial Number |
|---|---|---|
| YSI | 556 | 11F100176 |
| LaMotte | 2020 | 89525 |

| Time (24hr) | Volume Removed (gallons) | Temp. (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0910 | — | 19.92 | 0.028 | 12.59 | 8.80 | 76.5 | — | 300 | 44.59 | clear/none |
| 0915 | | 17.46 | 0.026 | 8.81 | 6.08 | 159.4 | — | 400 | 44.62 | clear/none |
| 0920 | | 17.23 | 0.031 | 7.39 | 5.90 | 184.4 | 1.41 | 400 | 44.62 | clear/none |
| 0925 | | 17.13 | 0.030 | 5.98 | 5.82 | 200.1 | — | 400 | 44.62 | clear/none |
| 0930 | | 17.14 | 0.030 | 5.38 | 5.79 | 204.7 | — | 400 | 44.62 | clear/none |
| 0935 | | 16.91 | 0.030 | 4.18 | 5.75 | 211.6 | 1.43 | 500 | 44.63 | clear/none |

d. Acceptance criteria pass/fail

| | Yes | No | N/A |
|---|---|---|---|
| Has required volume been removed | ☑ | ☐ | ☐ |
| Has required turbidity been reached | ☑ | ☐ | ☐ |
| Have parameters stabilized | ☑ | ☐ | ☐ |

If no or N/A - Explain below.

(continued on back)

**3. SAMPLE COLLECTION:** Method: Geotech bladder pump with drop tube assembly

| Sample ID | Container Type | No. of Containers | Preservation | Analysis Req. | Time |
|---|---|---|---|---|---|
| RE103D3-GW-092617 | 40-mL vials | 3 | HCl | VOCs | 1040 |
| RE103D3-GW-092617 | 1-L amber | 2 | none | 1,4-Dioxane | 1040 |

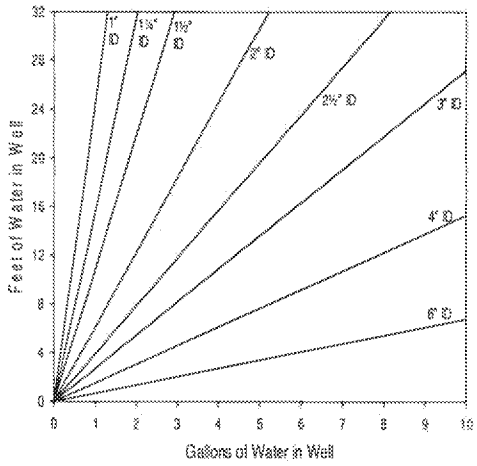
Comments

Signature  Date 9-26-17

LowFlow-GWa - Sept 2017.xlsx

RE10503

Purge Volume Calculation




| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| ID (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |
| 2.5 | 0.2550 | 0.9653 |
| 3 | 0.3672 | 1.3900 |
| 4 | 0.6528 | 2.4711 |
| 6 | 1.4688 | 5.5600 |

One screen volume (4-inch well)

15 ft = 37.1 L / 9.8 G
20 ft = 49.4 L / 13.1 G
25 ft = 61.8 L / 16.3 G
30 ft = 74.3 L / 19.6 G
40 ft = 99.2 L / 26.1 G
50 ft = 123.6 L / 32.6 G

Well ID: RE10303

(continued from front)

| Time (24 hr) | Volume Removed (gallons) | Temp (°C) | Conduct. (mS/cm) | DO (mg/L) | pH | ORP (mV) | Turbidity (NTU) | Flow Rate (mL/min) | Depth to water (ft) | Color/Odor |
|---|---|---|---|---|---|---|---|---|---|---|
| 0940 | | 16.90 | 0.030 | 4.02 | 5.72 | 214.1 | — | 500 | 44.64 | CLEAR/NONE |
| 0945 | | 16.95 | 0.030 | 3.27 | 5.70 | 218.7 | — | 500 | 44.65 | CLEAR/NONE |
| 0950 | 5 | 16.94 | 0.030 | 3.19 | 5.69 | 219.7 | 1.44 | 500 | 44.65 | CLEAR/NONE |
| 0955 | | 16.97 | 0.030 | 2.91 | 5.68 | 221.7 | — | 500 | 44.66 | CLEAR/NONE |
| 1000 | | 17.03 | 0.030 | 2.84 | 5.64 | 223.2 | — | 500 | 44.66 | CLEAR/NONE |
| 1005 | | 17.10 | 0.030 | 2.74 | 5.64 | 223.1 | 1.38 | 500 | 44.66 | CLEAR/NONE |
| 1010 | | 17.18 | 0.030 | 2.70 | 5.62 | 223.3 | — | 500 | 44.66 | CLEAR/NONE |
| 1015 | | 17.26 | 0.030 | 2.67 | 5.62 | 222.6 | — | 500 | 44.66 | CLEAR/NONE |
| 1020 | | 17.30 | 0.030 | 2.63 | 5.61 | 222.1 | 1.36 | 500 | 44.67 | CLEAR/NONE |
| 1025 | | 17.25 | 0.030 | 2.62 | 5.60 | 221.5 | — | 500 | 44.67 | CLEAR/NONE |
| 1030 | 10 | 17.23 | 0.030 | 2.63 | 5.60 | 222.2 | — | 500 | 44.67 | CLEAR/NONE |
| | | | | | | | | | | |
| 1040 | | | | | | | | 100 | | Sample |

# Appendix B

## Analytical Data Validation – Resolution Consultants

# DATA VALIDATION REPORT

| | | |
|---|---|---|
| **Project:** | Regional Groundwater Investigation — Naval Weapons Industrial Reserve Plant Bethpage | |
| **Laboratory:** | Katahdin Analytical | |
| **Sample Delivery Groups:** | SK8493, SK8591, and SK8743 | |
| **Analyses/Method:** | Bromide by United States Environmental Protection Agency Method 300.0, Volatile Organic Compounds by United States Environmental Protection Agency SW-846 Method 8260C, and 1,4-Dioxane by United States Environmental Protection Agency SW-846 Method 8270D via Selective Ion Monitoring | |
| **Validation Level:** | Stage 3 Validation Electronic and Manual | |
| **Project Number:** | 0888812477.SA.DV | |
| **Prepared by:** | Dana Miller/Resolution Consultants | Completed on: 01/04/2018 |
| **Reviewed by:** | Tina Cantwell/Resolution Consultants | File Name: SK8493_SK8591_SK8743_300.0_8260C_8270D |

## SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage Site on 18 to 26 September 2017 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York.* (Resolution Consultants August 2014).

| Sample Identification | Matrix/Sample Type | Analysis |
|---|---|---|
| FB01-WQ-091817 | Field blank | 8260C/8270D_SIM |
| TB01-WQ-091817 | Trip blank | 8260C |
| RE104D1-GW-091917 | Groundwater | 8260C/8270D_SIM |
| RE104D2-GW-091917 | Groundwater | 8260C/8270D_SIM |
| RE104D3-GW-091917 | Groundwater | 8260C/8270D_SIM |
| RE105D1-GW-091817 | Groundwater | 8260C/8270D_SIM |
| RE105D2-GW-091817 | Groundwater | 8260C/8270D_SIM |
| RE108D1-GW-091817 | Groundwater | 8260C/8270D_SIM |

| Sample Identification | Matrix/Sample Type | Analysis |
|---|---|---|
| DUP01-GW-091817 | Duplicate of RE108D2-GW-091817 | 8260C/8270D_SIM |
| RE108D2-GW-091817 | Groundwater | 8260C/8270D_SIM |
| TT101D-GW-091917 | Groundwater | 8260C/8270D_SIM |
| TT101D1-GW-091917 | Groundwater | 8260C/8270D_SIM |
| TT101D2-GW-091917 | Groundwater | 8260C/8270D_SIM |
| RE109D1-GW-092117 | Groundwater | 8260C/8270D_SIM |
| RE109D2-GW-092117 | Groundwater | 8260C/8270D_SIM |
| RE109D3-GW-092117 | Groundwater | 8260C/8270D_SIM |
| RE120D1-GW-092017 | Groundwater | 300.0/8260C/8270D_SIM |
| RE120D2-GW-092017 | Groundwater | 300.0/8260C/8270D_SIM |
| RE120D3-GW-092017 | Groundwater | 300.0/8260C/8270D_SIM |
| RE122D1-GW-092117 | Groundwater | 8260C/8270D_SIM |
| RE122D2-GW-092117 | Groundwater | 8260C/8270D_SIM |
| RE122D3-GW-092117 | Groundwater | 8260C/8270D_SIM |
| RE131D1-GW-092017 | Groundwater | 8260C/8270D_SIM |
| RE131D2-GW-092017 | Groundwater | 8260C/8270D_SIM |
| RE131D3-GW-092017 | Groundwater | 8260C/8270D_SIM |
| TB02-WQ-092117 | Trip blank | 8260C |
| FB02-WQ-092517 | Field blank | 8260C/8270D_SIM |
| TB03-WQ-092217 | Trip blank | 8260C |
| BPOW5-4-GW-092517 | Groundwater | 300.0/8260C/8270D_SIM |
| DUP02-GW-092517 | Duplicate of BPOW5-4-GW-092517 | 300.0/8260C/8270D_SIM |
| RE103D1-GW-092617 | Groundwater | 8260C/8270D_SIM |
| RE103D2-GW-092617 | Groundwater | 8260C/8270D_SIM |
| RE103D3-GW-092617 | Groundwater | 8260C/8270D_SIM |
| RE117D1-GW-092517 | Groundwater | 300.0/8260C/8270D_SIM |
| RE117D2-GW-092517 | Groundwater | 300.0/8260C/8270D_SIM |
| RE123D1-GW-092217 | Groundwater | 8260C/8270D_SIM |
| RE123D2-GW-092217 | Groundwater | 8260C/8270D_SIM |
| RE123D3-GW-092217 | Groundwater | 8260C/8270D_SIM |
| RE125D1-GW-092517 | Groundwater | 8260C/8270D_SIM |
| RE125D2-GW-092517 | Groundwater | 8260C/8270D_SIM |
| RE125D3-GW-092517 | Groundwater | 8260C/8270D_SIM |
| RE126D1-GW-092217 | Groundwater | 8260C/8270D_SIM |
| RE126D2-GW-092217 | Groundwater | 8260C/8270D_SIM |
| RE126D3-GW-092217 | Groundwater | 8260C/8270D_SIM |

***Note:***
SIM = Selective Ion Monitoring

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (United States Environmental Protection Agency [U.S. EPA] 2006), *SW-846 Method 8270D, Semi volatile Organic Compounds by Gas Chromatograph/Mass Spectrometry* (U.S. EPA 2007), *National Functional Guidelines for Superfund Organic Methods Data Review* (U.S. EPA January 2017), *National Functional Guidelines for Inorganic Superfund Methods Data Review* (U.S. EPA January 2017), *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (U.S. EPA January 2009), and *Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 4.2 (October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, and/or professional judgment were used as appropriate.

**REVIEW ELEMENTS**

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody)/sample integrity
- ✓ Holding times and sample preservation
- ✓ Gas chromatography/Mass spectrometer performance checks
- ✗ Initial calibration (ICAL)/initial calibration verification (ICV)/continuing calibration verification (CCV)
- ✓ Laboratory blanks/field blanks/trip blanks
- ✗ Surrogate spike recovery
- ✓ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✗ Laboratory control sample (LCS) /laboratory control sample duplicate results(LCSD)
- ✗ Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. Acceptable data parameters for which all criteria were met, no qualification was performed, and/or non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. The symbol (X) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

## RESULTS

### Initial Calibration/Initial Calibration Verification/Continuing Calibration Verification

The ICAL is evaluated to ensure that the instrument was capable of producing acceptable qualitative and quantitative data prior to the analysis of samples. The ICV is evaluated to assess the accuracy of ICAL standards. The CCV is evaluated to determine whether the instrument was within acceptable calibration throughout the period in which the samples were analyzed. Failure of the CCV indicates that the ICAL is no longer valid and should trigger recalibration and reanalysis of the associated samples in the analytical sequence. Data qualification to the analytes associated with the specific ICAL was as follows:

### Initial Calibration Linearity Non-Conformance:

| Criteria | Actions | |
|---|---|---|
| | Detected Results | Non-Detected Results |
| RSD >15% and quantitation based on mean response factor | J | UJ |

***Notes:***
RSD = Relative standard deviation
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific ICV was as follows:

### Initial Calibration Verification Recovery Non-Conformance:

| Criteria | Actions | |
|---|---|---|
| | Detected Results | Non-Detected Results |
| Recovery >120% | J | UJ |
| Recovery < 80% | J | UJ |

***Notes:***
J = Estimated value
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific CCV was as follows:

### Continuing Calibration Verification Linearity Non-Conformance:

| Criteria | Actions | |
|---|---|---|
| | Detected Results | Non-Detected Results |
| %Difference or %Drift > 20% | J | UJ |

***Notes:***
J = Estimated value
UJ = Undetected and estimated

ICAL, ICV, and CCV non-conformances are summarized in Attachment A in Table's A-1, A-2, and A-3.

**Surrogate Spike Recovery**

Surrogates provide information needed to assess the accuracy of analyses. Known amounts of surrogate compounds, which are not likely to be found in the actual samples, are added to each organic sample to check for accuracy. If surrogate percent recoveries (%Rs) are close to the known concentrations, the reported target compound concentrations are assumed to be accurate. Data qualification on the basis of surrogate recovery was as follows:

**Surrogate Spike Recovery Non-Conformance Chart:**

| Criteria | Action | |
|---|---|---|
| | **Detected** | **Non-Detected** |
| Lower Limit ≤ %R or RPD ≤ Upper Limit | No qualification | No qualification |
| % R > Upper Limit | J | No qualification |
| 20% <%R < Lower Limit | J | UJ |
| % R < 20% | J | Rejected |

***Notes:***

| | | | | | |
|---|---|---|---|---|---|
| %R | = | Percent recovery | RPD | = | Relative percent difference |
| J | = | Estimated value | UJ | = | Undetected and estimated |

Surrogate spike recovery non-conformance is summarized in Attachment A in Table A-4.

**Laboratory Control Sample / Laboratory Control Sample Duplicate**

LCS %Rs is used to monitor the overall accuracy and performance of each step during analysis, including sample preparation. The laboratory analyzed LCSs in duplicate when matrix spike/matrix spike duplicates were not reported. In these instances, the laboratory determined precision between the duplicated values. Data qualification to the analytes associated with the specific LCS/LCS duplicate was as follows:

**Laboratory Control Sample / Laboratory Control Sample Duplicate Non-conformance Chart:**

| Criteria | Action | |
|---|---|---|
| | **Detected** | **Non-detected** |
| % R or RPD > UL | J | No qualification |
| %R < LL | J | UJ |
| %R < 20% | J | Rejected |

***Notes:***

| | | | | | |
|---|---|---|---|---|---|
| %R | = | Percent recovery | RPD | = | Relative percent difference |
| UL | = | Upper limit | LL | = | Lower limit |
| J | = | Estimated | UJ | = | Undetected and estimated |

LCS/LCSD %R non-conformances are summarized in Attachment A in Table A-5.

**Field Duplicate**

Two field duplicate pairs were collected to assess precision: RE108D2-GW-091817/ DUP01-GW-091817 and BPOW5-4-GW-092517/ DUP02-GW-092517. Field duplicate RPDs were reviewed for conformance with the Resolution Consultants QC criteria of ≤30% for aqueous matrices. These criteria apply if both results were greater than two times the limit of quantitation (LOQ). Data qualification to the analytes associated with the specific field duplicate RPDs was as follows:

**Field Duplicate Non-conformances Chart:**

| Criteria | RPD | Action | |
|---|---|---|---|
| | | Detected | Non-detected |
| Sample and duplicate are not detected | NC | No qualification | No qualification |
| Sample and duplicate results ≥2x LOQ | >30 (aqueous) | J | Not Applicable |
| If sample or duplicate result is >2x LOQ and the other is not detected | NC | J | UJ |
| If sample or duplicate result is <2x LOQ and the other is not detected | NC | No qualification | No qualification |

***Notes:***

| | | | | | |
|---|---|---|---|---|---|
| NC | = | Not calculable | J | = | Estimated value |
| LOQ | = | Limit of quantitation | UJ | = | Undetected and estimated |

The field duplicate non-conformance is summarized in Attachment A in Table A-6.

**Qualification Actions**

The data were reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-target analytes was checked to confirm that the results and/or sample-specific limit of quantitation and limit of detections were adjusted accordingly by the laboratory.

No results were rejected; therefore, analytical completeness was calculated to be 100 percent. Data not qualified during data review are considered usable by the project. The remaining results

qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. EPA and Department of Defense guidelines. Attachment B provides a summary of all qualified results during this data review.

**ATTACHMENTS**

Attachment A: Non-Conformance Summary Tables

Attachment B: Qualified Results Summary during Data Review

**Attachment A**

**Non-Conformance Summary Table**

| Table A-1<br>Initial Calibration Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **Analyte** | **Instrument ID/ Calibration Date** | **RSD** | **RSD Limit** | **Associated Sample** | **Lab ID** | **Qualifiers** |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | TB01-WQ-091817 | SK8493-1 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | RE105D1-GW-091817 | SK8493-2 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | RE108D1-GW-091817 | SK8493-4 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | FB01-WQ-091817 | SK8493-7 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | TT101D1-GW-091917 | SK8493-9 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | RE104D1-GW-091917 | SK8493-11 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | RE104D3-GW-091917 | SK8493-13 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | RE108D2-GW-091817 | SK8493-5DL | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | DUP01-GW-091817 | SK8493-6 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | TT101D2-GW-091917 | SK8493-10 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | RE108D2-GW-091817 | SK8493-5DL2 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | DUP01-GW-091817 | SK8493-6DL | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | TT101D-GW-091917 | SK8493-8RA | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | TT101D2-GW-091917 | SK8493-10DL | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | RE105D2-GW-091817 | SK8493-3DL2 | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,1-Dichloroethene | GCMS-S 14-SEP-17 | 15.19261 | 15 | TT101D1-GW-091917 | SK8493-9DL | Detects: J Non-detects: UJ |
| SK8493 | 8260C | Dibromochloromethane | GCMS-S 26-SEP-17 | 15.43788 | 15 | RE104D2-GW-091917 | SK8493-12RA | Detects: J Non-detects: UJ |
| SK8493 | 8260C | Dibromochloromethane | GCMS-S 26-SEP-17 | 15.43788 | 15 | RE105D2-GW-091817 | SK8493-3DLRA | Detects: J Non-detects: UJ |
| SK8493 | 8260C | 1,2-Dibromo-3-Chloropropane | GCMS-S 26-SEP-17 | 15.11828 | 15 | RE104D2-GW-091917 | SK8493-12RA | Detects: J Non-detects: UJ |

| Table A-1<br>Initial Calibration Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **Analyte** | **Instrument ID/ Calibration Date** | **RSD** | **RSD Limit** | **Associated Sample** | **Lab ID** | **Qualifiers** |
| SK8493 | 8260C | 1,2-Dibromo-3-Chloropropane | GCMS-S 26-SEP-17 | 15.11828 | 15 | RE105D2-GW-091817 | SK8493-3DLRA | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE109D1-GW-092117 | SK8591-8 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE109D2-GW-092117 | SK8591-9 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE109D3-GW-092117 | SK8591-10 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE120D1-GW-092017 | SK8591-5 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE120D2-GW-092017 | SK8591-6 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE120D3-GW-092017 | SK8591-7 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE122D1-GW-092117 | SK8591-11RA | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE122D3-GW-092117 | SK8591-13 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE131D1-GW-092017 | SK8591-2 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE131D2-GW-092017 | SK8591-3 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE131D3-GW-092017 | SK8591-4 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | TB02-WQ-092117 | SK8591-1 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE109D1-GW-092117 | SK8591-8 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE109D2-GW-092117 | SK8591-9 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE109D3-GW-092117 | SK8591-10 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE120D1-GW-092017 | SK8591-5 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE120D2-GW-092017 | SK8591-6 | Detects: J Non-detects: UJ |

| Table A-1<br>Initial Calibration Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **Analyte** | **Instrument ID/ Calibration Date** | **RSD** | **RSD Limit** | **Associated Sample** | **Lab ID** | **Qualifiers** |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE120D3-GW-092017 | SK8591-7 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE122D1-GW-092117 | SK8591-11RA | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE122D3-GW-092117 | SK8591-13 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE131D1-GW-092017 | SK8591-2 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE131D2-GW-092017 | SK8591-3 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE131D3-GW-092017 | SK8591-4 | Detects: J Non-detects: UJ |
| SK8591 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | TB02-WQ-092117 | SK8591-1 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | TB03-WQ-092617 | SK8743-1 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE126D3-GW-092217 | SK8743-4 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE123D1-GW-092217 | SK8743-5 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE123D2-GW-092217 | SK8743-6 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE123D3-GW-092217 | SK8743-7 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | BPOW5/4-GW-092517 | SK8743-10 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE117D1-GW-092517 | SK8743-8 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE126D2-GW-092217 | SK8743-3DL | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE125D3-GW-092517 | SK8743-14 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | FB02-WQ-092517 | SK8743-15 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE103D1-GW-092617 | SK8743-16 | Detects: J Non-detects: UJ |

| Table A-1<br>Initial Calibration Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **Analyte** | **Instrument ID/ Calibration Date** | **RSD** | **RSD Limit** | **Associated Sample** | **Lab ID** | **Qualifiers** |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE126D1-GW-092217 | SK8743-2 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE126D2-GW-092217 | SK8743-3 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE117D2-GW-092517 | SK8743-9 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE125D1-GW-092517 | SK8743-12 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE103D2-GW-092617 | SK8743-17 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE103D1-GW-092617 | SK8743-16DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE103D3-GW-092617 | SK8743-18DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE125D2-GW-092517 | SK8743-13 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE103D3-GW-092617 | SK8743-18 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | DUP02-GW-092517 | SK8743-11 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Carbon Tetrachloride | GCMS-W 26-SEP-17 | 15.09344 | 15 | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | TB03-WQ-092617 | SK8743-1 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE126D3-GW-092217 | SK8743-4 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE123D1-GW-092217 | SK8743-5 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE123D2-GW-092217 | SK8743-6 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE123D3-GW-092217 | SK8743-7 | Detects: J<br>Non-detects: UJ |

| Table A-1<br>Initial Calibration Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **Analyte** | **Instrument ID/ Calibration Date** | **RSD** | **RSD Limit** | **Associated Sample** | **Lab ID** | **Qualifiers** |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | BPOW5/4-GW-092517 | SK8743-10 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE117D1-GW-092517 | SK8743-8 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE126D2-GW-092217 | SK8743-3DL | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE125D3-GW-092517 | SK8743-14 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | FB02-WQ-092517 | SK8743-15 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE103D1-GW-092617 | SK8743-16 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE126D1-GW-092217 | SK8743-2 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE126D2-GW-092217 | SK8743-3 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE117D2-GW-092517 | SK8743-9 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE125D1-GW-092517 | SK8743-12 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE103D2-GW-092617 | SK8743-17 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE103D1-GW-092617 | SK8743-16DL | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE103D3-GW-092617 | SK8743-18DL | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE125D2-GW-092517 | SK8743-13 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE103D3-GW-092617 | SK8743-18 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | DUP02-GW-092517 | SK8743-11 | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE125D1-GW-092517 | SK8743-12DL | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE125D2-GW-092517 | SK8743-13DL | Detects: J Non-detects: UJ |
| SK8743 | 8260C | Cyclohexane | GCMS-W 26-SEP-17 | 15.19885 | 15 | RE125D3-GW-092517 | SK8743-14DL | Detects: J Non-detects: UJ |

| Table A-1<br>Initial Calibration Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **Analyte** | **Instrument ID/ Calibration Date** | **RSD** | **RSD Limit** | **Associated Sample** | **Lab ID** | **Qualifiers** |
| SK8743 | 8260C | Cyclohexane | GCMS-W<br>26-SEP-17 | 15.19885 | 15 | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |

***Notes:***

SDG = Sample delivery group
RSD = Relative standard deviation
ID = Identification
J = Estimated value; one or more quality control parameters for calibration were outside control limits.
UJ = Undetected and estimated; one or more quality control parameters for calibration were outside control limits.

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | TB01-WQ-091817 | SK8493-1 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | RE105D1-GW-091817 | SK8493-2 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | RE108D1-GW-091817 | SK8493-4 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | FB01-WQ-091817 | SK8493-7 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | TT101D1-GW-091917 | SK8493-9 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | RE104D1-GW-091917 | SK8493-11 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | RE104D3-GW-091917 | SK8493-13 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | RE108D2-GW-091817 | SK8493-5DL | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | DUP01-GW-091817 | SK8493-6 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | TT101D2-GW-091917 | SK8493-10 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | RE108D2-GW-091817 | SK8493-5DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | DUP01-GW-091817 | SK8493-6DL | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | TT101D-GW-091917 | SK8493-8RA | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | TT101D2-GW-091917 | SK8493-10DL | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | RE105D2-GW-091817 | SK8493-3DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | 8260C | Dichlorodifluoromethane | WG213357-7 | 125.31 | 80-120 | TT101D1-GW-091917 | SK8493-9DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | TB02-WQ-092117 | SK8591-1 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE131D1-GW-092017 | SK8591-2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE131D3-GW-092017 | SK8591-4 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE120D3-GW-092017 | SK8591-7 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE109D1-GW-092117 | SK8591-8 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE109D2-GW-092117 | SK8591-9 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE109D3-GW-092117 | SK8591-10 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE122D3-GW-092117 | SK8591-13 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE131D2-GW-092017 | SK8591-3DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE120D1-GW-092017 | SK8591-5DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE120D2-GW-092017 | SK8591-6DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE122D1-GW-092117 | SK8591-11DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE122D2-GW-092117 | SK8591-12DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE131D2-GW-092017 | SK8591-3 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE120D1-GW-092017 | SK8591-5 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE120D2-GW-092017 | SK8591-6 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE131D3-GW-092017 | SK8591-4DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE122D1-GW-092117 | SK8591-11RA | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | TB02-WQ-092117 | SK8591-1 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE131D1-GW-092017 | SK8591-2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE131D3-GW-092017 | SK8591-4 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE120D3-GW-092017 | SK8591-7 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE109D1-GW-092117 | SK8591-8 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE109D2-GW-092117 | SK8591-9 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE109D3-GW-092117 | SK8591-10 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE122D3-GW-092117 | SK8591-13 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE131D2-GW-092017 | SK8591-3DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE120D1-GW-092017 | SK8591-5DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE120D2-GW-092017 | SK8591-6DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE122D1-GW-092117 | SK8591-11DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE122D2-GW-092117 | SK8591-12DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE131D2-GW-092017 | SK8591-3 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE120D1-GW-092017 | SK8591-5 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE120D2-GW-092017 | SK8591-6 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE131D3-GW-092017 | SK8591-4DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE122D1-GW-092117 | SK8591-11RA | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | TB02-WQ-092117 | SK8591-1 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE131D1-GW-092017 | SK8591-2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE131D3-GW-092017 | SK8591-4 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE120D3-GW-092017 | SK8591-7 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE109D1-GW-092117 | SK8591-8 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE109D2-GW-092117 | SK8591-9 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE109D3-GW-092117 | SK8591-10 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE122D3-GW-092117 | SK8591-13 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE131D2-GW-092017 | SK8591-3DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE120D1-GW-092017 | SK8591-5DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE120D2-GW-092017 | SK8591-6DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE122D1-GW-092117 | SK8591-11DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE122D2-GW-092117 | SK8591-12DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE131D2-GW-092017 | SK8591-3 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE120D1-GW-092017 | SK8591-5 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE120D2-GW-092017 | SK8591-6 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE131D3-GW-092017 | SK8591-4DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE122D1-GW-092117 | SK8591-11RA | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | TB02-WQ-092117 | SK8591-1 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE131D1-GW-092017 | SK8591-2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE131D3-GW-092017 | SK8591-4 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE120D3-GW-092017 | SK8591-7 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE109D1-GW-092117 | SK8591-8 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE109D2-GW-092117 | SK8591-9 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE109D3-GW-092117 | SK8591-10 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE122D3-GW-092117 | SK8591-13 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE131D2-GW-092017 | SK8591-3DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE120D1-GW-092017 | SK8591-5DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE120D2-GW-092017 | SK8591-6DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE122D1-GW-092117 | SK8591-11DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE122D2-GW-092117 | SK8591-12DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE131D2-GW-092017 | SK8591-3 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE120D1-GW-092017 | SK8591-5 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE120D2-GW-092017 | SK8591-6 | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE131D3-GW-092017 | SK8591-4DL | Detects: J<br>Non-detects: UJ |
| SK8591 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE122D1-GW-092117 | SK8591-11RA | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | TB03-WQ-092617 | SK8743-1 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE126D3-GW-092217 | SK8743-4 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE123D1-GW-092217 | SK8743-5 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE123D2-GW-092217 | SK8743-6 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE123D3-GW-092217 | SK8743-7 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | BPOW5/4-GW-092517 | SK8743-10 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE117D1-GW-092517 | SK8743-8 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE126D2-GW-092217 | SK8743-3DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE125D3-GW-092517 | SK8743-14 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | FB02-WQ-092517 | SK8743-15 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE103D1-GW-092617 | SK8743-16 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE126D1-GW-092217 | SK8743-2 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE126D2-GW-092217 | SK8743-3 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE117D2-GW-092517 | SK8743-9 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE125D1-GW-092517 | SK8743-12 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE103D2-GW-092617 | SK8743-17 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE103D1-GW-092617 | SK8743-16DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE103D3-GW-092617 | SK8743-18DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE125D2-GW-092517 | SK8743-13 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE103D3-GW-092617 | SK8743-18 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | DUP02-GW-092517 | SK8743-11 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Acetone | W1219.D | 179.64 | 80-120 | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | TB03-WQ-092617 | SK8743-1 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE126D3-GW-092217 | SK8743-4 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE123D1-GW-092217 | SK8743-5 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE123D2-GW-092217 | SK8743-6 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE123D3-GW-092217 | SK8743-7 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | BPOW5/4-GW-092517 | SK8743-10 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE117D1-GW-092517 | SK8743-8 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE126D2-GW-092217 | SK8743-3DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE125D3-GW-092517 | SK8743-14 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | FB02-WQ-092517 | SK8743-15 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE103D1-GW-092617 | SK8743-16 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE126D1-GW-092217 | SK8743-2 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE126D2-GW-092217 | SK8743-3 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE117D2-GW-092517 | SK8743-9 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE125D1-GW-092517 | SK8743-12 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE103D2-GW-092617 | SK8743-17 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE103D1-GW-092617 | SK8743-16DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE103D3-GW-092617 | SK8743-18DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE125D2-GW-092517 | SK8743-13 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE103D3-GW-092617 | SK8743-18 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | DUP02-GW-092517 | SK8743-11 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Butanone | W1219.D | 125.59 | 80-120 | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | TB03-WQ-092617 | SK8743-1 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE126D3-GW-092217 | SK8743-4 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE123D1-GW-092217 | SK8743-5 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE123D2-GW-092217 | SK8743-6 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE123D3-GW-092217 | SK8743-7 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | BPOW5/4-GW-092517 | SK8743-10 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE117D1-GW-092517 | SK8743-8 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE126D2-GW-092217 | SK8743-3DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE125D3-GW-092517 | SK8743-14 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | FB02-WQ-092517 | SK8743-15 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE103D1-GW-092617 | SK8743-16 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE126D1-GW-092217 | SK8743-2 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE126D2-GW-092217 | SK8743-3 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE117D2-GW-092517 | SK8743-9 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE125D1-GW-092517 | SK8743-12 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE103D2-GW-092617 | SK8743-17 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE103D1-GW-092617 | SK8743-16DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE103D3-GW-092617 | SK8743-18DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE125D2-GW-092517 | SK8743-13 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE103D3-GW-092617 | SK8743-18 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | DUP02-GW-092517 | SK8743-11 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | Tetrachloroethene | W1219.D | 132.49 | 80-120 | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | TB03-WQ-092617 | SK8743-1 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE126D3-GW-092217 | SK8743-4 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE123D1-GW-092217 | SK8743-5 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE123D2-GW-092217 | SK8743-6 | Detects: J<br>Non-detects: UJ |

**Table A-2**
**Initial Calibration Verification Non-Conformance**

| SDG | Method | Analyte | ICV ID | %R | Limit | Associated Samples | Lab ID | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE123D3-GW-092217 | SK8743-7 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | BPOW5/4-GW-092517 | SK8743-10 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE117D1-GW-092517 | SK8743-8 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE126D2-GW-092217 | SK8743-3DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE125D3-GW-092517 | SK8743-14 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | FB02-WQ-092517 | SK8743-15 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE103D1-GW-092617 | SK8743-16 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE126D1-GW-092217 | SK8743-2 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE126D2-GW-092217 | SK8743-3 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE117D2-GW-092517 | SK8743-9 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE125D1-GW-092517 | SK8743-12 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE103D2-GW-092617 | SK8743-17 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE103D1-GW-092617 | SK8743-16DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE103D3-GW-092617 | SK8743-18DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE125D2-GW-092517 | SK8743-13 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE103D3-GW-092617 | SK8743-18 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | DUP02-GW-092517 | SK8743-11 | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |

| Table A-2<br>Initial Calibration Verification Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **Analyte** | **ICV ID** | **%R** | **Limit** | **Associated Samples** | **Lab ID** | **Qualifiers** |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | 8260C | 2-Hexanone | W1219.D | 124.07 | 80-120 | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |

***Notes:***

SDG = Sample delivery group
ICV = Initial calibration verification
ID = Identification
%R = Percent recovery
J = Estimated value; one or more quality control parameters for calibration were outside control limits.
UJ = Undetected and estimated; one or more quality control parameters for calibration were outside control limits.

| Table A-3<br>Continuing Calibration Verification Non-Conformance | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SDG** | **Lab ID/ Calibration ID** | **Analyte** | **%D** | **%D Limit** | **Associated Samples** | **Lab ID** | **Qualifiers** |
| SK8493 | WG214064-4 S7326.D | Bromomethane | 21.07508 | +/- 20% | RE108D2-GW-091817 | SK8493-5DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Bromomethane | 21.07508 | +/- 20% | DUP01-GW-091817 | SK8493-6DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Bromomethane | 21.07508 | +/- 20% | TT101D-GW-091917 | SK8493-8RA | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Bromomethane | 21.07508 | +/- 20% | TT101D2-GW-091917 | SK8493-10DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Bromomethane | 21.07508 | +/- 20% | RE105D2-GW-091817 | SK8493-3DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Bromomethane | 21.07508 | +/- 20% | TT101D1-GW-091917 | SK8493-9DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Trichlorofluoromethane | 25.52662 | +/- 20% | RE108D2-GW-091817 | SK8493-5DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Trichlorofluoromethane | 25.52662 | +/- 20% | DUP01-GW-091817 | SK8493-6DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Trichlorofluoromethane | 25.52662 | +/- 20% | TT101D-GW-091917 | SK8493-8RA | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Trichlorofluoromethane | 25.52662 | +/- 20% | TT101D2-GW-091917 | SK8493-10DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Trichlorofluoromethane | 25.52662 | +/- 20% | RE105D2-GW-091817 | SK8493-3DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | Trichlorofluoromethane | 25.52662 | +/- 20% | TT101D1-GW-091917 | SK8493-9DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | 1,2-Dibromo-3-Chloropropane | -25.89167 | +/- 20% | RE108D2-GW-091817 | SK8493-5DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | 1,2-Dibromo-3-Chloropropane | -25.89167 | +/- 20% | DUP01-GW-091817 | SK8493-6DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | 1,2-Dibromo-3-Chloropropane | -25.89167 | +/- 20% | TT101D-GW-091917 | SK8493-8RA | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | 1,2-Dibromo-3-Chloropropane | -25.89167 | +/- 20% | TT101D2-GW-091917 | SK8493-10DL | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | 1,2-Dibromo-3-Chloropropane | -25.89167 | +/- 20% | RE105D2-GW-091817 | SK8493-3DL2 | Detects: J<br>Non-detects: UJ |
| SK8493 | WG214064-4 S7326.D | 1,2-Dibromo-3-Chloropropane | -25.89167 | +/- 20% | TT101D1-GW-091917 | SK8493-9DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | TB02-WQ-092117 | SK8591-1 | Detects: J<br>Non-detects: UJ |

| Table A-3<br>Continuing Calibration Verification Non-Conformance | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SDG** | **Lab ID/ Calibration ID** | **Analyte** | **%D** | **%D Limit** | **Associated Samples** | **Lab ID** | **Qualifiers** |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE131D1-GW-092017 | SK8591-2 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE131D3-GW-092017 | SK8591-4 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE120D3-GW-092017 | SK8591-7 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE109D1-GW-092117 | SK8591-8 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE109D2-GW-092117 | SK8591-9 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE109D3-GW-092117 | SK8591-10 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE122D3-GW-092117 | SK8591-13 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE131D2-GW-092017 | SK8591-3DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE120D1-GW-092017 | SK8591-5DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE120D2-GW-092017 | SK8591-6DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE122D1-GW-092117 | SK8591-11DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE122D2-GW-092117 | SK8591-12DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE131D2-GW-092017 | SK8591-3 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE120D1-GW-092017 | SK8591-5 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | Acetone | 32.99 | +/- 20% | RE120D2-GW-092017 | SK8591-6 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | TB02-WQ-092117 | SK8591-1 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE131D1-GW-092017 | SK8591-2 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE131D3-GW-092017 | SK8591-4 | Detects: J<br>Non-detects: UJ |

| Table A-3<br>Continuing Calibration Verification Non-Conformance | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SDG** | **Lab ID/ Calibration ID** | **Analyte** | **%D** | **%D Limit** | **Associated Samples** | **Lab ID** | **Qualifiers** |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE120D3-GW-092017 | SK8591-7 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE109D1-GW-092117 | SK8591-8 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE109D2-GW-092117 | SK8591-9 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE109D3-GW-092117 | SK8591-10 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE122D3-GW-092117 | SK8591-13 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE131D2-GW-092017 | SK8591-3DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE120D1-GW-092017 | SK8591-5DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE120D2-GW-092017 | SK8591-6DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE122D1-GW-092117 | SK8591-11DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE122D2-GW-092117 | SK8591-12DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE122D2-GW-092117 | SK8591-12DL2 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE131D2-GW-092017 | SK8591-3 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE120D1-GW-092017 | SK8591-5 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214308-4 GCMS-W | 2-Hexanone | 20.37963 | +/- 20% | RE120D2-GW-092017 | SK8591-6 | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE131D3-GW-092017 | SK8591-4DL | Detects: J<br>Non-detects: UJ |
| SK8591 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE122D1-GW-092117 | SK8591-11RA | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | TB03-WQ-092617 | SK8743-1 | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE126D3-GW-092217 | SK8743-4 | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE123D1-GW-092217 | SK8743-5 | Detects: J<br>Non-detects: UJ |

| Table A-3<br>Continuing Calibration Verification Non-Conformance | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SDG** | **Lab ID/ Calibration ID** | **Analyte** | **%D** | **%D Limit** | **Associated Samples** | **Lab ID** | **Qualifiers** |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE123D2-GW-092217 | SK8743-6 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE123D3-GW-092217 | SK8743-7 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | BPOW5/4-GW-092517 | SK8743-10 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE117D1-GW-092517 | SK8743-8 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE126D2-GW-092217 | SK8743-3DL | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE125D3-GW-092517 | SK8743-14 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | FB02-WQ-092517 | SK8743-15 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE103D1-GW-092617 | SK8743-16 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE126D1-GW-092217 | SK8743-2 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE126D2-GW-092217 | SK8743-3 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1277.D | 2-Hexanone | 28.00653 | +/- 20% | RE117D2-GW-092517 | SK8743-9 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 4-methyl-2-pentanone | 27.47663 | +/- 20% | RE125D1-GW-092517 | SK8743-12 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 4-methyl-2-pentanone | 27.47663 | +/- 20% | RE103D2-GW-092617 | SK8743-17 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 4-methyl-2-pentanone | 27.47663 | +/- 20% | RE103D1-GW-092617 | SK8743-16DL | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 4-methyl-2-pentanone | 27.47663 | +/- 20% | RE103D3-GW-092617 | SK8743-18DL | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 4-methyl-2-pentanone | 27.47663 | +/- 20% | RE125D2-GW-092517 | SK8743-13 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 4-methyl-2-pentanone | 27.47663 | +/- 20% | RE103D3-GW-092617 | SK8743-18 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 4-methyl-2-pentanone | 27.47663 | +/- 20% | DUP02-GW-092517 | SK8743-11 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 2-Hexanone | 33.2009 | +/- 20% | RE125D1-GW-092517 | SK8743-12 | Detects: J Non-detects: UJ |

| Table A-3<br>Continuing Calibration Verification Non-Conformance | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SDG** | **Lab ID/ Calibration ID** | **Analyte** | **%D** | **%D Limit** | **Associated Samples** | **Lab ID** | **Qualifiers** |
| SK8743 | WG214394-4 W1302.D | 2-Hexanone | 33.2009 | +/- 20% | RE103D2-GW-092617 | SK8743-17 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 2-Hexanone | 33.2009 | +/- 20% | RE103D1-GW-092617 | SK8743-16DL | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 2-Hexanone | 33.2009 | +/- 20% | RE103D3-GW-092617 | SK8743-18DL | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 2-Hexanone | 33.2009 | +/- 20% | RE125D2-GW-092517 | SK8743-13 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 2-Hexanone | 33.2009 | +/- 20% | RE103D3-GW-092617 | SK8743-18 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 2-Hexanone | 33.2009 | +/- 20% | DUP02-GW-092517 | SK8743-11 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 1,2-Dibromo-3-Chloropropane | 24.96506 | +/- 20% | RE125D1-GW-092517 | SK8743-12 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 1,2-Dibromo-3-Chloropropane | 24.96506 | +/- 20% | RE103D2-GW-092617 | SK8743-17 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 1,2-Dibromo-3-Chloropropane | 24.96506 | +/- 20% | RE103D1-GW-092617 | SK8743-16DL | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 1,2-Dibromo-3-Chloropropane | 24.96506 | +/- 20% | RE103D3-GW-092617 | SK8743-18DL | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 1,2-Dibromo-3-Chloropropane | 24.96506 | +/- 20% | RE125D2-GW-092517 | SK8743-13 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 1,2-Dibromo-3-Chloropropane | 24.96506 | +/- 20% | RE103D3-GW-092617 | SK8743-18 | Detects: J Non-detects: UJ |
| SK8743 | WG214394-4 W1302.D | 1,2-Dibromo-3-Chloropropane | 24.96506 | +/- 20% | DUP02-GW-092517 | SK8743-11 | Detects: J Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE125D1-GW-092517 | SK8743-12DL | Detects: J Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE125D2-GW-092517 | SK8743-13DL | Detects: J Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE125D3-GW-092517 | SK8743-14DL | Detects: J Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE103D2-GW-092617 | SK8743-17DL | Detects: J Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 2-Hexanone | 26.96531 | +/- 20% | RE125D1-GW-092517 | SK8743-12DL | Detects: J Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 2-Hexanone | 26.96531 | +/- 20% | RE125D2-GW-092517 | SK8743-13DL | Detects: J Non-detects: UJ |

| Table A-3<br>Continuing Calibration Verification Non-Conformance | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SDG** | **Lab ID/ Calibration ID** | **Analyte** | **%D** | **%D Limit** | **Associated Samples** | **Lab ID** | **Qualifiers** |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 4-methyl-2-pentanone | 20.54611 | +/- 20% | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 2-Hexanone | 26.96531 | +/- 20% | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 2-Hexanone | 26.96531 | +/- 20% | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 2-Hexanone | 26.96531 | +/- 20% | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 2-Hexanone | 26.96531 | +/- 20% | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 1,2-Dibromo-3-Chloropropane | 22.30801 | +/- 20% | RE125D1-GW-092517 | SK8743-12DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 1,2-Dibromo-3-Chloropropane | 22.30801 | +/- 20% | RE125D2-GW-092517 | SK8743-13DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 1,2-Dibromo-3-Chloropropane | 22.30801 | +/- 20% | RE125D3-GW-092517 | SK8743-14DL | Detects: J<br>Non-detects: UJ |
| SK8743 | WG214535-4 W1332.D | 1,2-Dibromo-3-Chloropropane | 22.30801 | +/- 20% | RE103D2-GW-092617 | SK8743-17DL | Detects: J<br>Non-detects: UJ |

***Notes:***

SDG = Sample delivery group
ID = Identification
%D = Percent difference
J = Estimated value; one or more quality control parameters for calibration were outside control limits.
UJ = Undetected and estimated; one or more quality control parameters for calibration were outside control limits.

| Table A-4<br>Surrogate Spike Recovery Non-Conformance | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SDG** | **Sample ID** | **Laboratory ID** | **Batch** | **Surrogate** | **%R** | **Control Limit** | **Qualifier** |
| SK8591 | RE120D1-GW-092017 | SK8591-5DL | WG214308 | 1,2-Dichloroethane-d4 | 121 | 70-120 | Detects: J |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | WG214308 | 1,2-Dichloroethane-d4 | 126 | 70-120 | Detects: J |
| SK8591 | RE120D2-GW-092017 | SK8591-6DL | WG214308 | 1,2-Dichloroethane-d4 | 124 | 70-120 | Detects: J |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | WG214308 | 1,2-Dichloroethane-d4 | 123 | 70-120 | Detects: J |
| SK8591 | RE122D1-GW-092117 | SK8591-11DL | WG214308 | 1,2-Dichloroethane-d4 | 123 | 70-120 | Detects: J |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL | WG214308 | 1,2-Dichloroethane-d4 | 121 | 70-120 | Detects: J |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | WG214308 | 1,2-Dichloroethane-d4 | 125 | 70-120 | Detects: J |
| SK8591 | RE131D2-GW-092017 | SK8591-3DL | WG214308 | 1,2-Dichloroethane-d4 | 124 | 70-120 | Detects: J |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | WG214308 | 1,2-Dichloroethane-d4 | 125 | 70-120 | Detects: J |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | WG214457 | 1,2-Dichloroethane-d4 | 121 | 70-120 | Detects: J |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | WG214457 | 1,2-Dichloroethane-d4 | 121 | 70-120 | Detects: J |

***Notes:***

SDG = Sample delivery group
ID = Identification
%R = Percent recovery
J = Positive result qualified estimated and may be biased high.

| Table A-5<br>Laboratory Control Sample/Laboratory Control Sample Duplicate Percent Recovery Non-Conformance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SDG** | **Method** | **LCS** | **Batch** | **Analyte** | **%R** | **Limits** | **Associated Samples** | **Detected Associated Samples Qualified J** |
| SK8591 | 8260C | WG214394-1-SK8591 | WG214394 | 1,2-Dichloroethene, total | 82.8 | 84-121 | RE122D1-GW-092117<br>RE131D3-GW-092017 | RE122D1-GW-092117<br>RE131D3-GW-092017 |
| SK8473 | 8260C | WG214394-1-SK8743 | WG214394 | 1,2-Dichloroethene, total | 82.8 | 84-121 | BPOW5-4-GW-092517<br>FB02-WQ-092517<br>RE103D1-GW-092617<br>RE117D1-GW-092517<br>RE117D2-GW-092517<br>RE123D1-GW-092217<br>RE123D2-GW-092217<br>RE123D3-GW-092217<br>RE125D3-GW-092517<br>RE126D1-GW-092217<br>RE126D2-GW-092217<br>RE126D3-GW-092217<br>TB03-WQ-092217 | BPOW5-4-GW-092517<br>FB02-WQ-092517<br>RE103D1-GW-092617<br>RE117D1-GW-092517<br>RE117D2-GW-092517<br>RE123D1-GW-092217<br>RE123D2-GW-092217<br>RE123D3-GW-092217<br>RE125D3-GW-092517<br>RE126D1-GW-092217<br>RE126D2-GW-092217<br>RE126D3-GW-092217<br>TB03-WQ-092217 |
| SK8473 | 8260C | WG214457-1-SK8743 | WG214457 | 1,2-Dichloroethene, total | 82.8 | 84-121 | DUP02-GW-092517<br>RE103D2-GW-092617<br>RE103D3-GW-092617<br>RE125D1-GW-092517<br>RE125D2-GW-092517 | DUP02-GW-092517<br>RE103D2-GW-092617<br>RE103D3-GW-092617<br>RE125D1-GW-092517<br>RE125D2-GW-092517 |

***Notes:***

SDG = Sample delivery group
%R = Percent recovery
J = Analyte in associated sample qualified estimated "J" because %R is greater than the control limit and may be biased low.

| Table A-6<br>Field Duplicate Non-Conformance | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **Sample ID** | **Lab ID** | **Duplicate ID** | **Lab ID** | **Sample Result (UG_L)** | **LOQ** | **Duplicate Result (UG_L)** | **LOQ** | **RPD** | **Qualifier** |
| Tetrachloroethene | RE108D2-GW-091817 | SK8493-5DL | DUP01-GW-091817 | SK8493-6 | 3 | 4 | 2.2 | 1 | 30.8 | J-both |

***Notes:***

ID = Identification
UG_L = Micrograms per liter
LOQ = Limit of quantitation
RPD = Relative percent difference
J = Analyte in associated sample qualified estimated "J" because RPD is outside of the control limit (≤30) and the result may be biased.

**Attachment B**

**Qualified Results Summary during Data Review**

**Table B-1**
**Qualified Results Summary during Data Review**

| SDG | Sample ID | Lab ID | Sample Date | DF | Analyte | Result | Units | Lab Qualifier | Validator Qualifier | Final Qualifier | RC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK8743 | BPOW5-4-GW-092517 | SK8743-10 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | BPOW5-4-GW-092517 | SK8743-10 | 9/25/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | BPOW5-4-GW-092517 | SK8743-10 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | BPOW5-4-GW-092517 | SK8743-10 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | BPOW5-4-GW-092517 | SK8743-10 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | BPOW5-4-GW-092517 | SK8743-10 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | BPOW5-4-GW-092517 | SK8743-10 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8493 | DUP01-GW-091817 | SK8493-6 | 9/18/2017 | 1 | TETRACHLOROETHENE | 2.2 | UG_L | | J | J | fd |
| SK8493 | DUP01-GW-091817 | SK8493-6 | 9/18/2017 | 1 | 1,1-DICHLOROETHENE | 6 | UG_L | | J | J | c |
| SK8493 | DUP01-GW-091817 | SK8493-6 | 9/18/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | 4-METHYL-2-PENTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | DUP02-GW-092517 | SK8743-11 | 9/25/2017 | 1 | 1,2-DIBROMO-3-CHLOROPROPANE | 0.75 | UG_L | U | J | UJ | c |
| SK8493 | FB01-WQ-091817 | SK8493-7 | 9/18/2017 | 1 | 1,1-DICHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8493 | FB01-WQ-091817 | SK8493-7 | 9/18/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8743 | FB02-WQ-092517 | SK8743-15 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | FB02-WQ-092517 | SK8743-15 | 9/25/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | FB02-WQ-092517 | SK8743-15 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | FB02-WQ-092517 | SK8743-15 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | FB02-WQ-092517 | SK8743-15 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | FB02-WQ-092517 | SK8743-15 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | FB02-WQ-092517 | SK8743-15 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D1-GW-092617 | SK8743-16 | 9/26/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D1-GW-092617 | SK8743-16 | 9/26/2017 | 1 | TETRACHLOROETHENE | 4.6 | UG_L | | J | J | c |
| SK8743 | RE103D1-GW-092617 | SK8743-16 | 9/26/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 2.7 | UG_L | L | J | J | l |
| SK8743 | RE103D1-GW-092617 | SK8743-16 | 9/26/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D1-GW-092617 | SK8743-16 | 9/26/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D1-GW-092617 | SK8743-16 | 9/26/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D1-GW-092617 | SK8743-16 | 9/26/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | 4-METHYL-2-PENTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | TETRACHLOROETHENE | 0.77 | UG_L | J | J | J | c |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 0.67 | UG_L | JL | J | J | l |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |

**Table B-1**
**Qualified Results Summary during Data Review**

| SDG | Sample ID | Lab ID | Sample Date | DF | Analyte | Result | Units | Lab Qualifier | Validator Qualifier | Final Qualifier | RC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D2-GW-092617 | SK8743-17 | 9/26/2017 | 1 | 1,2-DIBROMO-3-CHLOROPROPANE | 0.75 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18DL | 9/26/2017 | 10 | TRICHLOROETHENE | 240 | UG_L | | J | J | s |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | 4-METHYL-2-PENTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | CHLOROFORM | 0.66 | UG_L | J | J | J | s |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | BROMOFORM | 6 | UG_L | | J | J | s |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 0.83 | UG_L | J | J | J | s |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | 1,1,2-TRICHLOROETHANE | 0.35 | UG_L | J | J | J | s |
| SK8743 | RE103D3-GW-092617 | SK8743-18 | 9/26/2017 | 1 | 1,2-DIBROMO-3-CHLOROPROPANE | 0.75 | UG_L | U | J | UJ | c |
| SK8493 | RE104D1-GW-091917 | SK8493-11 | 9/19/2017 | 1 | 1,1-DICHLOROETHENE | 0.5 | UG_L | J | J | J | c |
| SK8493 | RE104D1-GW-091917 | SK8493-11 | 9/19/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8493 | RE104D2-GW-091917 | SK8493-12RA | 9/19/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8493 | RE104D2-GW-091917 | SK8493-12RA | 9/19/2017 | 1 | 1,2-DIBROMO-3-CHLOROPROPANE | 0.75 | UG_L | U | J | UJ | c |
| SK8493 | RE104D3-GW-091917 | SK8493-13 | 9/19/2017 | 1 | 1,1-DICHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8493 | RE104D3-GW-091917 | SK8493-13 | 9/19/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8493 | RE105D1-GW-091817 | SK8493-2 | 9/18/2017 | 1 | 1,1-DICHLOROETHENE | 1.1 | UG_L | | J | J | c |
| SK8493 | RE105D1-GW-091817 | SK8493-2 | 9/18/2017 | 1 | DICHLORODIFLUOROMETHANE | 0.68 | UG_L | J | J | J | c |
| SK8493 | RE105D2-GW-091817 | SK8493-3DLRA | 9/18/2017 | 4 | DICHLORODIFLUOROMETHANE | 4 | UG_L | UM | J | UJ | c |
| SK8493 | RE105D2-GW-091817 | SK8493-3DLRA | 9/18/2017 | 4 | 1,2-DIBROMO-3-CHLOROPROPANE | 3 | UG_L | U | J | UJ | c |
| SK8493 | RE108D1-GW-091817 | SK8493-4 | 9/18/2017 | 1 | 1,1-DICHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8493 | RE108D1-GW-091817 | SK8493-4 | 9/18/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8493 | RE108D2-GW-091817 | SK8493-5DL | 9/18/2017 | 4 | TETRACHLOROETHENE | 3 | UG_L | J | J | J | fd |
| SK8493 | RE108D2-GW-091817 | SK8493-5DL | 9/18/2017 | 4 | 1,1-DICHLOROETHENE | 4.7 | UG_L | | J | J | c |
| SK8493 | RE108D2-GW-091817 | SK8493-5DL | 9/18/2017 | 4 | DICHLORODIFLUOROMETHANE | 4 | UG_L | U | J | UJ | c |
| SK8743 | RE117D1-GW-092517 | SK8743-8 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D1-GW-092517 | SK8743-8 | 9/25/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D1-GW-092517 | SK8743-8 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | RE117D1-GW-092517 | SK8743-8 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D1-GW-092517 | SK8743-8 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D1-GW-092517 | SK8743-8 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D1-GW-092517 | SK8743-8 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D2-GW-092517 | SK8743-9 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D2-GW-092517 | SK8743-9 | 9/25/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |

**Table B-1**
**Qualified Results Summary during Data Review**

| SDG | Sample ID | Lab ID | Sample Date | DF | Analyte | Result | Units | Lab Qualifier | Validator Qualifier | Final Qualifier | RC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK8743 | RE117D2-GW-092517 | SK8743-9 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | RE117D2-GW-092517 | SK8743-9 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D2-GW-092517 | SK8743-9 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D2-GW-092517 | SK8743-9 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE117D2-GW-092517 | SK8743-9 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D1-GW-092217 | SK8743-5 | 9/22/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D1-GW-092217 | SK8743-5 | 9/22/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D1-GW-092217 | SK8743-5 | 9/22/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | RE123D1-GW-092217 | SK8743-5 | 9/22/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D1-GW-092217 | SK8743-5 | 9/22/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D1-GW-092217 | SK8743-5 | 9/22/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D1-GW-092217 | SK8743-5 | 9/22/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D2-GW-092217 | SK8743-6 | 9/22/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D2-GW-092217 | SK8743-6 | 9/22/2017 | 1 | TETRACHLOROETHENE | 1.3 | UG_L | | J | J | c |
| SK8743 | RE123D2-GW-092217 | SK8743-6 | 9/22/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | RE123D2-GW-092217 | SK8743-6 | 9/22/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D2-GW-092217 | SK8743-6 | 9/22/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D2-GW-092217 | SK8743-6 | 9/22/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D2-GW-092217 | SK8743-6 | 9/22/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D3-GW-092217 | SK8743-7 | 9/22/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D3-GW-092217 | SK8743-7 | 9/22/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D3-GW-092217 | SK8743-7 | 9/22/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | RE123D3-GW-092217 | SK8743-7 | 9/22/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D3-GW-092217 | SK8743-7 | 9/22/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D3-GW-092217 | SK8743-7 | 9/22/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE123D3-GW-092217 | SK8743-7 | 9/22/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | 4-METHYL-2-PENTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | TETRACHLOROETHENE | 7 | UG_L | | J | J | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 4.2 | UG_L | L | J | J | l |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D1-GW-092517 | SK8743-12 | 9/25/2017 | 1 | 1,2-DIBROMO-3-CHLOROPROPANE | 0.75 | UG_L | U | J | UJ | c |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 4-METHYL-2-PENTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | TETRACHLOROETHENE | 1.9 | UG_L | | J | J | s,c |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | CIS-1,2-DICHLOROETHENE | 3.9 | UG_L | | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 3.9 | UG_L | L | J | J | s,l |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.61 | UG_L | J | J | J | s,c |

**Table B-1**
**Qualified Results Summary during Data Review**

| SDG | Sample ID | Lab ID | Sample Date | DF | Analyte | Result | Units | Lab Qualifier | Validator Qualifier | Final Qualifier | RC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | CHLOROFORM | 0.57 | UG_L | J | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 1,1,1-TRICHLOROETHANE | 0.62 | UG_L | J | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 1,1-DICHLOROETHANE | 0.83 | UG_L | J | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 1,1-DICHLOROETHENE | 7.7 | UG_L | | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | TRICHLOROFLUOROMETHANE | 0.34 | UG_L | J | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | DICHLORODIFLUOROMETHANE | 0.67 | UG_L | J | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 22 | UG_L | | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 1,1,2-TRICHLOROETHANE | 0.46 | UG_L | J | J | J | s |
| SK8743 | RE125D2-GW-092517 | SK8743-13 | 9/25/2017 | 1 | 1,2-DIBROMO-3-CHLOROPROPANE | 0.75 | UG_L | U | J | UJ | c |
| SK8743 | RE125D2-GW-092517 | SK8743-13DL | 9/25/2017 | 5 | TRICHLOROETHENE | 210 | UG_L | | J | J | s |
| SK8743 | RE125D3-GW-092517 | SK8743-14 | 9/25/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D3-GW-092517 | SK8743-14 | 9/25/2017 | 1 | TETRACHLOROETHENE | 2 | UG_L | | J | J | s |
| SK8743 | RE125D3-GW-092517 | SK8743-14 | 9/25/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1.6 | UG_L | JL | J | J | l |
| SK8743 | RE125D3-GW-092517 | SK8743-14 | 9/25/2017 | 1 | CARBON TETRACHLORIDE | 0.3 | UG_L | J | J | J | c |
| SK8743 | RE125D3-GW-092517 | SK8743-14 | 9/25/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D3-GW-092517 | SK8743-14 | 9/25/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE125D3-GW-092517 | SK8743-14 | 9/25/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D1-GW-092217 | SK8743-2 | 9/22/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D1-GW-092217 | SK8743-2 | 9/22/2017 | 1 | TETRACHLOROETHENE | 1 | UG_L | | J | J | s |
| SK8743 | RE126D1-GW-092217 | SK8743-2 | 9/22/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 0.36 | UG_L | JL | J | J | l |
| SK8743 | RE126D1-GW-092217 | SK8743-2 | 9/22/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D1-GW-092217 | SK8743-2 | 9/22/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D1-GW-092217 | SK8743-2 | 9/22/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D1-GW-092217 | SK8743-2 | 9/22/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D2-GW-092217 | SK8743-3 | 9/22/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D2-GW-092217 | SK8743-3 | 9/22/2017 | 1 | TETRACHLOROETHENE | 0.6 | UG_L | J | J | J | s |
| SK8743 | RE126D2-GW-092217 | SK8743-3 | 9/22/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1.7 | UG_L | JL | J | J | l |
| SK8743 | RE126D2-GW-092217 | SK8743-3 | 9/22/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D2-GW-092217 | SK8743-3 | 9/22/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D2-GW-092217 | SK8743-3 | 9/22/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D2-GW-092217 | SK8743-3 | 9/22/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D3-GW-092217 | SK8743-4 | 9/22/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D3-GW-092217 | SK8743-4 | 9/22/2017 | 1 | TETRACHLOROETHENE | 2.6 | UG_L | | J | J | s |
| SK8743 | RE126D3-GW-092217 | SK8743-4 | 9/22/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | RE126D3-GW-092217 | SK8743-4 | 9/22/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D3-GW-092217 | SK8743-4 | 9/22/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D3-GW-092217 | SK8743-4 | 9/22/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | RE126D3-GW-092217 | SK8743-4 | 9/22/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |

**Table B-1**
**Qualified Results Summary during Data Review**

| SDG | Sample ID | Lab ID | Sample Date | DF | Analyte | Result | Units | Lab Qualifier | Validator Qualifier | Final Qualifier | RC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK8493 | TB01-WQ-091817 | SK8493-1 | 9/18/2017 | 1 | 1,1-DICHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8493 | TB01-WQ-091817 | SK8493-1 | 9/18/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8743 | TB03-WQ-092217 | SK8743-1 | 9/22/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | TB03-WQ-092217 | SK8743-1 | 9/22/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | s |
| SK8743 | TB03-WQ-092217 | SK8743-1 | 9/22/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 1 | UG_L | UL | J | UJ | l |
| SK8743 | TB03-WQ-092217 | SK8743-1 | 9/22/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8743 | TB03-WQ-092217 | SK8743-1 | 9/22/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | TB03-WQ-092217 | SK8743-1 | 9/22/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8743 | TB03-WQ-092217 | SK8743-1 | 9/22/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8493 | TT101D1-GW-091917 | SK8493-9 | 9/19/2017 | 1 | 1,1-DICHLOROETHENE | 5.8 | UG_L | | J | J | c |
| SK8493 | TT101D1-GW-091917 | SK8493-9 | 9/19/2017 | 1 | DICHLORODIFLUOROMETHANE | 2.3 | UG_L | | J | J | c |
| SK8493 | TT101D2-GW-091917 | SK8493-10 | 9/19/2017 | 1 | 1,1-DICHLOROETHENE | 5.8 | UG_L | | J | J | c |
| SK8493 | TT101D2-GW-091917 | SK8493-10 | 9/19/2017 | 1 | DICHLORODIFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8493 | TT101D-GW-091917 | SK8493-8RA | 9/19/2017 | 1 | BROMOMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8493 | TT101D-GW-091917 | SK8493-8RA | 9/19/2017 | 1 | 1,1-DICHLOROETHENE | 2.6 | UG_L | | J | J | c |
| SK8493 | TT101D-GW-091917 | SK8493-8RA | 9/19/2017 | 1 | TRICHLOROFLUOROMETHANE | 1 | UG_L | U | J | UJ | c |
| SK8493 | TT101D-GW-091917 | SK8493-8RA | 9/19/2017 | 1 | DICHLORODIFLUOROMETHANE | 3.2 | UG_L | | J | J | c |
| SK8493 | TT101D-GW-091917 | SK8493-8RA | 9/19/2017 | 1 | 1,2-DIBROMO-3-CHLOROPROPANE | 0.75 | UG_L | U | J | UJ | c |
| SK8591 | RE109D1-GW-092117 | SK8591-8 | 9/21/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D1-GW-092117 | SK8591-8 | 9/21/2017 | 1 | TETRACHLOROETHENE | 0.73 | UG_L | J | J | J | c |
| SK8591 | RE109D1-GW-092117 | SK8591-8 | 9/21/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D1-GW-092117 | SK8591-8 | 9/21/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D1-GW-092117 | SK8591-8 | 9/21/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D1-GW-092117 | SK8591-8 | 9/21/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D2-GW-092117 | SK8591-9 | 9/21/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D2-GW-092117 | SK8591-9 | 9/21/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D2-GW-092117 | SK8591-9 | 9/21/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D2-GW-092117 | SK8591-9 | 9/21/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D2-GW-092117 | SK8591-9 | 9/21/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D2-GW-092117 | SK8591-9 | 9/21/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D3-GW-092117 | SK8591-10 | 9/21/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D3-GW-092117 | SK8591-10 | 9/21/2017 | 1 | TETRACHLOROETHENE | 0.43 | UG_L | J | J | J | c |
| SK8591 | RE109D3-GW-092117 | SK8591-10 | 9/21/2017 | 1 | CARBON TETRACHLORIDE | 0.72 | UG_L | J | J | J | c |
| SK8591 | RE109D3-GW-092117 | SK8591-10 | 9/21/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D3-GW-092117 | SK8591-10 | 9/21/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE109D3-GW-092117 | SK8591-10 | 9/21/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D1-GW-092017 | SK8591-5DL | 9/20/2017 | 10 | TRICHLOROETHENE | 970 | UG_L | | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | TETRACHLOROETHENE | 2.5 | UG_L | | J | J | s,c |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | CIS-1,2-DICHLOROETHENE | 3.4 | UG_L | | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 3.4 | UG_L | | J | J | s |

**Table B-1**
**Qualified Results Summary during Data Review**

| SDG | Sample ID | Lab ID | Sample Date | DF | Analyte | Result | Units | Lab Qualifier | Validator Qualifier | Final Qualifier | RC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | CARBON TETRACHLORIDE | 0.33 | UG_L | J | J | J | s,c |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | CHLOROFORM | 0.75 | UG_L | J | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 1,1,1-TRICHLOROETHANE | 0.98 | UG_L | J | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 1,1-DICHLOROETHANE | 2.3 | UG_L | | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 1,1-DICHLOROETHENE | 14 | UG_L | | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | TRICHLOROFLUOROMETHANE | 0.43 | UG_L | J | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 20 | UG_L | | J | J | s |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D1-GW-092017 | SK8591-5 | 9/20/2017 | 1 | 1,1,2-TRICHLOROETHANE | 1.3 | UG_L | | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6DL | 9/20/2017 | 10 | TRICHLOROETHENE | 690 | UG_L | | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | TETRACHLOROETHENE | 4.4 | UG_L | | J | J | s,c |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | CIS-1,2-DICHLOROETHENE | 3.1 | UG_L | | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 3.1 | UG_L | | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | CARBON TETRACHLORIDE | 0.38 | UG_L | J | J | J | s,c |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | CHLOROFORM | 0.82 | UG_L | J | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 1,1,1-TRICHLOROETHANE | 0.24 | UG_L | J | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 1,1-DICHLOROETHANE | 0.94 | UG_L | J | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 1,1-DICHLOROETHENE | 4.4 | UG_L | | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 15 | UG_L | | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 1,1,2-TRICHLOROETHANE | 0.53 | UG_L | J | J | J | s |
| SK8591 | RE120D2-GW-092017 | SK8591-6 | 9/20/2017 | 1 | 1,4-DIOXANE | 13 | UG_L | | J | J | s |
| SK8591 | RE120D3-GW-092017 | SK8591-7 | 9/20/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D3-GW-092017 | SK8591-7 | 9/20/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D3-GW-092017 | SK8591-7 | 9/20/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D3-GW-092017 | SK8591-7 | 9/20/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D3-GW-092017 | SK8591-7 | 9/20/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE120D3-GW-092017 | SK8591-7 | 9/20/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D1-GW-092117 | SK8591-11DL | 9/21/2017 | 10 | TRICHLOROETHENE | 510 | UG_L | | J | J | s |
| SK8591 | RE122D1-GW-092117 | SK8591-11RA | 9/21/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D1-GW-092117 | SK8591-11RA | 9/21/2017 | 1 | TETRACHLOROETHENE | 1.9 | UG_L | | J | J | c |
| SK8591 | RE122D1-GW-092117 | SK8591-11RA | 9/21/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 2.1 | UG_L | L | J | J | l |
| SK8591 | RE122D1-GW-092117 | SK8591-11RA | 9/21/2017 | 1 | CARBON TETRACHLORIDE | 0.53 | UG_L | J | J | J | c |
| SK8591 | RE122D1-GW-092117 | SK8591-11RA | 9/21/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D1-GW-092117 | SK8591-11RA | 9/21/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D1-GW-092117 | SK8591-11RA | 9/21/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |

**Table B-1**
**Qualified Results Summary during Data Review**

| SDG | Sample ID | Lab ID | Sample Date | DF | Analyte | Result | Units | Lab Qualifier | Validator Qualifier | Final Qualifier | RC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK8591 | RE122D2-GW-092117 | SK8591-12DL | 9/21/2017 | 40 | TRICHLOROETHENE | 2200 | UG_L | | J | J | s |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | CYCLOHEXANE | 2 | UG_L | U | J | UJ | c |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | TETRACHLOROETHENE | 3.1 | UG_L | J | J | J | s,c |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | CIS-1,2-DICHLOROETHENE | 4.2 | UG_L | | J | J | s |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | 1,2-DICHLOROETHENE, TOTAL | 4.2 | UG_L | J | J | J | s |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | CARBON TETRACHLORIDE | 2 | UG_L | U | J | UJ | c |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | 2-HEXANONE | 10 | UG_L | U | J | UJ | c |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | ACETONE | 10 | UG_L | U | J | UJ | c |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | CHLOROFORM | 1.8 | UG_L | J | J | J | s |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | 1,1-DICHLOROETHANE | 1.4 | UG_L | J | J | J | s |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | 1,1-DICHLOROETHENE | 6.4 | UG_L | | J | J | s |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 10 | UG_L | | J | J | s |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | 2-BUTANONE | 10 | UG_L | U | J | UJ | c |
| SK8591 | RE122D2-GW-092117 | SK8591-12DL2 | 9/21/2017 | 4 | 1,1,2-TRICHLOROETHANE | 1.9 | UG_L | J | J | J | s |
| SK8591 | RE122D3-GW-092117 | SK8591-13 | 9/21/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D3-GW-092117 | SK8591-13 | 9/21/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D3-GW-092117 | SK8591-13 | 9/21/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D3-GW-092117 | SK8591-13 | 9/21/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D3-GW-092117 | SK8591-13 | 9/21/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE122D3-GW-092117 | SK8591-13 | 9/21/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D1-GW-092017 | SK8591-2 | 9/20/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D1-GW-092017 | SK8591-2 | 9/20/2017 | 1 | TETRACHLOROETHENE | 10 | UG_L | | J | J | c |
| SK8591 | RE131D1-GW-092017 | SK8591-2 | 9/20/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D1-GW-092017 | SK8591-2 | 9/20/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D1-GW-092017 | SK8591-2 | 9/20/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D1-GW-092017 | SK8591-2 | 9/20/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D2-GW-092017 | SK8591-3DL | 9/20/2017 | 2 | 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 200 | UG_L | | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | TETRACHLOROETHENE | 7.4 | UG_L | | J | J | s,c |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | CIS-1,2-DICHLOROETHENE | 4.5 | UG_L | | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | 1,2-DICHLOROETHENE, TOTAL | 4.5 | UG_L | | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | CHLOROFORM | 0.45 | UG_L | J | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | 1,1,1-TRICHLOROETHANE | 0.32 | UG_L | J | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | 1,1-DICHLOROETHANE | 0.31 | UG_L | J | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | 1,1-DICHLOROETHENE | 1.9 | UG_L | | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | DICHLORODIFLUOROMETHANE | 0.42 | UG_L | J | J | J | s |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | TRICHLOROETHENE | 67 | UG_L | | J | J | s |

| Table B-1<br>Qualified Results Summary during Data Review | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SDG** | **Sample ID** | **Lab ID** | **Sample Date** | **DF** | **Analyte** | **Result** | **Units** | **Lab Qualifier** | **Validator Qualifier** | **Final Qualifier** | **RC** |
| SK8591 | RE131D2-GW-092017 | SK8591-3 | 9/20/2017 | 1 | 1,4-DIOXANE | 12 | UG_L | | J | J | s |
| SK8591 | RE131D3-GW-092017 | SK8591-4 | 9/20/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D3-GW-092017 | SK8591-4 | 9/20/2017 | 1 | TETRACHLOROETHENE | 2.3 | UG_L | | J | J | c |
| SK8591 | RE131D3-GW-092017 | SK8591-4 | 9/20/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D3-GW-092017 | SK8591-4 | 9/20/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D3-GW-092017 | SK8591-4 | 9/20/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | RE131D3-GW-092017 | SK8591-4 | 9/20/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | TB02-WQ-092117 | SK8591-1 | 9/21/2017 | 1 | CYCLOHEXANE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | TB02-WQ-092117 | SK8591-1 | 9/21/2017 | 1 | TETRACHLOROETHENE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | TB02-WQ-092117 | SK8591-1 | 9/21/2017 | 1 | CARBON TETRACHLORIDE | 0.5 | UG_L | U | J | UJ | c |
| SK8591 | TB02-WQ-092117 | SK8591-1 | 9/21/2017 | 1 | 2-HEXANONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | TB02-WQ-092117 | SK8591-1 | 9/21/2017 | 1 | ACETONE | 2.5 | UG_L | U | J | UJ | c |
| SK8591 | TB02-WQ-092117 | SK8591-1 | 9/21/2017 | 1 | 2-BUTANONE | 2.5 | UG_L | U | J | UJ | c |

***Notes:***

SDG = Sample delivery group
ID = Identification
DF = Dilution factor
RC = Reason code
UG_L = Micrograms per liter
U = ***Undetected*** — The analyte was analyzed but undetected or was qualified as undetected during data review due to blank artifacts.
J = ***Estimated Value*** — One or more quality control parameters were outside control limits or the analyte concentration was less than the limit of quantitation.
L = Indicates that the analyte was outside of control limits in the lab control sample/lab control sample duplicate and/or analyzed concurrently with the native sample (laboratory qualifier).
UM = Indicates that the analyte was undetected outside of the control limits in the matrix spike/matrix spike duplicate prepared and/or analyzed concurrently with the native sample (laboratory qualifier).
UL = Indicates that the analyte was analyzed but undetected and outside of control limits in the lab control sample/lab control sample duplicate (laboratory qualifier).
JL = Indicates that the analyte was analyzed and estimated because of a quality control outlier outside of control limits in the lab control sample/lab control sample duplicate (laboratory qualifier).

**Qualification Reason Codes (multiple reason codes may be applied):**

c = Calibration issue
fd = Field duplicate relative percent difference
l = Laboratory control sample recovery
s = Surrogate spike percent recovery

# Appendix C

## Analytical Data Validation – ARCADIS

ARCADIS Design & Consultancy for natural and built assets

# Navy Wells-

# Operable Unit 2

# Data Review

# Bethpage, New York

Volatile and Semi-volatile Analyses

SDGs #JC50045, JC50206 and JC53564

Analyses Performed By:
Accutest-SGS Laboratories
Dayton, New Jersey

Report #28584R
Review Level: Tier II
Project: NY001496.0416.NAVI4

# SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) #JC50045, JC50206 and JC53564 for samples collected in association with the Navy Wells located at the Bethpage Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | SVOC | PCB | MET | MISC |
| JC50045 | BPOW5-4 | JC50045-1 | Water | 09/01/2017 | | X | X | | | |
| | TB090117AR1 | JC50045-2 | Water | 09/01/2017 | | X | | | | |
| JC50206 | BPOW5-6 | JC50206-1 | Water | 09/05/2017 | | X | | | | |
| | TB090517DC1 | JC50206-2 | Water | 09/05/2017 | | X | | | | |
| | BPOW5-5 | JC50206-3 | Water | 09/05/2017 | | X | | | | |
| JC53546 | BPOW5-5 | JC53564-1 | Water | 10/17/2017 | | | X | | | |
| | BPOW5-6 | JC53564-2 | Water | 10/17/2017 | | | X | | | |

Notes:

1. Samples BPOW5-5 and BPOW5-6 were originally sampled on September 9, 2017; however, due to laboratory oversight, samples were not sent out to subcontractor laboratory for Method 522-SIM analysis. The samples were resampled on October 17, 2017; data is presented in SDG JC53564.

2. EPA Method 522 Semi-volatile analysis for 1,4-Dioxane was performed by GEL Laboratories, LLC, located in Charleston, South Carolina (subcontracted via SGS-Accutest Laboratory). The associated SDGs are: JC50045X/432354 and JC53564X/435415.

3. Matrix spike/matrix spike duplicate (MS/MSD) was performed on sample location BPOW5-4 for 1,4-Dioxane analyses; sample location BPOW5-6 for VOC analysis; and, sample BPOW5-5 for 1,4-Dioxane analysis.



ED_002631A_00011413-00156

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

Note:
QA - Quality Assurance



ED_002631A_00011413-00157

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) methods 524.2 and 522-Selected Ion Monitoring (SIM). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and



ED_002631A_00011413-00158

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



ED_002631A_00011413-00159

## VOLATILE ORGANIC COMPOUNDS (VOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 524.2 | Water | 14 days from collection to analysis | Cool to <6 °C; preserved to a pH of less than 2 s.u. |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits in all SDGs.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



ED_002631A_00011413-00160

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS was not performed on sample locations associated with SDG JC50045.

The MS exhibited acceptable recoveries in SDG JC54206.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits in SDG JC50045.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

| Sample Locations | Compound | LCS Recovery |
|---|---|---|
| SDG JC50206<br>BPOW5-6<br>TB090517DC1<br>BPOW5-5 | Chloromethane | >UL |

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent



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sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not collected with a sample location associated with the SDGs validated as part of this report.

## 7. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A laboratory duplicate was not performed on a sample location associated with SDG JC50045.

The laboratory duplicate performed on sample BPOW5-5 exhibited recoveries within the control limits in SDG JC50206.

## 8. System Performance and Overall Assessment

Tentatively identified compounds (TICs) were not identified in any sample locations.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00162

## DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: EPA 524.2 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| C. Trip blanks | | X | | X | |
| Laboratory Control Sample (LCS) %R | | X | X | | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate(MSD) %R | | | | | X |
| MS/MSD Precision (RPD) | | | | | X |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

RPD Relative percent difference

%R Percent recovery



ED_002631A_00011413-00163

## SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 522-SIM | Water | 28 days from collection to extraction and 28 days from extraction to analysis | Cool to <6 °C; preserved with Sodium Bisulfate (NaHSO4) to a pH of less than 4 s.u. |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



ED_002631A_00011413-00164

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS exhibited acceptable recoveries in SDG JC50045.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

| Sample Locations | Compound | MS Recovery | MSD Recovery |
|---|---|---|---|
| SDG JC53564:<br>BPOW5-5 | 1,4-Dioxane | <LL but >10% | AC |

Note:
AC =Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |
| Parent sample concentration > four times the MS/MSD spiking solution concentration. | Detect | No Action |

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent



ED_002631A_00011413-00165

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not collected with a sample location associated with the SDGs validated as part of this report.

## 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00166

## DATA VALIDATION CHECKLIST FOR SVOCs

| SVOCs: EPA 522-SIM | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | X | | |
| Matrix Spike Duplicate(MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | | | | X |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

%R Percent recovery

RPD Relative percent difference



ED_002631A_00011413-00167

VALIDATION PERFORMED BY: Lisa Horton

SIGNATURE: Lisa Horton

DATE: October 31, 2017

PEER REVIEW: Todd Church

DATE: November 6, 2017



ED_002631A_00011413-00168

# CHAIN OF CUSTODY

# CORRECTED SAMPLE ANALYSIS DATA SHEETS



ED_002631A_00011413-00169

ACCUTEST LABORATORIES

GW
WTB

# CHAIN OF CUSTODY

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

| | |
|---|---|
| FED-EX Tracking # #4 | Bottle Order Control # |
| Accutest Quote # | Accutest Job # JC50045 |

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville State: NY Zip: 11747
Project Contact: Soma Das, soma.das@arcadis-us.com E-mail:
Phone #: 631-249-7600 Fax #: 631-249-7610
Sampler(s) Name(s): Albina Redzepagic Phone #: 212-365-4651

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells
Navy Wells OU2 -Bethpage, New York
Street:
City: Bethpage State: NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #: Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

Billing Information ( if different from Report to)
Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, State: CO Zip: 80129
Attention: Soma Das

**Requested Analysis ( see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | NaHSO4 | V5242NG36OW+40 | SB522SIM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BPOW 5-4 | | 9/1/2017 | 1220 | AR | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | SUB |
| 2 | TB090117AR1 | | 9/1/2017 | 900 | — | TB | 2 | 2 | | | | | | | | | 2 | | V700 |

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

**Turnaround Time ( Business days)**

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days ( by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

INITIAL ASESSMENT SA Don
LABEL VERIFICATION GE

Sample Custody must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 Albina Redzepagic | 9/1/17 1435 | 1 [signature] | 2 [signature] | 9/1/17 1910 | 2 [signature] |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | Custody Seal # 711 ☐ Intact ☐ Not Intact | Preserved where applicable ☐ | On Ice ☑ Cooler Temp. 3.4 °C |

JC50045: Chain of Custody
Page 1 of 2

# Report of Analysis





| | | | |
|---|---|---|---|
| Client Sample ID: | BPOW5-4 | | |
| Lab Sample ID: | JC50045-1 | Date Sampled: | 09/01/17 |
| Matrix: | AQ - Ground Water | Date Received: | 09/01/17 |
| Method: | EPA 524.2 REV 4.1 | Percent Solids: | n/a |
| Project: | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111572.D | 1 | 09/05/17 13:51 | BK | n/a | n/a | V1B5318 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | BPOW5-4 | | |
| Lab Sample ID: | JC50045-1 | Date Sampled: | 09/01/17 |
| Matrix: | AQ - Ground Water | Date Received: | 09/01/17 |
| Method: | EPA 524.2 REV 4.1 | Percent Solids: | n/a |
| Project: | Navy Wells, OU2, Bethpage, NY | | |

4.1

4

VOA OU2 Outpost List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 91% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 89% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| Client Sample ID: | TB090117AR1 | | |
| Lab Sample ID: | JC50045-2 | Date Sampled: | 09/01/17 |
| Matrix: | AQ - Trip Blank Water | Date Received: | 09/01/17 |
| Method: | EPA 524.2 REV 4.1 | Percent Solids: | n/a |
| Project: | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111571.D | 1 | 09/05/17 13:19 | BK | n/a | n/a | V1B5318 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA OU2 Outpost List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| Client Sample ID: | TB090117AR1 | | |
| Lab Sample ID: | JC50045-2 | Date Sampled: | 09/01/17 |
| Matrix: | AQ - Trip Blank Water | Date Received: | 09/01/17 |
| Method: | EPA 524.2 REV 4.1 | Percent Solids: | n/a |
| Project: | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 91% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 90% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS ACCUTEST

# CHAIN OF CUSTODY

432354



2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

| | |
|---|---|
| FED-EX Tracking # | Bottle Order Control # |
| SGS Accutest Quote # | SGS Accutest Job JC50045X |

**Client / Reporting Information**

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: diane.komar@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): AR Phone:

**Project Information**

Project Name: Navy Wells, OU2, Bethpage, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information ( if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

**Requested Analysis ( see TEST CODE sheet)**

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | | SB522SIM14DIOX ,1,4-Dioxane via EPA 522 (Low PQL Reuiqred) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1X | BPOW 5-4 | | 9/1/17 | 12:20:00 PM | AR | AQ | 2 | | | | | | | | | 2 | X | |

Turnaround Time ( Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 21

Emergency & Rush T/A data available VIA Lablink

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

2 bottles per sample with NaHSO4 preservative.

**Sample Custody must be documented below each time samples change possession, including courier delivery.**

| | | | | | |
|---|---|---|---|---|---|
| Relinquished by Sampler: 1 | Date Time: 9/6/17 17:10 | Received By: 1 | Relinquished By: 2 | Date Time: | Received By: 2 9/7/17 9:05 |
| Relinquished by Sampler: 3 | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| Relinquished by: 5 | Date Time: | Received By: 5 | Custody Seal # 525, 527, 528 | [ ] Intact [ ] Not intact | Preserved where applicable [ ] On Ice [ ] Cooler Temp. |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
for

ACTL003 SGS Accutest

Client SDG: JC50045X GEL Work Order: 432354

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 21 SEP 2017** **Title: Data Validator**

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50045X** | **Date Collected:** | **09/01/2017 12:20** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432354001** | **Date Received:** | **09/07/2017 10:15** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW 5-4** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701325** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/19/2017 15:41** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/19/2017 08:15** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s091917.B\s6i1907.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | | 1.13 | ug/L | 0.100 | 0.100 | 0.200 |

ACCUTEST LABORATORIES

GW
WTB

# CHAIN OF CUSTODY

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking # #4
Bottle Order Control #
Accutest Quote #
Accutest Job # JC50206

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville State: NY Zip: 11747
Project Contact: Soma Das, soma.das@arcadis-us.com E-mail:
Phone #: 631-249-7600 Fax #: 631-249-7610
Sampler(s) Name(s): Pat Prezorski / Corbett Phone #: 5[illegible]

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells
Navy Wells OU2 -Bethpage, New York
Street:
City: Bethpage State: NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #:
Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

Billing Information (if different from Report to)
Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, State: CO Zip: 80129
Attention: Soma Das

**Requested Analysis (see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | NHO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | NaHSO4 | V5242NG36OW+40 | SB522SIM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BPOW 5-6 | | 9/5/17 | 1505 | DC | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | SUB |
| 2 | TB090517DC1 | | 9/5/17 | 1400 | — | TB | 2 | 2 | | | | | | | | | 2 | | V720 |
| 3 | BPOW 5-5 | | 9/5/17 | 1525 | PP | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | |

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; DI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

INITIAL ASSESSMENT
LABEL VERIFICATION

**Turnaround Time (Business days)**

- [ ] Std. 15 Business Days
- [x] Std. 16 Business Days (by Contract only)
- [ ] 10 Day RUSH
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other CLIMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

OU2 Hydro

Sample Custody must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 Pat Prezorski | 9/5/17 1930 | 1 Chris Lord Date 9/6/17 Time 10:45 | 2 Chris Lord | 9/6/17 1705 | 2 |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | | | |

Custody Seal # [x] Intact [ ] Not intact
Preserved where applicable [ ]
On Ice [x]
Cooler Temp. 1.6° CIP

JC50206: Chain of Custody
Page 1 of 2

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-6 | | |
| **Lab Sample ID:** | JC50206-1 | **Date Sampled:** | 09/05/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/06/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Northrup Grumman, Navy Wells 0U2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111601.D | 1 | 09/07/17 12:07 | BK | n/a | n/a | V1B5320 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-6 | | |
| **Lab Sample ID:** | JC50206-1 | **Date Sampled:** | 09/05/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/06/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Northrup Grumman, Navy Wells 0U2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 88% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 85% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090517DC1 | | |
| **Lab Sample ID:** | JC50206-2 | **Date Sampled:** | 09/05/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/06/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Northrup Grumman, Navy Wells 0U2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111600.D | 1 | 09/07/17 11:35 | BK | n/a | n/a | V1B5320 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090517DC1 | | |
| **Lab Sample ID:** | JC50206-2 | **Date Sampled:** | 09/05/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/06/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Northrup Grumman, Navy Wells 0U2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 87% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 88% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-5 | | |
| **Lab Sample ID:** | JC50206-3 | **Date Sampled:** | 09/05/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/06/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Northrup Grumman, Navy Wells 0U2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111602.D | 1 | 09/07/17 12:38 | BK | n/a | n/a | V1B5320 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-5 | | |
| **Lab Sample ID:** | JC50206-3 | **Date Sampled:** | 09/05/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/06/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Northrup Grumman, Navy Wells 0U2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 89% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 86% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST LABORATORIES

# CHAIN OF CUSTODY

435415

PAGE 1 OF 1

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking # #4
Bottle Order Control #
Accutest Quote #
Accutest Job #

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville State: NY Zip: 11747
Project Contact: Soma Das, soma.das@arcadis-us.com E-mail:
Phone #: 631-249-7600 Fax #: 631-249-7610
Sampler(s) Name(s): Pat Prunk Phone #: 516 297-6247

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells
Navy Wells OU2 -Bethpage, New York
Street:
City: Bethpage State: NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #:
Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

**Billing Information ( if different from Report to)**

Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, State: CO Zip: 80129
Attention: Soma Das

**Requested Analysis ( see TEST CODE sheet)**

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | Na2SO4 | V5242NG36OW+40 | SB522SIM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BPOW 5-5 | | 10/17/17 | 1630 | PP | GW | 2 | | | | | | | | | X | | X | |
| | BPOW 5-6 | | 10/17/17 | 1555 | PC | GW | 2 | | | | | | | | | X | | X | |

**Turnaround Time ( Business days)**

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days ( by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH* * Expedite per SGS Lab
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

OU2 Hydro

**Sample Custody must be documented below each time samples change possession, including courier delivery.**

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 Pat Prunk | 10-17-17 1745 | 1 [signature] 10/18/17 9:00 | 2 | | 2 |
| Relinquished by Sampler: 3 | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| Relinquished by: 5 | Date Time: | Received By: 5 | Custody Seal # | [ ] Intact [ ] Not intact | Preserved where applicable [ ] On Ice [ ] Cooler Temp. |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ACTL003 SGS Accutest

Client SDG: JC53564X GEL Work Order: 435415

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit or indicates that the analyte recovery in the MS or MSD is outside of specified acceptance criteria.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 24 OCT 2017** **Title: Data Validator**

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



2

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC53564X** | **Date Collected:** | **10/17/2017 16:30** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **435415001** | **Date Received:** | **10/18/2017 09:00** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW5-5** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1711186** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **10/24/2017 11:48** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **10/24/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s102417.B\s6i2405.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | J | 1.50 | ug/L | 0.100 | 0.100 | 0.200 |

# Semi-Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC53564X** | **Date Collected:** | **10/17/2017 15:55** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **435415002** | **Date Received:** | **10/18/2017 09:00** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW5-6** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1711186** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **10/24/2017 12:13** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **10/24/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s102417.B\s6i2406.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | J | 0.162 | ug/L | 0.100 | 0.100 | 0.200 |

ARCADIS Design & Consultancy for natural and built assets

# Navy Wells-

# Operable Unit 2

# Data Review

# Bethpage, New York

Volatile and Semi-volatile Analyses

SDGs #JC50300 and JC50489

Analyses Performed By:
Accutest-SGS Laboratories
Dayton, New Jersey

Report #28585R
Review Level: Tier II
Project: NY001496.0416.NAVI4

# SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) #JC50300 and JC50489 for samples collected in association with the Navy Wells located at the Bethpage Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | SVOC | PCB | MET | MISC |
| JC50300 | BPOW5-7 | JC50300-1 | Water | 09/06/2017 | | X | X | | | |
| | TB090617PP1 | JC50300-2 | Water | 09/06/2017 | | X | | | | |
| JC50489 | BPOW5-3 | JC50489-1 | Water | 09/07/2017 | | X | X | | | |
| | BPOW5-2 | JC50489-2 | Water | 09/07/2017 | | X | X | | | |
| | TB090717DC1 | JC50489-3 | Water | 09/07/2017 | | X | | | | |

Notes:

1. EPA Method 522 Semi-volatile analysis for 1,4-Dioxane was performed by GEL Laboratories, LLC, located in Charleston, South Carolina (subcontracted via SGS-Accutest Laboratory). The associated SDGs are: JC50300X/432579 and JC50489X/432583.

2. Matrix spike/matrix spike duplicate (MS/MSD) was performed on sample location BPOW5-3 for VOC analyses.



ED_002631A_00011413-00190

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

Note:
QA - Quality Assurance



ED_002631A_00011413-00191

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) methods 524.2 and 522-Selected Ion Monitoring (SIM). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



ED_002631A_00011413-00193

## VOLATILE ORGANIC COMPOUNDS (VOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 524.2 | Water | 14 days from collection to analysis | Cool to <6 °C; preserved to a pH of less than 2 s.u. |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits in all SDGs.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



ED_002631A_00011413-00194

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS was not performed on sample locations associated with SDG JC50300.

The MS exhibited acceptable recoveries in SDG JC50489.

### 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

### 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not collected with a sample location associated with the SDGs validated as part of this report.

### 7. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A laboratory duplicate was not performed on a sample location associated with SDGs JC50300 or JC50489.

### 8. System Performance and Overall Assessment

Tentatively identified compounds (TICs) were not identified in any of the sample locations.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00195

## DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: EPA 524.2 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| C. Trip blanks | | X | | X | |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate(MSD) %R | | | | | X |
| MS/MSD Precision (RPD) | | | | | X |
| Field/Lab Duplicate (RPD) | | | | | X |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

RPD Relative percent difference

%R Percent recovery



ED_002631A_00011413-00196

## SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 522-SIM | Water | 28 days from collection to extraction and 28 days from extraction to analysis | Cool to <6 °C; preserved with Sodium Bisulfate (NaHSO4) to a pH of less than 4 s.u. |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits in all SDGs.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



ED_002631A_00011413-00197

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with SDGs JC50300 or JC50489.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not collected with a sample location associated with the SDGs validated as part of this report.

## 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00198

## DATA VALIDATION CHECKLIST FOR SVOCs

| SVOCs: EPA 522-SIM | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | | | | X |
| Matrix Spike Duplicate(MSD) %R | | | | | X |
| MS/MSD Precision (RPD) | | | | | X |
| Field/Lab Duplicate (RPD) | | | | | X |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

%R Percent recovery

RPD Relative percent difference



ED_002631A_00011413-00199

VALIDATION PERFORMED BY: Lisa Horton

SIGNATURE: Lisa Horton

DATE: October 30, 2017

PEER REVIEW: Todd Church

DATE: November 6, 2017



ED_002631A_00011413-00200

# CHAIN OF CUSTODY

# CORRECTED SAMPLE ANALYSIS DATA SHEETS



ED_002631A_00011413-00201

ACCUTEST LABORATORIES

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# CHAIN OF CUSTODY

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
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www.accutest.com

PAGE 1 OF 1

FED-EX Tracking # #4 | Bottle Order Control #
Accutest Quote # | Accutest Job # JC50300

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville State: NY Zip: 11747
Project Contact: Soma Das, soma.das@arcadis-us.com E-mail:
Phone #: 631-249-7600 Fax #: 631-249-7610
Sampler(s) Name(s): Pat Prazuski Phone #: 516-[illegible]

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells
Navy Wells OU2 -Bethpage, New York
Street:
City: Bethpage State: NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #:
Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

Billing Information ( if different from Report to)
Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, State: CO Zip: 80129
Attention: Soma Das

**Requested Analysis ( see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | NaHSO4 | V5242NG36OW+40 | SB522SIM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BPOW 5-7 | | 9/6/17 | 1420 | AP | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | SUB |
| 2 | TB090617 PP2 | | 9/6/17 | 1300 | — | TB | 2 | 2 | | | | | | | | | 2 | | U737 |

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

**Turnaround Time ( Business days)**

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days ( by Contract only)
- [ ] 10 Day RUSH
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Labtink

Approved By (Accutest PM): / Date:
INITIAL ASSESSMENT AP 9/7/17
LABEL VERIFICATION GE

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

OU2 Hydro

Sample Custody must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 [signature] | 9/6/17 1700 | 1 [signature] Date 9/7/17 Time 1015 | 2 [signature] | 9/7/17 1750 | 2 [signature] |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | | | |

Custody Seal # | [x] Intact [ ] Not Intact | Preserved where applicable [ ] | On Ice [x] | Cooler Temp. 2.6°C

JC50300: Chain of Custody
Page 1 of 2

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-7 | | |
| **Lab Sample ID:** | JC50300-1 | **Date Sampled:** | 09/06/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/07/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111628.D | 1 | 09/12/17 17:15 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-7 | | |
| **Lab Sample ID:** | JC50300-1 | **Date Sampled:** | 09/06/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/07/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 89% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 85% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090617PP1 | | |
| **Lab Sample ID:** | JC50300-2 | **Date Sampled:** | 09/06/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/07/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111627.D | 1 | 09/12/17 16:44 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090617PP1 | | |
| **Lab Sample ID:** | JC50300-2 | **Date Sampled:** | 09/06/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/07/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 88% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 88% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS ACCUTEST

# CHAIN OF CUSTODY

432579



2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

| | |
|---|---|
| FED-EX Tracking # | Bottle Order Control # |
| SGS Accutest Quote # | SGS Accutest Job JC50300X |

**Client / Reporting Information**

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: diane.komar@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): PP Phone:

**Project Information**

Project Name: Navy Wells, OU2, Bethpage, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information ( if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

**Requested Analysis ( see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | | SB522SIM14DIOX ,1,4-Dioxane via EPA 522 (Low PQL Required) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1X | BPOW5-7 | | 9/6/17 | 2:20:00 PM | PP | AQ | 2 | | | | | | | | | 2 | X | |

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

**Turnaround Time ( Business days)**

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 21

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

2 bottles with NaHSo4 preservative

**Sample Custody must be documented below each time samples change possession, including courier delivery.**

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 [signature] | 9-12-17 1700 | 1 FEDEX | 2 | | 2 [signature] 9/13/17 9:20 |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | Custody Seal # 533 | ☐ Intact ☐ Not intact | Preserved where applicable ☐ On Ice ☐ Cooler Temp. |

2

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
for

ACTL003 SGS Accutest

Client SDG: JC50300X GEL Work Order: 432579

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 27 SEP 2017** **Title: Data Validator**

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50300X** | **Date Collected:** | **09/06/2017 14:20** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432579001** | **Date Received:** | **09/13/2017 09:00** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW 5-7** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701325** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/19/2017 22:39** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/19/2017 08:15** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s091917.B\s6i1924.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | U | 0.100 | ug/L | 0.100 | 0.100 | 0.200 |

ACCUTEST LABORATORIES

GW
WTB

# CHAIN OF CUSTODY

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking # #4 | Bottle Order Control #
Accutest Quote # | Accutest Job # JC50489

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville State: NY Zip: 11747
Project Contact: Soma Das, soma.das@arcadis-us.com E-mail:
Phone #: 631-249-7600 Fax #: 631-249-7610
Sampler(s) Name(s): Pat Prezorski/Corbett Phone #: 516-621-2

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells
Navy Wells OU2 -Bethpage, New York
Street:
City: Bethpage State: NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #:
Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

Billing Information (if different from Report to)
Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, State: CO Zip: 80129
Attention: Soma Das

**Requested Analysis (see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | MeOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | NaHSO4 | V5242NG36OW+40 | SB522SIM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BPOW 5-3 | | 9/7/17 | 1310 | DC | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | E92 |
| 2 | BPOW 5.2 | | 9/7/17 | 1345 | DC | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | V767 |
| 3 | TB090717DC2 | | 9/7/17 | 1200 | — | TB | 2 | 2 | | | | | | | | | 2 | | |

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

**Turnaround Time (Business days)**

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days (by Contract only)
- [ ] 10 Day RUSH
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Labtink

Approved By (Accutest PM): / Date:
INITIAL ASESSMENT 3B Dom
LABEL VERIFICATION [illegible]

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

OU2 Hydro

Sample Custody must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 [signature] | 9/7/17 1530 | 1 [signature] | 2 [signature] | 9/8/17 1930 | 2 [signature] |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | Custody Seal # 848 | ☑ Intact ☐ Not intact | Preserved where applicable ☐ On Ice ☑ Cooler Temp. 3.3°C IP |

JC50489: Chain of Custody
Page 1 of 2

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-3 | | |
| **Lab Sample ID:** | JC50489-1 | **Date Sampled:** | 09/07/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111626.D | 1 | 09/12/17 16:12 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-3 | | |
| **Lab Sample ID:** | JC50489-1 | **Date Sampled:** | 09/07/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 87% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 87% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-2 | | |
| **Lab Sample ID:** | JC50489-2 | **Date Sampled:** | 09/07/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111629.D | 1 | 09/12/17 17:47 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-2 | | |
| **Lab Sample ID:** | JC50489-2 | **Date Sampled:** | 09/07/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 88% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 85% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090717DC1 | | |
| **Lab Sample ID:** | JC50489-3 | **Date Sampled:** | 09/07/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111630.D | 1 | 09/12/17 18:18 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090717DC1 | | |
| **Lab Sample ID:** | JC50489-3 | **Date Sampled:** | 09/07/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 88% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 86% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS ACCUTEST

# CHAIN OF CUSTODY

432583



2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

| | |
|---|---|
| FED-EX Tracking # | Bottle Order Control # |
| SGS Accutest Quote # | SGS Accutest Job JC50489X |

**Client / Reporting Information**

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: diane.komar@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): DC Phone:

**Project Information**

Project Name: Navy Wells, OU2, Bethpage, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information ( if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

**Requested Analysis ( see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | | SB522SIM14DIOX ,(1,4-Dioxane via EPA 522) Low PQL required | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1X | BPOW5-3 | | 9/7/17 | 1:10:00 PM | DC | AQ | 2 | | | | | | | | | 2 | X | |
| 2X | BPOW5-2 | | 9/7/17 | 1:45:00 PM | DC | AQ | 2 | | | | | | | | | 2 | X | |

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

**Turnaround Time ( Business days)**

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 14

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

2 bottles per sample with NaHSO$ preservative

**Sample Custody must be documented below each time samples change possession, including courier delivery.**

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 [signature] | 9-12-17 1700 | 1 FED EX | 2 | | 2 [signature] 9/13/17 9:20 |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | Custody Seal # 533 | ☐ Intact ☐ Not intact | Preserved where applicable ☐ On Ice ☐ Cooler Temp. |

2

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ACTL003 SGS Accutest

Client SDG: JC50489X GEL Work Order: 432583

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit or indicates that the analyte recovery in the MS or MSD is outside of specified acceptance criteria.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 02 OCT 2017** **Title: Data Validator**

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50489X** | **Date Collected:** | **09/07/2017 13:10** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432583001** | **Date Received:** | **09/13/2017 10:00** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW 5-3** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701327** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/20/2017 16:24** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/20/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s092017.B\s6i2017.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | | 1.02 | ug/L | 0.100 | 0.100 | 0.200 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50489X** | **Date Collected:** | **09/07/2017 13:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432583002** | **Date Received:** | **09/13/2017 10:00** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW 5-2** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701327** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/20/2017 17:15** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/20/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s092017.B\s6i2019.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | J | 0.102 | ug/L | 0.100 | 0.100 | 0.200 |

ARCADIS Design & Consultancy for natural and built assets

# Navy Wells-

# Operable Unit 2

# Data Review

# Bethpage, New York

Volatile and Semi-volatile Analyses

SDGs #JC50783, JC50906 and JC51403

Analyses Performed By:
Accutest-SGS Laboratories
Dayton, New Jersey

Report #28587R
Review Level: Tier II
Project: NY001496.0416.NAVI4

# SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) #JC50783, JC50906 and JC51403 for samples collected in association with the Navy Wells located at the Bethpage Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | SVOC | PCB | MET | MISC |
| JC50783 | BPOW2-1 | JC50783-1 | Water | 09/12/2017 | | X | X | | | |
| | BPOW2-2 | JC50783-2 | Water | 09/12/2017 | | X | X | | | |
| | TB091217AD1 | JC50783-3 | Water | 09/12/2017 | | X | | | | |
| | DISCHARGE_091217 | JC50783-4 | Water | 09/12/2017 | | X | X | | | |
| JC50906 | BPOW5-1 | JC50906-1 | Water | 09/13/2017 | | X | X | | | |
| | TB091317AD1 | JC50906-2 | Water | 09/13/2017 | | X | | | | |
| JC51403 | BPOW2-3 | JC51403-1 | Water | 09/20/2017 | | X | X | | | |
| | TB092017PP1 | JC51403-2 | Water | 09/20/2017 | | X | | | | |

Notes:

1. Sample TB091217AD1 was inadvertently logged in upon receipt at the laboratory as TB091217A**P**1.
2. Sample DISCHARGE_091217 was analyzed by EPA Method 624.
3. EPA Method 522 Semi-volatile analysis for 1,4-Dioxane was performed by GEL Laboratories, LLC, located in Charleston, South Carolina (subcontracted via SGS-Accutest Laboratory). The associated SDGs are: JC50783X/432888, JC50906X/433005 and JC51403X/433560.
4. Matrix spike/matrix spike duplicate (MS/MSD) was performed on sample location BPOW2-3 for VOC and 1,4-Dioxane analyses.

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

Note:
QA - Quality Assurance



ED_002631A_00011413-00223

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) methods 624, 524.2 and 522-Selected Ion Monitoring (SIM). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



ED_002631A_00011413-00225

## VOLATILE ORGANIC COMPOUNDS (VOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 524.2 | Water | 14 days from collection to analysis | Cool to <6 °C; preserved to a pH of less than 2 s.u. |
| EPA 624 | | | |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



ED_002631A_00011413-00226

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS was not performed on sample locations associated with SDGs JC50783 and JC50906.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

| Sample Locations | Compound | MS Recovery | MSD Recovery |
|---|---|---|---|
| SDG JC51403: BPOW2-3 | Carbon disulfide | AC | >UL |
| | Methylene chloride | AC | >UL |

Note:
AC = Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |
| Parent sample concentration > four times the MS/MSD spiking solution concentration. | Detect | No Action |
| | Non-detect | |

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

| Sample Locations | Compound |
|---|---|
| SDG JC51403: BPOW2-3 | Benzene |
| | Bromodichloromethane |
| | Chlorobenzene |
| | Chloroform |

| Sample Locations | Compound |
|---|---|
| | 1,1-Dichloroethane |
| | 1,2-Dichloropropane |
| | trans-1,2-Dichloroethylene |
| | cis-1,2-Dichloroethylene |
| | cis-1,3-Dichloropropene |
| | trans-1,3-Dichloropropene |
| | Ethylbenzene |
| | Methylene chloride |
| | 1,1,1-Trichloroethane |
| | 1,1,2,2-Tetrachloroethane |
| | 1,1,2-Trichloroethane |
| | Toluene |
| | Trichloroethylene |

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > UL | Non-detect | UJ |
| | Detect | J |

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.



ED_002631A_00011413-00228

A field duplicate was not collected with a sample location associated with the SDGs validated as part of this report.

## 7. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A laboratory duplicate was not performed on a sample location associated with SDGs JC50783, JC50906 or JC51403.

## 8. System Performance and Overall Assessment

Tentatively identified compounds (TICs) were not identified in any of the sample locations.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00229

## DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: EPA 624 and 524.2 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| C. Trip blanks | | X | | X | |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate(MSD) %R | | X | X | | |
| MS/MSD Precision (RPD) | | X | X | | |
| Field/Lab Duplicate (RPD) | | | | | X |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

RPD Relative percent difference

%R Percent recovery



ED_002631A_00011413-00230

## SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 522-SIM | Water | 28 days from collection to extraction and 28 days from extraction to analysis | Cool to <6 °C; preserved with Sodium Bisulfate (NaHSO4) to a pH of less than 4 s.u. |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits in all SDGs.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



ED_002631A_00011413-00231

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with SDG JC50783 or JC50906.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries in SDG JC51403.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not collected with a sample location associated with the SDGs validated as part of this report.

## 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00232

## DATA VALIDATION CHECKLIST FOR SVOCs

| SVOCs: EPA 522-SIM | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate(MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | | | | X |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

%R Percent recovery

RPD Relative percent difference



ED_002631A_00011413-00233

VALIDATION PERFORMED BY: Lisa Horton

SIGNATURE: Lisa Horton

DATE: October 31, 2017

PEER REVIEW: Todd Church

DATE: November 6, 2017



ED_002631A_00011413-00234

# CHAIN OF CUSTODY

# CORRECTED SAMPLE ANALYSIS DATA SHEETS



ED_002631A_00011413-00235

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ACTL003 SGS Accutest

Client SDG: JC50783X GEL Work Order: 432888

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit or indicates that the analyte recovery in the MS or MSD is outside of specified acceptance criteria.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 03 OCT 2017** **Title: Data Validator**

ACCUTEST LABORATORIES

GW
WB

# CHAIN OF CUSTODY

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com



PEO-EX Tracking # #4
Bottle Order Control #
Accutest Quote #
Accutest Job # JC50906

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville State: NY Zip: 11747
Project Contact: Soma Das, soma.das@arcadis-us.com E-mail:
Phone #: 631-249-7600 Fax #: 631-249-7610
Sampler(s) Name(s): Anna Dwenger Phone #: 724-420-6883

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells Navy Wells OU2 -Bethpage, New York
Street:
City: Bethpage State: NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #:
Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

Billing Information ( if different from Report to)
Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, State: CO Zip: 80129
Attention: Soma Das

**Requested Analysis ( see TEST CODE sheet)**

V5242NG36OW+40
SB522SIM14DIOX (GEL Lab)

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | ASCNE | DI Water | MEOH | EnCORE | NaHSO4 | V5242NG36OW+40 | SB522SIM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BGW 5-1 | | 9/13/17 | 1130 | AD | GW | 7 | 3 | | | | | | | | 4 | 3 | 4 | SUB |
| 2 | TB09/13/17 AD1 | | 9/13/17 | 0800 | — | TB | 2 | 2 | | | | | | | | | 2 | | V846 |

INITIAL ASESSMENT SD DS
LABEL VERIFICATION SD

**Turnaround Time ( Business days)**

- [ ] Std. 15 Business Days
- [x] Std. 15 Business Days ( by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM) / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULL1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other COMMU+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

OU2 Hydro

Sample Custody must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 | 9/13/17 1305 | 1 Chris Karl 9/14/17 1030 | 2 Chris Karl | 9/14/17 1300 | 2 |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | | | |

Custody Seal # Intact [x] Not Intact [ ] Preserved where applicable [ ] On Ice [X] Cooler Temp. 2.8 °C

JC50906: Chain of Custody
Page 1 of 2

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-1 | | |
| **Lab Sample ID:** | JC50906-1 | **Date Sampled:** | 09/13/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/14/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111757.D | 1 | 09/20/17 18:37 | BK | n/a | n/a | V1B5327 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW5-1 | | |
| **Lab Sample ID:** | JC50906-1 | **Date Sampled:** | 09/13/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/14/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 87% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 84% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB091317AD1 | | |
| **Lab Sample ID:** | JC50906-2 | **Date Sampled:** | 09/13/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/14/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111758.D | 1 | 09/20/17 19:09 | BK | n/a | n/a | V1B5327 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB091317AD1 | | |
| **Lab Sample ID:** | JC50906-2 | **Date Sampled:** | 09/13/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/14/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 89% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 82% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS ACCUTEST

# CHAIN OF CUSTODY

433005



2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

| | |
|---|---|
| FED-EX Tracking # | Bottle Order Control # |
| SGS Accutest Quote # | SGS Accutest Job JC50906X |

**Client / Reporting Information**

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: diane.komar@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): AD Phone:

**Project Information**

Project Name: Navy Wells, OU2, Bethpage, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information ( if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

**Requested Analysis ( see TEST CODE sheet)**

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | | SB522SIM14DIOX_(1,4-Dioxane via EPA 522) Low PQL required | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1X | BPOW5-1 | | 9/13/17 | 11:30:00 AM | AD | AQ | 2 | | | | | | | | | 2 | X | |

Turnaround Time ( Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [x] other 21

Emergency & Rush T/A data available VIA Lablink

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**

2 bottles per sample with NaHSO4 preservative.

**Sample Custody must be documented below each time samples change possession, including courier delivery.**

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 | 9-15-17 TBD | 1 FedEx | 2 | 9/16/17 850 | 2 Christel Hanu Christie Hanu |
| Relinquished by Sampler: 3 | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| Relinquished by: 5 | Date Time: | Received By: 5 | Custody Seal # 594 [ ] Intact [ ] Not intact | Preserved where applicable [ ] | On Ice [ ] Cooler Temp. |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ACTL003 SGS Accutest

Client SDG: JC50906X GEL Work Order: 433005

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit or indicates that the analyte recovery in the MS or MSD is outside of specified acceptance criteria.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 03 OCT 2017** **Title: Data Validator**

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | JC50906X | **Date Collected:** | 09/13/2017 11:30 | **Matrix:** | WATER |
| **Lab Sample ID:** | 433005001 | **Date Received:** | 09/16/2017 08:50 | | |
| **Client Sample:** | 1X | **Client:** | ACTL003 | **Project:** | ACTL00316 |
| **Client ID:** | BPOW5-1 | **Method:** | EPA 522 | **SOP Ref:** | GL-OA-E-073 |
| **Batch ID:** | 1701327 | **Inst:** | MSD6.I | **Dilution:** | 1 |
| **Run Date:** | 09/21/2017 15:03 | **Analyst:** | JMB3 | **Inj. Vol:** | 1 uL |
| **Prep Date:** | 09/20/2017 07:45 | **Aliquot:** | 100 mL | **Final Volume:** | 2 mL |
| **Data File:** | s092117.B\s6i2117.D | | Rtx-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | U | 0.100 | ug/L | 0.100 | 0.100 | 0.200 |

ARCADIS Design & Consultancy for natural and built assets

# Navy Wells-

# Operable Unit 2

# Data Review

# Bethpage, New York

Volatile and Semi-volatile Analyses

SDGs #JC50485 and JC50681

Analyses Performed By:
Accutest-SGS Laboratories
Dayton, New Jersey

Report #28586R

Review Level: Tier II
Project: NY001496.0416.NAVI4

# SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) #JC50485 and JC50681 for samples collected in association with the Navv Wells located at the Bethpage Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | SVOC | PCB | MET | MISC |
| JC50485 | BPOW6-5 | JC50485-1 | Water | 09/08/2017 | | X | X | | | |
| | BPOW6-6 | JC50485-2 | Water | 09/08/2017 | | X | X | | | |
| | TB090817PP1 | JC50485-3 | Water | 09/08/2017 | | X | | | | |
| JC50681 | REP091117AD1 | JC50681-1 | Water | 09/11/2017 | BPOW6-4 | X | X | | | |
| | TB091117AD1 | JC50681-2 | Water | 09/11/2017 | | X | | | | |
| | BPOW6-3 | JC50681-3 | Water | 09/11/2017 | | X | X | | | |
| | BPOW6-4 | JC50681-4 | Water | 09/11/2017 | | X | X | | | |
| | BPOW6-1 | JC50681-5 | Water | 09/11/2017 | | X | X | | | |
| | BPOW6-2 | JC50681-6 | Water | 09/11/2017 | | X | X | | | |

Notes:

1. EPA Method 522 Semi-volatile analysis for 1,4-Dioxane was performed by GEL Laboratories, LLC, located in Charleston, South Carolina (subcontracted via SGS-Accutest Laboratory). The associated SDGs are: JC50485X/432580 and JC50681X/432738.

2. Matrix spike (MS) was performed on sample location REP091117AD1 for VOC analyses.



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## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

Note:
QA - Quality Assurance



ED_002631A_00011413-00247

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) methods 524.2 and 522-Selected Ion Monitoring (SIM). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



ED_002631A_00011413-00249

## VOLATILE ORGANIC COMPOUNDS (VOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 524.2 | Water | 14 days from collection to analysis | Cool to <6 °C; preserved to a pH of less than 2 s.u. |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits in all SDGs.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



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Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS was not performed on sample locations associated with SDG JC50485.

The MS exhibited acceptable recoveries in SDG JC50485.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits in SDG JC50485.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

| Sample Locations | Compound | LCS Recovery |
|---|---|---|
| SDG JC50681: | | |
| REP091117AD1 | | |
| TB091117AD1 | | |
| BPOW6-3 | Chloromethane | >UL |
| BPOW6-4 | | |
| BPOW6-1 | | |
| BPOW6-2 | | |

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |



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## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample location associated with SDG JC50485.

Results for duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| SDG JC50681: BPOW6-4/ REP091117AD1 | All compounds | U | U | AC |

Notes:
AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

## 7. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

The laboratory duplicates exhibited recoveries within the control limits in SDGs JC50485 and JC50681.

## 8. System Performance and Overall Assessment

Tentatively identified compounds (TICs) were not identified in any of the sample locations.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00252

## DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: EPA 524.2 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| C. Trip blanks | | X | | X | |
| Laboratory Control Sample (LCS) %R | | X | X | | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate(MSD) %R | | | | | X |
| MS/MSD Precision (RPD) | | | | | X |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

RPD Relative percent difference

%R Percent recovery



ED_002631A_00011413-00253

## SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| EPA 522-SIM | Water | 28 days from collection to extraction and 28 days from extraction to analysis | Cool to <6 °C; preserved with Sodium Bisulfate (NaHSO4) to a pH of less than 4 s.u. |

Note:
s.u. = Standard units

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits in all SDGs.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



ED_002631A_00011413-00254

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with SDGs JC50485 or JC50681.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample location associated with SDG JC50485.

Results for duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| SDG JC50681: BPOW6-4/ REP091117AD1 | 1,4-Dioxane | 0.119 J | 0.175 J | AC |

Note:

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

## 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



ED_002631A_00011413-00255

## DATA VALIDATION CHECKLIST FOR SVOCs

| SVOCs: EPA 522-SIM | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | | | | X |
| Matrix Spike Duplicate(MSD) %R | | | | | X |
| MS/MSD Precision (RPD) | | | | | X |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | | | | X |

Notes:

%R Percent recovery

RPD Relative percent difference



ED_002631A_00011413-00256

VALIDATION PERFORMED BY: Lisa Horton

SIGNATURE: Lisa Horton

DATE: October 30, 2017

PEER REVIEW: Todd Church

DATE: November 6, 2017



ED_002631A_00011413-00257

# CHAIN OF CUSTODY

# CORRECTED SAMPLE ANALYSIS DATA SHEETS



ED_002631A_00011413-00258

ACCUTEST LABORATORIES

GW
WTB

# CHAIN OF CUSTODY

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking # #4 | Bottle Order Control #
Accutest Quote # | Accutest Job # JC50485

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City / State / Zip: Melville NY 11747
Project Contact / E-mail: Soma Das, soma.das@arcadis-us.com
Phone # / Fax #: 631-249-7600 / 631-249-7610
Sampler(s) Name(s) / Phone #: Bob Brzozowski / Corbett 516-282-6472

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells
Navy Wells OU2 -Bethpage, New York
Street:
City / State: Bethpage NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #:
Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

Billing Information (if different from Report to)
Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City / State / Zip: Highlands Ranch, CO 80129
Attention: Soma Das

**Requested Analysis (see TEST CODE sheet)**: V5242MG36OW+40; SB522SM14DIOX (GEL Lab)

**Matrix Codes**: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | NaHSO4 | V5242MG36OW+40 | SB522SM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BPOW 6-5 | | 9/8/17 | 1210 | BB | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | E79 |
| 2 | BPOW 6-6 | | 9/8/17 | 1215 | DC | GW | 5 | 3 | | | | | | | | 2 | 3 | 2 | V731 |
| 3 | TB090817OC2 | | 9/8/17 | 1100 | — | TB | 2 | 2 | | | | | | | | | 2 | | |

**Turnaround Time (Business days)**
- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days (by Contract only)
- [ ] 10 Day RUSH
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

INITIAL ASSESSMENT JB 9/8/17
LABEL VERIFICATION MH

**Data Deliverable Information**
- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULL1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other COMMC1

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**
OU 2 Hydro

**Sample Custody must be documented below each time samples change possession, including courier delivery.**

| Relinquished by Sampler | Date Time | Received By | Relinquished By | Date Time | Received By |
|---|---|---|---|---|---|
| 1 | 9/8/17 1420 | 1 | 2 (Date + time 9/8/17 1600) | 9/8/17 1700 | 2 |
| Relinquished by Sampler 3 | Date Time: | Received By 3 | Relinquished By 4 | Date Time: | Received By 4 |
| Relinquished by 5 | Date Time: | Received By 5 | Custody Seal # / Intact / Not intact | Preserved where applicable | On Ice / Cooler Temp 2.2 °C IP |

JC50485: Chain of Custody
Page 1 of 2

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-5 | | |
| **Lab Sample ID:** | JC50485-1 | **Date Sampled:** | 09/08/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111620.D | 1 | 09/12/17 13:02 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-5 | | |
| **Lab Sample ID:** | JC50485-1 | **Date Sampled:** | 09/08/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 87% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 88% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-6 | | |
| **Lab Sample ID:** | JC50485-2 | **Date Sampled:** | 09/08/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111621.D | 1 | 09/12/17 13:34 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-6 | | |
| **Lab Sample ID:** | JC50485-2 | **Date Sampled:** | 09/08/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 88% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 87% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090817DC1 | | |
| **Lab Sample ID:** | JC50485-3 | **Date Sampled:** | 09/08/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111622.D | 1 | 09/12/17 14:05 | BK | n/a | n/a | V1B5322 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB090817DC1 | | |
| **Lab Sample ID:** | JC50485-3 | **Date Sampled:** | 09/08/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/08/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 86% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 85% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS ACCUTEST

# CHAIN OF CUSTODY

432580



2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

| | |
|---|---|
| FED-EX Tracking # | Bottle Order Control # |
| SGS Accutest Quote # | SGS Accutest Job JC50485X |

**Client / Reporting Information**

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: diane.komar@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): PP Phone:

**Project Information**

Project Name: Navy Wells, OU2, Bethpage, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information ( if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis ( see TEST CODE sheet): SB522SIM14DIOX , 1,4-Dixane via EPA 522 - low PQL required

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | | SB522SIM14DIOX , 1,4-Dixane via EPA 522 - low PQL required | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1X | BPOW6-5 | | 9/8/17 | 12:10:00 PM | PP | AQ | 2 | | | | | | | | 2 | | X | |
| 2X | BPOW6-6 | | 9/8/17 | 12:15:00 PM | PP | AQ | 2 | | | | | | | | 2 | | X | |

Number of preserved Bottles

Tumaround Time ( Business days)

- ☐ Std. 10 Business Days
- ☐ 5 Day RUSH
- ☐ 3 Day EMERGENCY
- ☐ 2 Day EMERGENCY
- ☐ 1 Day EMERGENCY
- ☒ other 14

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:

Data Deliverable Information

- ☐ Commercial "A" (Level 1)
- ☐ Commercial "B" ( Level 2)
- ☐ FULLT1 ( Level 3+4 )
- ☐ NJ Reduced
- ☐ Commercial "C"
- ☐ NYASP Category A
- ☐ NYASP Category B
- ☐ State Forms
- ☐ EDD Format
- ☒ Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions: 2 bottles per sample with NaHSO4 preservative.

Sample Custody must be documented below each time samples change possession, including courier delivery.

| | | | | | |
|---|---|---|---|---|---|
| Relinquished by Sampler: 1 | Date Time: 9-12-17 1700 | Received By: 1 FED EX | Relinquished By: 2 | Date Time: | Received By: 2 9/13/17 9:20 |
| Relinquished by Sampler: 3 | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| Relinquished by: 5 | Date Time: | Received By: 5 | Custody Seal # 533 ☐ Intact ☐ Not intact | Preserved where applicable ☐ | On Ice ☐ Cooler Temp. |





SGS ACCUTEST JC50485X

2

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
for

ACTL003 SGS Accutest

Client SDG: JC50485X GEL Work Order: 432580

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 02 OCT 2017** **Title: Data Validator**

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50485X** | **Date Collected:** | **09/08/2017 12:10** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432580001** | **Date Received:** | **09/13/2017 09:00** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW 6-5** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701325** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/19/2017 23:28** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/19/2017 08:15** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s091917.B\s6i1926.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | U | 0.100 | ug/L | 0.100 | 0.100 | 0.200 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50485X** | **Date Collected:** | **09/08/2017 12:15** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432580002** | **Date Received:** | **09/13/2017 09:00** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPOW 6-6** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701325** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/20/2017 00:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/19/2017 08:15** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s091917.B\s6i1928.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | U | 0.100 | ug/L | 0.100 | 0.100 | 0.200 |

ACCUTEST LABORATORIES

GW
WTB

# CHAIN OF CUSTODY

*Accutest New Jersey/SPL Environmental*
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking # #4
Accutest Quote #
Bottle Order Control #
Accutest Job # JC50681

**Client / Reporting Information**

Company Name: Arcadis
Street Address: 2 Huntington Quad, Suite 1S10
City / State / Zip: Melville NY 11747
Project Contact / E-mail: Soma Das, soma.das@arcadis-us.com
Phone #: 631-249-7600 Fax #: 631-249-7610
Sampler(s) Name(s): Ryan Greiser, Bob Brown Phone #: 516-317-6147

**Project Information**

Project Name: AGMNYM72080 // OU2 Navy Outpost Wells
Navy Wells OU2 -Bethpage, New York
Street:
City / State: Bethpage NY
Project #: NY001496.0416.NAVI3
Client Purchase Order #:
Work Authorization #: NY001496_2015.10.30
Project Manager: Carlo San Giovanni

Billing Information (if different from Report to)
Company Name: Arcadis, U.S., Inc. Attn: Accts Payable
Street Address: 630 Plaza Drive, Suite 600
City / State / Zip: Highlands Ranch, CO 80129
Attention: Soma Das

**Requested Analysis (see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | NaHSO4 | V5242NG36OW+40 | SB522SIM14DIOX (GEL Lab) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RGO9111702 | | 9/11/17 | — | — | GW | 5 | 3 | | | | | | | 2 | 3 | 2 | |
| 2 | TB09111702 | | 9/11/17 | 1100 | — | TB | 2 | 2 | | | | | | | | 2 | | SUB |
| 3 | BROW G-3 | | 9/11/17 | 1255 | BO | GW | 5 | 3 | | | | | | | 2 | 3 | 2 | VOA |
| 4 | BROW G-4 | | 9/11/17 | 1310 | BO | GW | 5 | 3 | | | | | | | 2 | 3 | 2 | |
| 5 | BROW G-1 | | 9/11/17 | 1712 | BO | GW | 5 | 3 | | | | | | | 2 | 3 | 2 | |
| 6 | BROW G-2 | | 9/11/17 | 1710 | BO | GW | 5 | 3 | | | | | | | 2 | 3 | 2 | |

INITIAL ASSESSMENT DMD
LABEL VERIFICATION AP

**Matrix Codes**: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WIPE - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

**Turnaround Time (Business days)**
- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days (by Contract only)
- [ ] 10 Day RUSH
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM) / Date:

**Data Deliverable Information**
- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

**Comments / Special Instructions**
OU2 Hydro

**Sample Custody** must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler | Date Time | Received By | Relinquished By | Date Time | Received By |
|---|---|---|---|---|---|
| 1 Bob Brown | 9/11/17 1900 | 2 Chris Lad | 2 Chris Lad | 9/12/17 1000 | 2 |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | | | |

Custody Seal # Intact / Not Intact Preserved where applicable
On Ice Cooler Temp 1.3, 2.6, 2.8

JC50681: Chain of Custody
Page 1 of 2

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | REP091117AD1 | | |
| **Lab Sample ID:** | JC50681-1 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111645.D | 1 | 09/13/17 12:00 | BK | n/a | n/a | V1B5323 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane [b] | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | REP091117AD1 | | |
| **Lab Sample ID:** | JC50681-1 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 87% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 85% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits, biased high.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB091117AD1 | | |
| **Lab Sample ID:** | JC50681-2 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111652.D | 1 | 09/13/17 15:42 | BK | n/a | n/a | V1B5323 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane [b] | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB091117AD1 | | |
| **Lab Sample ID:** | JC50681-2 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 87% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 87% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits, biased high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-3 | | |
| **Lab Sample ID:** | JC50681-3 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111646.D | 1 | 09/13/17 12:31 | BK | n/a | n/a | V1B5323 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane [b] | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-3 | | |
| **Lab Sample ID:** | JC50681-3 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 87% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 86% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits, biased high.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-4 | | |
| **Lab Sample ID:** | JC50681-4 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111647.D | 1 | 09/13/17 13:03 | BK | n/a | n/a | V1B5323 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane [b] | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-4 | | |
| **Lab Sample ID:** | JC50681-4 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 86% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 85% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits, biased high.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-1 | | |
| **Lab Sample ID:** | JC50681-5 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111648.D | 1 | 09/13/17 13:35 | BK | n/a | n/a | V1B5323 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane [b] | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-1 | | |
| **Lab Sample ID:** | JC50681-5 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 89% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 84% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits, biased high.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-2 | | |
| **Lab Sample ID:** | JC50681-6 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 1B111649.D | 1 | 09/13/17 14:06 | BK | n/a | n/a | V1B5323 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 5.0 | 3.8 | ug/l | |
| 78-93-3 | 2-Butanone | ND | 5.0 | 2.5 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.26 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 0.50 | 0.36 | ug/l | |
| 75-25-2 | Bromoform | ND | 0.50 | 0.40 | ug/l | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.081 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 0.50 | 0.39 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 0.50 | 0.27 | ug/l | |
| 75-00-3 | Chloroethane | ND | 0.50 | 0.071 | ug/l | |
| 67-66-3 | Chloroform | ND | 0.50 | 0.33 | ug/l | |
| 74-87-3 | Chloromethane [b] | ND | 0.50 | 0.39 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 0.50 | 0.13 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.50 | 0.13 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 0.50 | 0.23 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.50 | 0.28 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.50 | 0.29 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 0.50 | 0.094 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 0.50 | 0.098 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 0.50 | 0.26 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.50 | 0.14 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.50 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 0.50 | 0.26 | ug/l | |
| 76-13-1 | Freon 113 | ND | 1.0 | 0.27 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 2.0 | 1.3 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 0.50 | 0.37 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 2.0 | 1.5 | ug/l | |
| 100-42-5 | Styrene | ND | 0.50 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.099 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.50 | 0.12 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 0.50 | 0.12 | ug/l | |
| 108-88-3 | Toluene | ND | 0.50 | 0.13 | ug/l | |

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | BPOW6-2 | | |
| **Lab Sample ID:** | JC50681-6 | **Date Sampled:** | 09/11/17 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 09/12/17 |
| **Method:** | EPA 524.2 REV 4.1 | **Percent Solids:** | n/a |
| **Project:** | Navy Wells, OU2, Bethpage, NY | | |

**VOA OU2 Outpost List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | ND | 0.50 | 0.11 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 0.50 | 0.056 | ug/l | |
| | m,p-Xylene | ND | 0.50 | 0.26 | ug/l | |
| 95-47-6 | o-Xylene | ND | 0.50 | 0.24 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 2199-69-1 | 1,2-Dichlorobenzene-d4 | 89% | | 70-130% |
| 460-00-4 | 4-Bromofluorobenzene | 86% | | 70-130% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits, biased high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS ACCUTEST

# CHAIN OF CUSTODY

432738



2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

| | |
|---|---|
| FED-EX Tracking # | Bottle Order Control # |
| SGS Accutest Quote # | SGS Accutest Job JC50681X |

**Client / Reporting Information**

Company Name: SGS Accutest
Street Address: 2235 Route 130
City State Zip: Dayton NJ 08810
Project Contact E-mail: Donald.McDowell@sgs.com
Phone # 732-329-0200 Fax #
Sampler(s) Name(s) AD Phone

**Project Information**

Project Name: Navy Wells, OU2, Bethpage, NY
Street
City State
Project #
Client Purchase Order #
Project Manager

Billing Information ( if different from Report to)
Company Name
Street Address
City State Zip
Attention:

Requested Analysis ( see TEST CODE sheet): SB522SIM14DIOX (1,4-Dioxane via EPA 522) Low PQL required

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | SB522SIM14DIOX (1,4-Dioxane via EPA 522) Low PQL required | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1X | REP091117AD1 | | 9/11/17 | 12:00:00 AM | AD | AQ | 2 | | | | | | | | 2 | X | |
| 3X | BPW6-3 | | 9/11/17 | 12:55:00 PM | AD | AQ | 2 | | | | | | | | 2 | X | |
| 4X | BPW6-4 | | 9-11-17 | 1310 | | | 2 | | | | | | | | 2 | X | |
| 5X | BPW6-1 | | 9-11-17 | 1712 | | | 3 | | | | | | | | 3 | X | |
| 6X | BPW6-2 | | 9-11-17 | 1710 | | | 4 | | | | | | | | 4 | X | |

Turnaround Time ( Business days)

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 21

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other COMMC+

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions: 2 bottles per sample with NaHSO4 preservative

Sample Custody must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 | 9-13-17 1730 | 1 FEDEX | 2 | | 2 9/14/17 8:50 |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | | | |

Custody Seal # 582 [ ] Intact [ ] Not intact Preserved where applicable [ ] On Ice [ ] Cooler Temp.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ACTL003 SGS Accutest

Client SDG: JC50681X GEL Work Order: 432738

**The Qualifiers in this report are defined as follows:**

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
** Indicates the analyte is a surrogate compound.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit or indicates that the analyte recovery in the MS or MSD is outside of specified acceptance criteria.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey **Name: Barbara Bailey**

**Date: 03 OCT 2017** **Title: Data Validator**

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50681X** | **Date Collected:** | **09/11/2017 12:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432738001** | **Date Received:** | **09/14/2017 08:50** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **REP091117AD1** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701327** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/20/2017 18:03** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/20/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s092017.B\s6i2021.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | J | 0.175 | ug/L | 0.100 | 0.100 | 0.200 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50681X** | **Date Collected:** | **09/11/2017 12:55** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432738002** | **Date Received:** | **09/14/2017 08:50** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPW 6-3** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701327** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/20/2017 18:54** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/20/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s092017.B\s6i2023.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | U | 0.100 | ug/L | 0.100 | 0.100 | 0.200 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50681X** | **Date Collected:** | **09/11/2017 13:10** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432738003** | **Date Received:** | **09/14/2017 08:50** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPW 6-4** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701327** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/21/2017 11:31** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/20/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s092117.B\s6i2109.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | J | 0.119 | ug/L | 0.100 | 0.100 | 0.200 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50681X** | **Date Collected:** | **09/11/2017 17:12** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432738004** | **Date Received:** | **09/14/2017 08:50** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPW 6-1** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701327** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/21/2017 11:55** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/20/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s092117.B\s6i2110.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | U | 0.100 | ug/L | 0.100 | 0.100 | 0.200 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary



| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **JC50681X** | **Date Collected:** | **09/11/2017 17:10** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **432738005** | **Date Received:** | **09/14/2017 08:50** | | |
| | | **Client:** | **ACTL003** | **Project:** | **ACTL00316** |
| **Client ID:** | **BPW 6-2** | **Method:** | **EPA 522** | **SOP Ref:** | **GL-OA-E-073** |
| **Batch ID:** | **1701327** | **Inst:** | **MSD6.I** | **Dilution:** | **1** |
| **Run Date:** | **09/21/2017 12:21** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **09/20/2017 07:45** | **Aliquot:** | **100 mL** | **Final Volume:** | **2 mL** |
| **Data File:** | **s092117.B\s6i2111.D** | | **Rtx-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 123-91-1 | 1,4-Dioxane | U | 0.100 | ug/L | 0.100 | 0.100 | 0.200 |

# Appendix D

## ARCADIS Separate and Ongoing OU2 Monitoring of Navy Wells

## Appendix D. Schedule of ARCADIS Separate and Ongoing OU2 Monitoring of Navy wells

| Well | Well owner | 1st Q | 2nd Q | 3rd Q | 4th Q | VOC Analysis Method |
|---|---|---|---|---|---|---|
| ***Outpost wells*** | | | | | | |
| BPOW1-1 | Navy | | X | | X | 524.2 |
| BPOW1-2 | Navy | | X | | X | 524.2 |
| BPOW1-3 | Navy | | X | | X | 524.2 |
| BPOW1-4 | Navy | | X | | X | 524.2 |
| BPOW1-5 | Navy | | X | | X | 524.2 |
| BPOW1-6 | Navy | | X | | X | 524.2 |
| BPOW2-1 | Navy | | X | | X | 524.2 |
| BPOW2-2 | Navy | | X | | X | 524.2 |
| BPOW2-3 | Navy | | X | | X | 524.2 |
| BPOW3-1 | Navy | | X | | X | 524.2 |
| BPOW3-2 | Navy | | X | | X | 524.2 |
| BPOW3-3 | Navy | | X | | X | 524.2 |
| BPOW3-4 | Navy | | X | | X | 524.2 |
| BPOW4-1R | Navy | | X | | X | 524.2 |
| BPOW4-2R | Navy | | X | | X | 524.2 |
| ***Semi-annual and annual*** | | | | | | |
| TT102D | Navy | | X | | X | 8260C |
| TT102D2 | Navy | | X | | X | 8260C |
| FW-03 | Navy | | X | | | 8260C |
| GM-15D | Navy | | X | | X | 8260C |
| GM-15D2 | Navy | | X | | X | 8260C |
| GM-17D | Navy | | X | | X | 8260C |
| GM-17I | Navy | | X | | X | 8260C |
| GM-18D | Navy | | X | | X | 8260C |
| GM-21D | Navy | | X | | | 8260C |
| GM-39DA | Navy | | X | | X | 8260C |
| GM-39DB | Navy | | X | | X | 8260C |
| GM-73D | Navy | | X | | X | 8260C |
| GM-73D2 | Navy | | X | | X | 8260C |
| GM-74D | Navy | | X | | X | 8260C |
| GM-74D2 | Navy | | X | | X | 8260C |
| GM-74I | Navy | | X | | X | 8260C |
| GM-75D2 | Navy | | X | | X | 8260C |
| GM-78I | Navy | | X | | | 8260C |
| GM-78S | Navy | | X | | | 8260C |
| GM-79D | Navy | | X | | X | 8260C |
| GM-79I | Navy | | X | | X | 8260C |
| HN-24I | Navy | | X | | | 8260C |
| HN-40I | Navy | | X | | | 8260C |
| HN-40S | Navy | | X | | | 8260C |
| HN-42I | Navy | | X | | | 8260C |
| HN-42S | Navy | | X | | | 8260C |

Above Navy owned wells sampled by ARCADIS and reported by ARCADIS under separate cover.
Q: Quarter
VOC: volatile organic compound

# Appendix E

## Synoptic Water Levels Measured September 7, 2017

**SYNOPTIC WATER LEVELS 9/7/17**
2017 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

| Well | Interval (S = <300'; I = 300-500'; D = >500') | Measuring Point (ft amsl)* | Depth to water 9/7/2017 (ft bmp) | Water elevation 9/7/2017 (ft amsl) |
|---|---|---|---|---|
| BPOW 1-1 | S | 72 | 31.50 | 40.50 |
| BPOW 1-2 | I | 71.82 | 32.28 | 39.54 |
| BPOW 1-3 | I | 71.92 | 32.51 | 39.41 |
| BPOW 1-4 | I | 56.68 | 14.64 | 42.04 |
| BPOW 1-5 | D | 56.75 | 15.20 | 41.55 |
| BPOW 1-6 | D | 57.06 | 15.73 | 41.33 |
| BPOW 2-1 | I | 58.64 | 23.61 | 35.03 |
| BPOW 2-2 | I | 58.5 | 26.45 | 32.05 |
| BPOW 2-3 | D | 57.98 | 26.23 | 31.75 |
| BPOW 3-1 | I | 61.43 | 28.90 | 32.53 |
| BPOW 3-2 | D | 61.82 | 30.66 | 31.16 |
| BPOW 3-3 | D | 60.64 | 26.55 | 34.09 |
| BPOW 3-4 | D | 62.44 | 28.31 | 34.13 |
| BPOW 4-1R | D | 63.67 | 29.79 | 33.88 |
| BPOW 4-2R | D | 66.13 | 29.63 | 36.50 |
| BPOW 5-1 | D | 56.12 | 24.58 | 31.54 |
| BPOW 5-2 | D | 56.32 | 25.07 | 31.25 |
| BPOW 5-3 | D | 56.04 | 25.32 | 30.72 |
| BPOW5-4 | D | 53.88 | 25.52 | 28.36 |
| BPOW5-5 | D | 57.58 | 27.31 | 30.27 |
| BPOW5-6 | D | 57.72 | 28.01 | 29.71 |
| BPOW5-7 | D | 55.92 | 25.06 | 30.86 |
| BPOW6-1 | D | 42.93 | 19.72 | 23.21 |
| BPOW6-2 | D | 43.08 | 20.39 | 22.69 |
| BPOW6-3 | D | 39.96 | 15.96 | 24.00 |
| BPOW6-4 | D | 40.02 | 15.34 | 24.68 |
| BPOW6-5 | D | 42.58 | 18.14 | 24.44 |
| BPOW6-6 | D | 42.34 | 18.56 | 23.78 |
| FW-01 | S | 126.1 | 60.34 | 65.76 |
| FW-02 | S | 126.85 | 60.93 | 65.92 |
| FW-03 | S | 125.46 | 59.42 | 66.04 |
| GM-15D | I | 109.84 | 50.52 | 59.32 |
| GM-15D2 | D | 109.59 | 52.45 | 57.14 |
| GM-15S | S | 109.44 | 48.57 | 60.87 |
| GM-17D | S | 115.68 | 51.51 | 64.17 |
| GM-17I | S | 115.83 | 45.79 | 70.04 |
| GM-18D | I | 108.88 | 47.90 | 60.98 |
| GM-21D | S | 105.66 | 46.69 | 58.97 |
| GM-21D2 | D | 104.62 | 51.28 | 53.34 |
| GM-21I | S | 105.72 | 43.39 | 62.33 |
| GM-39D (A) | S | 102.23 | 41.86 | 60.37 |
| GM-39D2 (B) | I | 102.08 | 43.49 | 58.59 |
| GM-73D | I | 104.87 | 46.44 | 58.43 |
| GM-73D2 | D | 104.62 | 47.60 | 57.02 |
| GM-74D | I | 107.43 | 48.62 | 58.81 |
| GM-74D2 | D | 107.36 | 53.27 | 54.09 |
| GM-74I | S | 107.42 | 44.60 | 62.82 |
| GM-75D2 | D | 93.63 | 37.84 | 55.79 |

**SYNOPTIC WATER LEVELS 9/7/17**
2017 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

| Well | Interval (S = <300'; I = 300-500'; D = >500') | Measuring Point (ft amsl)* | Depth to water 9/7/2017 (ft bmp) | Water elevation 9/7/2017 (ft amsl) |
|---|---|---|---|---|
| GM-78I | S | 105.06 | 44.85 | 60.21 |
| GM-78S | S | 104.94 | 44.13 | 60.81 |
| GM-79D | S | 101.25 | 44.79 | 56.46 |
| GM-79I | S | 101.09 | 43.54 | 57.55 |
| HN-24I | S | 125.8 | 55.71 | 70.09 |
| HN-24S | S | 122.73 | NM | |
| HN-27I | S | 126.51 | NM | |
| HN-27S | S | *125.50* | NM | |
| HN-29D | S | 115.50 | 50.41 | 65.09 |
| HN-29I | S | 116.42 | 50.17 | 66.25 |
| HN-40I | S | 115.91 | 52.46 | 63.45 |
| HN-40S | S | 116.35 | 52.66 | 63.69 |
| HN-42I | S | 119.61 | 54.48 | 65.13 |
| HN-42S | S | 120.32 | 55.13 | 65.19 |
| MW-01 | S | *121* | NM | |
| MW-02 | S | *121* | NM | |
| MW-03 | S | *121* | 56.15 | 64.85 |
| MW-04 | S | *121* | 56.69 | 64.31 |
| MW-05 | S | *121* | NM | |
| MW-06 | S | *121* | 52.34 | 68.66 |
| MW-07 | S | *121* | 52.04 | 68.96 |
| MW-08 | S | *121* | 52.60 | 68.40 |
| MW-09 | S | *121* | 53.44 | 67.56 |
| MW-10 | S | *121* | 50.76 | 70.24 |
| MW-11 | S | *121* | NM | |
| MW-118-5 | D | 84.17 | 37.92 | 46.25 |
| MW-75D2 | S | 120.55 | 51.72 | 68.83 |
| RE103D1 | D | 93.00 | 42.01 | 50.99 |
| RE103D2 | D | 92.73 | 41.79 | 50.94 |
| RE103D3 | D | 92.76 | 42.28 | 50.48 |
| RE104D1 | I | 89.80 | 38.25 | 51.55 |
| RE104D2 | D | 90.12 | 41.52 | 48.60 |
| RE104D3 | D | 90.20 | 41.98 | 48.22 |
| RE105D1 | D | 87.23 | 39.89 | 47.34 |
| RE105D2 | D | 87.18 | 40.88 | 46.30 |
| RE106D1 | I | 101.19 | 43.81 | 57.38 |
| RE106D2 | I | 101.37 | 44.30 | 57.07 |
| RE106D3 | D | 101.34 | 44.36 | 56.98 |
| RE107D1 | D | 98.92 | 43.70 | 55.22 |
| RE107D2 | D | 98.99 | 44.02 | 54.97 |
| RE107D3 | D | 99.96 | 45.21 | 54.75 |
| RE108D1 | D | 95.38 | 42.50 | 52.88 |
| RE108D2 | D | 95.43 | 43.02 | 52.41 |
| RE109D1 | D | 99.64 | 46.64 | 53.00 |
| RE109D2 | D | 99.80 | 46.92 | 52.88 |
| RE109D3 | D | 99.73 | 46.87 | 52.86 |
| RE114D1 | D | 74.04 | 33.85 | 40.19 |
| RE114D2 | D | 73.96 | 33.93 | 40.03 |

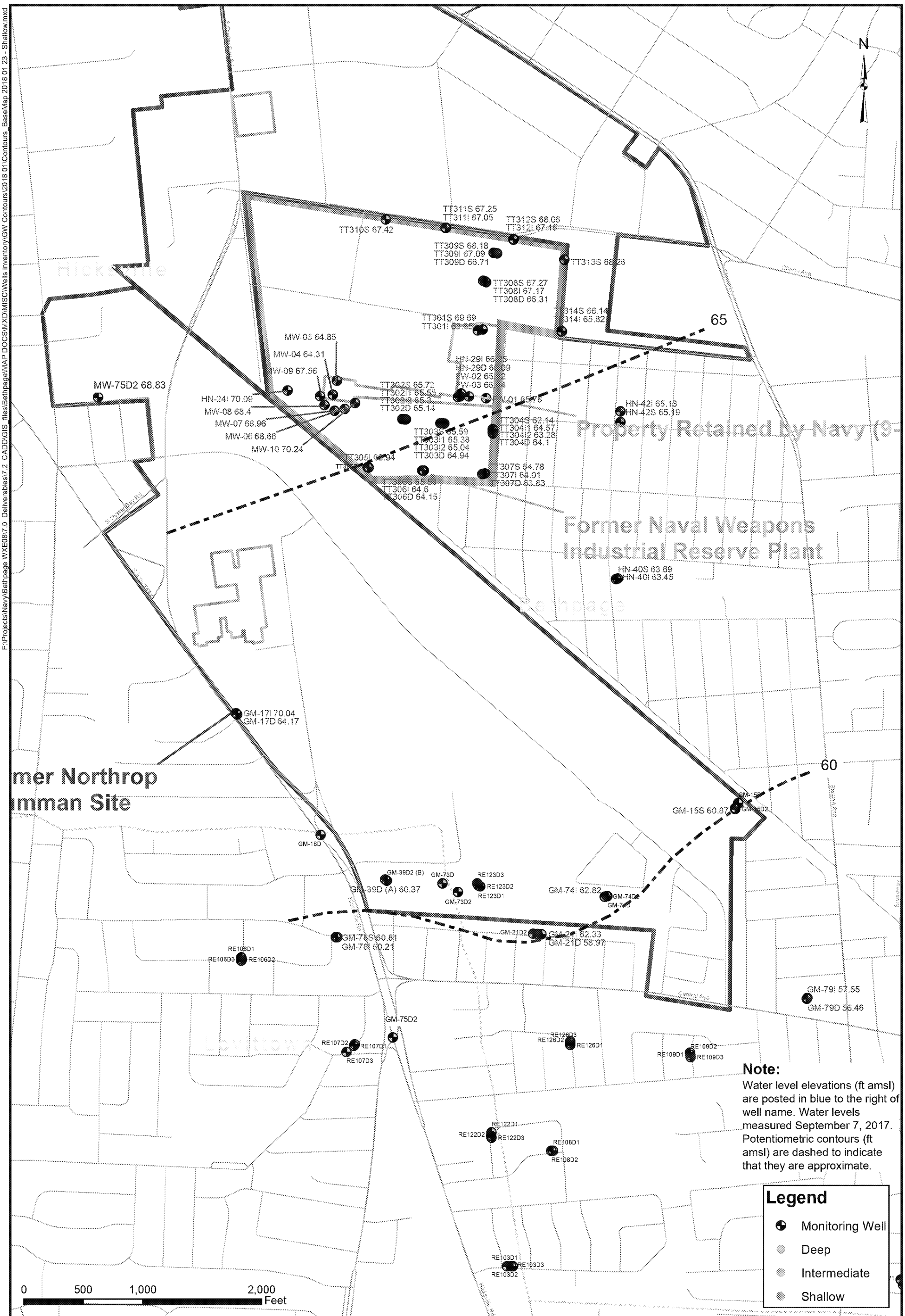
**SYNOPTIC WATER LEVELS 9/7/17**
2017 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

| Well | Interval (S = <300'; I = 300-500'; D = >500') | Measuring Point (ft amsl)* | Depth to water 9/7/2017 (ft bmp) | Water elevation 9/7/2017 (ft amsl) |
|---|---|---|---|---|
| RE114D3 | D | 74.17 | 34.41 | 39.76 |
| RE115D1 | D | 69.01 | 31.01 | 38.00 |
| RE115D2 | D | 69.01 | 31.20 | 37.81 |
| RE117D1 | D | 53.81 | 25.52 | 28.29 |
| RE117D2 | D | 53.59 | 24.55 | 29.04 |
| RE118D1 | D | 57.61 | 27.91 | 29.70 |
| RE119D1 | D | 55.61 | 25.44 | 30.17 |
| RE120D1 | D | 85.58 | 39.30 | 46.28 |
| RE120D2 | D | 85.54 | 39.12 | 46.42 |
| RE120D3 | D | 85.70 | 39.48 | 46.22 |
| RE121D1 | D | 79.03 | 36.23 | 42.80 |
| RE121D2 | D | 79.24 | 36.96 | 42.28 |
| RE122D1 | D | 97.42 | 44.12 | 53.30 |
| RE122D2 | D | 97.35 | 44.41 | 52.94 |
| RE122D3 | D | 97.27 | 45.39 | 51.88 |
| RE123D1 | D | 105.49 | 49.06 | 56.43 |
| RE123D2 | D | 106.11 | 50.24 | 55.87 |
| RE123D3 | D | 105.92 | 50.85 | 55.07 |
| RE124D1 | D | 78.26 | 35.69 | 42.57 |
| RE124D2 | D | 77.79 | 35.75 | 42.04 |
| RE125D1 | I | 85.66 | 36.42 | 49.24 |
| RE125D2 | D | 85.76 | 39.19 | 46.57 |
| RE125D3 | D | 85.98 | 39.44 | 46.54 |
| RE126D1 | D | 101.03 | 47.23 | 53.80 |
| RE126D2 | D | 101.39 | 47.78 | 53.61 |
| RE126D3 | D | 101.1 | 47.52 | 53.58 |
| RE129D1 | D | 53.63 | 25.28 | 28.35 |
| RE129D2 | D | 53.52 | 24.95 | 28.57 |
| RE131D1 | I | 85.94 | 38.50 | 47.44 |
| RE131D2 | D | 85.72 | 39.25 | 46.47 |
| RE131D3 | D | 85.9 | 39.67 | 46.23 |
| RE137 | D | 85.15 | 39.22 | 45.93 |
| RW1-MW1 | I | 85.87 | 40.24 | 45.63 |
| RW1-MW2 | I | 87.35 | NM | |
| RW1-MW3 | I | 80.34 | 33.40 | 46.94 |
| RW2-MW1 | D | 90.75 | 43.06 | 47.69 |
| RW3-MW1 | I | 92.22 | 41.07 | 51.15 |
| RW3-MW2 | I | 91.98 | 42.74 | 49.24 |
| RW3-MW3 | I | 92.98 | 42.62 | 50.36 |
| RW3-MW4 | I | 92.92 | 44.15 | 48.77 |
| TT-101D | I | 80.89 | 35.00 | 45.89 |
| TT-101D1 | D | 80.92 | 36.87 | 44.05 |
| TT-101D2 | D | 80.89 | 37.40 | 43.49 |
| TT-102D | D | 49.96 | 23.35 | 26.61 |
| TT-102D2 | D | 44.12 | 18.10 | 26.02 |
| TT-301D | S | 128.90 | NM | |
| TT-301I | S | 128.48 | 59.13 | 69.35 |
| TT-301S | S | 128.88 | 59.19 | 69.69 |

**SYNOPTIC WATER LEVELS 9/7/17**
2017 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

| Well | Interval (S = <300'; I = 300-500'; D = >500') | Measuring Point (ft amsl)* | Depth to water 9/7/2017 (ft bmp) | Water elevation 9/7/2017 (ft amsl) |
|---|---|---|---|---|
| TT-302D | S | 116.08 | 50.94 | 65.14 |
| TT-302I1 | S | 115.91 | 50.36 | 65.55 |
| TT-302I2 | S | 115.91 | 50.61 | 65.30 |
| TT-302S | S | 116.01 | 50.29 | 65.72 |
| TT-303D | S | 115.94 | 51.00 | 64.94 |
| TT-303I1 | S | 115.83 | 50.45 | 65.38 |
| TT-303I2 | S | 115.89 | 50.85 | 65.04 |
| TT-303S | S | 115.65 | 50.06 | 65.59 |
| TT-304D | S | 116.21 | 52.11 | 64.10 |
| TT-304I1 | S | 116.18 | 51.61 | 64.57 |
| TT-304I2 | S | 116.07 | 52.79 | 63.28 |
| TT-304S | S | 116 | 53.86 | 62.14 |
| TT-305D | I | 115.94 | 51.60 | 64.34 |
| TT-305I | S | 116.16 | 52.22 | 63.94 |
| TT-305S | S | 116.04 | DRY | |
| TT-306D | S | 118.06 | 53.91 | 64.15 |
| TT-306I | S | 117.76 | 53.16 | 64.60 |
| TT-306S | S | 117.82 | 52.24 | 65.58 |
| TT-307D | S | 114.42 | 50.59 | 63.83 |
| TT-307I | S | 114.16 | 50.15 | 64.01 |
| TT-307S | S | 114.39 | 49.61 | 64.78 |
| TT-308D | S | 130.98 | 64.67 | 66.31 |
| TT-308I | S | 130.73 | 63.56 | 67.17 |
| TT-308S | S | 131.05 | 63.78 | 67.27 |
| TT-309D | S | 131.52 | 64.81 | 66.71 |
| TT-309I | S | 131.83 | 64.74 | 67.09 |
| TT-309S | S | 131.77 | 63.59 | 68.18 |
| TT-310S | S | 129.50 | 62.08 | 67.42 |
| TT-311I | S | 130.34 | 63.29 | 67.05 |
| TT-311S | S | 130.23 | 62.98 | 67.25 |
| TT-312I | S | 129.95 | 62.80 | 67.15 |
| TT-312S | S | 129.81 | 61.75 | 68.06 |
| TT-313S | S | 129.76 | 61.50 | 68.26 |
| TT-314I | S | 128.69 | 62.87 | 65.82 |
| TT-314S | S | 128.60 | 62.46 | 66.14 |

NOTES
ft: feet
bgs: below ground surface
amsl: above mean sea level
bmp: below measuring point
NM: not measured
* italics for measuring point estimated from nearby wells or ground surface elevation




**Note:**
Water level elevations (ft amsl) are posted in blue to the right of well name. Water levels measured September 7, 2017. Potentiometric contours (ft amsl) are dashed to indicate that they are approximate.

**Legend**

- Monitoring Well
- Deep
- Intermediate
- Shallow

NAVFAC

**Synoptic Water Levels September 7, 2017 in Shallow Wells (screened <300 ft bgs)**

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

| CONTRACT NUMBER | CTO NUMBER |
|---|---|
| N62470-11-D8013 | WE15 |
| APPROVED BY: PS | DATE: 2/2/2018 |
| APPROVED BY: — | DATE: — |
| FIGURE NO. 2 | REV 0 |

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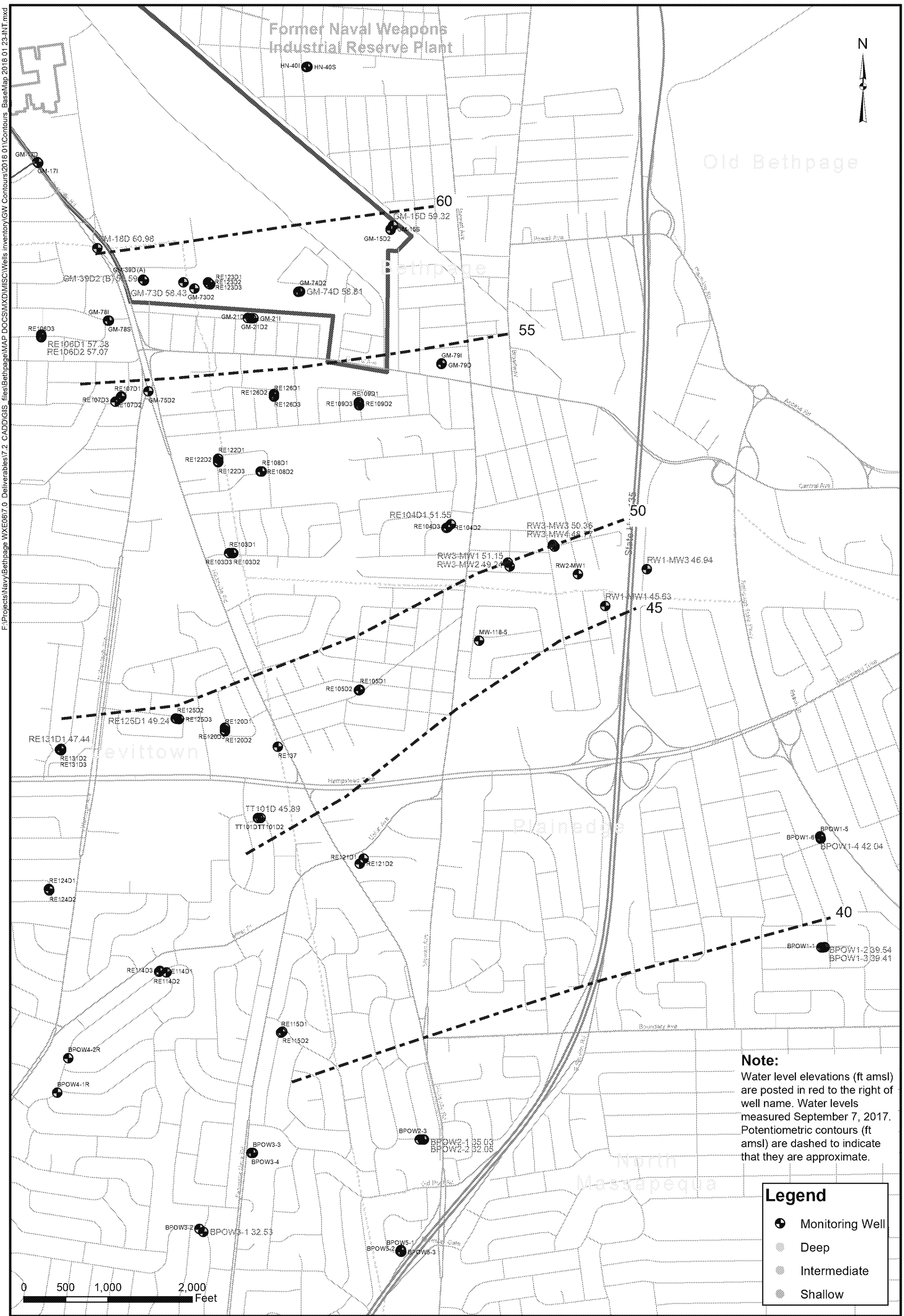


**Note:**
Water level elevations (ft amsl) are posted in red to the right of well name. Water levels measured September 7, 2017. Potentiometric contours (ft amsl) are dashed to indicate that they are approximate.

**Legend**
- Monitoring Well
- Deep
- Intermediate
- Shallow

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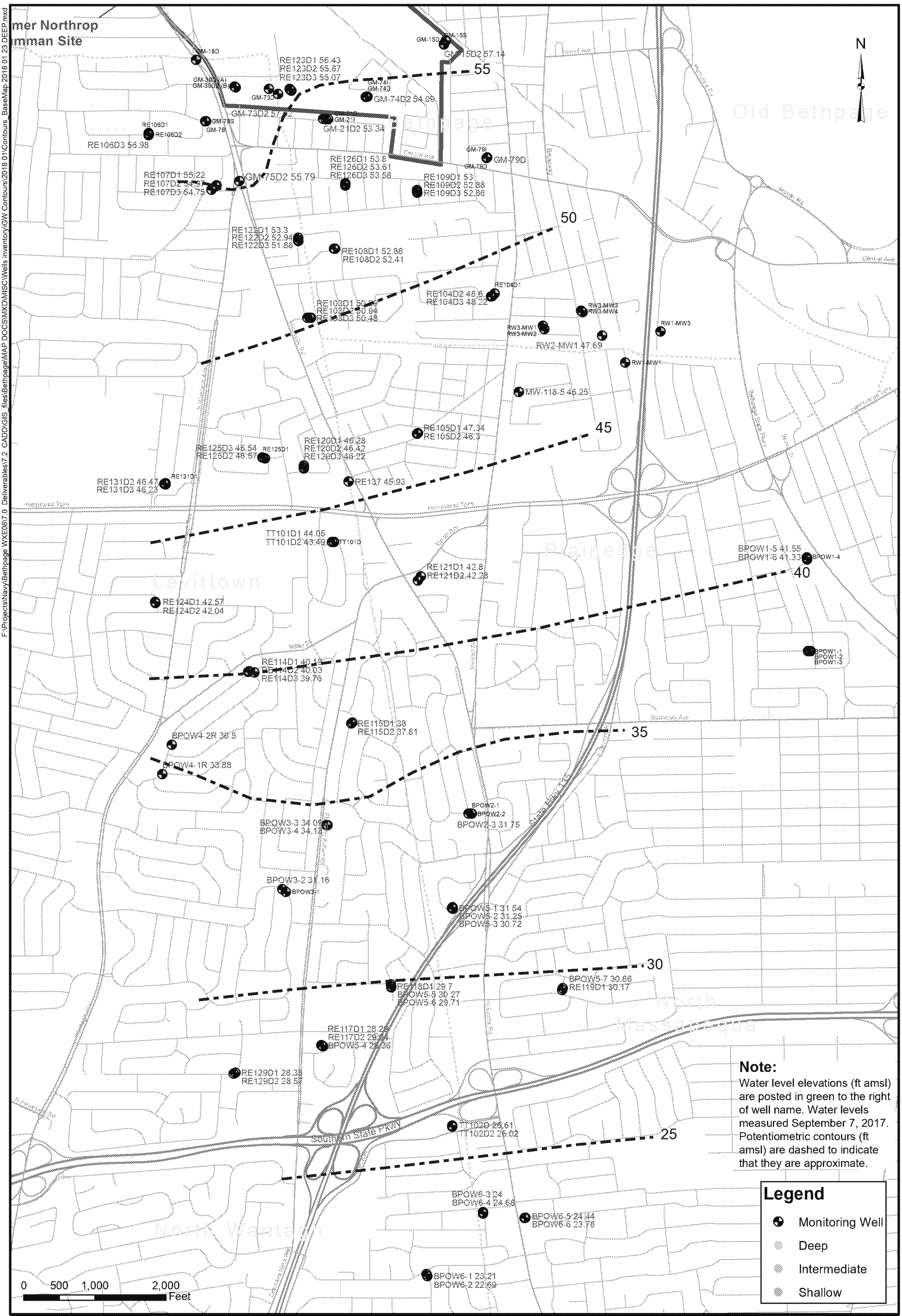
NAVFAC

**Synoptic Water Levels September 7, 2017 in Intermediate Wells (screened 300-500 ft bgs)**

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

| CONTRACT NUMBER | CTO NUMBER |
|---|---|
| N62470-11-D8013 | WE15 |
| APPROVED BY: PS | DATE: 1/23/2018 |
| APPROVED BY: — | DATE: — |
| FIGURE NO. 2 | REV 0 |

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NAVFAC

**Synoptic Water Levels September 7, 2017 in Deep Wells (screened >500 ft bgs)**

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

| CONTRACT NUMBER | CTO NUMBER |
|---|---|
| N62470-11-D8013 | WE15 |
| APPROVED BY: PS | DATE: 1/23/2018 |
| APPROVED BY: — | DATE: — |
| FIGURE NO. 2 | REV 0 |

## NEW YORK PROFESSIONAL GEOLOGIST SEAL

As a New York-licensed Professional Geologist, I have reviewed and approve this Quarterly Groundwater Sampling Report at Naval Industrial Reserve Plant Bethpage Operable Unit 2, Site 1, and seal it in accordance with Article 145 Section 7209 of the New York State Education Laws. In sealing this document, I certify it was prepared under my direction, the geological information contained in it is true to the best of my knowledge and the geological methods and procedures included herein are consistent with currently accepted geological practices.

It is a violation of this law for any person to alter the contained drawings or the report in any way, unless he or she is acting under the direction of a NY-licensed Professional Geologist.

| | |
|---|---|
| Name: | Brian E. Caldwell |
| NY PG License Number: | 000511 |
| State: | New York |

Signature:

Date: