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# Round 4 Groundwater Monitoring Report for Defense Reutilization and Marketing Office

## Naval Submarine Base New London

Groton, Connecticut

**Northern Division**
**Naval Facilities Engineering Command**

**Contract Number N62472-90-D-1298**
**Contract Task Order 0267**

August 1999

TETRA TECH NUS, INC.

079908/P

# ROUND 4 GROUNDWATER MONITORING REPORT
# FOR
# DEFENSE REUTILIZATION AND MARKETING OFFICE

## NAVAL SUBMARINE BASE - NEW LONDON
## GROTON, CONNECTICUT

## COMPREHENSIVE LONG-TERM
## ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

**Submitted to:**
**Northern Division**
**Environmental Branch Code 18**
**Naval Facilities Engineering Command**
**10 Industrial Highway, Mail Stop #82**
**Lester, Pennsylvania 19113-2090**

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**CONTRACT NUMBER N62472-90-D-1298**
**CONTRACT TASK ORDER 0267**

**August 1999**


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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AWQCs | Ambient Water Quality Criteria (U.S.) |
| bgs | Below Ground Surface |
| CLEAN | Comprehensive Long-term Environmental Action Navy |
| D.O.T. | Department of Transportation (U.S.) |
| DRMO | Defense Reutilization and Marketing Office |
| FFS | Focused Feasibility Study |
| GCL | Geosynthetic Clay Liner |
| GMP | Groundwater Monitoring Plan |
| I.D. | inside diameter |
| IDW | Investigation Derived Waste |
| µg/kg | microgram per kilogram |
| mg/kg | milligram per kilogram |
| mg/L | milligram per liter |
| msl | mean sea level |
| NFESC | Naval Facilities Engineering Service Center |
| NGVD | National Geodetic Vertical Datum |
| NSB-NLON | Naval Submarine Base New London |
| PAHs | Polycyclic Aromatic Hydrocarbons |
| PCBs | Poly-Chlorinated Biphenyls |
| PID | Photo Ionization Detector |
| PRG | Preliminary Remediation Goal |
| PVC | polyvinyl chloride |
| RI | Remedial Investigation |
| SPCS | State Plane Coordinate System (Connecticut) |
| SVOCs | Semi-Volatile Organic Compounds |
| SWPCs | Surface Water Protection Criteria |
| TBCs | To Be Considered (criteria) |
| TCLP | Toxicity Characteristics Leaching Procedure |
| USEPA | U.S. Environmental Protection Agency |
| VOCs | Volatile Organic Compounds |
| WQS | Water Quality Standards (Connecticut) |

# 1.0 INTRODUCTION

This Round 4 Groundwater Monitoring Report for the Defense Reutilization and Marketing Office (DRMO) at the Naval Submarine Base New London (NSB-NLON) in Groton, Connecticut was prepared for the U.S. Department of the Navy (Navy) by Tetra Tech NUS, Inc. (TtNUS) under the Comprehensive Long-Term Environmental Action Navy (CLEAN), Contract Number N62472-90-D-1298, Contract Task Order (CTO) 0267.

[NOTE: Brown and Root Environmental, Inc. (B&R Environmental), formerly Halliburton NUS, Inc. (HNUS), was purchased on January 1, 1998, and became Tetra Tech NUS, Inc. (TtNUS)].

This document has been prepared in accordance with the Navy Installation Restoration Laboratory Quality Assurance Guide (Interim Guidance) of the Naval Facilities Engineering Service Center, (NFESC, February 1996).

## 1.1 BACKGROUND INFORMATION

### 1.1.1 Base Description

NSB-NLON is located in southeastern Connecticut in the Towns of Ledyard and Groton. It encompasses approximately 576 acres and lies on the east bank of the Thames River, approximately 6 miles north of Long Island Sound. NSB-NLON is bounded to the east by Connecticut Route 12, to the south by Crystal Lake Road, and to the west by the Thames River. The northern border is a low, east-southeast trending ridge extending from the Thames River to Baldwin Hill.

NSB-NLON currently provides base command for naval submarine activities in the Atlantic Ocean. It also provides housing for Navy personnel and their families and supports submarine training facilities, military offices, medical facilities, and facilities for the submarine maintenance, repair, and overhaul.

### 1.1.2 Site Description and History

The DRMO is adjacent to the Thames River in the northwestern section of NSB-NLON. The DRMO is the storage and collection facility for items to be sold at auctions and sales held periodically throughout the year. Figure 1-1 shows the site location within NSB-NLON, and Figure 1-2 shows the general site plan.

The DRMO was used as a major base landfill and burning ground from 1950 to 1969. The materials burned and landfilled included construction materials, combustible scrap, and other non-salvageable

waste items. These materials were burned on the Thames River shoreline adjacent to the current location of the DRMO. The residue was pushed to the shoreline and partially covered.

Atlantic Environmental Service, Inc. (Atlantic) personnel reviewed archived aerial photographs of the DRMO areas part of the Phase I Remedial Investigation (RI) (Atlantic, 1992). The 1934 photographs show fill in the southern portion of the site. Fill for bulkheads and docks south of the DRMO did not exist at that time. Aerial photographs from 1951 show the land in its present configuration, except for the northwest portion, which was not filled at that time.

Atlantic personnel inspected the site on September 30, 1988. Metal and wood products were stored throughout most of the site. Buildings 479 and 355 are located within the paved area to the south and are primarily used for storage. Building 491, located in the unpaved area to the north, is used for miscellaneous storage, including batteries. Metal baling operations were performed adjacent to Building 491 on a gravel surface. Based on an inspection of the building plans, Atlantic personnel identified the presence of a former battery acid handling facility at the north section of the site, within Building 491. A large scrap yard was located north of Building 479. Submarine batteries were stored in the southeast portion of the site adjacent to the railroad tracks; no leakage was observed.

Prior to 1995, the southern half of the DRMO was covered with asphalt, most of which had deteriorated, while the northern portion was unpaved and had a gravel surface. A Time-Critical Removal Action was performed at the DRMO by OHM Remediation Services Corporation. Construction aspects of the removal action were completed in January 1995. The removal action focused on the removal of soil contaminated with lead, PAHs, and PCBs from the northern half of the DRMO. The spent acid tank was also removed. The site was subsequently remediated and a composite cap was placed over a majority of the central and northern portions of the site (OHM, September 1995). The cap consisted of a woven geotextile liner, a geosynthetic clay liner (GCL), and a nonwoven geotextile liner. Bituminous concrete pavement was then placed over the entire area of the composite cap. The paved (southern) portion of the site was upgraded with an additional asphalt layer.

### 1.1.3 Previous Investigations

#### 1.1.3.1 Phase I RI

The Phase I RI (Atlantic, 1992) at this site included test borings and monitoring well installation, as well as, soil, surface water, and groundwater sampling. Twelve shallow surface soil samples and 12 subsurface soil samples were collected from seven test borings and five monitoring well borings. Four surface soil samples were collected and analyzed. Six groundwater samples were collected from five

shallow wells and one deep well. Additionally, one surface water sample was collected from the Thames River at the northern end of this site (B&R Environmental, March 1997).

Concentrations of Volatile Organic Compounds (VOCs) in the soil were generally low. Semi-Volatile Organic Compounds (SVOCs) were present in most soil samples collected in the former landfill area. They were predominately comprised of PAHs, many of which were detected at elevated levels. A PCB, Aroclor 1260, was detected at almost all soil sample locations. Pesticides were detected in one soil sample at elevated concentrations.

Trichloroethene and 1,2-dichloroethene were detected in groundwater at three shallow downgradient wells. SVOCs (including PAHs), pesticides, petroleum hydrocarbons, or PCBs were not detected in any wells at the DRMO site. The inorganic groundwater analysis results indicated that selenium exceeded the primary drinking water standards for three wells. No VOCs, SVOCs, pesticides, or PCBs were detected in the upgradient surface water sample. Comparison of the inorganic results for this sample with the downgradient water sample (Goss Cove) did not suggest any detectable impact on the Thames River from the DRMO based on this limited data set .

#### 1.1.3.2 Draft Focused Feasibility Study Field Investigation

A field investigation in support of the Draft Focused Feasibility Study (FFS) was performed at the DRMO site in October 1993 to better define the extent of soil contamination. Twelve surface soil samples and twelve subsurface soil samples were collected. One surface and two subsurface field duplicates were also collected. One of the borings was completed as a monitoring well (6MW8S) (B&R Environmental, March 1997).

The highest concentrations of VOCs were present in soil samples west of Building 491. SVOCs, predominately PAHs, were detected in soil across the site. PCBs (Aroclor 1254, Aroclor 1260, and Aroclor 1242) were detected at nearly all boring locations at low to high concentrations. Pesticides (DDE, DDD, DDT) were detected at many locations across the site, primarily at low concentrations; however, several locations were found to have elevated levels. Concentrations of inorganic compounds were above background at all locations. Of primary concern at the site were the high levels of lead.

#### 1.1.3.3 Phase II RI

Five new groundwater monitoring wells (two shallow and three deep) were installed and sampled during the Phase II RI. Additionally, four previously installed shallow wells were sampled. Two rounds of groundwater sampling were completed and ten samples were collected during each sampling round.

Three subsurface soil samples were collected during the installation of three of the new wells (B&R Environmental, March 1997).

Relatively high concentrations of multiple organic and inorganic compounds were detected in the soil matrix at the DRMO. Organic chemicals detected at high concentrations include various halogenated aliphatic compounds, PAHs, phthalate esters, Aroclor-1254, and Aroclor-1260.

The results of the Phase II RI suggested that, in spite of the fact that relatively high concentrations of some VOCs were detected in the subsurface soil, it did not appear that substantial impact on the groundwater had occurred to date. In addition to the various organic chemicals detected in soil at the DRMO, relatively high concentrations of lead still remained in soil after the Time-Critical Removal Action was conducted during the course of the Phase II RI. Surface and subsurface soil concentrations of lead ranged as high as 4,980 mg/kg and 2,140 mg/kg, respectively. In spite of the high lead concentrations in soil, only limited evidence of lead migration to the water table is evidenced by the groundwater analytical results. Additionally, the results indicated that the cap effectively minimized precipitation infiltration to the groundwater (B&R Environmental, March 1997).

#### 1.1.3.4 Time-Critical Removal Action

A Time-Critical Removal Action was performed at the DRMO by OHM Remediation Services Corporation during the course of the Phase II RI. Construction aspects of the removal action were completed in January 1995. The removal action focused on the removal of soil contaminated with lead, PAHs, and PCBs from the northern half of the DRMO.

First, a total of 73 soil samples and two pavement samples were collected from the scrap yard area north of Building 479. Then, soil was excavated to a depth of approximately 3 feet (or to the water table if the depth to water was less than 3 feet). Approximately 4,700 tons of soil were removed. Confirmation sampling was initiated when excavation operations were approximately 75% complete. Some further excavation was subsequently performed. Residual contamination above the PRGs remained in the soil after excavation was complete due to the excavation being limited to 3 feet by the shallow water table and exceedances of the allotted time for the project (B&R Environmental, March 1997).

After the completion of removal activities, the area was backfilled with clean borrow material. A cap consisting of a woven geotextile liner, a geosynthetic clay liner (GCL), and a nonwoven geotextile liner was installed. Approximately 12 inches of crushed stone and 3 inches of asphalt were placed over the clay/geotextile cover. The remaining (paved) portion of the DRMO was also upgraded via placement of an additional asphalt layer.

## 1.2 SCOPE AND OBJECTIVE

The objective of this Round 4 Groundwater Monitoring Report is to present and evaluate the results of the third round of long-term groundwater monitoring at the DRMO site. This monitoring is being conducted to verify the effectiveness of the cap installed as part of the Time-Critical Removal Action to reduce precipitation infiltration and leaching of contaminants and to confirm that contamination is not migrating through the soil, into the groundwater, and ultimately discharging to the Thames River. This groundwater monitoring is part of the post-closure associated with the DRMO cap.

To meet this objective, five existing Phase I and Phase II RI monitoring wells and five monitoring wells installed during Rounds 1 and 2 of the DRMO Groundwater Monitoring Program were sampled and analyzed for a suite of analytes based on an evaluation of site history and previous analytical results. Sampling and analyses were performed in accordance to the Groundwater Monitoring Plan (GMP) prepared for the DRMO (B&R Environmental, February 1998).

Because this is an interim report for the fourth round of groundwater monitoring, evaluation of monitoring results is limited to a comparison of these results to the criteria identified in the DRMO GMP (B&R Environmental, February 1998). No conclusions or recommendations are drawn from this comparison. Such conclusions and recommendations will be developed in the Year 1 Summary Report.

## 1.3 REPORT ORGANIZATION

This report has been prepared in the following format to address the requirements for long-term groundwater monitoring at the DRMO. Section 1.0 of the report is this brief introduction including the project scope and objective. Section 2.0 describes field sampling activities. Section 3.0 presents and evaluates the analytical results from the sampling effort.

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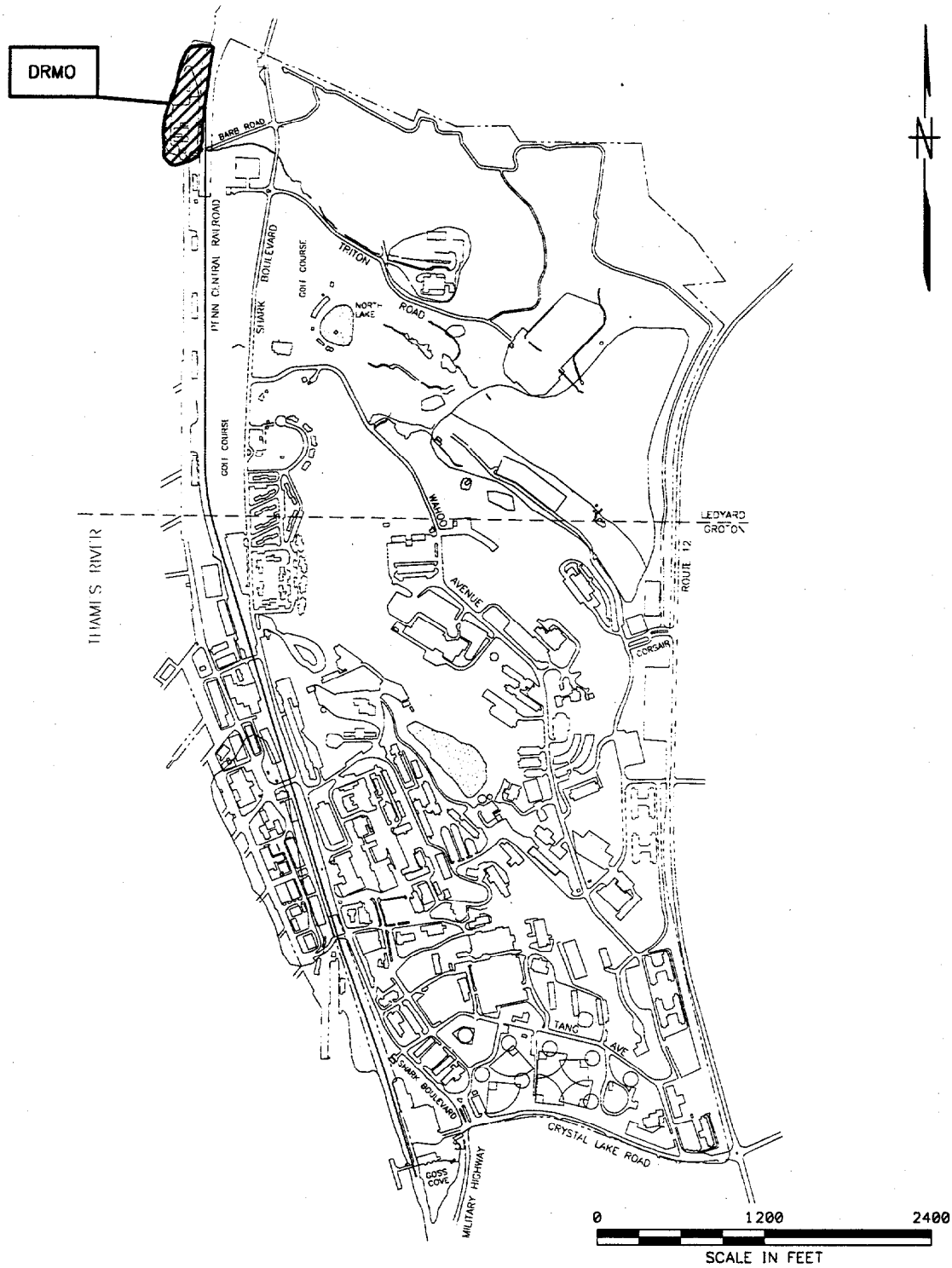


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| CHECKED BY MLM DATE 7/30/99 | SITE MAP<br>NSB NLON<br>GROTON, CONNECTICUT | APPROVED BY Mark L. Mengel DATE 7/30/99 | |
| COST/SCHED-AREA | | APPROVED BY DATE | |
| SCALE AS NOTED | | DRAWING NO. FIGURE 1-1 | REV. 0 |

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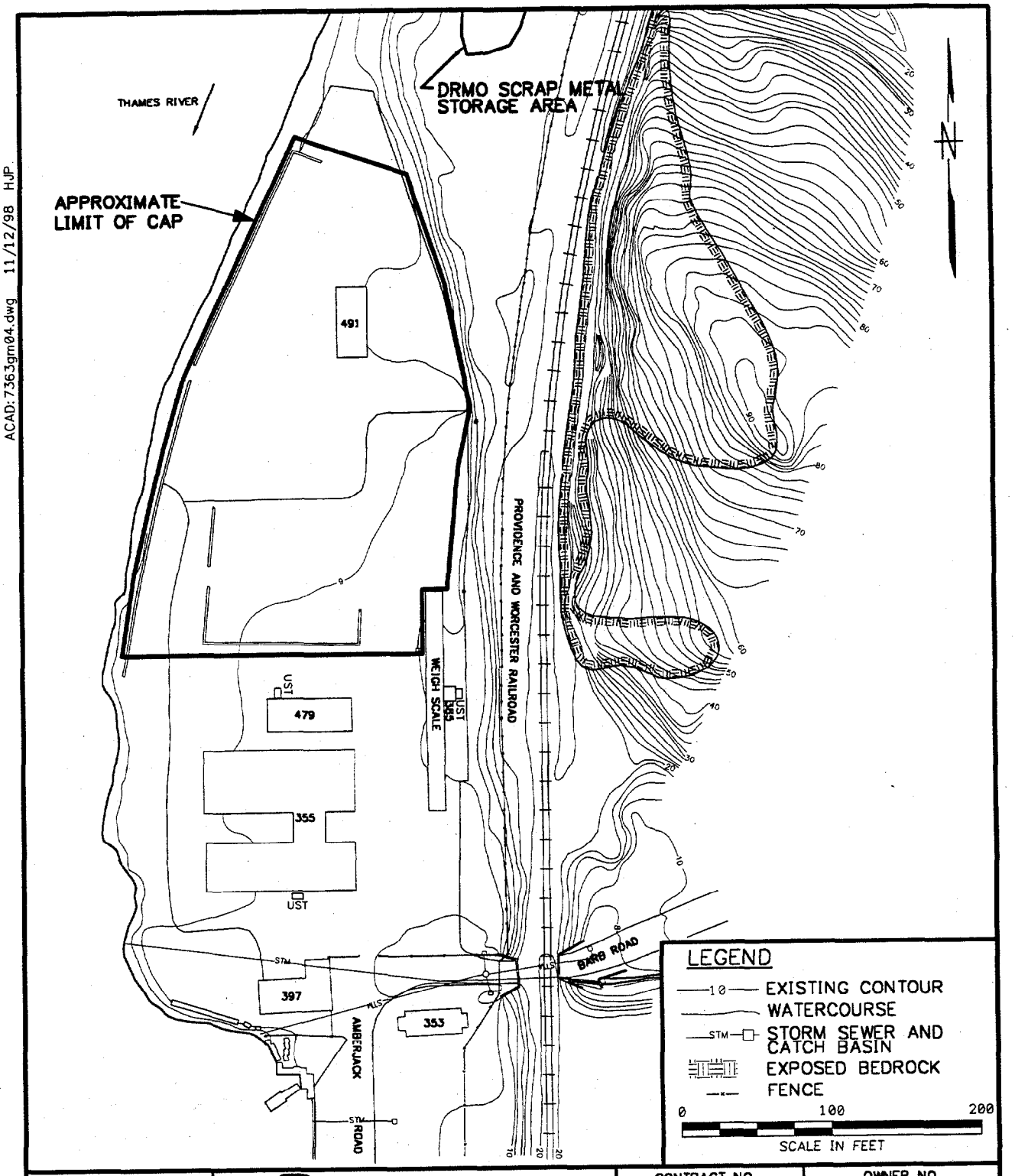


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| CHECKED BY mcm DATE 7/30/99 | DRMO SITE PLAN<br>NSB-NEW LONDON<br>GROTON, CT | APPROVED BY Mark K Mungel | DATE 1/18/99 |
| COST/SCHED-AREA | | APPROVED BY | DATE |
| SCALE AS NOTED | | DRAWING NO. FIGURE 1-2 | REV. 0 |

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# 2.0 FIELD INVESTIGATION ACTIVITIES

Field investigation activities as part of the fourth round of groundwater monitoring included two rounds of groundwater level measurements and groundwater sampling of 10 monitoring wells. These activities were performed in accordance with the procedures and methodologies described in Section 3.0: Groundwater Monitoring System Installation and Section 4.0: Sampling and Analyses of the DRMO GMP (B&R Environmental, February 1998). A copy of the field activity log book is provided as Appendix A.

## 2.1 WATER LEVEL MEASUREMENTS

Water levels were measured in ten monitoring wells and one staff gage (in the Thames River), prior to groundwater purging and sampling. The staff gage was located at the outside edge of the storm sewer outfall leading to the Thames River, west of Building 397. The measurements were collected on April 19 and 20, 1999, within time periods of 38 minutes prior to and 23 minutes following the predicted high tide on April 19$^{th}$ and 85 minutes prior to and 31 minutes following the predicted low tide on April 20$^{th}$ for Smith Cove, opposite the DRMO on the Thames River. Tide tables are provided in Appendix B. Table 2-1 summarizes the groundwater measurements, and Figures 2-2 and 2-3 illustrate the potentiometric surface maps for the groundwater in the shallow aquifer during low tide and high tide, respectively. Groundwater level measurement sheets can be found in Appendix C.

## 2.2 GROUNDWATER SAMPLING

Ten monitoring wells were sampled during the fourth round of groundwater monitoring using low-flow purging and sampling techniques, in accordance with USEPA Region I Low-Flow Purging and Sampling Procedure GW-001.

The wells were purged prior to sampling using the dedicated bladder pumps with bottled nitrogen gas as the air source. Groundwater quality parameters, including pH, specific conductivity, temperature, dissolved oxygen, salinity, and Eh were measured during purging at 5 minute intervals using a YSI 610 DM datalogger and 6820 multi-parameter water quality monitor equipped with a flow-through cell. Turbidity was also measured using a LaMotte 2020 Turbidimeter. Calibration log sheets are found in Appendix D. Water levels were also measured during purging at 5-minute intervals. Purging continued until the above parameters stabilized. Copies of the low-flow purge data sheets are provided in Appendix E. All purge water was containerized in 55-gallon drums for off-site disposal by a disposal subcontractor, as discussed in Section 2.5.

Following purging, samples were collected directly from the discharge end of the Teflon®-lined pump tubing. The groundwater samples were collected to be analyzed for VOCs, SVOCs, pesticides and PCBs, and metals (total and dissolved). Samples were filtered for dissolved metals using 0.45 micron filters. Analytical results of the samples are discussed in Section 3.0. Copies of the sample log sheets are provided in Appendix E, and chain of custody records are provided in Appendix F.

## 2.3 DECONTAMINATION AND INVESTIGATION-DERIVED WASTE

All water quality and water level meters were decontaminated by rinsing with de-ionized water prior to and after use.

All investigation derived waste (IDW) (i.e., purge water) was handled by the Subase.

## TABLE 2-1

## GROUNDWATER LEVEL MEASUREMENTS AND ELEVATIONS
## GROUNDWATER WATER MONITORING REPORT
## DRMO, NSB-NLON, GROTON, CONNECTICUT

| Well Number | Reference Elevation[1] (feet msl) | Depth to Water[2] (feet) LOW TIDE | Depth to Water[3] (feet) HIGH TIDE | Groundwater Elevation (feet msl) LOW TIDE | Groundwater Elevation (feet msl) HIGH TIDE | Well Screen Depth[4] |
|---|---|---|---|---|---|---|
| 6MW1S | 8.63 | 8.28 | 5.43 | 0.35 | 3.20 | Shallow |
| 6MW2S | 7.30 | 6.80 | 4.10 | 0.50 | 3.20 | Shallow |
| 6MW2D | 7.85 | 5.72 | 4.48 | 2.13 | 3.37 | Deep |
| 6MW6S | 12.16 | 8.64 | 8.57 | 3.52 | 3.59 | Shallow |
| 6MW6D | 12.50 | 8.96 | 8.92 | 3.54 | 3.58 | Bedrock |
| 6MW9S | 7.52 | 4.32 | 3.81 | 3.20 | 3.71 | Shallow |
| 6MW10S | 5.19 | 4.39 | 2.01 | 0.80 | 3.18 | Shallow |
| 6MW10D | 5.01 | 2.62 | 0.83 | 2.39 | 4.18 | Deep |
| 6MW11S | 4.92 | 4.23 | 1.55 | 0.69 | 3.37 | Shallow |
| 6MW11D | 5.31 | 2.81 | 1.46 | 2.50 | 3.85 | Deep |
| SG-01 | 5.67 | 5.19 | 2.42 | 0.48 | 3.25 | NA |

msl: mean sea level (1982 Base Traverse System)

NOTES:

1 Reference elevation is top of well casing (1982 Base Traverse System)
2 Depth to water is from top of well casing. Measured April 20, 1999.
3 Depth to water is from top of well casing. Measured April 19, 1999.
4 Well screen depths designated as shallow unconfined, deep unconfined, and bedrock groundwater

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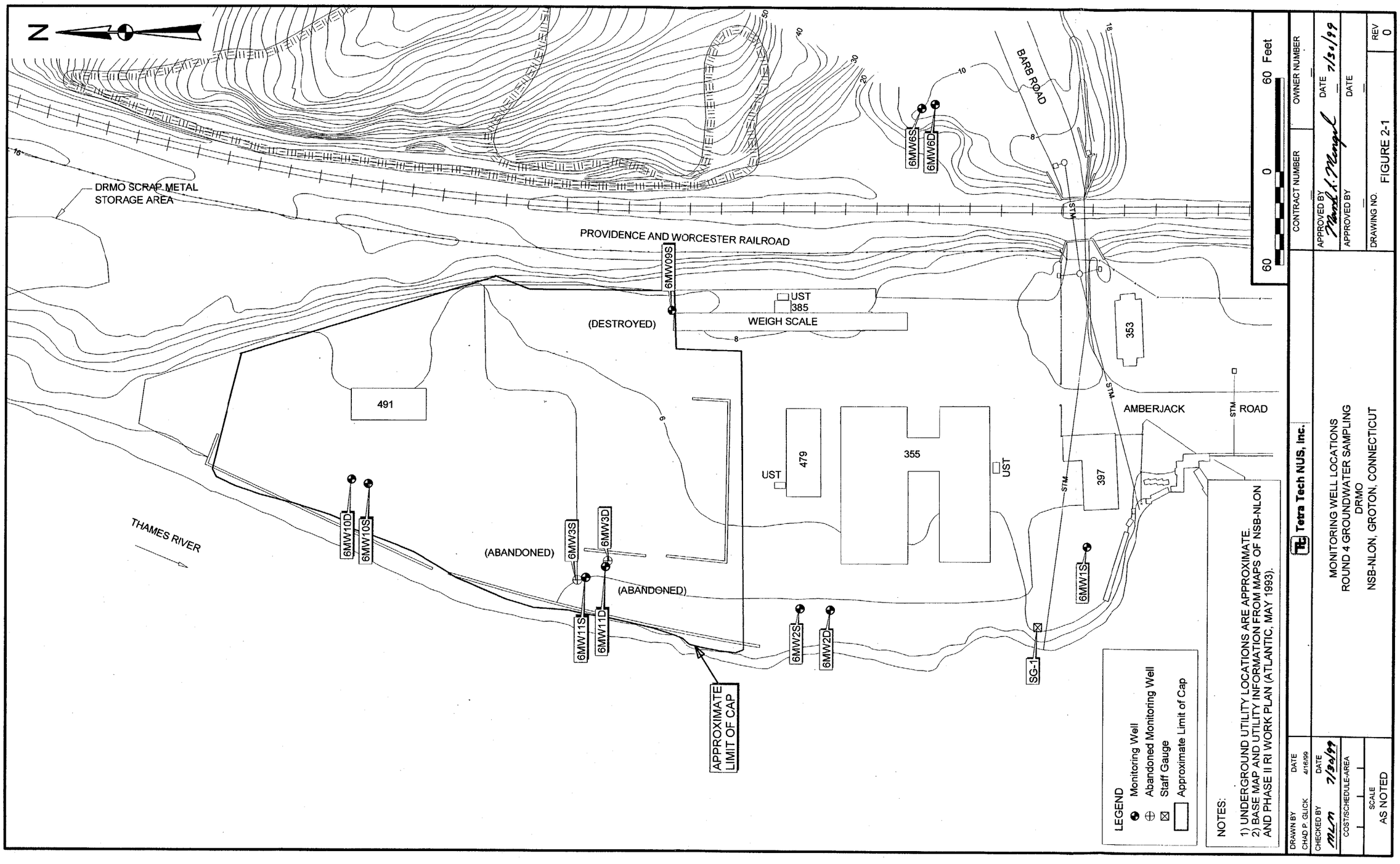
N
DRMO SCRAP METAL STORAGE AREA
PROVIDENCE AND WORCESTER RAILROAD
6MW09S
(DESTROYED)
UST
385
WEIGH SCALE
491
479
355
397
353
UST
UST
AMBERJACK
ROAD
BARB ROAD
6MW6S
6MW6D
6MW10D
6MW10S
THAMES RIVER
(ABANDONED)
6MW3S
6MW3D
(ABANDONED)
6MW11S
6MW11D
6MW2S
6MW2D
6MW1S
SG-1
APPROXIMATE LIMIT OF CAP
LEGEND
Monitoring Well
Abandoned Monitoring Well
Staff Gauge
Approximate Limit of Cap
NOTES:
1) UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
2) BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN (ATLANTIC, MAY 1993).
60 0 60 Feet
OWNER NUMBER
CONTRACT NUMBER
APPROVED BY
DATE 7/30/99
APPROVED BY
DATE
DRAWING NO.
FIGURE 2-1
REV 0
Tetra Tech NUS, Inc.
MONITORING WELL LOCATIONS
ROUND 4 GROUNDWATER SAMPLING
DRMO
NSB-NLON, GROTON, CONNECTICUT
DRAWN BY CHAD P. GLICK
DATE 4/16/99
CHECKED BY
DATE 7/30/99
COST/SCHEDULE-AREA
SCALE AS NOTED
P:\GIS\NLON\7363_267.APR 16-APRIL-99 CPG GW SAMPLING DRMO LOCATION BV LAYOUT



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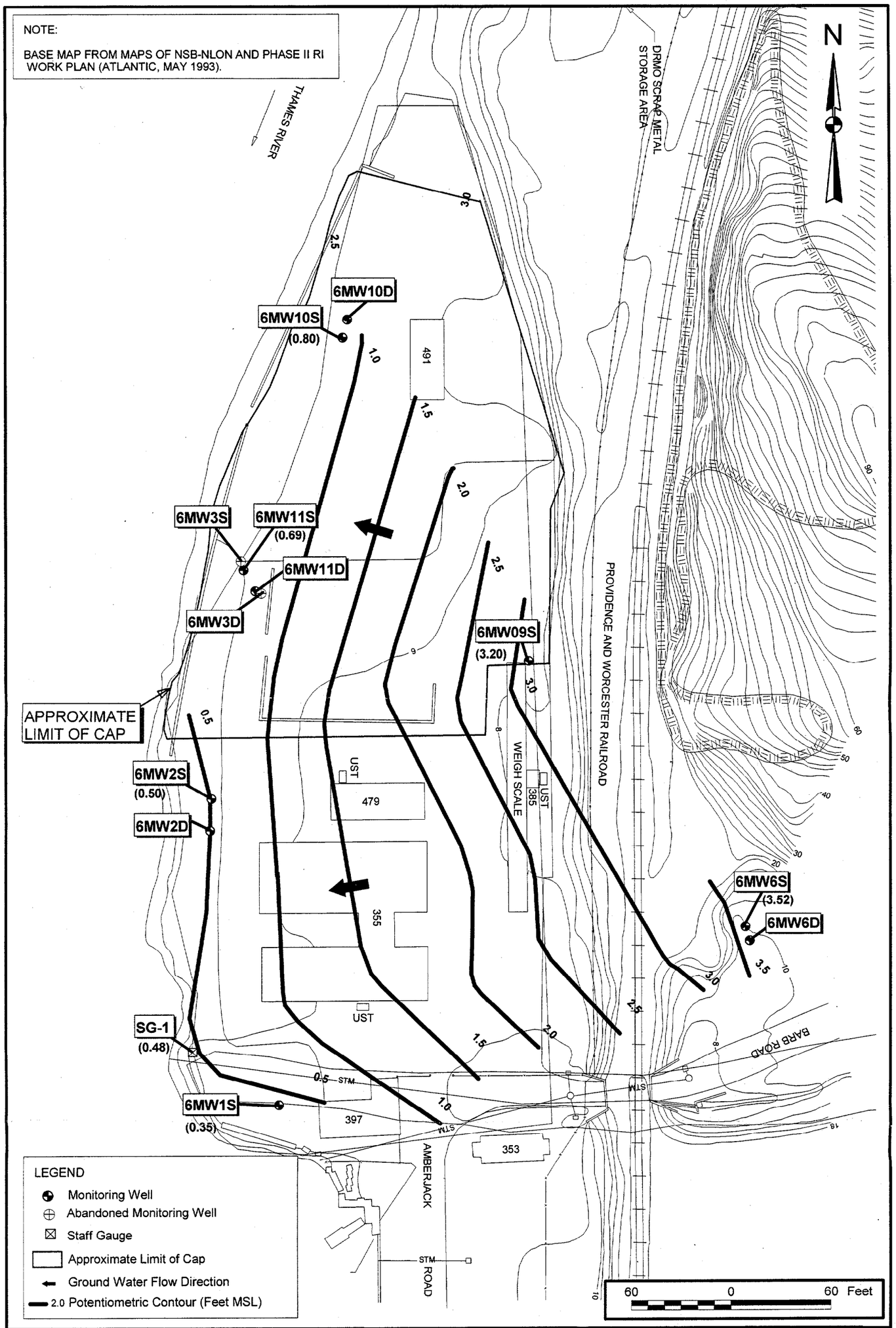
P:\GIS\NLON\7363_267.APR 13-JULY-99 JCB POTENTIOMETRIC CONTOURS - LOW TIDE - 4 ROUND

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|---|---|---|---|---|
| J. BELLONE | 13-JULY-99 | | — | — |
| CHECKED BY MLM | DATE 7/30/99 | LOW TIDE POTENTIOMETRIC SURFACE MAP<br>ROUND 4 GROUNDWATER SAMPLING<br>DRMO<br>NSB-NLON, GROTON, CONNECTICUT | APPROVED BY Mark L. Mengel | DATE 7/30/99 |
| COST/SCHEDULE-AREA | | | APPROVED BY — | DATE — |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 2-2 | REV 0 |

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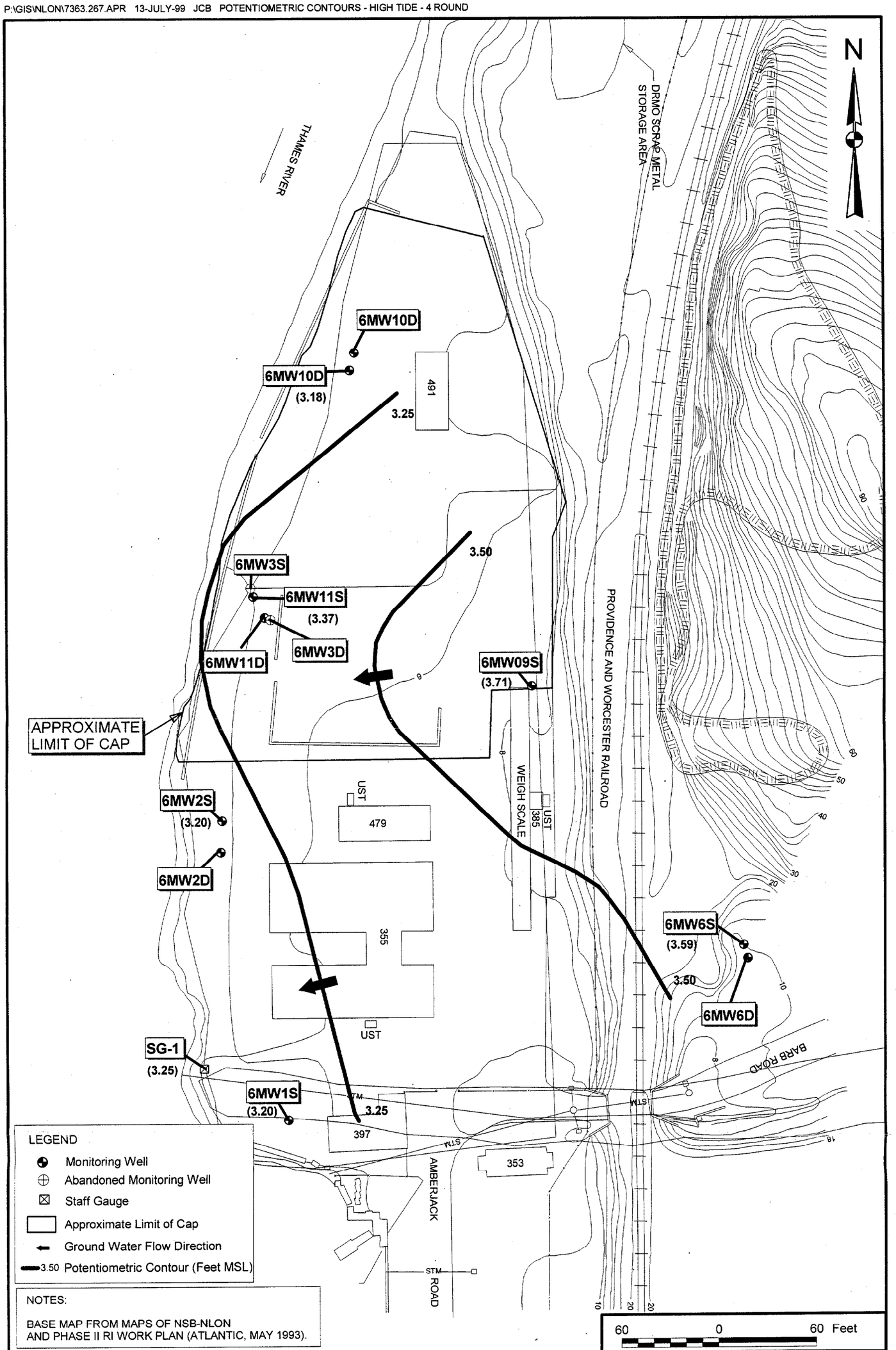
P:\GIS\NLON\7363.267.APR 13-JULY-99 JCB POTENTIOMETRIC CONTOURS - HIGH TIDE - 4 ROUND

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| CHECKED BY MLM — DATE 7/30/99 | HIGH TIDE POTENTIOMETRIC SURFACE MAP<br>ROUND 4 GROUNDWATER SAMPLING<br>DRMO<br>NSB-NLON, GROTON, CONNECTICUT | APPROVED BY Mark L. Mengel — DATE 7/30/99 | |
| COST/SCHEDULE-AREA | | APPROVED BY — | DATE — |
| SCALE AS NOTED | | DRAWING NO. FIGURE 2-3 | REV 0 |

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2-9

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# 3.0 MONITORING RESULTS

The groundwater samples collected from monitoring wells 6MW1S, 6MW2S, 6MW2D, 6MW6S, 6MW6D, 6MW9S, 6MW10S, 6MW10D, 6MW11S, and 6MW11D were analyzed for Target Compound List (TCL) organic chemicals and Target Analyte List (TAL) inorganic chemicals. Monitoring focused on the following organic and inorganic chemicals of potential concern, as identified in the GMP Monitoring Plan (B&R Environmental, February 1998):

- 1,1,2,2-Tetrachloroethane
- 1,2-Dichloroethane
- 1,2-Dichloroethene (total)
- Trichloroethene
- Vinyl Chloride
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzoic Acid
- Bis(2-ethylhexyl)phthalate
- Fluoranthene
- Fluorene
- Naphthalene
- Phenantrene
- Pyrene
- Heptachlor Epoxide
- Aroclors 1254 & 1260
- Hexachlorobiphenyl
- 4,4'-DDD
- Arsenic
- Barium
- Cadmium
- Chromium
- Copper
- Lead
- Silver
- Zinc

The above chemicals were detected in soil either at concentrations that could result in exceedances of site specific Surface Water Protection Criteria (SWPCs) or at concentrations that exceed Connecticut's Pollutant Mobility Criteria for GB groundwater.

Analytical results are summarized on Table 3-1 and the positive COC detections are shown on Figure 3-1. Table 3-1 also compares the analytical results with the primary and secondary monitoring criteria, as established in the GMP (B&R Environmental, February 1998). Chemicals exceeding either primary or secondary monitoring criteria are noted by shading. The results of this comparison may be summarized as follows:

- There were no exceedances of the primary monitoring criteria, which were site-specific SWPCs using a dilution factor of 100.

- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene were detected in the sample collected from well 6MW2S at concentrations of 0.11 µg/L, 0.13 µg/L, 0.13 µg/L, and 0.13 µg/L, respectively. These detections exceeded the secondary monitoring criteria for all four compounds of 0.049 µg/L, which are the Federal Ambient Water Quality Criterions (AWQCs) as well as the Connecticut Water quality Standards (WQSs) for protection of human health from consumption of aquatic organisms.

- Bis(2-ethylhexyl)phthalate (BEHP) was detected at a concentration of 7 µg/L and 8 µg/L in the samples from monitoring well 6MW1S and 6MW2D, respectively. These concentrations exceeded the secondary monitoring criteria of 5.9 µg/L for BEHP, which is the Federal AWQC and the Connecticut WQS for protection of human health from consumption of aquatic organisms.

- Arsenic was detected in the filtered sample (3.2 J µg/L) collected from monitoring well 6MW9S and in the unfiltered sample (2.7 J µg/L) from monitoring well 6MW11S. These detections exceeded the secondary monitoring criteria (AWQCs and WQSs for protection of human health from consumption of aquatic organisms) of 0.14 µg/L for arsenic.

- Copper was detected in the unfiltered and filtered sample from monitoring well 6MW9S (3 µg/L and 2.5 µg/L); in the filtered samples only from monitoring wells 6MW2D (4.8 J µg/L), 6MW10S (6.9 µg/L), 6MW11S (7.1 µg/L); and, in the unfiltered samples only from monitoring wells 6MW2S (3.3 J µg/L), 6MW6D (3.9 µg/L), and 6MW10D (3.2 J µg/L). These detections exceeded the secondary monitoring criterion of 2.4 µg/L, which is the Federal AWQC for the protection of aquatic life (chronic, saltwater).

- Silver was detected in the unfiltered duplicate sample (4.3 µg/L) only from monitoring well 6MW2S and in the filtered samples only from wells 6MW10D (5.5 µg/L) and 6MW11D (3.9 µg/L). These detections exceeded the secondary monitoring criterion of 1.9 µg/L, which is the Federal AWQC for protection of aquatic life (chronic, saltwater).

- Zinc was detected in the unfiltered and filtered samples from monitoring wells 6MW9S (126 and 122 µg/L, respectively) and 6MW10D (513 and 451 µg/L, respectively). These detections exceeded the secondary monitoring criterion of 81 µg/L, which is the Federal AWQC for protection of aquatic life (chronic, saltwater).

- No other exceedances of secondary monitoring criteria were noted.

As discussed in Section 1.2, because this is only an interim report for the fourth round of groundwater monitoring, the evaluation of the analytical results is limited to the above comparison. No conclusions or recommendations are drawn from this comparison. Such conclusions and recommendations will be developed in the Year 1 Summary Report, after the results of the first year of sampling (four rounds) have become available.

Data validation letters and laboratory data sheets are attached to this report as Appendix G.

TABLE 3-1

ROUND 4 ANALYTICAL RESULTS SUMMARY
INTERIM GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
PAGE 1 OF 2

| Chemical | Primary Monitoring Criterion [1] | Secondary Monitoring Criterion [1] | 6MW1S | 6MW2D | 6MW2S | 6MW2S-D | 6MW6D | 6MW6S |
|---|---|---|---|---|---|---|---|---|
| **VOCs (µg/L)** | | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | 1,100 | 11 [4][5] | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHANE | 29,700 | 99 [4][5] | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | 1 U | 1 U | 1 U | 1 U | 6 | 1 U |
| TRANS-1,2-DICHLOROETHENE | NA | NA | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 23,400 | 81 [4][5] | 1 U | 1 U | 1 U | 1 U | 7 | 1 U |
| VINYL CHLORIDE | 157,500 | 525 [4][5] | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| **SVOCs (µg/L)** | | | | | | | | |
| BENZO(A)ANTHRACENE | 3.0 | 0.049 [4][5] | 0.05 UJ | 0.05 UJ | 0.11 J | 0.05 UJ | 0.05 UJ | 0.05 UJ |
| BENZO(A)PYRENE | 3.0 | 0.049 [4][5] | 0.05 U | 0.05 U | 0.13 J | 0.05 UJ | 0.05 U | 0.05 U |
| BENZO(B)FLUORANTHENE | 3.0 | 0.049 [4][5] | 0.1 U | 0.1 U | 0.13 | 0.1 U | 0.1 U | 0.1 U |
| BENZO(K)FLUORANTHENE | 3.0 | 0.049 [4][5] | 0.05 U | 0.05 U | 0.13 J | 0.05 UJ | 0.05 U | 0.05 U |
| BENZOIC ACID | | | 10 UJ | 10 UJ | 10 UJ | 10 UJ | 10 UJ | 10 UJ |
| BIS(2-ETHYLHEXYL)PHTHALATE | 590 | 5.9 [4][5] | 7 | 8 | 1 J | 5 U | 3 J | 5 U |
| FLUORANTHENE | 37,000 | 370 [4][5] | 0.1 UJ | 0.1 UJ | 0.088 J | 0.1 U | 0.1 UJ | 0.1 UJ |
| FLUORENE | 1,400,000 | 14,000 [4][5] | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| NAPHTHALENE | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| PHENANTHRENE | 0.77 | NA | 0.05 U | 0.05 U | 0.12 J | 0.05 UJ | 0.05 U | 0.05 U |
| PYRENE | 1,100,000 | 11,000 [4][5] | 0.05 U | 0.05 U | 0.12 J | 0.05 UJ | 0.05 U | 0.05 U |
| **Pesticides/PCBs (µg/L)** | | | | | | | | |
| 4,4'-DDD | NA | 0.00084 [4][5] | 0.02 U | 0.02 U | 0.02 U | 0.02 U | 0.02 U | 0.02 U |
| AROCLOR-1254 | 5.0 | 0.00017 [4][5] | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| AROCLOR-1260 | 5.0 | 0.00017 [4][5] | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| HEPTACHLOREPOXIDE | 0.5 | 0.00011 [4][5] | 0.01 U | 0.01 U | 0.01 U | 0.01 U | 0.01 U | 0.01 U |
| HEXACHLOROBIPHENYL | | | 0.02 U | 0.02 U | 0.02 U | 0.02 U | 0.02 U | 0.02 U |
| **Inorganics (total/dissolved) (µg/L)** | | | | | | | | |
| ARSENIC | 40 | 0.14 [4][5] | 2.1 U/2.1 U | 10.4 U/10.4 U | 10.4 U/10.4 U | 10.4 U/10.4 U | 2.1 U/2.1 U | 2.1 U/2.1 U |
| BARIUM | NA | NA | 9.9/11.2 | 168 J/164 J | 21.9 J/20.5 J | 23.3 J/20.3 J | 47.1/44.2 | 35.8/33.5 |
| CADMIUM | 60 | NA | 1.9 U/1.9 U | 1.3 U/1.3 U | 1.3 U/1.3 U | 1.3 U/1.3 U | 2.4 U/1.9 U | 1.9 U/1.9 U |
| CHROMIUM | 1,100 | 50 [2] | 4.3 U/4.3 U | 4.8/3 U | 3 U/3 U | 4.8/3 U | 4.3 U/4.3 U | 4.3 U/4.3 U |
| COPPER | 480 | 2.4 [2] | 1.6 U/1.6 U | 4.8 J/2.8 UJ | 2.8 UJ/3.3 J | 2.8 UJ/2.8 UJ | 1.6 U/3.9 | 1.6 U/1.6 U |
| LEAD | 130 | 8.1 [2] | 1.1 U/1.1 U | 5.5 U/5.5 U | 5.5 U/5.5 U | 5.5 U/5.5 U | 1.1 U/1.1 U | 1.1 U/1.1 U |
| SILVER | 120 | 1.9 [2] | 2.5 U/2.5 U | 3.5 U/3.5 U | 3.5 U/3.5 U | 4.3/3.5 U | 2.5 U/2.5 U | 2.5 U/2.5 U |
| ZINC | 1,230 | 81 [2] | 9.6 U/10.3 U | 14.6 U/43.6 U | 22.9 U/27.9 U | 22.5 U/21.2 U | 13 U/13.7 U | 2.2 U/2.5 U |

TABLE 3-1

ROUND 4 ANALYTICAL RESULTS SUMMARY
INTERIM GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
PAGE 2 OF 2

| Chemical | Primary Monitoring Criterion [1] | Secondary Monitoring Criterion [1] | 6MW9S | 6MW10D | 6MW10S | 6MW11D | 6MW11S |
|---|---|---|---|---|---|---|---|
| **VOCs (µg/L)** | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | 1,100 | 11 [4][5] | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHANE | 29,700 | 99 [4][5] | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | 1 U | 14 | 1 | 3 | 1 |
| TRANS-1,2-DICHLOROETHENE | NA | NA | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 23,400 | 81 [4][5] | 1 U | 6 | 1 U | 1 U | 1 U |
| VINYL CHLORIDE | 157,500 | 525 [4][5] | 1 U | 1 U | 1 U | 0.7 J | 0.6 J |
| **SVOCs (µg/L)** | | | | | | | |
| BENZO(A)ANTHRACENE | 3.0 | 0.049 [4][5] | 0.05 UJ | 0.05 UJ | 0.05 UJ | 0.05 UJ | 0.05 UJ |
| BENZO(A)PYRENE | 3.0 | 0.049 [4][5] | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U |
| BENZO(B)FLUORANTHENE | 3.0 | 0.049 [4][5] | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| BENZO(K)FLUORANTHENE | 3.0 | 0.049 [4][5] | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U |
| BENZOIC ACID | NA | NA | 10 UJ | 10 UJ | 10 UJ | 10 UJ | 10 UJ |
| BIS(2-ETHYLHEXYL)PHTHALATE | 590 | 5.9 [4][5] | 5 U | 2 J | 2 J | 5 U | 5 U |
| FLUORANTHENE | 37,000 | 370 [4][5] | 0.1 UJ | 0.047 J | 0.1 UJ | 0.1 UJ | 0.11 J |
| FLUORENE | 1,400,000 | 14,000 [4][5] | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.07 J |
| NAPHTHALENE | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| PHENANTHRENE | 0.77 | NA | 0.05 U | 0.039 J | 0.05 U | 0.037 J | 0.052 |
| PYRENE | 1,100,000 | 11,000 [4][5] | 0.05 U | 0.05 U | 0.069 | 0.05 U | 0.14 U |
| **Pesticides/PCBs (µg/L)** | | | | | | | |
| 4,4'-DDD | NA | 0.00084 [4][5] | 0.02 U | 0.02 U | 0.02 U | 0.02 U | 0.02 U |
| AROCLOR-1254 | 5.0 | 0.00017 [4][5] | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| AROCLOR-1260 | 5.0 | 0.00017 [4][5] | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| HEPTACHLOREPOXIDE | 0.5 | 0.00011 [4][5] | 0.01 U | 0.01 U | 0.01 U | 0.01 U | 0.01 U |
| HEXACHLOROBIPHENYL | NA | NA | 0.02 U | 0.02 U | 0.02 U | 0.02 U | 0.02 U |
| **Inorganics (total/dissolved) (µg/L)** | | | | | | | |
| ARSENIC | 40 | 0.14 [4][5] | 2.1 U/3.2 J | 10.4 U/10.4 U | 2.1 U/2.1 U | 10.4 U/10.4 U | 2.7 J/2.1 U |
| BARIUM | NA | NA | 15.9/14.5 | 65 J/61.3 J | 112/115 | 269 J/265 J | 83.2/76.1 |
| CADMIUM | 60 | NA | 1.9 U/1.9 U | 1.3 U/1.3 U | 1.9 U/1.9 U | 1.3 U/1.3 U | 1.9 U/1.9 U |
| CHROMIUM | 1,100 | 50 [2] | 4.3 U/4.3 U | 3 U/5.1 | 4.3 U/4.3 U | 23.2/3 U | 4.3 U/4.3 U |
| COPPER | 480 | 2.4 [2] | 3/2.5 | 2.8 UJ/3.2 J | 6.9/1.6 U | 2.8 UJ/2.8 UJ | 7.1/1.6 U |
| LEAD | 130 | 8.1 [2] | 1.1 U/1.1 U | 5.5 U/5.45 U | 2 J/1.1 U | 5.5 U/5.5 U | 1.7 J/1.1 U |
| SILVER | 120 | 1.9 [2] | 2.5 U/2.5 U | 3.5 U/5.5 | 2.5 U/2.5 U | 3.5 U/3.9 | 2.5 U/2.5 U |
| ZINC | 1,230 | 81 [2] | 126/122 | 513/451 | 24.1 U/7.8 U | 8.9 U/4.6 U | 45.3/5 U |

NOTES:

Bold numbers denote exceedance of secondary monitoring criterion. There are no exceedances of primary monitoring criteria.

1 Surface Water Protection Criteria for substances in groundwater, using a site-specific dilution factor of 100.
2 Federal Ambient Water Quality Criteria for protection of aquatic life (chronic, saltwater).
3 Connecticut Water Quality Criteria for protection of aquatic life (chronic, saltwater).
4 Federal Ambient Water Quality Criteria for protection of human health from consumption of organisms.
5 Connecticut Water Quality Criteria for protection of human health from consumption of organisms.
J Estimated Value
R Rejected Value
U Undetected
NA Not Available

P:\GIS\NLON\7363.267.APR 28-JULY-99 JCB ROUND 4 GROUND WATER TAGS LAYOUT

079908/P

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
2) BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN (ATLANTIC, MAY 1993).

N

6MW10D
Volatile Organics (ug/L)
CIS-1,2-DICHLOROETHENE 14
TRICHLOROETHENE 6
Semivolatile Organics (ug/L)
BIS(2-ETHYLHEXYL)PHTHALATE 2 J
FLUORANTHENE 0.047 J
PHENANTHRENE 0.039 J
Total Metals (ug/L)
BARIUM 65 J
ZINC 513
Dissolved Metals (ug/L)
BARIUM 61.3 J
CHROMIUM 5.1
COPPER 3.2 J
SILVER 5.5
ZINC 451

6MW10D

6MW10S

6MW10S
Volatile Organics (ug/L)
CIS-1,2-DICHLOROETHENE 1
Semivolatile Organics (ug/L)
BIS(2-ETHYLHEXYL)PHTHALATE 2 J
PYRENE 0.069
Total Metals (ug/L)
BARIUM 112
COPPER 6.9
LEAD 2 J
Dissolved Metals (ug/L)
BARIUM 115

6MW11S
Volatile Organics (ug/L)
CIS-1,2-DICHLOROETHENE 1
VINYL CHLORIDE 0.6 J
Semivolatile Organics (ug/L)
FLUORANTHENE 0.11 J
FLUORENE 0.07 J
PHENANTHRENE 0.052
Total Metals (ug/L)
ARSENIC 2.7 J
BARIUM 83.2
COPPER 7.1
LEAD 1.7 J
ZINC 45.3
Dissolved Metals (ug/L)
BARIUM 76.1

6MW3S

6MW11S

6MW11D
Volatile Organics (ug/L)
CIS-1,2-DICHLOROETHENE 3
VINYL CHLORIDE 0.7 J
Semivolatile Organics (ug/L)
PHENANTHRENE 0.037 J
Total Metals (ug/L)
BARIUM 269 J
CHROMIUM 23.2
Dissolved Metals (ug/L)
BARIUM 265
SILVER 3.9

6MW3D

6MW11D

6MW2S
Semivolatile Organics (ug/L)
BENZO(A)ANTHRACENE 0.11 J
BENZO(A)PYRENE 0.13 J
BENZO(B)FLUORANTHENE 0.13
BENZO(K)FLUORANTHENE 0.13 J
BIS(2-ETHYLHEXYL)PHTHALATE 1 J
FLUORANTHENE 0.088 J
PHENANTHRENE 0.12 J
PYRENE 0.12 J
Total Metals (ug/L)
BARIUM 21.9 J
Dissolved Metals (ug/L)
BARIUM 20.5 J
COPPER 3.3 J

6MW2S (DUP)
Total Metals (ug/L)
BARIUM 23.3 J
CHROMIUM 4.8
SILVER 4.3
Dissolved Metals (ug/L)
ARSENIC
BARIUM 20.3 J

6MW09S

6MW9S
Total Metals (ug/L)
BARIUM 15.9
COPPER 3
ZINC 126
Dissolved Metals (ug/L)
ARSENIC 3.2 J
BARIUM 14.5
COPPER 2.5
ZINC 122

6MW2S

6MW2D

6MW2D
Semivolatile Organics (ug/L)
BIS(2-ETHYLHEXYL)PHTHALATE 8
Total Metals (ug/L)
BARIUM 168 J
CHROMIUM 4.8
COPPER 4.8 J
Dissolved Metals (ug/L)
BARIUM 164 J

6MW6S
Total Metals (ug/L)
BARIUM 35.8
Dissolved Metals (ug/L)
BARIUM 33.5

6MW6S

6MW6D

6MW6D
Volatile Organics (ug/L)
CIS-1,2-DICHLOROETHENE 6
TRICHLOROETHENE 7
Semivolatile Organics (ug/L)
BIS(2-ETHYLHEXYL)PHTHALATE 3 J
Total Metals (ug/L)
BARIUM 47.1
Dissolved Metals (ug/L)
BARIUM 44.2
COPPER 3.9

SG-1

6MW1S

6MW1S
Semivolatile Organics (ug/L)
BIS(2-ETHYLHEXYL)PHTHALATE 7
Total Metals (ug/L)
BARIUM 9.9
Dissolved Metals (ug/L)
BARIUM 11.2

LEGEND
- Monitoring Well
- Abandoned Monitoring Well
- Staff Gauge
- Approximate Limit of Cap

60 0 60 Feet

| | | | |
|---|---|---|---|
| DRAWN BY J. BELLONE DATE 28-JUL-99 | Tetra Tech NUS, Inc. | CONTRACT NUMBER 7363 | OWNER NUMBER 267 |
| CHECKED BY T. EVANS DATE 28-JUL-99 | POSITIVE COC DETECTION<br>ROUND 4 GROUNDWATER SAMPLING<br>DRMO<br>NSB-NLON, GROTON, CONNECTICUT | APPROVED BY Mark L. Mungel DATE 7/30/99 | |
| COST/SCHEDULE-AREA | | APPROVED BY DATE | |
| SCALE AS NOTED | | DRAWING NO. FIGURE 3-1 | REV 0 |

DRAFT



CTO 0267

04/11/00

# REFERENCES

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(Atlantic, March 1995): Action Memorandum for the Defense Reutilization and Marketing Office and the Spent Acid Storage and Disposal Area, Installation Restoration Program. Atlantic Environmental Services, Inc., Colchester, CT.

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(B&R Environmental, March 1997): Phase II Remedial Investigation for Naval Submarine Base, New London, Groton, Connecticut. Brown & Root Environmental, King of Prussia, PA.

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(CT, 1995): "Standards for Quality of Public Drinking Water." Title 19, Regulation 19-13, Section 19-13-B102. State of Connecticut

(CTDEP, December 1995): "Remediation Standard Regulations.". State of Connecticut Department of Environmental Protection, Bureau of Water Management, Permitting, Enforcement and Remediation Division, Hartford, Connecticut.

(NFESC, February 1996): Navy Installation Restoration Laboratory Quality Assurance Guide (Interim Guidance). Naval Facilities Engineering Service Center.

(OHM, September 1995): Final Report for Interim Remedial Action, Site 6, Naval Submarine Base, New London, Groton, Connecticut. OHM Remediation Services Corporation, Hopkinton, MA

(SCS, 1983): Soil Survey of New London County Connecticut. Soil Conversation Service.

(USGS, 1960): Geologic Map of the Uncasville Quadrangle, Connecticut, Surficial Geology. United States Geological Survey.

(USGS, 1967): Bedrock Geologic Map of the Uncasville Quadrangle, New London County, Connecticut. United States Geological Survey.

# APPENDIX A

# FIELD ACTIVITIES LOG BOOK

PROJECT NO

BOOK

Page

← ROUND 3

ROUND 4 →

CHICAGO 60605

Work continued to Page

SIGNATURE

DATE

WITNESS

DATE

**TITLE** NSBNLON

7363
2415

MON APRIL 19, 1995

Work continued from Page

WEATHER AM CLEAR, SUNNY, 45-50°F
PM clear sunny 50-55°F

PERSONNEL: T. Evans } THNUS
K. Simpson } (PGH)

PPE: LEVEL D

* LOW TIDE @ 0714
High TIDE @ 1303

0700-0730 TE & KS @ pass office - Get personal & vehicle passes thru 4/23

0735 Meet w/ Dick Conard @ Bldg 1606 - introduces THNUS to Darlene Ward (x ____)

Dick wanted like THNUS to have Darlene w/ pre-bid meeting for Area A LF

will do ← · go over to meet Bob Hecho ~~that~~ later @ MWR to go over schedule in the week for Tank Farm

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 130

SIGNATURE

DATE

WITNESS

DATE

Dick's concern for Area A work:

- impress upon dullers of impact to wetland, (ie, minimize) - He realizes some damage will occur but should be minimized
- should coordinate w/ Haz Storage (Kate) about drum marshalling for Area A & Tank Farm

Dick does not want drums stored @ Area A, rather in Haz Storage - ~~TE~~ (12) Haz Storage concerned for space - TE suggests IDW contractor pick up as needed (sample, test, & dispose) - Kate to give list of what

Dick, Kate, & TMCS will go over Wed. ←

Work continued to Page 131





Work continued from Page 130

analyses needed for release on Bill of Lading

- Dick will be available later in week to look @ monitoring locations for GW OU @ Hospital Incinerator & Bldg 330
- Setup drum (1) w/ Linda for DRMO sampling this round

0805 TETKS Unpack equipment @ Bldg 166 in "Laboratory" room in basement - arranged to use thru Dick.

0840 Air lines not sent by US Environmental - Contact US Env - they will drive them down today (they did not include them but they were in the order)

0855 @ pass office - need CEMIC to pickup sample bottles

Work continued to Page 132

NSB NLON 7363
Mon April 19, 1999 2415
Page 131

0905 Pickup $N_2$ cylinders x2 (Q-size) from BOC Gases in Groton (Rt 138)

0930 Return to Bldg 166 -

- Make sample sets w/ bottles
- Calibrate YSI meter (see cal sheets)
- Call CEIMIC (speak w/ Dave) - need 2 x 1L Amber per sample for SVOC P/P, PAHs ∴ 6x1L Ambers per sample

1100 @ Area A - military training in progress - no access

Go to get drinking $H_2O$ for the day + batteries for pager + ice



SIGNATURE [signature] DATE 4/19/99

WITNESS DATE

TITLE NSB NLON 7363
MON APRIL 19, 1999 2415
Work continued Page 132

1120 Lunch
1200 Collect lab-prep GWTB-041999
1205 @ base office - meet US Env. contact & get air hoses

1215 @ DRMO for water levels

| well | Time | WL (ft TOC) | PID (ppm) |
|---|---|---|---|
| 6MW10D | 1225 | 0.83 | 1.70 |
| 6MW10S | 1228 | 2.01 | 1.4 |
| 6MW11D | 1254 | 1.46 | 0.60 |
| 6MW11S | 1257 | 1.55 | 0.0 |
| 6MW2S | 1300 | 4.10 | 0.0 |
| 6MW2D | 1303 | 4.48 | 2.9 |
| SG01 | 1309 | 2.42 | NA |
| 6MW1S | 1311 | 5.43 | 0 |
| 6MW9S | 1319 | 3.81 | 0 |
| 6MW6D | 1325 | 8.92 | 0 |
| 6MW6S | 1326 | 8.57 | 0.6 |



SIGNATURE [signature] DATE 4/19/99

WITNESS DATE

TITLE NSB NLON PROJECT NO. 7363
Mon April 19, 1999 BOOK 2415

Work continued from Page 133

1330 Setup to purge & sample @ 06MW6S/D well cluster

| | 6MW6S | 6MW6D |
|---|---|---|
| Start purge | 1354 | 1351 |
| End purge | 1438 | 1540 |
| Start Sample | 1440 | 1543 |
| End Sample | 1515 | 1640 |
| ID | DRMO-6MW6S-GW-04 | DRMO-6MW6D-GW-04 |
| Sampler | TE/KS | TE/KS |

1645 Demob to Bldg 166

- Prep samples
- Check calibration of YSI meters (see cal sheet)

1730 Leave site for day

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE DATE 4/19/99

WITNESS DATE



TITLE NSB NLON PROJECT NO. 7363
Tue April 20, 1999 BOOK 2415

Work continued from Page

Weather am clear, sunny 45-50°F
pm overcast cool 40-45°F

Personnel: TE, KS
PPE: Level D
Tide Low: ~~0842~~ 0824
High NA

0645 TE + KS @ Bldg 166 – load bottles & equipment

Linda McCord has purge water emptied into drum @ Hag storage & returns buckets

0655 @ DRMO – measure WLs

| Well | WL (ft) | Time |
|---|---|---|
| 6MW6D | 8.96 | 0658 |
| 6MW6S | 8.64 | 0659 |
| 6MW10S | 4.02 | 0722 |
| 6MW10D | 2.61 | 0720 |

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE DATE

WITNESS DATE

NSB-NLON
Tue April 20, 1999

7363
2415

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→ SG-1

| time | WL (ft TOC) |
|---|---|
| 0725 | 5.17 |
| 0800 | 5.23 |
| 0832 | 5.19 |

| well | WL (ft TOC) | | Time |
|---|---|---|---|
| 6MW10S | 4.39 | @ | 0831 |
| 6MW1S | 8.28 | | 0835 |
| 6MW2D | 5.72 | | 0838 |
| 6MW2S | 6.80 | | 0841 |
| 6MW11S | 4.23 | | 0845 |
| 6MW11D | 2.81 | | 0847 |
| 6MW9S | 4.32 | | 0855 |
| 6MW10D | 2.62 | | 0835 |

Work continued to Page 137

SIGNATURE
WITNESS
DATE 4/20/99

TITLE NSBNLON
Tue April 20, 1999

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2415

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0715 setup @ 6MW10S/D

| | 6MW10S | 6MW10D |
|---|---|---|
| Start purge | 0735 | 0728 |
| End purge | 0817 | 0815 |
| Start sample | 0818 | 0815 |
| End sample | 0855 | 0837 |
| ID | DRMO-6MW10S-GW-04 | DRMO-6MW10D-GW-04 |
| Sampler | TE | KS |

0910 @ Bldg 1666-
- prep samples
- ~~check calibration of YSI's~~ TE
- KS empties purge $H_2O$ into 55-gallon drum @ Haz Storage

1005 TE + KS go to recon well locations for CTO 203 (Area A Landfill) See log book #1303

Work continued to Page 138

SIGNATURE
WITNESS
DATE 4/20/99

TITLE NSB NLON PROJECT NO. 7363
Tue April 20, 1999 BOOK 2415
Work continued from Page 137

1600 Return to Bldg 166
- prep bottleware for tomorrow
- calibrate YSI water meters (see Cal. sheet)

1655 Leave site for day

Work continued to Page

SIGNATURE DATE
WITNESS DATE



TITLE NSB NLON PROJECT NO. 7363
April 21, 1999 BOOK 2415
Work continued from Page

Weather am Clear, Sunny, 50-55°F
pm P cloudy, Sunny 55°F-60°F

Personnel: TE, KS
PPE: Level D

Tides Low: 0912

0715 At site. Load equipment into Van.

0730 At DRMO. Setup @ 6MW2S/D

| | 6MW2S | 6MW2D |
|---|---|---|
| Start purge | 0811 | 0808 |
| Stop purge | 0850 | 0850 |
| Start sample | 0855 | 0855 |
| End sample | 0942 | 1035 |
| ID | DRMO-6MW2S-GW-04 | DRMO-6MW2D-GW-04 |
| Sampler | TE | KS |
| | + GWFD-042199 | + MS/MSD |

Work continued to Page

SIGNATURE DATE
WITNESS DATE

NSBNLON 7363

Wed April 21, 1999 2415

Page

1045 Leave DRMO to pack samples for pickup by CEMIC

1115 Empty purge water in 55-gallon drum @ Haz Storage

11.30 - ~~Relin~~ Re-cap boring/well
1150 locations for Bldg 33 (see logbook # 1300)

1200 Relinquish samples to CEMIC courier (COC # 0874)

Lunch

1300 Go to MWR w/ Darlene Ward
* Frank McElroy (Bob Heiko's asst) X2295

MWR ballfields for schedule for following week made ~~on~~ by 0900 thus the week before
∴ call ahead of time for following week when do work

Work continued to Page 141

SIGNATURE Tuttle DATE 4/21/99

WITNESS DATE

TITLE NSBNLON

Wed April 21, 1999 2415

Work continued from Page 140

* parking lot = gate for concert (date? early June?)

contact

Don Vend. Ho (Rec. services director)

* can close needed ball fields ∴ call week before (see bottom of p 140)

1340 Return to Bldg 166

* Talk w/ Dick & Darlene about Area A LF
  - Darlene will arrange van for pre-bid meeting
  - will need to pass final method for dulling & est. of impact to wetlands by Dick so he can pass by State of CT

Work continued to Page 142

SIGNATURE Tuttle DATE 4/21/99

WITNESS DATE

NSB NLON PROJECT NO. 7363
Wed April 21, 1999 BOOK 2415
Page 141

- Kate (Haz waste storage) will talk to Rich about requirements for IDW (ie analysis to satisfy manifest)

1400 Prep bottles & equipment for tomorrow's sampling

1500 - 1600 @ Goss Cove to look @ well conditions + Tank Farm (see logbook 1300)

1600 Leave site for day

Work continued to Page

SIGNATURE [signature] DATE 4/21/99

WITNESS DATE

TITLE NSB NLON PROJECT NO. 7363
Thur April 22, 1999 BOOK 2415
Work continued from Page

Weather am overcast, lt. drizzle, 45-50°F pm

Personnel: TE + KS (TNUS)
Tide: Low @ 1026

PPE: level D

0715 TE + KS @ Bldg 166
- Prep for sampling
- Calibrate YSI meters (see Cal. sheets)

0800 Collect trip blank GWTB-042299 (lab prep'd)

0835 Give list of pre-bid attendees for CTO 203 to Darlene for 4/23 — she has reserved minivan

Work continued to Page

SIGNATURE DATE

WITNESS DATE

NSBNLON 7363
Thur April 22, 1999 2415
Page 143

0900 @ DRMO - setup @ 6MW11S/D

| | 6MW11S | 6MW11D |
|---|---|---|
| Start purge | 0920 | 0925 |
| End Purge | 1008 | 1025 |
| Start Sample | 1008 | 1026 |
| End Sample | 1049 | 1108 |
| ID | DRMO-6MW11S-GW-04 | DRMO-6MW11D-GW-04 |
| Sampler | KS | TE |

1115 Demob from DRMO

Prep samples & 1/2 of equipment for shipment

1200 Lunch

1300 Return to base - Empty purge water in 55-gallon @ Haz. Waste Storage

Work continued to Page 145

SIGNATURE [signature] 4/22/99
WITNESS

TITLE NSBNLON 7365
Thur April 22, 1999 2405
Work continued from Page 144

Drum Label: 55 gallon
"State-Regulated Waste" (Blue)
Waste Description: DRMO Groundwater from test wells

Profile # OTO565
Waste Code: CR04
Activity Tetra Tech NUS
Site # A25
HW Coordinator: Worboy

"This waste is not regulated by the U.S Environmental Protection Agency"

1330-1345 @ hospital incinerator site (@ Logbook #1300)

1400-1700 Visit Sites 16 & 18 w/ Dick Conant & Darlene Ward (NSBNLON - Env Dept.) (See Logbook #1300)

1700 Leave site for day

Work continued to Page

SIGNATURE [signature] 4/22/99
WITNESS

from Page

VOID 4/23/99

TSB

Work continued to Page

SIGNATURE

WITNESS

TITLE NSBNLON
Fri April 23, 1999

7363
2415

Work continued from Page

Weather am Overcast, foggy 45-50°F
pm

Personnel: TE + KS (T+NUS)
PPE: level D

Tide - low @ 1127

0705 TE + KS checkout of hotel

0730 At Bldg 166

- KS calibrates YSI water meter (see cal. sheets)
- TE preps for CTO 203 + 204 Pre-Bid meeting

0835 KS TO DRMO SET UP ON WELL 1S
SAMPLED @ 1035
SET-UP ON WELL 9S

1145 Sampled @ 9S

(1115 TE @ DRMO)

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

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SIGNATURE

DATE 4-23-99

WITNESS

NSB NLON 7363
Fri April 23, 1999 2415
Page 147

1205 Leave DRMO for lunch

1300 @ Bldg 166

- Pack samples & equipment for shipment
- KS empties purge water into 55-gal drum @ Haz Storage

1440 Leave site to ~~return~~ (TB)

- $N_2$ tanks return @ BOC Gases
- ~~CEI~~ (TB) Samples @ CEIMIC
- FedEx to ship equipment & metal samples
- airport

Work continued to Page 149

SIGNATURE Thoffs 4/23/99

WITNESS

TITLE NSB NLON 7363
Fri April 23, 1999 2415
Work continued

Changes to inventory in "dungeon" of Bldg 166 basement

1 roll duct tape
2 rolls strapping tape
1 roll pH paper
1 roll survey flagging
1 pr of tank cradles
1 box 33 gal trash bags
2x 45μ filters
1 box 13 gal trash bags
2 pr cotton gloves
1 roll clear tape
2 pr Nitrile gloves
2 rolls paper towels
12x 40 mL VOC vials + 2 cases lgt amber

1 bottle PID cal gas (w/ MSDS)
2X bottle cond. standard (Exp 1/00)
1X pH 4 buffer (Exp 10/99)
1X pH 10 buffer (Exp 2/00)
1X pH 7 buffer (Exp 12/99)
1X ORP standard (Exp 10/99)

1400 Relinquish samples to CEIMIC (COC # 0875)

1430 Ship samples (metals only) to Katahdin FedEX AB# ~~3683~~ (TB) 5117 3683 4444

Also ship equipment to TTNUS warehouse & US Env. Rental.

1700 @ Providence airport for flight to Pgh

SIGNATURE Thoffs 4/23/99

WITNESS

# APPENDIX B

# TIDE TABLES

CTO 267 - Round 7
NSB NLON



NOAA National Ocean Service OPSD

How to apply differences (+ , -) and ratios (*)

# Tidal Differences and Other Constants

## CONNECTICUT, Long Island Sound

| Station | Time Diff. High | Time Diff. Low | Hgt. Diff. High | Hgt. Diff. Low | Ref. Station |
|---|---|---|---|---|---|
| Stonington, Fishers Island Sound | -0 32 | -0 41 | *1.05 | *1.05 | New London |
| Noank, Mystic River entrance | -0 22 | -0 08 | *0.89 | *0.90 | New London |
| West Harbor, Fishers Island, N.Y. | 0 00 | -0 06 | *0.97 | *0.97 | New London |
| Silver Eel Pond, Fishers Island, N.Y. | -0 16 | -0 04 | *0.89 | *0.89 | New London |
| **Thames River** | | | | | |
| NEW LONDON, State Pier | Daily Predictions | | | | New London |
| Smith Cove entrance | 0 00 | +0 10 | *0.97 | *0.95 | New London |
| Norwich | +0 13 | +0 25 | *1.16 | *1.15 | New London |
| Millstone Point | +0 09 | +0 01 | *1.05 | *1.05 | New London |
| **Connecticut River** | | | | | |
| Saybrook Jetty | +1 11 | +0 45 | *1.36 | *1.35 | New London |
| Saybrook Point | +1 11 | +0 53 | *1.24 | *1.25 | New London |
| Lyme, highway bridge | +1 25 | +1 10 | *1.20 | *1.20 | New London |
| Essex | +1 39 | +1 38 | *1.16 | *1.15 | New London |
| **Connecticut River** | | | | | |
| Hadlyme #7 | +2 19 | +2 23 | *1.05 | *1.05 | New London |
| East Haddam | +2 42 | +2 53 | *1.12 | *1.10 | New London |
| Haddam #7 | +2 48 | +3 08 | *0.97 | *0.95 | New London |
| Higganum Creek | +2 55 | +3 25 | *1.01 | *1.00 | New London |
| Portland #7 | +3 51 | +4 28 | *0.85 | *0.85 | New London |
| Rocky Hill #7 | +4 44 | +5 44 | *0.78 | *0.80 | New London |
| Hartford #7 | +5 30 | +6 52 | *0.74 | *0.75 | New London |
| Westbrook, Duck Island Roads | -0 24 | -0 32 | *0.61 | *0.60 | Bridgeport |
| Duck Island | -0 26 | -0 35 | *0.67 | *0.68 | Bridgeport |
| Madison | -0 21 | -0 30 | *0.73 | *0.72 | Bridgeport |
| Faikner Island | -0 14 | -0 25 | *0.80 | *0.80 | Bridgeport |
| Sachem Head | -0 11 | -0 15 | *0.80 | *0.80 | Bridgeport |
| Money Island | -0 12 | -0 23 | *0.83 | *0.84 | Bridgeport |
| Branford Harbor | -0 08 | -0 18 | *0.88 | *0.88 | Bridgeport |
| New Haven Harbor entrance | -0 09 | -0 14 | *0.92 | *0.92 | Bridgeport |
| New Haven (city dock) | +0 01 | -0 01 | *0.89 | *0.88 | Bridgeport |
| Milford Harbor | -0 08 | -0 10 | *0.98 | *0.96 | Bridgeport |
| Stratford, Housatonic River | +0 26 | +1 01 | *0.82 | *0.80 | Bridgeport |
| Shelton, Housatonic River | +1 35 | +2 44 | *0.74 | *0.72 | Bridgeport |
| BRIDGEPORT | Daily Predictions | | | | Bridgeport |
| Black Rock Harbor entrance | -0 04 | -0 03 | *1.02 | *1.04 | Bridgeport |
| Saugatuck River entrance | -0 02 | +0 01 | *1.04 | *1.04 | Bridgeport |
| South Norwalk | +0 09 | +0 15 | *1.05 | *1.04 | Bridgeport |
| Greens Ledge | -0 02 | -0 01 | *1.07 | *1.08 | Bridgeport |
| Stamford | +0 03 | +0 08 | *1.07 | *1.08 | Bridgeport |
| Cos Cob Harbor | +0 05 | +0 11 | *1.07 | *1.08 | Bridgeport |
| Greenwich | +0 01 | +0 01 | *1.10 | *1.08 | Bridgeport |
| Great Captain Island | 0 00 | +0 01 | *1.08 | *1.08 | Bridgeport |

## NEW YORK

### Long Island Sound, north side

| Station | Time Diff. High | Time Diff. Low | Hgt. Diff. High | Hgt. Diff. Low | Ref. Station |
|---|---|---|---|---|---|
| Port Chester | -0 03 | -0 14 | *1.01 | *1.01 | Willets Point |
| Rye Beach | -0 22 | -0 31 | *1.01 | *1.01 | Willets Point |
| Mamaroneck | -0 02 | -0 13 | *1.02 | *1.04 | Willets Point |
| New Rochelle | -0 18 | -0 21 | *1.02 | *1.04 | Willets Point |
| Davids Island | +0 04 | -0 09 | *1.01 | *1.00 | Willets Point |
| City Island | -0 03 | -0 05 | *1.01 | *1.00 | Willets Point |
| Throgs Neck | -0 08 | +0 12 | *0.98 | *0.98 | Willets Point |

**All times listed are in Local Time, and all heights are in Feet.**

New London, Connecticut
Tide Predictions (High and Low Waters) February, 1999
NOAA, National Ocean Service

Standard Time

| Day | Time | Ht. | Time | Ht. | Time | Ht. | Time | Ht. |
|---|---|---|---|---|---|---|---|---|
| 1 M | 335am L | -.3 | 939am H | 3.0 | 412pm L | -.4 | 1009pm H | 2.6 |
| 2 Tu | 425am L | -.2 | 1024am H | 2.9 | 457pm L | -.3 | 1054pm H | 2.6 |
| 3 W | 515am L | -.1 | 1109am H | 2.7 | 542pm L | -.2 | 1140pm H | 2.5 |
| 4 Th | 605am L | .0 | 1155am H | 2.5 | 629pm L | -.1 | | |
| 5 F | 1227am H | 2.5 | 657am L | .1 | 1242pm H | 2.3 | 716pm L | .0 |
| 6 Sa | 116am H | 2.4 | 751am L | .2 | 132pm H | 2.1 | 806pm L | .2 |
| 7 Su | 208am H | 2.4 | 847am L | .3 | 226pm H | 1.9 | 858pm L | .3 |
| 8 M | 301am H | 2.3 | 943am L | .4 | 323pm H | 1.8 | 951pm L | .4 |
| 9 Tu | 355am H | 2.3 | 1038am L | .3 | 422pm H | 1.8 | 1043pm L | .4 |
| 10 W | 447am H | 2.4 | 1130am L | .2 | 518pm H | 1.8 | 1133pm L | .4 |
| 11 Th | 536am H | 2.5 | 1219pm L | .1 | 608pm H | 1.9 | | |
| 12 F | 1221am L | .3 | 621am H | 2.6 | 104pm L | .0 | 653pm H | 2.1 |
| 13 Sa | 107am L | .2 | 704am H | 2.7 | 148pm L | -.1 | 736pm H | 2.2 |
| 14 Su | 151am L | .1 | 745am H | 2.9 | 229pm L | -.3 | 816pm H | 2.4 |
| 15 M | 234am L | .0 | 827am H | 3.0 | 310pm L | -.4 | 857pm H | 2.5 |
| 16 Tu | 319am L | -.2 | 909am H | 3.0 | 352pm L | -.4 | 939pm H | 2.7 |
| 17 W | 404am L | -.2 | 953am H | 3.0 | 434pm L | -.4 | 1022pm H | 2.8 |
| 18 Th | 452am L | -.3 | 1039am H | 3.0 | 518pm L | -.4 | 1108pm H | 2.9 |
| 19 F | 544am L | -.3 | 1128am H | 2.8 | 605pm L | -.3 | 1157pm H | 3.0 |
| 20 Sa | 639am L | -.2 | 1220pm H | 2.7 | 656pm L | -.2 | | |
| 21 Su | 1250am H | 3.0 | 738am L | -.2 | 118pm H | 2.4 | 751pm L | -.1 |
| 22 M | 149am H | 2.9 | 840am L | -.1 | 221pm H | 2.3 | 850pm L | .0 |
| 23 Tu | 253am H | 2.9 | 944am L | -.1 | 330pm H | 2.1 | 952pm L | .1 |
| 24 W | 359am H | 2.9 | 1047am L | -.1 | 439pm H | 2.1 | 1054pm L | .1 |
| 25 Th | 504am H | 2.9 | 1147am L | -.1 | 544pm H | 2.1 | 1153pm L | .0 |
| 26 F | 606am H | 2.9 | 1242pm L | -.2 | 643pm H | 2.3 | | |
| 27 Sa | 1250am L | .0 | 702am H | 2.9 | 133pm L | -.2 | 734pm H | 2.4 |
| 28 Su | 142am L | -.1 | 753am H | 2.9 | 219pm L | -.3 | 821pm H | 2.5 |

New London, Connecticut
Tide Predictions (High and Low Waters) March, 1999
NOAA, National Ocean Service

Standard Time

| Day | Time | Ht. | Time | Ht. | Time | Ht. | Time | Ht. |
|---|---|---|---|---|---|---|---|---|
| 1 M | 232am L | -.2 | 839am H | 2.9 | 304pm L | -.3 | 904pm H | 2.6 |
| 2 Tu | 319am L | -.2 | 922am H | 2.8 | 346pm L | -.2 | 945pm H | 2.7 |
| 3 W | 406am L | -.2 | 1003am H | 2.7 | 428pm L | -.2 | 1025pm H | 2.7 |
| 4 Th | 451am L | -.1 | 1044am H | 2.6 | 510pm L | -.1 | 1106pm H | 2.7 |
| 5 F | 538am L | .0 | 1124am H | 2.5 | 553pm L | .0 | 1147pm H | 2.6 |
| 6 Sa | 625am L | .1 | 1206pm H | 2.3 | 638pm L | .2 | | |
| 7 Su | 1231am H | 2.6 | 715am L | .2 | 1252pm H | 2.1 | 726pm L | .3 |
| 8 M | 117am H | 2.5 | 808am L | .3 | 142pm H | 2.0 | 818pm L | .5 |
| 9 Tu | 208am H | 2.4 | 903am L | .4 | 239pm H | 1.9 | 912pm L | .6 |
| 10 W | 302am H | 2.4 | 959am L | .4 | 339pm H | 1.9 | 1007pm L | .6 |
| 11 Th | 358am H | 2.4 | 1052am L | .3 | 438pm H | 1.9 | 1100pm L | .5 |
| 12 F | 453am H | 2.5 | 1143am L | .2 | 532pm H | 2.0 | 1151pm L | .4 |
| 13 Sa | 544am H | 2.6 | 1230pm L | .1 | 619pm H | 2.2 | | |
| 14 Su | 1239am L | .3 | 632am H | 2.7 | 114pm L | .0 | 703pm H | 2.4 |
| 15 M | 125am L | .1 | 717am H | 2.9 | 156pm L | -.2 | 746pm H | 2.7 |
| 16 Tu | 211am L | -.1 | 802am H | 3.0 | 238pm L | -.3 | 828pm H | 2.9 |
| 17 W | 257am L | -.3 | 847am H | 3.1 | 321pm L | -.4 | 911pm H | 3.1 |
| 18 Th | 344am L | -.4 | 934am H | 3.1 | 404pm L | -.4 | 956pm H | 3.3 |
| 19 F | 433am L | -.5 | 1021am H | 3.0 | 450pm L | -.3 | 1043pm H | 3.3 |
| 20 Sa | 524am L | -.5 | 1111am H | 2.9 | 538pm L | -.2 | 1133pm H | 3.3 |
| 21 Su | 619am L | -.4 | 1205pm H | 2.7 | 631pm L | -.1 | | |
| 22 M | 1228am H | 3.3 | 718am L | -.3 | 104pm H | 2.5 | 728pm L | .1 |
| 23 Tu | 127am H | 3.1 | 820am L | -.1 | 208pm H | 2.4 | 830pm L | .2 |
| 24 W | 233am H | 3.0 | 923am L | .0 | 318pm H | 2.3 | 935pm L | .3 |
| 25 Th | 342am H | 2.9 | 1026am L | .0 | 428pm H | 2.3 | 1040pm L | .3 |
| 26 F | 451am H | 2.8 | 1126am L | .0 | 534pm H | 2.3 | 1141pm L | .2 |
| 27 Sa | 555am H | 2.8 | 1221pm L | .0 | 631pm H | 2.5 | | |
| 28 Su | 1238am L | .1 | 651am H | 2.8 | 110pm L | .0 | 720pm H | 2.6 |
| 29 M | 129am L | .0 | 740am H | 2.8 | 155pm L | .0 | 802pm H | 2.7 |
| 30 Tu | 217am L | .0 | 823am H | 2.7 | 237pm L | .0 | 841pm H | 2.8 |
| 31 W | 301am L | -.1 | 902am H | 2.7 | 317pm L | .0 | 918pm H | 2.9 |

New London, Connecticut
Tide Predictions (High and Low Waters) April, 1999

NOAA, National Ocean Service

| Day | Time | Ht. | Time | Ht. | Time | Ht. | Time | Ht. |
|---|---|---|---|---|---|---|---|---|
| 1 Th | 344am L | .0 | 940am H | 2.6 | 357pm L | .1 | 954pm H | 2.9 |
| 2 F | 427am L | .0 | 1017am H | 2.6 | 437pm L | .2 | 1031pm H | 2.9 |
| 3 Sa | 510am L | .1 | 1055am H | 2.5 | 519pm L | .3 | 1109pm H | 2.8 |

Daylight Saving Time begins at 0200

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Su | 655am | L | .2 | 1235pm | H | 2.4 | 702pm | L | .4 | |
| 5 | M | 1249am | H | 2.8 | 742am | L | .3 | 118pm | H | 2.3 | 749pm L .6 |
| 6 | Tu | 131am | H | 2.7 | 832am | L | .4 | 206pm | H | 2.2 | 840pm L .7 |
| 7 | W | 218am | H | 2.6 | 925am | L | .4 | 301pm | H | 2.1 | 935pm L .8 |
| 8 | Th | 311am | H | 2.5 | 1020am | L | .5 | 400pm | H | 2.1 | 1031pm L .8 |
| 9 | F | 409am | H | 2.5 | 1113am | L | .4 | 459pm | H | 2.1 | 1127pm L .7 |
| 10 | Sa | 509am | H | 2.5 | 1204pm | L | .4 | 554pm | H | 2.3 | |
| 11 | Su | 1221am | L | .6 | 605am | H | 2.6 | 1252pm | L | .2 | 643pm H 2.5 |
| 12 | M | 111am | L | .4 | 658am | H | 2.8 | 138pm | L | .1 | 729pm H 2.8 |
| 13 | Tu | 159am | L | .1 | 748am | H | 2.9 | 222pm | L | .0 | 814pm H 3.0 |
| 14 | W | 247am | L | -.1 | 837am | H | 3.0 | 305pm | L | -.2 | 859pm H 3.3 |
| 15 | Th | 335am | L | -.3 | 925am | H | 3.1 | 349pm | L | -.2 | 944pm H 3.5 |
| 16 | F | 424am | L | -.5 | 1013am | H | 3.1 | 435pm | L | -.3 | 1031pm H 3.7 |
| 17 | Sa | 514am | L | -.5 | 1103am | H | 3.1 | 523pm | L | -.2 | 1120pm H 3.7 |
| 18 | Su | 606am | L | -.5 | 1155am | H | 3.0 | 614pm | L | -.1 | |
| 19 | M | 1212am | H | 3.6 | 701am | L | -.4 | 1250pm | H | 2.8 | 709pm L .0 |
| 20 | Tu | 108am | H | 3.5 | 759am | L | -.3 | 150pm | H | 2.7 | 809pm L .2 |
| 21 | W | 208am | H | 3.3 | 859am | L | -.1 | 255pm | H | 2.5 | 913pm L .3 |
| 22 | Th | 314am | H | 3.1 | 1001am | L | .1 | 404pm | H | 2.5 | 1019pm L .4 |
| 23 | F | 424am | H | 2.9 | 1102am | L | .2 | 513pm | H | 2.5 | 1124pm L .4 |
| 24 | Sa | 534am | H | 2.8 | 1201pm | L | .2 | 617pm | H | 2.6 | |
| 25 | Su | 1226am | L | .4 | 638am | H | 2.7 | 1254pm | L | .2 | 712pm H 2.7 |
| 26 | M | 122am | L | .3 | 734am | H | 2.6 | 142pm | L | .2 | 758pm H 2.8 |
| 27 | Tu | 212am | L | .2 | 821am | H | 2.6 | 226pm | L | .3 | 838pm H 2.9 |
| 28 | W | 258am | L | .1 | 901am | H | 2.6 | 307pm | L | .3 | 914pm H 3.0 |
| 29 | Th | 340am | L | .1 | 938am | H | 2.6 | 347pm | L | .3 | 949pm H 3.1 |
| 30 | F | 421am | L | .1 | 1014am | H | 2.6 | 426pm | L | .3 | 1024pm H 3.1 |

New London, Connecticut
Tide Predictions (High and Low Waters) May, 1999
NOAA, National Ocean Service

Daylight Saving Time

| Day | Time | Ht. | Time | Ht. | Time | Ht. | Time | Ht. |
|---|---|---|---|---|---|---|---|---|
| 1 Sa | 502am L | .1 | 1050am H | 2.5 | 506pm L | .4 | 1059pm H | 3.1 |
| 2 Su | 544am L | .1 | 1128am H | 2.5 | 547pm L | .5 | 1135pm H | 3.0 |
| 3 M | 627am L | .2 | 1208pm H | 2.4 | 630pm L | .6 | | |
| 4 Tu | 1212am H | 3.0 | 712am L | .3 | 1250pm H | 2.4 | 716pm L | .7 |
| 5 W | 1252am H | 2.9 | 800am L | .4 | 137pm H | 2.3 | 806pm L | .8 |
| 6 Th | 137am H | 2.8 | 851am L | .4 | 229pm H | 2.3 | 900pm L | .9 |
| 7 F | 228am H | 2.7 | 943am L | .5 | 325pm H | 2.3 | 958pm L | .9 |
| 8 Sa | 326am H | 2.6 | 1035am L | .5 | 421pm H | 2.4 | 1055pm L | .8 |
| 9 Su | 427am H | 2.6 | 1125am L | .4 | 516pm H | 2.6 | 1150pm L | .6 |
| 10 M | 528am H | 2.7 | 1214pm L | .3 | 607pm H | 2.8 | | |
| 11 Tu | 1243am L | .4 | 625am H | 2.8 | 101pm L | .2 | 656pm H | 3.1 |
| 12 W | 134am L | .1 | 719am H | 2.9 | 147pm L | .1 | 744pm H | 3.4 |
| 13 Th | 224am L | -.1 | 811am H | 3.0 | 233pm L | .0 | 832pm H | 3.6 |
| 14 F | 314am L | -.3 | 902am H | 3.0 | 321pm L | -.1 | 920pm H | 3.8 |
| 15 Sa | 404am L | -.5 | 953am H | 3.1 | 409pm L | -.1 | 1009pm H | 3.9 |
| 16 Su | 455am L | -.5 | 1045am H | 3.0 | 500pm L | -.1 | 1100pm H | 3.9 |
| 17 M | 548am L | -.5 | 1138am H | 3.0 | 553pm L | .0 | 1153pm H | 3.8 |
| 18 Tu | 642am L | -.4 | 1235pm H | 2.9 | 650pm L | .1 | | |
| 19 W | 1250am H | 3.6 | 738am L | -.2 | 134pm H | 2.8 | 750pm L | .3 |
| 20 Th | 149am H | 3.3 | 836am L | .0 | 238pm H | 2.7 | 854pm L | .4 |
| 21 F | 254am H | 3.0 | 935am L | .1 | 344pm H | 2.7 | 959pm L | .5 |
| 22 Sa | 401am H | 2.8 | 1034am L | .2 | 449pm H | 2.7 | 1104pm L | .5 |
| 23 Su | 508am H | 2.7 | 1130am L | .3 | 551pm H | 2.8 | | |
| 24 M | 1204am L | .5 | 611am H | 2.6 | 1222pm L | .4 | 644pm H | 2.9 |
| 25 Tu | 100am L | .4 | 706am H | 2.5 | 110pm L | .4 | 729pm H | 2.9 |
| 26 W | 149am L | .3 | 753am H | 2.5 | 154pm L | .4 | 809pm H | 3.0 |
| 27 Th | 234am L | .3 | 833am H | 2.5 | 236pm L | .4 | 845pm H | 3.1 |
| 28 F | 316am L | .2 | 910am H | 2.5 | 316pm L | .4 | 920pm H | 3.1 |
| 29 Sa | 357am L | .2 | 947am H | 2.5 | 356pm L | .5 | 955pm H | 3.2 |
| 30 Su | 437am L | .2 | 1024am H | 2.5 | 437pm L | .5 | 1030pm H | 3.2 |
| 31 M | 519am L | .2 | 1103am H | 2.5 | 518pm L | .6 | 1106pm H | 3.1 |

New London, Connecticut
Tide Predictions (High and Low Waters) June, 1999
NOAA, National Ocean Service

Daylight Saving Time

# APPENDIX C

# GROUNDWATER LEVEL MEASUREMENT SHEET

ROUND 4 (Q2 1999)

**Tetra Tech NUS, Inc.** **GROUNDWATER LEVEL MEASUREMENT SHEET**

Project: NSB-NLON Site: DRMO

Project No.: 7363 Personnel: T. Evans / K. Simpson

Temperature: 45-50°F Date: 4-20-99

Precipitation: None Level Indicator Type: Heron

Tide: Low @ 0824 Serial Number:

| Well/Piezometer Number | Time | (A) Elevation of Reference Point (feet)* | (B) Water Level Indicator Reading (feet)* | =(A)-(B) Groundwater Elevation (feet)* | Total Well Depth (feet)* | Tidally Influenced | Comments |
|---|---|---|---|---|---|---|---|
| 6MW1S | 0835 | 8.63 | 8.28 | 0.35 | 15.68 | | |
| 6MW2S | 0841 | 7.30 | 6.80 | 0.50 | 13.63 | | |
| 6MW2D | 0838 | 7.85 | 5.72 | 2.13 | 88.84 | | |
| 6MW6S | 0659 | 12.16 | 8.64 | 3.52 | 18.58 | | |
| 6MW6D | 0658 | 12.50 | 8.96 | 3.54 | 46.00 | | |
| 6MW9S | 0855 | 7.52 | 4.32 | 3.20 | 11.75 | | |
| 6MW10S | 0831 | 5.19 | 4.39 | 0.80 | 13.31 | | |
| 6MW10D | 0835 | 5.01 | 2.62 | 2.39 | 54.06 | | |
| 6MW11S | 0845 | 4.92 | 4.23 | 0.69 | 13.50 | | |
| 6MW11D | 0847 | 5.31 | 2.81 | 2.50 | 85.00 | | |
| SG-1 | 0832 | 5.67 | 5.19 | 0.48 | -- | | River Gauge |
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* Measurements to the nearest 0.01 foot.

CHECKED 4-26-99 KSS

Round 4 (Q2 1999)

**Tetra Tech NUS, Inc.** **GROUNDWATER LEVEL MEASUREMENT SHEET**

| | | | |
|---|---|---|---|
| Project: | NSB-NLON | Site: | DRMO |
| Project No.: | 7363 | Personnel: | T. Evans / K. Simpson |
| Temperature: | 50-55°F | Date: | 4-19-99 |
| Precipitation: | None | Level Indicator Type: | Heron |
| Tide: | High @ 1303 ~~Low @ 0244~~ (TE) | Serial Number: | |

| Well/Piezometer Number | Time | (A) Elevation of Reference Point (feet)* | (B) Water Level Indicator Reading (feet)* | =(A)-(B) Groundwater Elevation (feet)* | Total Well Depth (feet)* | Tidally Influenced | Comments |
|---|---|---|---|---|---|---|---|
| 6MW1S | 1311 | 8.63 ✓ | 5.43 | 3.20 | 15.68 | | |
| 6MW2S | 1300 | 7.30 ✓ | 4.10 | 3.20 | 13.63 | | |
| 6MW2D | 1303 | 7.85 ✓ | 4.48 | 3.37 | 88.84 | | |
| 6MW6S | 1326 | 12.16 ✓ | 8.57 | 3.59 | 18.58 | | |
| 6MW6D | 1325 | 12.50 ✓ | 8.92 | 3.58 | 46.00 | | |
| 6MW9S | 1319 | 7.52 ✓ | 3.81 | 3.71 | 11.75 | | |
| 6MW10S | 1228 | 5.19 ✓ | 2.01 | 3.18 | 13.31 | | |
| 6MW10D | 1225 | 5.01 ✓ | 0.83 | 4.18 | 54.06 | | |
| 6MW11S | 1257 | 4.92 ✓ | 1.55 | 3.37 | 13.50 | | |
| 6MW11D | 1254 | 5.31 ✓ | 1.46 | 3.85 | 85.00 | | |
| SG-1 | 1309 | 5.67 ✓ | 2.42 | 3.25 | -- | | River Gauge |
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* Measurements to the nearest 0.01 foot.

CHECKED 4-26-99 K ES

# APPENDIX D

# MONITORING INSTRUMENT CALIBRATION LOGS

**Tetra Tech NUS, Inc.**

# WATER QUALITY METER CALIBRATION LOG

PROJECT NAME: NSB-NLON
PROJECT NUMBER: 7363
SITE NAME: DRMO

MANUFACTURER: YSI
MODEL No.: 610 DM w/ SONDE 6820
SERIAL/~~RENTAL~~ ID No.: 193455R & 96F50676

| DATE: 4/19/99 | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = 7.0 | 6.89 | 7.00 | 6.99 | 1471 Exp 12/99 | RSS | |
| pH = 4.0 | 4.34 | 4.00 | 4.01 | 80122 Exp 1/00 | | |
| ~~pH =~~ | | | | | | |
| Sp. Cond ( µS/cm or mS/cm ) | 0.888 | 1.000 | 1.000 | 1775 Exp 10/99 | | 1 ms/cm |
| DO ( mg/L or % sat. ) | 8.46 | 8.93 | 8.60 | Air Saturation | RECAL. 8.90 | Temp 19.96°C, 760 mm |
| ORP (mV) | | | | | | |
| Turbidity ( NTUs) | | | | | | No Probe |
| Turbidity ( NTUs) | | | | | | |

| DATE: 4/20/99 | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = 7.0 | 7.00 | Not Changed | ✓ | 1471 Exp 12/99 | | |
| ~~pH = 4.0~~ | ~~4.04~~ | ~~Not Changed~~ | | ~~80122 Exp 1/00~~ | | |
| pH = 4.0 | 4.01 | Not Changed | ✓ | | | |
| Sp. Cond ( µS/cm or mS/cm ) | 1.059 | 1.000 | | 1775 Exp 10/99 | | 1 ms/cm |
| DO ( mg/L or % sat. ) | 8.93 @ 22.5°C | Not Changed | ✓ | | | |
| ORP (mV) | | | | | | |
| Turbidity ( NTUs) | | | | | | |
| Turbidity ( NTUs) | | | | | | |

**Tetra Tech NUS, Inc.**

# WATER QUALITY METER CALIBRATION LOG

PROJECT NAME: NSB-NLON

PROJECT NUMBER: 7363

SITE NAME: DRMO

MANUFACTURER: YSI

MODEL No.: 610 DM w/ 6820 Sonde

SERIAL/RENTAL ID No.: 193455R & 96E50676

| DATE: 4-22-99 | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = 7.0 | 7.00 | Not Changed | | 80327 Exp 3/00 | TSG | |
| pH = 4.0 | 3.79 | 4.00 | | 1421 Exp 10/99 | TSE | |
| ~~pH =~~ | | | | | | |
| Sp. Cond ( µS/cm or ~~mS/cm~~) | 1,045 | ~~1,041~~ 1.001 | | 1775 Exp 10/99 | TSE | 1 mS/cm |
| DO ( mg/L or % sat. ) | 8.73 @ 22.88°C | 8.61 @ 22.81°C | | Air Saturation | TSE | |
| ORP (mV) | 232.5 | Not Changed | | | 98MO410 Exp 10/99 | 237.5 mV @ 20°C |
| Turbidity ( NTUs) | | | | | | No probe |
| Turbidity ( NTUs) | | | | | | |

| DATE: 4/23/99 | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = 7.00 | 7.32 | 7.00 | | LOT 80327 3/00 | TSG | |
| pH = 4.00 | 3.96 | 3.99 | | LOT 1421 10/99 | TSG | |
| ~~pH =~~ | | | | | | |
| Sp. Cond ( µS/cm or ~~mS/cm~~ ) 1000 | 999 | 1000 | | LOT 1775 10/99 | TSG | |
| DO ( mg/L ~~or % sat.~~ ) | 9.47 @ 19.4 | 9.37 @ 19.4 | | AIR SATURATION | TSG | |
| ORP (mV) | | | | | | |
| Turbidity ( NTUs) | | | | | | |
| Turbidity ( NTUs) | | | | | | |

**Tetra Tech NUS, Inc.**

# WATER QUALITY METER CALIBRATION LOG

PROJECT NAME: NSB-NLON

PROJECT NUMBER: 7363

SITE NAME: DRMO

MANUFACTURER: YSI

MODEL No.: 610 DM w/ 6820 Sonde

SERIAL/RENTAL ID No.: 176477R & 97K1095AD

| DATE: 4.22.99 | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = 7.0 | 7.34 | 6.98 | | 80327 Exp 3/00 | KES | |
| pH = 4.0 | 3.56 | 4.00 | | | | |
| ~~pH =~~ | | | | | | |
| Sp. Cond ( µS/cm or mS/cm ) | 1.042 | 1.000 | | 1775 Exp 10/99 | | 1mS/cm |
| DO ( mg/L or % sat. ) | 8.95 @ 22.9°C | 8.61 @ 22.8°C | | Air Saturation | | |
| ORP (mV) | 234.4 | Not Changed | | 98M0410 Exp 10/99 | | 237.5mV @ 20°C |
| Turbidity ( NTUs) | | | | | | no probe |
| Turbidity ( NTUs) | | | | | | |

| DATE: | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = | | | | | | |
| pH = | | | | | | |
| pH = | | | | | | |
| Sp. Cond ( µS/cm or mS/cm ) | | | | | | |
| DO ( mg/L or % sat. ) | | | | | | |
| ORP (mV) | | | | | | |
| Turbidity ( NTUs) | | | | | | |
| Turbidity ( NTUs) | | | | | | |

**Tetra Tech NUS, Inc.**

# WATER QUALITY METER CALIBRATION LOG

PROJECT NAME: NSB-NLON

PROJECT NUMBER: 7363

SITE NAME: DRMO

MANUFACTURER: YSI

MODEL No.: 610DM w/ 6820 Sonde

SERIAL/~~RENTAL ID~~ No.: 176477R & 97K1095 AP

| DATE: 4/19/99 | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = 7.0 | 6.98 | 7.00 | 6.98 | 1471 Exp 12/99 | TSE | |
| pH = 4.0 | 3.99 | 4.00 | 4.00 | 80122 Exp 1/00 | | |
| ~~pH =~~ | | | | | | |
| Sp. Cond ( µS/cm or mS/cm) | 0.972 | 1.103 | 1.021 | 1775 Exp 10/99 | | 1ms/cm |
| DO ( mg/L or % sat. ) | 8.70 | 8.86 | 8.88 | Air Saturation | | Temp 21.35°C 760mm |
| ORP (mV) | | | | | | |
| Turbidity ( NTUs) | | | | | | } No probe |
| Turbidity ( NTUs) | | | | | | |

| DATE: 4/20/99 | PRE-CALIBRATION READING | POST-CALIBRATION READING | PM CHECK | CALIBRATION STDs (LOT #s) | SIGNATURE | REMARKS |
|---|---|---|---|---|---|---|
| pH = 7.00 | 7.04 | Not Changed | | 1471 Exp 12/99 | | |
| pH = 4.00 | 4.04 | Not Changed | | 80122 Exp 1/00 | | |
| pH = | | | | | | |
| Sp. Cond ( µS/cm or mS/cm) | 1.102 | 1.046 | | 1775 Exp 10/99 | | 1mS/cm |
| DO ( mg/L or % sat. ) | 8.82 @ 22.8°C | Not Changed | ✓ | | | |
| ORP (mV) | | | | | | |
| Turbidity ( NTUs) | | | | | | |
| Turbidity ( NTUs) | | | | | | |

Tetra Tech NUS, Inc.

# MONITORING INSTRUMENT CALIBRATION LOG

PROJECT NAME: NSB-NLON

PROJECT NUMBER: 7363

SITE NAME: DRMO

INSTRUMENT: PE PHOTOVAC

MANUFACTURER/MODEL NUMBER: 2020 EDFK 204 - NU 10850

SERIAL/RENTAL ID NUMBER: EDFK 204 NU 10850

| DATE | TIME | CALIBRATION BY | CALIBRATION STANDARD | | | | REMARKS/ COMMENTS |
|---|---|---|---|---|---|---|---|
| | | | Span Gas | Concentration | Lot Number | Exp. Date | |
| 4.19.99 | 0955 | KES | 100 ISOBUTYLENE | 100 PPM | DG29233 | 03/00 | OK KES |
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RENTED GROUP PGH WAREHOUSE

# APPENDIX E

## GROUNDWATER SAMPLE LOGSHEETS AND LOW-FLOW PURGE DATA SHEETS

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW1S-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW1S |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4.23.99 Time: 1035 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Method: Low Flow/Bladder Pump | CLEAR | 6.16 | 7.736 | 11.0 | 0 | 7.74 | 4.30 | 133.5 |

**PURGE DATA**

| | |
|---|---|
| Date: 4-23 99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 0 | |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 15.7 feet | |
| Static Water Level (WL): 6.87 | |
| One Casing Volume (gal/L): 1.4 | |
| Start Purge (hrs): 0927 | |
| End Purge (hrs): 1035 | |
| Total Purge Time (min): 68 | |
| Total Vol. Purged (gal/L): 3.6 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

POST SAMPLE WL 7.53' @ 1108

START SAMPLE 1035
END SAMPLE 1105

STICK-UP LOW TIDE @ 1127

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0875

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K041999

**Check If Collected:**

☐ ~~MS / MSD~~ ☐ ~~DUPLICATE~~ / ID No.:

Signature(s): K. / T. Simpson

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

Well No.: 6MW15

PROJECT: NSB-NLON
PROJECT NUMBER: 7363
SITE: DRMO

DATE: 4-23-99
WEATHER: LT RAIN ON/OFF 65°F
PERSONNEL: R. SIMPSON

Well Screen Depth: 5.7 / 15.7 ft.
Initial Water Level: 6.87 @ 0925 hrs.

Pump Type/Material: Bladder/PVC
Pump Intake Depth: 12.0 ft TOC

Tide Cycle: ☐ High @ ☒ Low @ ~~10~~ 1127 ☐ Not Affected

Total Purge Volume= 3.6 (gal/L)

Total Purge Time= 68 (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0930 | 6.87 | 0 | 255 | D 20/R45 | 11.1 | 5.90 | 6.534 | 8.01 | 6.8 | 5.00 | 145.6 | CLEAR NO ODOR |
| 0935 | 6.95 | | 200 | 15 PSI | 11.0 | 5.98 | 8.932 | 7.47 | 4.2 | 4.99 | 142.3 | |
| 0940 | 6.97 | | | D47/R47 | 11.0 | 5.97 | 8.817 | 7.14 | 3.7 | 4.94 | 142.1 | |
| 0945 | 7.01 | | | 15 PSI | 11.0 | 6.05 | 8.579 | 7.69 | 2.0 | 4.80 | 139.7 | |
| 0950 | 7.07 | | | | 11.0 | 6.07 | 8.426 | 7.60 | 1.7 | 4.71 | 138.5 | |
| 0955 | 7.11 | | | | 11.0 | 6.11 | 8.192 | 7.71 | 1.1 | 4.57 | 137.0 | |
| 1000 | 7.13 | | | | 11.1 | 6.12 | 8.139 | 8.00 | 0.40 | 4.52 | 136.4 | |
| 1005 | 7.18 | | | | 11.0 | 6.13 | 8.029 | 8.02 | 0.37 | 4.47 | 135.6 | |
| 1010 | 7.23 | | | | 11.0 | 6.13 | 7.910 | 7.47 | 0.35 | 4.40 | 134.8 | |
| 1015 | 7.26 | | | | 11.1 | 6.15 | 7.837 | 7.84 | 0 | 4.36 | 134.0 | |
| 1020 | 7.30 | | | | 11.0 | 6.16 | 7.806 | 7.95 | 0 | 4.34 | 133.7 | |
| 1025 | 7.34 | | | | 11.0 | 6.14 | 7.755 | 7.68 | 0 | 4.30 | 133.9 | |
| 1030 | 7.39 | 13,600 | | | 11.0 | 6.16 | 7.736 | 7.74 | 0 | 4.30 | 133.5 | |

Water Quality Meter (S/N): 610-193455R, 96F50676 SANDE
Notes:
Control Box Type (S/N): QED
Turbidimeter (S/N): LAMOTTE C-16 [illegible]

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW2D-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW2D |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4.21.99 Time: 0855 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Method: Low Flow/Bladder Pump | LT GRAY | 6.79 | 35.85 | 11.5 | 6.0 | 0.88 | 22.6 | -200.5 |

**PURGE DATA**

| | |
|---|---|
| Date: 4.21.99 | LT/TR BLACK FINES IN PURGE/SAMPLE |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 2.9 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 88.8 feet | |
| Static Water Level (WL): 5.70 | |
| One Casing Volume (gal/L): 13.6 | |
| Start Purge (hrs): 0809 | |
| End Purge (hrs): 0855 | |
| Total Purge Time (min): 47 | |
| Total Vol. Purged (gal/L): 2.9 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | | Laboratory | Collected |
|---|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 9 | ~~3~~ 18 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 6 | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 6 | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 6 | 1 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | | |
| | | | | | | | |

**OBSERVATIONS / NOTES**

START SAMPLE 0855
END SAMPLE 1035 (MS/MSD)

SOME EFFERVESCING IN VOC VIALS (HCL)

SULFUR ODOR IN SAMPLE & PURGE WATER

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0874

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K04~~07~~ 1999

**Check if Collected:**

[X] MS / MSD [ ] ~~DUPLICATE / ID No.~~:

Signature(s): K. S. Simpson

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

Well No.: GMW 2D

| | | | |
|---|---|---|---|
| PROJECT: | NSB-NLON | DATE: | 4/21/99 |
| PROJECT NUMBER: | 7363 | WEATHER: | NICE, SUNNY 50-65° F |
| SITE: | DRMO | PERSONNEL: | K. SIMPSON |

Well Screen Depth: 78.8 / 88.8 ft.
Initial Water Level: 5.70 @ 0805 hrs.
Pump Type/Material: Bladder / PVC
Pump Intake Depth: 83.0
Tide Cycle: ☐ High @ ☒ Low @ 0912 ☐ Not Affected
Total Purge Volume= 2.9 (gal/L)
Total Purge Time= 47 (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0810 | 5.70 | 0 | ~~400~~ KS | 30D/60R | 11.3 | 7.00 | 36.76 | 1.79 | 12 | 23.17 | -103.1 | |
| 0815 | 5.92 | ↓ | 270 | 50 PSI | 11.4 | 6.72 | 35.99 | 1.08 | 10.7 | 22.60 | -106.2 | LT TRACE FINES |
| 0820 | 5.80 | | ↓ | ↓ | 11.4 | 6.72 | 35.76 | 0.83 | 9.9 | 22.51 | -113.2 | |
| 0825 | 5.89 | | | | 11.5 | 6.73 | 35.76 | 0.76 | 6.7 | 22.47 | -126.0 | |
| 0830 | 6.14 | | ↓ | 60D/60R | 11.5 | 6.74 | 35.72 | 0.71 | 5.9 | 22.50 | -148.2 | REDUCED FLOW RATE |
| 0835 | 5.90 | | 200 | 50 PSI | 11.5 | 6.75 | 35.79 | 0.66 | 6.0 | 22.54 | -162.7 | |
| 0840 | 5.90 | | ↓ | ↓ | 11.5 | 6.77 | 35.74 | 1.02 | 5.9 | 22.60 | -181.9 | |
| 0845 KS | 5.90 | ↓ | | | 11.5 | 6.78 | 35.86 | 0.96 | 6.1 | 22.60 | -195.7 | |
| 0850 | 5.90 | 1,139 | ↓ | ↓ | 11.5 | 6.79 | 35.85 | 0.88 | 6.0 | 22.60 | -200.5 | |

Water Quality Meter (S/N): YSI 176477R, SONDE 97K1095
Control Box Type (S/N): QED 16626
Turbidimeter (S/N): LA MOTTE 0361-4197

Notes:

Page of

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW2S-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW2S |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4.21.99 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Time: 0855 | | | | | | | | |
| Method: Low Flow/Bladder Pump | Clear | 6.84 | 22.00 | 9.48 | 0.54 | 3.27 | 13.22 | 142.1 |

**PURGE DATA**

| | |
|---|---|
| Date: 4.21.99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 0.0 | |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 13.6 feet | |
| Static Water Level (WL): 6.14 | |
| One Casing Volume(gal/L): 4.6 | |
| Start Purge (hrs): 0811 | |
| End Purge (hrs): 0850 | |
| Total Purge Time (min): ~~0855~~ 39 | |
| Total Vol. Purged (gal/L): 12.0 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: ~~0847~~ 0874

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K041999

**Check if Collected:**

☐ MS / MSD ☑ DUPLICATE / ID No.: GWFD-042199

Signature(s): Timothy J. [illegible]

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** 6MW2S

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4 21 99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | Clear sunny 50 - 55°F |
| **SITE:** | DRMO | **PERSONNEL:** | T. Evans |

**Well Screen Depth:** 36 / 136 ft.
**Initial Water Level:** 6.14 @ 0810 hrs.

**Pump Type/Material:** Bladder / PVC
**Pump Intake Depth:** 10.0 ft TOC

**Total Purge Volume=** _____ (gal / L)
**Total Purge Time=** _____ (min)

**Tide Cycle:** ☐ High @ ☒ Low @ 0912 ☐ Not Affected

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0811 | | | | | 9.48 | 6.43 | 16.33 | 10.00 | NM | 9.57 | 163.0 | Cell Fill |
| 0815 | 6.23 | 960 | 240 | Reduce 23 psi | 9.07 | 6.55 | 16.96 | 7.36 | 0.62 | 9.97 | 161.6 | Clear |
| 0820 | 6.20 | 1480 | 296 | | 9.16 | 6.62 | 17.26 | 6.40 | 0.51 | 10.15 | 158.6 | |
| ~~0825~~ 0827 | 6.25 | 2750 | 392 | | 9.20 | 6.68 | 17.87 | 5.54 | 0.59 | 10.63 | 154.4 | |
| 0830 | 6.27 | 720 | 240 | | 9.22 | 6.68 | 18.54 | 4.82 | 0.49 | 10.98 | 153.2 | |
| 0835 | 6.31 | 1410 | 282 | | 9.35 | 6.73 | 20.66 | 4.51 | 0.43 | 12.35 | 150.6 | |
| 0840 | 6.41 | 1790 | 358 | | 9.38 | 6.77 | 21.44 | 4.29 | 0.45 | 12.85 | 148.0 | |
| 0845 | 6.42 | 1460 | 292 | | 9.45 | 6.80 | 21.83 | 3.41 | 0.46 | 13.11 | 145.1 | |
| 0850 | 6.44 | 1450 | 290 | | 9.48 | 6.84 | 22.00 | ~~5.43~~ ~~3.45~~ 3.27 | 0.54 | 13.22 | 142.1 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| ~~Start Sampling~~ | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 0855 | Start | Sample | | | | | | | | | | |
| 0942 | End | Sample | | | | | | | | | | |
| | | | | | | | | | | | | |
| | 6.57 | Final | WL | | | | | | | | | |

Water Quality Meter (S/N): YSI 610 DM w/ 6820 (193455R / 96F30676) Notes: Stick-up
Control Box Type (S/N): QED Well Wizard (16788)
Turbidimeter (S/N): LaMotte 2020 (09116-4298)

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW6D-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW6D |
| [X] Monitoring Well<br>[ ] Domestic Well<br>[ ] Other: | | Sampler: | T. Evans / K. Simpson |

**SAMPLING DATA**

| Date: 4.19.99<br>Time: 1545 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Method: Low Flow/Bladder Pump | LT TAN | 5.64 | 4.423 | 11.03 | 43.4 | 0.77 | 2.37 | 125.7 |

**PURGE DATA**

| | |
|---|---|
| Date: 4-19-99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 0.0 | |
| Well Casing Diameter: 6 in. | |
| Well Casing Material: Open Bore | |
| Total Well Depth (TD): 46.0 feet | |
| Static Water Level (WL): 8.92 | |
| One Casing Volume(gal/L): 206.7 | |
| Start Purge (hrs): 1351 | |
| End Purge (hrs): 1540 | |
| Total Purge Time (min): 111 | |
| Total Vol. Purged (gal/L): 4.7 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

START SAMPLE 1543
END SAMPLE 1640

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0874

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K041999

**Check if Collected:**

[ ] ~~MS / MSD~~ [ ] ~~DUPLICATE / ID No.:~~

Signature(s): T. E. Simpson

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** 6PMW6D

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4-19-99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | Clear Sunny 30 55°F |
| **SITE:** | DRMO | **PERSONNEL:** | T. Evans |

**Well Screen Depth:** 30.5 / 46.0 ft.
**Initial Water Level:** 8.92 @ 1355 hrs.
**Pump Type/Material:** Bladder / PVC
**Pump Intake Depth:** 38.0 ft TOC
**Tide Cycle:** ☐ High @ ☐ Low @ ☒ Not Affected
**Total Purge Volume=** 4.7 (gal/L)
**Total Purge Time=** 111 (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1351 | | | | R30 D10 25 psi | 10.81 | 6.02 | 4.242 | 2.77 | — | 2.23 | 191.7 | Cell Full |
| 1356 | 8.92 | 1010 | 202 | | 11.75 | 5.66 | 4.371 | 1.60 | 83.5 | 2.34 | 159.4 | |
| 1400 | 8.92 | 300 | 75 | | 11.17 | 5.64 | 4.395 | 1.01 | 89.0 | 2.35 | 150.2 | |
| 1405 | 8.93 | 500 | 100 | | 11.26 | 5.63 | 4.416 | 1.19 | 85.9 | 2.37 | 141.7 | |
| 1411 | 8.94 | 780 | 130 | | 10.94 | 5.63 | 4.413 | 1.02 | 78.4 | 2.36 | 133.2 | |
| 1415 | 8.94 | 600 | 150 | | 10.93 | 5.61 | 4.413 | 0.61 | 71.1 | 2.36 | 131.4 | |
| 1420 | 8.94 | 660 | 132 | | 10.87 | 5.61 | 4.409 | 0.63 | 65.6 | 2.36 | 129.9 | |
| 1425 | 8.93 | 760 | 152 | | 10.82 | 5.61 | 4.413 | 0.55 | 61.3 | 2.36 | 127.9 | |
| 1430 | 8.95 | 760 | 152 | | 10.78 | 5.62 | 4.414 | 0.69 | 61.8 | 2.36 | 127.0 | |
| 1435 | 8.94 | 900 | 180 | | 10.67 | 5.62 | 4.420 | 0.79 | 59.8 | 2.36 | 127.7 | |
| 1440 | 8.94 | 880 | 176 | | 10.71 | 5.62 | 4.415 | 0.64 | 52.9 | 2.37 | 128.4 | |
| 1445 | 8.95 | 120+830 | 190 | | 10.77 | 5.62 | 4.416 | 0.72 | 49.5 | 2.37 | 128.4 | |
| 1450 | 8.95 | 920 | 184 | | 10.72 | 5.62 | 4.416 | 0.78 | 46.2 | 2.37 | 127.9 | |
| 1455 | 8.96 | 900 | 180 | | 10.70 | 5.63 | 4.419 | ~~0.87~~ 0.74 | 45.3 | 2.36 | 128.3 | |
| 1500 | 8.94 | 900 | 180 | | 10.79 | 5.63 | 4.418 | 0.73 | 45.6 | 2.37 | 127.7 | |
| 1505 | 8.94 | 870 | 174 | | 10.78 | 5.62 | 4.418 | 0.68 | ~~46.6~~ 45.7 | 2.37 | 127.2 | |
| | | | | | | | | | | | | |

**Water Quality Meter (S/N):** 610DM w/ 6820 YSI 176477R
**Control Box Type (S/N):** QED Well Wizard 16626
**Turbidimeter (S/N):** LaMotte 2020 Quil. 4298

**Notes:** Stickup

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** MW6D

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4-19-99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | clear, sunny, 50-55°F |
| **SITE:** | DRMO | **PERSONNEL:** | T. Evans |

**Well Screen Depth:** SEE pg 2 / _____ ft.
**Initial Water Level:** _____ @ _____ hrs.
**Pump Type/Material:** _____
**Pump Intake Depth:** _____
**Tide Cycle:** ☐ High @ _____ ☐ Low @ _____ ☒ Not Affected
**Total Purge Volume=** 4.7 (gal / L)
**Total Purge Time=** 111 (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1510 | 8.94 | 730 | 146 | ↓ | 10.81 | 5.64 | 4.423 | 1.01 | 45.0 | 2.37 | 126.9 | |
| 1515 | 8.95 | 870 | 174 | | 10.82 | 5.63 | 4.424 | 0.83 | 45.6 | 2.37 | 126.1 | |
| 1520 | 8.95 | 650 | 130 | | 10.95 | 5.63 | 4.418 | 0.68 | 45.9 | 2.37 | 125.5 | |
| 1525 | 8.95 | 650 | 130 | | 11.03 | 5.64 | 4.421 | 0.82 | 44.7 | 2.37 | 125.2 | |
| 1530 | 8.95 | 650 | 130 | | 11.04 | 5.64 | 4.419 | 0.91 | 42.8 | 2.37 | 125.5 | |
| 1535 | 8.95 | ~~65~~ 650 | 130 | | 11.03 | 5.64 | 4.423 | 0.77 | 43.4 | 2.37 | 125.7 | KS ~~HRB~~ DO.77 |

**Water Quality Meter (S/N):** _____
**Control Box Type (S/N):** _____
**Turbidimeter (S/N):** _____
**Notes:** _____

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW6S-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW6S |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4.19.99 Time: 1445 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Method: Low Flow/Bladder Pump | CLEAR | 5.69 | ~~0.227~~ 0.320 | 9.8 | 0.30 | 9.57 | 0.15 | 148.6 |

**PURGE DATA**

| | |
|---|---|
| Date: 4.19.99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 0.6 | |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 18.6 feet | |
| Static Water Level (WL): 8.57 | |
| One Casing Volume (gal/L): 1.6 | |
| Start Purge (hrs): 1354 | |
| End Purge (hrs): 1438 | |
| Total Purge Time (min): 44 | |
| Total Vol. Purged (gal/L): 3.6 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

NO ODOR

START SAMPLE 1440
END SAMPLE 1515

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0874

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K041999

**Check if Collected:**

☐ ~~MS / MSD~~ ☐ ~~DUPLICATE~~ / ID No.:

Signature(s): K. Simpson / S. Simpson

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** GMW6S

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4/9/99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | SUNNY 64°F |
| **SITE:** | DRMO | **PERSONNEL:** | KEITH SIMPSON |

**Well Screen Depth:** 8.6 / 18.6 ft.
**Initial Water Level:** 8.57 @ 1350 hrs.
**Pump Type/Material:** Bladder / PVC
**Pump Intake Depth:** 14.0 ft TOC
**Tide Cycle:** ☐ High @ ☐ Low @ ☒ Not Affected
**Total Purge Volume=** 3.6 (gal/L) **Total Purge Time=** 44 (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | ~~Sp~~ Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments Sp Cond (mS/cm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1355 | 8.57 | 0 | 340 | 60 R / 30 D | 10.2 | 5.66 | 0.237 | 10.27 | 1.43 | 0.16 | 142.6 | 0.330 |
| 1405 | 8.53 | ↓ | ↓ | 15 PSI | 10.1 | 5.52 | 0.229 | 10.98 | 1.11 | 0.15 | 147.8 | 0.320 |
| 1415 | 8.53 | ↓ | ↓ | ↓ | 9.8 | 5.49 | 0.227 | 10.86 | 0.75 | 0.15 | 151.1 | 0.320 |
| 1420 | ↓ | ↓ | ↓ | ↓ | 9.9 | 5.51 | 0.227 | 10.47 | 0.71 | 0.15 | 152.5 | 0.319 |
| 1425 | ↓ | ↓ | ↓ | ↓ | 9.8 | 5.54 | 0.228 | 10.57 | 0.50 | 0.15 | 152.4 | 0.321 |
| 1430 | ↓ | ↓ | ↓ | ↓ | 9.7 | 5.60 | 0.227 | 10.25 | 0.36 | 0.15 | 151.2 | 0.321 |
| 1435 | ↓ | 136,000 mL | ↓ | ↓ | 9.8 | 5.69 | 0.227 | 9.57 | 0.30 | 0.15 | 148.6 | 0.320 |

YSI **Water Quality Meter (S/N):** 193455R - SONDE 96F50676
**Control Box Type (S/N):** QED 16788
**Turbidimeter (S/N):** LA MOTTE 0361-4197
**Notes:** STICK-UP

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW9S-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW9S |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4-23-99 Time: 1145 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Method: Low Flow/Bladder Pump | CLEAR | 4.10 | 0.050 | 8.9 | 0.9 | 1.92 | 0.02 | 178.6 |

**PURGE DATA**

| | |
|---|---|
| Date: 4-23-99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 0 | |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 11.8 feet | |
| Static Water Level (WL): 4.37 | |
| One Casing Volume (gal/L): 1.2 | |
| Start Purge (hrs): 1117 | |
| End Purge (hrs): 1145 | |
| Total Purge Time (min): 38 | |
| Total Vol. Purged (gal/L): 2.7 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

START SAMPLE 1145
END SAMPLE 1203

END WL 4.39' @ 1205

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0875

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K041999

**Check if Collected:**

☐ ~~MS / MSD~~ ☐ ~~DUPLICATE / ID No.~~:

Signature(s): K. S. Simpson

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** 6MW9S

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4-23-99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | LT. RAIN ON/OFF 67°F |
| **SITE:** | DRMO | **PERSONNEL:** | R. SIMPSON |

**Well Screen Depth:** 7.8 / 11.8 ft.
**Initial Water Level:** 4.37 @ 1113 hrs.
**Pump Type/Material:** Bladder / PVC
**Pump Intake Depth:** 10.0 ft TOC
**Tide Cycle:** ☐ High @ ☐ Low @ 1127 ☒ Not Affected
**Total Purge Volume=** ~~4.37~~ 2.7 (gal) KS
**Total Purge Time=** ~~1113~~ 38 (min) KS

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1120 | 4.37 | 0 | 270 | 30 D/45S | 9.1 | 5.06 | 0.055 | 4.28 | 9.0 | 0.02 | 163.6 | CLEAR NO ODOR |
| 1125 | 4.38 | ↓ | ↓ | 15 PSI | 9.0 | 4.28 | 0.050 | 2.48 | 7.1 | 0.02 | 178.4 | |
| 1130 | 4.40 | ↓ | ↓ | ↓ | 8.9 | 4.08 | 0.050 | 2.11 | 5.6 | 0.02 | 183.9 | |
| 1135 | 4.40 | ↓ | ↓ | ↓ | 8.9 | 4.08 | 0.050 | 2.07 | 1.6 | 0.02 | 180.5 | |
| 1140 | 4.40 | 10,260 | ↓ | ↓ | 8.9 | 4.10 | 0.050 | 1.92 | 0.9 | 0.02 | 178.6 | |

Water Quality Meter (S/N): 610-193455R 96F50676 SONDE
Control Box Type (S/N): QED 16626
Turbidimeter (S/N): LAMOTTE 0916-4298

Notes:

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW10D-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW10D |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4.20.99 Time: 0815 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Method: Low Flow/Bladder Pump | CLEAR | 7.14 | ~~16.33~~ 21.56 | 12.3 | 1.93 | 0.20 | 12.95 | -73.3 |

**PURGE DATA**

| | |
|---|---|
| Date: 4.20.99 | NO ODOR |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 1.70 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 54.1 feet | |
| Static Water Level (WL): 2.61 | |
| One Casing Volume (gal): 8.4 | |
| Start Purge (hrs): 0728 | |
| End Purge (hrs): 0815 | |
| Total Purge Time (min): 47 | |
| Total Vol. Purged (gal): 1.9 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

START SAMPLE 0815
END SAMPLE 0837
END WL 2.62 @ 0835

**LAB INFO**

LAB: CEIMIC CORP. NARRAGANSETT, RI
COC #: 0874
LAB: KATAHDIN ANALYTICAL WESTBROOK, ME
COC #: K041999

**Check if Collected:**

[ ] ~~MS / MSD~~ [ ] ~~DUPLICATE~~ / ID No.:

Signature(s): T. Evans / K. Simpson

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** GMW10D

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4-20-99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | SUNNY 55°F |
| **SITE:** | DRMO | **PERSONNEL:** | R. SIMPSON |

**Well Screen Depth:** 44.1 / 54.1 ft.
**Initial Water Level:** 2.61 @ 0725 hrs.
**Pump Type/Material:** Bladder / PVC
**Pump Intake Depth:** 49.0 ft TOC
**Tide Cycle:** ☐ High @ ☒ Low @ 0824 ☐ Not Affected
**Total Purge Volume=** 1.9 (gal) (L)
**Total Purge Time=** 47 (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | ~~Sp~~ Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments Sp Cond (mS/cm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0730 | 2.61 | 0 | KS ~~2~~ 150 | 30 R/30 D | 12.5 | 7.03 | 17.10 | 0.69 | 1.40 | 13.57 | -54.7 | 22.46 |
| 0735 | 2.63 | ↓ | ↓ | 20 PSI | 12.1 | 7.08 | 16.87 | 0.30 | 17.4 | 13.46 | -68.8 | 22.39 |
| 0740 | 2.64 | | | ↓ | 12.1 | 7.08 | 16.69 | 0.28 | 3.85 | 13.36 | -67.4 | 22.15 |
| 0745 | 2.65 | | | | 12.1 | 7.10 | 16.47 | 0.23 | 2.76 | 13.17 | -68.5 | 21.85 |
| 0750 | 2.68 | | | | 12.2 | 7.11 | 16.49 | 0.21 | 2.00 | 13.16 | -69.7 | 21.82 |
| 0755 | 2.68 | | | | 12.2 | 7.12 | 16.47 | 0.21 | 2.04 | 13.14 | -71.5 | 21.80 |
| 0800 | 2.68 | | | | 12.2 | 7.13 | 16.39 | 0.20 | 1.70 | 13.06 | -72.8 | 21.69 |
| 0805 | 2.68 | ↓ | | | 12.3 | 7.14 | 16.40 | 0.20 | 1.56 | 13.04 | -73.4 | 21.65 |
| 0810 | 2.67 | 7050 mL | ↓ | ↓ | 12.3 | 7.14 | 16.33 | 0.20 | 1.93 | 12.95 | -73.3 | 21.56 |

**Water Quality Meter (S/N):** YSI 610DM 193455R & 96F50676 SONDE
**Control Box Type (S/N):** QED 16626
**Turbidimeter (S/N):** LA MOTTE 0916-4298
**Notes:**

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW10S-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW10S |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Date: 4-20-99 | | | | | | | | |
| Time: 0818 | | | | | | | | |
| Method: Low Flow/Bladder Pump | Clear | 7.29 | 8.35 | 10.82 | 1.80 | 0.95 | 4.66 | -112.0 |

**PURGE DATA**

| | |
|---|---|
| Date: 4-20-99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 1.4 | |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 13.3 feet | |
| Static Water Level (WL): 4.02 | |
| One Casing Volume(gal/L): 5.17 | |
| Start Purge (hrs): 0735 | |
| End Purge (hrs): 0817 | |
| Total Purge Time (min): 47 | |
| Total Vol. Purged (gal/L) 5.3 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | ✓ |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | ✓ |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | ✓ |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

TRACE BLACK FINES IN PURGE & SAMPLE

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0874

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K041999

**Check if Collected:**

[ ] ~~MS / MSD~~ [ ] ~~DUPLICATE~~ / ID No.:

Signature(s):

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** 6MW10S

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4-20-99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | Clear, sunny, 45°F |
| **SITE:** | DRMO | **PERSONNEL:** | T. Evans |

**Well Screen Depth:** 4.3 / 13.3 ft.
**Initial Water Level:** 4.02 @ 0722 hrs.

**Pump Type/Material:** Bladder / PVC
**Pump Intake Depth:** 9.0 ft TOC

**Tide Cycle:** ☐ High @ ☒ Low @ 0824 ☐ Not Affected

**Total Purge Volume=** _____ (gal / L) **Total Purge Time=** _____ (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0735 | 4.20 | | | D6.0/R30 7 psi | 11.13 | 6.90 | 9.239 | 3.05 | 1.83 | 5.12 | -60.8 | Well Full |
| 0740 | 4.25 | 1100 | 220 | 4 psi | 10.86 | 7.08 | 7.918 | 0.75 | 2.53 | 4.40 | -86.6 | *fine black particles in suspn |
| 0745 | 4.23 | 840 | 168 | 4 psi | 10.96 | 7.15 | 7.918 | 0.78 | 2.00 | 4.40 | -93.2 | not clear |
| 0750 | 4.25 | 380 | 76 | | 10.97 | 7.19 | 7.913 | 0.62 | 2.70 | 4.40 | -99.8 | *H2S odor |
| 0755 | 4.27 | 550 | 110 | 5 psi | 10.90 | 7.22 | 7.902 | 0.79 | 2.30 | 4.40 | -102.8 | |
| 0800 | 4.33 | 1200 | 109 | | 10.84 | 7.26 | 8.124 | 1.07 | 2.50 | 4.53 | -100.7 | |
| 0810 | 4.34 | 560 | 140 | | 10.81 | 7.27 | 8.24 | 0.96 | 2.10 | 4.59 | -107.7 | |
| 0815 | 4.36 | 660 | 132 | | 10.82 | 7.29 | 8.35 | 0.95 | 1.80 | 4.66 | -112.0 | |
| | | | | | | | | | | | | |
| 0817 | End Purge | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 0818 | Sample | | | | | | | | | | | |
| 0855 | End Sample | | | | | | | | | | | |

**Water Quality Meter (S/N):** YSI 600 w/ 6820 (176477R / 97K1095) **Notes:** Flush - no out
**Control Box Type (S/N):** QED Well Wizard (16788)
**Turbidimeter (S/N):** LaMotte 2020 (0361-4197)

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW11D-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW11D |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4-22-99 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Time: 1026 | | | | | | | | |
| Method: Low Flow/Bladder Pump | Clear | 7.16 | 34.57 | 12.66 | 10 | 2.18 | 22.00 | -99.0 |

**PURGE DATA**

| | |
|---|---|
| Date: 4-22-99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 0.60 | |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 85.0 feet | |
| Static Water Level (WL): 2.85 | |
| One Casing Volume(gal/L): 50.7 | |
| Start Purge (hrs): 0925 | |
| End Purge (hrs): 1025 | |
| Total Purge Time (min): 60 | |
| Total Vol. Purged (gal/L): 11.85 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0875

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K04 1999

**Check if Collected:**

~~[ ] MS / MSD~~ ~~[ ] DUPLICATE / ID No.:~~

Signature(s):

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** 6MW11D

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4.22.99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | Overcast 45-50°F |
| **SITE:** | DRMO | **PERSONNEL:** | T. Evans |

**Well Screen Depth:** 75.0 / 85.0 ft.
**Initial Water Level:** 2.85 @ 0920 hrs.
**Pump Type/Material:** Bladder/PVC
**Pump Intake Depth:** 82.0 ft TOC
**Tide Cycle:** ☐ High @ ☒ Low @ 1026 ☐ Not Affected
**Total Purge Volume=** 11.85 (gal (L))
**Total Purge Time=** 60 (min)

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0925 | | | | R25 D10 50 psi | 12.64 | 6.49 | 34.26 | 3.65 | 4.15 | 21.50 | -17.2 | Cell Full |
| 0930 | 2.83 | 1100+780 | 376 | R25 D9.0 45 psi | 12.49 | 6.91 | 35.81 | 1.73 | 77.5 | 22.60 | -65.3 | ~~clear~~ ② |
| 0935 | 2.87 | 1450 | 290 | R25 D7.0 45 psi | 12.49 | 7.02 | 35.81 | 2.15 | 103.9 | 22.59 | -80.6 | gray tint |
| 0940 | 2.90 | 900 | 180 | R25 D7.0 42 psi | 12.44 | 7.06 | 35.87 | 2.51 | 64.6 | 22.62 | -84.5 | |
| 0945 | 2.86 | 780 | 156 | | 12.47 | 7.09 | 35.74 | 2.38 | 80.2 | 22.54 | -86.1 | |
| 0950 | 2.93 | 780 | 156 | | 12.56 | 7.10 | 35.67 | 1.85 | 30. | 22.50 | -85.6 | |
| 0955 | 2.93 | 780 | 156 | | 12.65 | 7.11 | 35.56 | 2.23 | 24 | 22.42 | -87.6 | clear |
| 1000 | 2.95 | 780 | 156 | | 12.90 | 7.14 | 35.44 | 2.53 | 19 | 22.33 | -90.0 | |
| 1005 | 3.03 | 900 | 180 | | 12.93 | 7.13 | 35.31 | 2.20 | 19 | 22.25 | -91.3 | |
| 1010 | 3.00 | 900 | 180 | | 12.81 | 7.15 | 35.27 | 2.81 | 12 | 22.21 | -93.2 | |
| 1015 | 3.02 | 900 | 180 | | 12.71 | 7.15 | 35.12 | 2.40 | ② 11 | 22.12 | -95.0 | |
| 1020 | 2.90 | ↓ | ↓ | ↓ | 12.68 | 7.15 | 35.03 | 2.60 | 10 | 22.05 | -96.7 | |
| 1025 | 2.90 | | | | 12.66 | 7.16 | 34.97 | 2.18 | 10 | 22.00 | -99.0 | |
| | | | | | | | | | | | | |
| 1026 | Sample | | | | | | | | | | | |
| 1108 | End Sample | | | | | | | | | | | |
| 1108 | 2.68 | Final WL | | | | | | | | | | |

**Water Quality Meter (S/N):** YSI 6100M w/6820 (193455R/
**Control Box Type (S/N):** QED Well Wizard (
**Turbidimeter (S/N):** LaMotte 2020 (

**Notes:**

**Tetra Tech NUS, Inc.** **GROUNDWATER SAMPLE LOG SHEET**

| | | | |
|---|---|---|---|
| Project / Site: | NSB-NLON / DRMO | Sample ID No.: | DRMO-6MW11S-GW-04 |
| Project No.: | 7363 | Sample Location: | 6MW11S |
| [X] Monitoring Well | | Sampler: | T. Evans / K. Simpson |
| [ ] Domestic Well | | | |
| [ ] Other: | | | |

**SAMPLING DATA**

| Date: 4-22-99 Time: 1008 | Color | pH | S.C. mS/cm | Temp. °C | Turbidity NTU | DO mg/L | Salinity ppt | Eh mV |
|---|---|---|---|---|---|---|---|---|
| Method: Low Flow/Bladder Pump | CLEAR | 7.08 | 9.684 | 10.4 | 1.09 | 0.39 | 5.46 | -187.7 |

**PURGE DATA**

| | |
|---|---|
| Date: 4-22-99 | See Attached Low Flow Purge Data Sheet for Purge Data |
| Method: Low Flow/Bladder Pump | |
| Monitor Reading (ppm): 0 | |
| Well Casing Diameter: 2 in. | |
| Well Casing Material: PVC | |
| Total Well Depth (TD): 13.5 feet | |
| Static Water Level (WL): 3.53 | |
| One Casing Volume (gal): 1.6 | |
| Start Purge (hrs): 0920 | |
| End Purge (hrs): 1008 | |
| Total Purge Time (min): 48 | |
| Total Vol. Purged (gal): 2.7 | |

**SAMPLE COLLECTION INFORMATION**

| Analysis | Preservative | Container Requirements | | | Laboratory | Collected |
|---|---|---|---|---|---|---|
| TCL VOLATILES (LOW-LEVEL) | HCl | 3 | X | 40 mL Vial | Ceimic Corp. | |
| TCL SEMIVOLATILES | None | 2 | X | 1L Amber | Ceimic Corp. | |
| TCL PEST/PCBs | None | 2 | X | 1L Amber | Ceimic Corp. | |
| TCL PAH | None | 2 | X | 1L Amber | Ceimic Corp. | |
| TAL METALS (TOTAL) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | |
| TAL METALS (FILTERED) | HNO3 | 1 | X | 500 mL HDPE | Katahdin Analytical | |
| | | | | | | |
| | | | | | | |

**OBSERVATIONS / NOTES**

LT. SULFUR ODOR

START SAMPLE 1008
END SAMPLE 1049

END WL 3.86 @ 1049

**LAB INFO**

LAB: CEIMIC CORP.
NARRAGANSETT, RI
COC #: 0875

LAB: KATAHDIN ANALYTICAL
WESTBROOK, ME
COC #: K041999

**Check if Collected:**

☐ ~~MS / MSD~~ ☐ ~~DUPLICATE / ID No.:~~

Signature(s): T. Evans / K. Simpson

Tetra Tech NUS, Inc.

# LOW FLOW PURGE DATA SHEET

**Well No.:** 6MW11S

| | | | |
|---|---|---|---|
| **PROJECT:** | NSB-NLON | **DATE:** | 4-22-99 |
| **PROJECT NUMBER:** | 7363 | **WEATHER:** | LITE RAIN ON/OFF 63°F |
| **SITE:** | DRMO | **PERSONNEL:** | R. SIMPSON |

**Well Screen Depth:** 3.5 / 13.5 ft.
**Initial Water Level:** 3.53 @ 0920 hrs.
**Pump Type/Material:** Bladder/PVC
**Pump Intake Depth:** 11.0 ft TOC
**Total Purge Volume=** 2.7 (gal/L)
**Total Purge Time=** 48 (min)
**Tide Cycle:** ☐ High @ ☒ Low @ 1026 ☐ Not Affected

| Time | Water Level feet below TOC | Volume mL | Flow Rate mL/min | Pump Settings | Temp °C | pH | Sp Cond mS/cm | DO mg/L | Turbidity NTU | Salinity ppt | Eh mV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0925 | 3.53 | 0 | 240 | 45R/45D | 10.4 | 6.48 | 13.25 | 1.91 | 6.0 | 7.65 | -89.6 | LT GRAY |
| 0930 | 3.55 | ↓ | ↓ | 20 PSI | 10.3 | 6.83 | 9.786 | 0.64 | 5.6 | 5.52 | -129.5 | |
| 0935 | 3.58 | | | ↓ | 10.3 | 6.92 | 9.671 | 0.81 | 2.8 | 5.45 | -146.9 | |
| 0940 | 3.60 | | 200 | 55R/55D | 10.3 | 6.95 | 9.660 | 0.64 | 2.0 | 5.44 | -153.7 | |
| 0945 | 3.64 | | | 20 PSI | 10.3 | 7.00 | 9.644 | 0.87 | 1.55 | 5.44 | -162.2 | |
| 0950 | 3.66 | | | | 10.4 | 7.02 | 9.756 | 0.39 | 1.66 | 5.50 | -168.8 | |
| 0955 | 3.71 | | | | 10.3 | 7.05 | 9.748 | 0.68 | 1.97 | 5.50 | -176.9 | |
| 1000 | 3.73 | | | | 10.4 | 7.07 | 9.715 | 0.85 | 1.71 | 5.48 | -182.4 | |
| 1005 | 3.79 | | | | 10.4 | 7.07 | 9.686 | 0.41 | 1.56 | 5.46 | -182.7 | |
| 1010 | 3.79 | ↓ | | | 10.4 | 7.09 | 9.726 | 0.46 | 1.12 | 5.49 | -186.6 | |
| 1005 | 3.82 | 10,176 | ↓ | ↓ | 10.4 | 7.08 | 9.684 | 0.39 | 1.09 | 5.46 | -187.7 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

**Water Quality Meter (S/N):** 176477R-610, SONDE 97K1095
**Control Box Type (S/N):** QED 16626
**Turbidimeter (S/N):** LAMOTTE 0361 4197

**Notes:**

# APPENDIX F

## CHAIN OF CUSTODY RECORDS

# Chain of Custody

Original Chain of Custody goes to Laboratory

087516

Page 1 of 1

| Project # | Project Name | Cooler Temp. |
|---|---|---|
| 7363 | CTO 267 NSB NLON | 4°C |

Samplers (please print): Tim Evans, Keith Simpson

Cooler #:

| Lab ID | Date | Time | Comp. / Grab | Sample Identification | Sample Matrix | No. of Containers | Trip Blank | pH | Low Level TCL VOC | pH | TCL SVOC | pH | TCL Pest/PCB | pH | TCL PAH | pH | | pH | | pH | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 09 | 4.22.99 | 0800 | G | GWTB-042299 | AQ | 2 | 2 | | | | | | | | | | | | | | |
| 10 | 4.22.99 | 1008 | G | DRMO-6 MW11S-GW-04 | GW | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 11 | ↓ | 1026 | G | DRMO-6MW11D-GW-04 | ↓ | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 12 | 4.23.99 | 1035 | G | DRMO-6MW1S-GW-04 | GW | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 13 | ↓ | 1145 | G | DRMO-6MW9S-GW-04 | ↓ | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |

| Celmic Project # | Relinquished by (signature) | Date/Time | Received by (signature) | Date/Time |
|---|---|---|---|---|
| 990338 | Troy [illegible] | 4/23/99 1600 | | |
| Storage Location | Relinquished by (signature) | Date/Time | Received by (signature) | Date/Time |
| 6, VOA | | | | |
| | Relinquished by (signature) | Date/Time | Received by Celmic (signature) | Date/Time |
| | | | [illegible] | 4/23/99 16:00 |

Remarks:

= Lab Use Only

**Celmic Corporation**, 10 Dean Knauss Drive, Narragansett, RI 02882 - Tel: (401) 782-8900, Fax: (401) 782-8905

# Chain of Custody

Original Chain of Custody goes to Laboratory

0874 15

Page 1 of 1

| Project # | Project Name | Cooler Temp. |
|---|---|---|
| 7363 | CTO 267 NSB NLON | 4°C |

Samplers (please print): TIM EVANS, Keith Simpson

Cooler #:

| Lab ID | Date | Time | Comp. / Grab | Sample Identification | Sample Matrix | No. of Containers | Trip Blank | pH | Low Level TCL VOC | pH | TCL SVOC | pH | TCL Pest/PCBs | pH | TCL PAHs | pH | | pH | | pH | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 4/19/99 | 1200 | G | GWTB-Ø4199 | AQ | 2 | 2 | | | | | | | | | | | | | | |
| 02 | 4/19/99 | 1445 | G | DRMO-6MW6S-GW-Ø4 | GW | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 03 | ↓ | 1545 | G | DRMO-6MW6D-GW-Ø4 | GW | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 04 | 4/20/99 | 0815 | G | DRMO-6MW1ØD-GW-Ø4 | GW | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 05 | ↓ | 0818 | G | DRMO-6MW1ØS-GW-Ø4 | GW | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 06 | 4/21/99 | 0855 | G | DRMO-6MW2S-GW-Ø4 | GW | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| 07 | ↓ | 0855 | G | DRMO-6MW2D-GW-Ø4 | ↓ | 27 | | | 9 | | 6 | | 6 | | 6 | | | | | | *MS/MSD |
| 08 | ↓ | 0000 | G | GWFD-Ø42199 | ↓ | 9 | | | 3 | | 2 | | 2 | | 2 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

| Celmic Project # | Relinquished by (signature) | Date/Time | Received by (signature) | Date/Time |
|---|---|---|---|---|
| 990338 | [signature] | 4.21.99 / 1200 | [signature] | 4-21-99 12:00 |
| Storage Location: 6, VOA | Relinquished by (signature) | Date/Time | Received by (signature) | Date/Time |
| | Relinquished by (signature) | Date/Time | Received by Celmic (signature): David Hallman | Date/Time: 4/21/99 10:00 |

Remarks:

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04098
Tel: (207) 874-2400
Fax: (207) 775-4029

# CHAIN of CUSTODY K041999

PLEASE PRINT IN PEN



Client: TetraTech NUS
Contact: Mark Mengel
Phone #: (412) 921-8723
Fax #: (412) 921-4081
Address: 661 Andersen Dr
City: Pittsburgh
State: PA
Zip Code: 15220
Purchase Order #:
Proj. Name / No.: CTO 267 NSBNLON / 7363
Katahdin Quote #:
Bill (if different than above):
Address:
Sampler (Print / Sign): Tim Evans / TMEL
Copies To:

LAB USE ONLY
WORK ORDER #: WP2147-
KATAHDIN PROJECT MANAGER:
REMARKS:
SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO:
TEMP°C: ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

| * | Sample Description | Date / Time coll'd | Matrix | No. of Cntrs. | Filt. ☐Y ☒N 500mL / HNO3 Total TAL Metals | Filt. ☐Y ☐N 500mL / HNO3 Diss TAL Metals | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRMO-6MW6S-GW-04 | 4/19/99 / 1445 | GW | 1 | 1 | | | | | | | | | |
| | DRMO-6MW6S-GW-04-F | / ↓ | | 1 | | 1 | | | | | | | | |
| | DRMO-6MW6D-GW-04 | / 1545 | | 1 | 1 | | | | | | | | | |
| | DRMO-6MW6D-GW-04-F | ↓ / ↓ | ↓ | 1 | | 1 | | | | | | | | |
| | DRMO-6MW10D-GW-04 | 4/20/99 / 0815 | GW | 1 | 1 | | | | | | | | | |
| | DRMO-6MW10S-GW-04 | / 0818 | GW | 1 | 1 | | | | | | | | | |
| | DRMO-6MW10D-GW-04-F | / 0815 | GW | 1 | | 1 | | | | | | | | |
| | DRMO-6MW10S-GW-04-F | ↓ / 0818 | GW | 1 | | 1 | | | | | | | | |
| | DRMO-6MW2S-GW-04 | 4/21/99 / 0855 | GW | 1 | 1 | | | | | | | | | |
| | DRMO-6MW2S-GW-04-F | / 0855 | | 1 | | 1 | | | | | | | | |
| * | DRMO-6MW2D-GW-04 | / 0855 | | 3 | 3 | | | | | | | | | |
| * | DRMO-6MW2D-GW-04-F | / 0855 | | 3 | | 3 | | | | | | | | |
| | GWFD-042199 | / 0000 | | 1 | 1 | | | | | | | | | |
| | GWFD-042199-F | ↓ / 0000 | ↓ | 1 | | 1 | | | | | | | | |
| | DRMO-6MW11S-GW-04 | 4/22/99 / 1008 | GW | 1 | 1 | | | | | | | | | |
| | DRMO-6MW11S-GW-04-F | ↓ / 1008 | ↓ | 1 | | 1 | | | | | | | | |

COMMENTS: * Do MS / MSD / 1 Cooler FedEx AB# 8117 3683 4444

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Relinquished By: (Signature) | Date / Time | Received By: (Signature) |
|---|---|---|---|---|---|
| TMEL | 4/23/99 1600 | FedEx | | | |
| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Relinquished By: (Signature) | Date / Time | Received By: (Signature) |
| | | | | 4/26/99 0945 | |

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04098
Tel: (207) 874-2400
Fax: (207) 775-4029

# CHAIN of CUSTODY # K04 19

PLEASE PRINT IN PEN



Client: TetraTech NUS
Contact: Mark Mengel
Phone #: (412) 921-8723
Fax #: (412) 921-4
Address: 661 Andersen Dr
City: Pittsburgh
State: PA
Zip Code: 15220
Purchase Order #:
Proj. Name / No.: CTO 267 / 7363 NSB-NLON
Katahdin Quote #:
Bill (if different than above):
Address:
Sampler (Print / Sign): Tim Evans / [signature]
Copies To:

LAB USE ONLY
WORK ORDER #:
KATAHDIN PROJECT MANAGER
REMARKS:
SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO:
TEMP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

| * | Sample Description | Date / Time coll'd | Matrix | No. of Cntrs. | Filt. ☐Y ☒N 500 mL / HNO3 Total TAL Metals | Filt. ☐Y ☐N 500 mL / HNO3 Diss. TAL Metals | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N | Filt. ☐Y ☐N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRMO-6MW110-GW-04 | 4/22/99 / 1026 | GW | 1 | 1 | | | | | | | | |
| | DRMO-6MW11D-GW-04 | ↓ / 1026 | ↓ | 1 | | 1 | | | | | | | |
| | DRMO-6MW1$-GW-04 | 4/23/99 / 1035 | GW | 1 | 1 | | | | | | | | |
| | DRMO-6MW1$-GW-04F | ↓ / 1035 | ↓ | 1 | | 1 | | | | | | | |
| | DRMO-6MW9$-GW-04 | 4/23/99 / 1145 | GW | 1 | 1 | | | | | | | | |
| | DRMO-6MW9$-GW-04F | ↓ / 1145 | ↓ | 1 | | 1 | | | | | | | |
| | | / | | | | | | | | | | | |
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| | | / | | | | | | | | | | | |

COMMENTS

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Relinquished By: (Signature) | Date / Time | Received By: (Signatu |
|---|---|---|---|---|---|
| [signature] | 4/23/99 1600 | FedEx | | | |
| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Relinquished By: (Signature) | Date / Time | Received By: (Sigr |
| | | [signature] | 4/26/99 0945 | | |

# APPENDIX G

## DATA VALIDATION LETTERS AND LABORATORY DATA SHEETS

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

**PITT-07-9-109**

**TO:** **M. MENGEL** **DATE:** **JULY 13, 1999**

**FROM:** **TERRI L. SOLOMON** **COPIES:** **DV FILE**

**SUBJECT:** **ORGANIC DATA VALIDATION – VOA / SVOA / PEST / PCB / PAH**
**CTO 267 - NSB NEW LONDON, CONNECTICUT**
**SDG - 990338**

**SAMPLES:** 13/Aqueous/

| | | |
|---|---|---|
| DRMO-6MW10D-GW-04 | DRMO-6MW10S-GW-04 | DRMO-6MW11D-GW-04 |
| DRMO-6MW11S-GW-04 | DRMO-6MW1S-GW-04 | DRMO-6MW2D-GW-04 |
| DRMO-6MW2S-GW-04 | DRMO-6MW6D-GW-04 | DRMO-6MW6S-GW-04 |
| DRMO-6MW9S-GW-04 | GWFD-042199 | GWTB-041999 |
| GWTB-042299 | | |

Overview

The sample set for CTO 267, NSB New London, SDG 990338, consists of eleven (11) aqueous environmental samples and two (2) aqueous field quality control samples. All of the samples were analyzed for volatile organic compounds (VOAs). The environmental samples were also analyzed for semivolatile organic compounds (SVOCs), pesticides / PCBs and polynuclear aromatic hydrocarbons (PAHs). One (1) field duplicate pair (DRMO-6MW2S-GW-04 / GWFD-042199) was included within this SDG.

The samples were collected by Tetra Tech NUS on April 19- 23, 1999 and analyzed by Ceimic Corporation under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Analyses were conducted using " Superfund Analytical Methods for Low Level Concentration Water for Organic Analysis, October 1992" and SW 846 method 8310. These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • GC/MS Tuning
• Initial and Continuing Calibrations
• Laboratory Method / Field Blanks
• Surrogate Spike Recoveries
• Matrix Spike / Matrix Spike Duplicate Recoveries
* • Laboratory Control Standard Results
• Field Duplicate Results
* • Internal Standards Performance
* • Instrument Performance
* • Compound Identification
* • Sample Quantitation

* - All quality control criteria were met for this parameter.

Qualified analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets and Appendix D contains the documentation to support the findings as discussed in this data validation report.

Initial and Continuing Calibrations

The following tables summarize calibration noncompliances and corresponding actions:

| Compound | IC 05/01/99 | CC 05/01/99 | CC 05/02/99 | CC 05/03/99 |
|---|---|---|---|---|
| acetone | R | R | RX | R |
| 2-butanone | R | R | RX | R |
| 2-hexanone | R | R | X | X |
| methylene chloride | X | | | |
| 1,2-dibromo-3-chloropropene | X | X | X | X |
| bromochloromethane | | | X | |
| 4-methyl-2-pentanone | | | X | |
| dibromochloromethane | | | X | |
| 1,2-dibromoethane | | | X | |
| bromoform | | | X | |
| 1,1,1-trichloroethane | | | | X |
| Associated Samples (DRMO- -GW-04) | all | GWTB-041999<br>6MW6S<br>6MW6D<br>6MW10D<br>6MW10S | 6MW2S<br>6MW2D<br>GWTB-042299<br>6MW11S | GWFD-042199<br>6MW11D<br>6MW1S<br>6MW9S |

| Compound | IC 05/07/99 |
|---|---|
| benzoic acid | X |
| hexachlorocyclopentadiene | X |
| 2,4-dinitrophenol | X |
| Associated Samples | all |

| Compound | CC 04/29/99 | CC 04/30/99 | CC 04/30/99 | CC 05/04/99 | CC 05/10/99 |
|---|---|---|---|---|---|
| fluoranthene | X | | X | | |
| benzo(a)anthracene | X | X | X | | |
| indeno(1,2,3-cd)pyrene | X | | X | X | X |
| Associated Samples (DRMO- -GW-04) | 6MW11S<br>6MW11D<br>6MW1S<br>6MW9S | 6MW11S<br>6MW11D<br>6MW1S<br>6MW9S | 6MW6S<br>6MW6D<br>6MW10D<br>6MW2D<br>6MW6S<br>6MW6D<br>6MW10D<br>6MW2D | 6MW10S<br>6MW2S | 6MW10S<br>6MW2S<br>GWFD-042199 |

| Compound | CC 05/11/99 |
|---|---|
| indeno(1,2,3-cd)pyrene | X |

Associated Samples GWFD-042199

Calibration Actions:

X - percent relative standard deviation (>30%), percent difference (> 25%, PAHs > 15%); estimate positive results and nondetects, "J" and "UJ", respectively.

R - relative response factor < 0.05; reject nondetected results, "UR", and estimate positive results, "J".

Nondetected and positive results for all aforementioned compounds were qualified as estimated, "J" and "UJ" or rejected, "UR", as appropriate in the associated samples. No actions were taken in the affected method blanks as these are laboratory quality control samples which are not qualified based on validation noncompliances.

Laboratory Method / Field Blanks

The following compounds were present in the laboratory method / field(*) blanks at the following concentrations:

| Compound | Max. Concentration | Action Level - Aqueous |
|---|---|---|
| methylene chloride | 1.0 ug/L | 10.0 ug/L |
| acetone(* | 0.6 ug/L | 6 ug/L |

Samples Affected: All

Sample aliquot and dilution factors were taken into consideration during the application of the action level. Positive results reported for methylene chloride reported at concentrations below the detection limit were replaced with revised detection limits and qualified as nondetects, "U".

Surrogate Recoveries

The surrogate recovery for 2,4,6-tribromophenol exceeded the quality control limits for samples DRMO-6MW11D-GW-04, DRMO-6MW11S-GW-04, DRMO-6MW1S-GW-04, DRMO-6MW9SG-GW-04 and GWFD-042199. However, no validation action was required as only one surrogate was noncompliant.

The surrogate recoveries for tetrachloro-m-xylene and decachlorobiphenyl were outside the quality control limits for sample DRMO-6MW2D-GW-04 for one column. However, no validation actions were required as all sample results were nondetects.

Matrix Spike / Matrix Spike Duplicate Results

The matrix spike duplicate (MSD) percent recovery (%R) for gamma-BHC exceeded the quality control limits. However, no validation actions were warranted as all results in the affected sample were nondetects.

The MS/MSD relative percent differences (RPDs) for gamma-BHC, Dieldrin and Endrin exceeded the laboratory control limits but were < 50% quality control limit. Therefore, no validation actions were warranted.

Field Duplicate Results

Field duplicate imprecision was noted for benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluorene, chrysene, dibenzo(a,h)anthracene, phenanthrene and pyrene. Positive results and nondetects reported for sample pair, DRMO-6MW2S-GW-04 / GWFD-042199, were qualified as estimated, "J" and "UJ", respectively.

Additional Comments

Positive results reported at concentration below the Contract Required Quantitation Limit (CRQL) were qualified as estimated, "J".

The sample IDS on the Form Is were incomplete. The Form Is were amended.

The compound 1,2,4-trichlorobenzene was reported for the VOA and SVOA analyses. The VOA result was used for validation purposes due to a lower reporting limit. The SVOA result was removed from the electronic file.

Several compounds were listed on the electronic deliverable (EDD) for the SVOA analyses but did not appear on the Form Is or the requested analyte list. These compounds were removed from the electronic file.

It should be noted that the laboratory used the compound carbazole for the surrogate for the PAH analyses.

Executive Summary

**Laboratory Performance:** The laboratory was unable to obtain acceptable relative response factors, %RSDs and %Ds for several compounds. Methylene chloride was present in the laboratory blank.

**Other Factors Affecting Data Quality:** Field duplicate imprecision was noted for benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluorene, chrysene, dibenzo(a,h)anthracene, phenanthrene and pyrene. Positive results reported at concentration below the CRQL were qualified as estimated.

The data for these analyses were reviewed with reference to the Region I EPA "Volatile and Semivolatile Data Validation Functional Guidelines – Part II" (12/96) and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Terri L. Solomon

Tetra Tech NUS
Terri L. Solomon
Chemist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4. Appendix D - Support Documentation

**NEW LONDON NSB**
**SDG 990338**
**SUMMARY OF TENTATIVELY IDENTIFIED VOLATILE COMPOUNDS**

| TIC | 6MW10D-GW-04 | 6MW11D-GW-04 | GWFD-042199 |
|---|---|---|---|
| Chlorotrifluoroethylene | X | | |
| 1,2-dichloro-1,1,2-trifluorethane | X | X | |
| 1,1,2-trichloro-1,2,2-trifluorethane | X | | |
| unknown siloxane | | | X |

# APPENDIX A
## Qualified Analytical Results

**Qualifier Codes:**

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW10D-GW-04 | | | DRMO-6MW10S-GW-04 | | | DRMO-6MW11D-GW-04 | | | DRMO-6MW11S-GW-04 | | |
| SAMPLE DATE: | 04/20/99 | | | 04/20/99 | | | 04/22/99 | | | 04/22/99 | | |
| LABORATORY ID: | 990338-04 | | | 990338-05 | | | 990338-11 | | | 990338-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 1 | U | | 1 | U | | 1 | UJ | C | 1 | U | |
| 1,1,2,2-TETRACHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1,2-TRICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1-DICHLOROETHANE | 1 | U | | 0.8 | J | P | 1 | U | | 0.7 | J | P |
| 1,1-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2,4-TRICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 | UJ | C | 1 | UJ | C | 1 | UJ | C | 1 | UJ | C |
| 1,2-DIBROMOETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | UJ | C |
| 1,2-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROPROPANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,3-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,4-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 2-BUTANONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| 2-HEXANONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| 4-METHYL-2-PENTANONE | 5 | U | | 5 | U | | 5 | U | | 5 | UJ | C |
| ACETONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| BENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOCHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | UJ | C |
| BROMODICHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOFORM | 1 | U | | 1 | U | | 1 | U | | 1 | UJ | C |
| BROMOMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON DISULFIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON TETRACHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROFORM | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CIS-1,2-DICHLOROETHENE | 14 | | | 1 | | | 3 | | | 1 | | |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| DIBROMOCHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | UJ | C |
| ETHYLBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| METHYLENE CHLORIDE | 2 | UJ | C | 2 | UJ | C | 2 | U | A | 2 | U | A |
| STYRENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW10D-GW-04 | | | DRMO-6MW10S-GW-04 | | | DRMO-6MW11D-GW-04 | | | DRMO-6MW11S-GW-04 | | |
| SAMPLE DATE: | 04/20/99 | | | 04/20/99 | | | 04/22/99 | | | 04/22/99 | | |
| LABORATORY ID: | 990338-04 | | | 990338-05 | | | 990338-11 | | | 990338-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| TETRACHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TOLUENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRANS-1,2-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRICHLOROETHENE | 6 | | | 1 | U | | 1 | U | | 1 | U | |
| VINYL CHLORIDE | 1 | U | | 1 | U | | 0.7 | J | P | 0.6 | J | P |
| XYLENES, TOTAL | 1 | U | | 1 | U | | 1 | U | | 1 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW1S-GW-04 | | | DRMO-6MW2D-GW-04 | | | DRMO-6MW2S-GW-04 | | | DRMO-6MW6D-GW-04 | | |
| SAMPLE DATE: | 04/23/99 | | | 04/21/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-12 | | | 990338-07 | | | 990338-06 | | | 990338-03 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 1 | UJ | C | 1 | U | | 1 | U | | 1 | U | |
| 1,1,2,2-TETRACHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1,2-TRICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2,4-TRICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 | UJ | C | 1 | UJ | C | 1 | UJ | C | 1 | UJ | C |
| 1,2-DIBROMOETHANE | 1 | U | | 1 | UJ | C | 1 | UJ | C | 1 | U | |
| 1,2-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROPROPANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,3-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,4-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 2-BUTANONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| 2-HEXANONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| 4-METHYL-2-PENTANONE | 5 | U | | 5 | UJ | C | 5 | UJ | C | 5 | U | |
| ACETONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| BENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOCHLOROMETHANE | 1 | U | | 1 | UJ | C | 1 | UJ | C | 1 | U | |
| BROMODICHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOFORM | 1 | U | | 1 | UJ | C | 1 | UJ | C | 1 | U | |
| BROMOMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON DISULFIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON TETRACHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROFORM | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CIS-1,2-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 6 | | |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| DIBROMOCHLOROMETHANE | 1 | U | | 1 | UJ | C | 1 | UJ | C | 1 | U | |
| ETHYLBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| METHYLENE CHLORIDE | 2 | U | A | 2 | UJ | C | 2 | U | A | 2 | U | A |
| STYRENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW1S-GW-04 | | | DRMO-6MW2D-GW-04 | | | DRMO-6MW2S-GW-04 | | | DRMO-6MW6D-GW-04 | | |
| SAMPLE DATE: | 04/23/99 | | | 04/21/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-12 | | | 990338-07 | | | 990338-06 | | | 990338-03 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| TETRACHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TOLUENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRANS-1,2-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 7 | | |
| VINYL CHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| XYLENES, TOTAL | 1 | U | | 1 | U | | 1 | U | | 1 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| SAMPLE NUMBER: | DRMO-6MW6S-GW-04 | | | DRMO-6MW9S-GW-04 | | | GWFD-042199 | | | GWTB-041999 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 04/19/99 | | | 04/23/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-02 | | | 990338-13 | | | 990338-08 | | | 990338-01 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | DRMO-6MW2S-GW-04 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 1 | U | | 1 | UJ | C | 1 | UJ | C | 1 | U | |
| 1,1,2,2-TETRACHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1,2-TRICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,1-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2,4-TRICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 | UJ | C | 1 | UJ | C | 1 | UJ | C | 1 | UJ | C |
| 1,2-DIBROMOETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROPROPANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,3-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,4-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 2-BUTANONE | 5 | UR | C | 5 | UR | C | 2 | J | CP | 5 | UR | C |
| 2-HEXANONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| 4-METHYL-2-PENTANONE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| ACETONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 5 | UR | C |
| BENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOCHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMODICHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOFORM | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON DISULFIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON TETRACHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROFORM | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CIS-1,2-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| DIBROMOCHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| ETHYLBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| METHYLENE CHLORIDE | 2 | UJ | C | 2 | U | A | 2 | U | A | 2 | UR | C |
| STYRENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW6S-GW-04 | | | DRMO-6MW9S-GW-04 | | | GWFD-042199 | | | GWTB-041999 | | |
| SAMPLE DATE: | 04/19/99 | | | 04/23/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-02 | | | 990338-13 | | | 990338-08 | | | 990338-01 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | DRMO-6MW2S-GW-04 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| TETRACHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TOLUENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRANS-1,2-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| VINYL CHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| XYLENES, TOTAL | 1 | U | | 1 | U | | 1 | U | | 1 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | GWTB-042299 | | | | | | | | | | | |
| SAMPLE DATE: | 04/22/99 | | | / / | | | / / | | | / / | | |
| LABORATORY ID: | 990338-09 | | | | | | | | | | | |
| QC_TYPE: | NORMAL | | | | | | | | | | | |
| % SOLIDS: | 0.0 % | | | 100.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | | | | | | | | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 1 | U | | | | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | 1 | U | | | | | | | | | | |
| 1,1,2-TRICHLOROETHANE | 1 | U | | | | | | | | | | |
| 1,1-DICHLOROETHANE | 1 | U | | | | | | | | | | |
| 1,1-DICHLOROETHENE | 1 | U | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | 1 | U | | | | | | | | | | |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 | UJ | C | | | | | | | | | |
| 1,2-DIBROMOETHANE | 1 | UJ | C | | | | | | | | | |
| 1,2-DICHLOROBENZENE | 1 | U | | | | | | | | | | |
| 1,2-DICHLOROETHANE | 1 | U | | | | | | | | | | |
| 1,2-DICHLOROPROPANE | 1 | U | | | | | | | | | | |
| 1,3-DICHLOROBENZENE | 1 | U | | | | | | | | | | |
| 1,4-DICHLOROBENZENE | 1 | U | | | | | | | | | | |
| 2-BUTANONE | 5 | UR | C | | | | | | | | | |
| 2-HEXANONE | 5 | UR | C | | | | | | | | | |
| 4-METHYL-2-PENTANONE | 5 | UJ | C | | | | | | | | | |
| ACETONE | 0.6 | J | CP | | | | | | | | | |
| BENZENE | 1 | U | | | | | | | | | | |
| BROMOCHLOROMETHANE | 1 | UJ | C | | | | | | | | | |
| BROMODICHLOROMETHANE | 1 | U | | | | | | | | | | |
| BROMOFORM | 1 | UJ | C | | | | | | | | | |
| BROMOMETHANE | 1 | U | | | | | | | | | | |
| CARBON DISULFIDE | 1 | U | | | | | | | | | | |
| CARBON TETRACHLORIDE | 1 | U | | | | | | | | | | |
| CHLOROBENZENE | 1 | U | | | | | | | | | | |
| CHLOROETHANE | 1 | U | | | | | | | | | | |
| CHLOROFORM | 1 | U | | | | | | | | | | |
| CHLOROMETHANE | 1 | U | | | | | | | | | | |
| CIS-1,2-DICHLOROETHENE | 1 | U | | | | | | | | | | |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | | | | | | | | | |
| DIBROMOCHLOROMETHANE | 1 | UJ | C | | | | | | | | | |
| ETHYLBENZENE | 1 | U | | | | | | | | | | |
| METHYLENE CHLORIDE | 1 | J | CP | | | | | | | | | |
| STYRENE | 1 | U | | | | | | | | | | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | GWTB-042299 | | | | | | | | | | | |
| SAMPLE DATE: | 04/22/99 | | | / / | | | / / | | | / / | | |
| LABORATORY ID: | 990338-09 | | | | | | | | | | | |
| QC_TYPE: | NORMAL | | | | | | | | | | | |
| % SOLIDS: | 0.0 % | | | 100.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | | | | | | | | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **LOW CONCENTRATION VOLATILES** | | | | | | | | | | | | |
| TETRACHLOROETHENE | 1 | U | | | | | | | | | | |
| TOLUENE | 1 | U | | | | | | | | | | |
| TRANS-1,2-DICHLOROETHENE | 1 | U | | | | | | | | | | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | | | | | | | | | |
| TRICHLOROETHENE | 1 | U | | | | | | | | | | |
| VINYL CHLORIDE | 1 | U | | | | | | | | | | |
| XYLENES, TOTAL | 1 | U | | | | | | | | | | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW10D-GW-04 | | | DRMO-6MW10S-GW-04 | | | DRMO-6MW11D-GW-04 | | | DRMO-6MW11S-GW-04 | | |
| SAMPLE DATE: | 04/20/99 | | | 04/20/99 | | | 04/22/99 | | | 04/22/99 | | |
| LABORATORY ID: | 990338-04 | | | 990338-05 | | | 990338-11 | | | 990338-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| 1,2-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 1,3-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 1,4-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4,5-TRICHLOROPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 2,4,6-TRICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DIMETHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DINITROPHENOL | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C |
| 2,4-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,6-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-CHLORONAPHTHALENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-CHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 2-NITROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 3&4-METHYLPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 3,3'-DICHLOROBENZIDINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 3-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 4,6-DINITRO-2-METHYLPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 4-BROMOPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLORO-3-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLOROANILINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLOROPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 4-NITROPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| BENZOIC ACID | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C |
| BIS(2-CHLOROETHOXY)METHANE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| BIS(2-CHLOROETHYL)ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 2 | J | P | 2 | J | P | 5 | U | | 5 | U | |
| BUTYLBENZYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DI-N-BUTYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DI-N-OCTYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DIETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW10D-GW-04 | | | DRMO-6MW10S-GW-04 | | | DRMO-6MW11D-GW-04 | | | DRMO-6MW11S-GW-04 | | |
| SAMPLE DATE: | 04/20/99 | | | 04/20/99 | | | 04/22/99 | | | 04/22/99 | | |
| LABORATORY ID: | 990338-04 | | | 990338-05 | | | 990338-11 | | | 990338-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| DIMETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBUTADIENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROCYCLOPENTADIENE | 5 | UJ | C | 5 | UJ | C | 5 | UJ | C | 5 | UJ | C |
| HEXACHLOROETHANE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| ISOPHORONE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| N-NITROSO-DI-N-PROPYLAMINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| N-NITROSODIPHENYLAMINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| NITROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| PENTACHLOROPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| PHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW1S-GW-04 | | | DRMO-6MW2D-GW-04 | | | DRMO-6MW2S-GW-04 | | | DRMO-6MW6D-GW-04 | | |
| SAMPLE DATE: | 04/23/99 | | | 04/21/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-12 | | | 990338-07 | | | 990338-06 | | | 990338-03 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| 1,2-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 1,3-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 1,4-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4,5-TRICHLOROPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 2,4,6-TRICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DIMETHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DINITROPHENOL | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C |
| 2,4-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,6-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-CHLORONAPHTHALENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-CHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 2-NITROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 3&4-METHYLPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 3,3'-DICHLOROBENZIDINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 3-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 4,6-DINITRO-2-METHYLPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 4-BROMOPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLORO-3-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLOROANILINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLOROPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| 4-NITROPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| BENZOIC ACID | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C |
| BIS(2-CHLOROETHOXY)METHANE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| BIS(2-CHLOROETHYL)ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 7 | | | 8 | | | 1 | J | P | 3 | J | P |
| BUTYLBENZYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DI-N-BUTYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DI-N-OCTYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DIETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| SAMPLE NUMBER: | DRMO-6MW1S-GW-04 | | | DRMO-6MW2D-GW-04 | | | DRMO-6MW2S-GW-04 | | | DRMO-6MW6D-GW-04 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 04/23/99 | | | 04/21/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-12 | | | 990338-07 | | | 990338-06 | | | 990338-03 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| DIMETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBUTADIENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROCYCLOPENTADIENE | 5 | UJ | C | 5 | UJ | C | 5 | UJ | C | 5 | UJ | C |
| HEXACHLOROETHANE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| ISOPHORONE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| N-NITROSO-DI-N-PROPYLAMINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| N-NITROSODIPHENYLAMINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| NITROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| PENTACHLOROPHENOL | 10 | U | | 10 | U | | 10 | U | | 10 | U | |
| PHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW6S-GW-04 | | | DRMO-6MW9S-GW-04 | | | GWFD-042199 | | | | | |
| SAMPLE DATE: | 04/19/99 | | | 04/23/99 | | | 04/21/99 | | | / / | | |
| LABORATORY ID: | 990338-02 | | | 990338-13 | | | 990338-08 | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | | | |
| FIELD DUPLICATE OF: | | | | | | | DRMO-6MW2S-GW-04 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| 1,2-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | | | |
| 1,3-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | | | |
| 1,4-DICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | | | |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 5 | U | | 5 | U | | 5 | U | | | | |
| 2,4,5-TRICHLOROPHENOL | 10 | U | | 10 | U | | 10 | U | | | | |
| 2,4,6-TRICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | | | |
| 2,4-DICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | | | |
| 2,4-DIMETHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | | | |
| 2,4-DINITROPHENOL | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C | | | |
| 2,4-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | | | |
| 2,6-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | | | |
| 2-CHLORONAPHTHALENE | 5 | U | | 5 | U | | 5 | U | | | | |
| 2-CHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | | | |
| 2-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | | | |
| 2-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | | | |
| 2-NITROPHENOL | 5 | U | | 5 | U | | 5 | U | | | | |
| 3&4-METHYLPHENOL | 10 | U | | 10 | U | | 10 | U | | | | |
| 3,3'-DICHLOROBENZIDINE | 5 | U | | 5 | U | | 5 | U | | | | |
| 3-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | | | |
| 4,6-DINITRO-2-METHYLPHENOL | 10 | U | | 10 | U | | 10 | U | | | | |
| 4-BROMOPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | | | |
| 4-CHLORO-3-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | | | |
| 4-CHLOROANILINE | 5 | U | | 5 | U | | 5 | U | | | | |
| 4-CHLOROPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | | | |
| 4-NITROANILINE | 10 | U | | 10 | U | | 10 | U | | | | |
| 4-NITROPHENOL | 10 | U | | 10 | U | | 10 | U | | | | |
| BENZOIC ACID | 10 | UJ | C | 10 | UJ | C | 10 | UJ | C | | | |
| BIS(2-CHLOROETHOXY)METHANE | 5 | U | | 5 | U | | 5 | U | | | | |
| BIS(2-CHLOROETHYL)ETHER | 5 | U | | 5 | U | | 5 | U | | | | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 5 | U | | 5 | U | | 5 | U | | | | |
| BUTYLBENZYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | | | |
| DI-N-BUTYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | | | |
| DI-N-OCTYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | | | |
| DIETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | | | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW6S-GW-04 | | | DRMO-6MW9S-GW-04 | | | GWFD-042199 | | | | | |
| SAMPLE DATE: | 04/19/99 | | | 04/23/99 | | | 04/21/99 | | | / / | | |
| LABORATORY ID: | 990338-02 | | | 990338-13 | | | 990338-08 | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | | | |
| FIELD DUPLICATE OF: | | | | | | | DRMO-6MW2S-GW-04 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| DIMETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | | | |
| HEXACHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | | | |
| HEXACHLOROBUTADIENE | 5 | U | | 5 | U | | 5 | U | | | | |
| HEXACHLOROCYCLOPENTADIENE | 5 | UJ | C | 5 | UJ | C | 5 | UJ | C | | | |
| HEXACHLOROETHANE | 5 | U | | 5 | U | | 5 | U | | | | |
| ISOPHORONE | 5 | U | | 5 | U | | 5 | U | | | | |
| N-NITROSO-DI-N-PROPYLAMINE | 5 | U | | 5 | U | | 5 | U | | | | |
| N-NITROSODIPHENYLAMINE | 5 | U | | 5 | U | | 5 | U | | | | |
| NITROBENZENE | 5 | U | | 5 | U | | 5 | U | | | | |
| PENTACHLOROPHENOL | 10 | U | | 10 | U | | 10 | U | | | | |
| PHENOL | 5 | U | | 5 | U | | 5 | U | | | | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| SAMPLE NUMBER: | DRMO-6MW10D-GW-04 | | | DRMO-6MW10S-GW-04 | | | DRMO-6MW11D-GW-04 | | | DRMO-6MW11S-GW-04 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 04/20/99 | | | 04/20/99 | | | 04/22/99 | | | 04/22/99 | | |
| LABORATORY ID: | 990338-04 | | | 990338-05 | | | 990338-11 | | | 990338-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **PESTICIDES/PCBs** | | | | | | | | | | | | |
| 4,4'-DDD | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| 4,4'-DDE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| 4,4'-DDT | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ALDRIN | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| AROCLOR-1016 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1221 | 0.40 | U | | 0.40 | U | | 0.40 | U | | 0.40 | U | |
| AROCLOR-1232 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1242 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1248 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1254 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1260 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| BETA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| DELTA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| DIELDRIN | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDOSULFAN I | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ENDOSULFAN II | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDOSULFAN SULFATE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDRIN | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDRIN ALDEHYDE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDRIN KETONE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| GAMMA-BHC (LINDANE) | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| GAMMA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR EPOXIDE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEXACHLOROBIPHENYL | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| METHOXYCHLOR | 0.10 | U | | 0.10 | U | | 0.10 | U | | 0.10 | U | |
| TOXAPHENE | 1.0 | U | | 1.0 | U | | 1.0 | U | | 1.0 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| SAMPLE NUMBER: | DRMO-6MW1S-GW-04 | | | DRMO-6MW2D-GW-04 | | | DRMO-6MW2S-GW-04 | | | DRMO-6MW6D-GW-04 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 04/23/99 | | | 04/21/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-12 | | | 990338-07 | | | 990338-06 | | | 990338-03 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **PESTICIDES/PCBs** | | | | | | | | | | | | |
| 4,4'-DDD | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| 4,4'-DDE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| 4,4'-DDT | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ALDRIN | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| AROCLOR-1016 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1221 | 0.40 | U | | 0.40 | U | | 0.40 | U | | 0.40 | U | |
| AROCLOR-1232 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1242 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1248 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1254 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| AROCLOR-1260 | 0.20 | U | | 0.20 | U | | 0.20 | U | | 0.20 | U | |
| BETA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| DELTA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| DIELDRIN | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDOSULFAN I | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ENDOSULFAN II | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDOSULFAN SULFATE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDRIN | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDRIN ALDEHYDE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| ENDRIN KETONE | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| GAMMA-BHC (LINDANE) | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| GAMMA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR EPOXIDE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEXACHLOROBIPHENYL | 0.020 | U | | 0.020 | U | | 0.020 | U | | 0.020 | U | |
| METHOXYCHLOR | 0.10 | U | | 0.10 | U | | 0.10 | U | | 0.10 | U | |
| TOXAPHENE | 1.0 | U | | 1.0 | U | | 1.0 | U | | 1.0 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW6S-GW-04 | | | DRMO-6MW9S-GW-04 | | | GWFD-042199 | | | / / | | |
| SAMPLE DATE: | 04/19/99 | | | 04/23/99 | | | 04/21/99 | | | | | |
| LABORATORY ID: | 990338-02 | | | 990338-13 | | | 990338-08 | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | | | |
| FIELD DUPLICATE OF: | | | | | | | DRMO-6MW2S-GW-04 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **PESTICIDES/PCBs** | | | | | | | | | | | | |
| 4,4'-DDD | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| 4,4'-DDE | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| 4,4'-DDT | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| ALDRIN | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| ALPHA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| ALPHA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| AROCLOR-1016 | 0.20 | U | | 0.20 | U | | 0.20 | U | | | | |
| AROCLOR-1221 | 0.40 | U | | 0.40 | U | | 0.40 | U | | | | |
| AROCLOR-1232 | 0.20 | U | | 0.20 | U | | 0.20 | U | | | | |
| AROCLOR-1242 | 0.20 | U | | 0.20 | U | | 0.20 | U | | | | |
| AROCLOR-1248 | 0.20 | U | | 0.20 | U | | 0.20 | U | | | | |
| AROCLOR-1254 | 0.20 | U | | 0.20 | U | | 0.20 | U | | | | |
| AROCLOR-1260 | 0.20 | U | | 0.20 | U | | 0.20 | U | | | | |
| BETA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| DELTA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| DIELDRIN | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| ENDOSULFAN I | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| ENDOSULFAN II | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| ENDOSULFAN SULFATE | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| ENDRIN | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| ENDRIN ALDEHYDE | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| ENDRIN KETONE | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| GAMMA-BHC (LINDANE) | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| GAMMA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| HEPTACHLOR | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| HEPTACHLOR EPOXIDE | 0.010 | U | | 0.010 | U | | 0.010 | U | | | | |
| HEXACHLOROBIPHENYL | 0.020 | U | | 0.020 | U | | 0.020 | U | | | | |
| METHOXYCHLOR | 0.10 | U | | 0.10 | U | | 0.10 | U | | | | |
| TOXAPHENE | 1.0 | U | | 1.0 | U | | 1.0 | U | | | | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW10D-GW-04 | | | DRMO-6MW10S-GW-04 | | | DRMO-6MW11D-GW-04 | | | DRMO-6MW11S-GW-04 | | |
| SAMPLE DATE: | 04/20/99 | | | 04/20/99 | | | 04/22/99 | | | 04/22/99 | | |
| LABORATORY ID: | 990338-04 | | | 990338-05 | | | 990338-11 | | | 990338-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 2-METHYLNAPHTHALENE | 0.5 | U | | 0.5 | U | | 0.05 | U | | 0.5 | U | |
| ACENAPHTHENE | 0.5 | U | | 0.5 | U | | 0.05 | U | | 0.5 | U | |
| ACENAPHTHYLENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| ANTHRACENE | 0.05 | U | | 0.05 | U | | 0.05 | U | | 0.046 | J | P |
| BENZO(A)ANTHRACENE | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | C |
| BENZO(A)PYRENE | 0.05 | U | | 0.05 | U | | 0.05 | U | | 0.05 | U | |
| BENZO(B)FLUORANTHENE | 0.10 | U | | 0.10 | U | | 0.10 | U | | 0.10 | U | |
| BENZO(G,H,I)PERYLENE | 0.10 | U | | 0.10 | U | | 0.10 | U | | 0.10 | U | |
| BENZO(K)FLUORANTHENE | 0.05 | U | | 0.05 | U | | 0.05 | U | | 0.05 | U | |
| CHRYSENE | 0.05 | U | | 0.05 | U | | 0.05 | U | | 0.05 | U | |
| DIBENZO(A,H)ANTHRACENE | 0.025 | U | | 0.027 | | | 0.025 | U | | 0.025 | U | |
| DIBENZOFURAN | 0.05 | U | | 0.05 | U | | 0.05 | U | | 0.05 | U | |
| FLUORANTHENE | 0.047 | J | CP | 0.1 | UJ | C | 0.1 | UJ | C | 0.11 | J | C |
| FLUORENE | 0.1 | U | | 0.1 | U | | 0.1 | U | | 0.070 | J | P |
| INDENO(1,2,3-CD)PYRENE | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | C |
| NAPHTHALENE | 0.5 | U | | 0.5 | U | | 0.5 | U | | 0.5 | U | |
| PHENANTHRENE | 0.039 | J | P | 0.05 | U | | 0.037 | J | P | 0.052 | | |
| PYRENE | 0.05 | U | | 0.069 | | | 0.05 | U | | 0.14 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW1S-GW-04 | | | DRMO-6MW2D-GW-04 | | | DRMO-6MW2S-GW-04 | | | DRMO-6MW6D-GW-04 | | |
| SAMPLE DATE: | 04/23/99 | | | 04/21/99 | | | 04/21/99 | | | 04/19/99 | | |
| LABORATORY ID: | 990338-12 | | | 990338-07 | | | 990338-06 | | | 990338-03 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 2-METHYLNAPHTHALENE | 0.5 | U | | 0.5 | U | | 0.5 | U | | 0.5 | U | |
| ACENAPHTHENE | 0.5 | U | | 0.5 | U | | 0.5 | U | | 0.5 | U | |
| ACENAPHTHYLENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| ANTHRACENE | 0.05 | U | | 0.05 | U | | 0.070 | | | 0.05 | U | |
| BENZO(A)ANTHRACENE | 0.05 | UJ | C | 0.05 | UJ | C | 0.11 | J | CG | 0.05 | UJ | C |
| BENZO(A)PYRENE | 0.05 | U | | 0.05 | U | | 0.13 | J | G | 0.05 | U | |
| BENZO(B)FLUORANTHENE | 0.10 | U | | 0.10 | U | | 0.13 | | | 0.10 | U | |
| BENZO(G,H,I)PERYLENE | 0.10 | U | | 0.10 | U | | 0.10 | | | 0.10 | U | |
| BENZO(K)FLUORANTHENE | 0.05 | U | | 0.05 | U | | 0.13 | J | G | 0.05 | U | |
| CHRYSENE | 0.05 | U | | 0.05 | U | | 0.12 | J | G | 0.05 | U | |
| DIBENZO(A,H)ANTHRACENE | 0.025 | U | | 0.025 | U | | 0.17 | J | G | 0.025 | U | |
| DIBENZOFURAN | 0.05 | U | | 0.05 | U | | 0.05 | U | | 0.05 | U | |
| FLUORANTHENE | 0.1 | UJ | C | 0.1 | UJ | C | 0.088 | J | CP | 0.1 | UJ | C |
| FLUORENE | 0.1 | U | | 0.1 | U | | 0.1 | U | | 0.1 | U | |
| INDENO(1,2,3-CD)PYRENE | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | C |
| NAPHTHALENE | 0.5 | U | | 0.5 | U | | 0.5 | U | | 0.5 | U | |
| PHENANTHRENE | 0.05 | U | | 0.05 | U | | 0.12 | J | G | 0.05 | U | |
| PYRENE | 0.05 | U | | 0.05 | U | | 0.12 | J | G | 0.05 | U | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## CEIMIC CORPORATION
## SDG: 990338



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW6S-GW-04 | | | DRMO-6MW9S-GW-04 | | | GWFD-042199 | | | | | |
| SAMPLE DATE: | 04/19/99 | | | 04/23/99 | | | 04/21/99 | | | / / | | |
| LABORATORY ID: | 990338-02 | | | 990338-13 | | | 990338-08 | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | | | |
| FIELD DUPLICATE OF: | | | | | | | DRMO-6MW2S-GW-04 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 2-METHYLNAPHTHALENE | 0.5 | U | | 0.5 | U | | 0.5 | U | | | | |
| ACENAPHTHENE | 0.5 | U | | 0.5 | U | | 0.5 | U | | | | |
| ACENAPHTHYLENE | 1 | U | | 1 | U | | 1 | U | | | | |
| ANTHRACENE | 0.05 | U | | 0.05 | U | | 0.05 | U | | | | |
| BENZO(A)ANTHRACENE | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | G | | | |
| BENZO(A)PYRENE | 0.05 | U | | 0.05 | U | | 0.05 | UJ | G | | | |
| BENZO(B)FLUORANTHENE | 0.10 | U | | 0.10 | U | | 0.10 | U | | | | |
| BENZO(G,H,I)PERYLENE | 0.10 | U | | 0.10 | U | | 0.10 | U | | | | |
| BENZO(K)FLUORANTHENE | 0.05 | U | | 0.05 | U | | 0.05 | UJ | G | | | |
| CHRYSENE | 0.05 | U | | 0.05 | U | | 0.05 | UJ | G | | | |
| DIBENZO(A,H)ANTHRACENE | 0.025 | U | | 0.025 | U | | 0.025 | UJ | G | | | |
| DIBENZOFURAN | 0.05 | U | | 0.05 | U | | 0.05 | U | | | | |
| FLUORANTHENE | 0.1 | UJ | C | 0.1 | UJ | C | 0.1 | U | | | | |
| FLUORENE | 0.1 | U | | 0.1 | U | | 0.1 | U | | | | |
| INDENO(1,2,3-CD)PYRENE | 0.05 | UJ | C | 0.05 | UJ | C | 0.05 | UJ | C | | | |
| NAPHTHALENE | 0.5 | U | | 0.5 | U | | 0.5 | U | | | | |
| PHENANTHRENE | 0.05 | U | | 0.05 | U | | 0.05 | UJ | G | | | |
| PYRENE | 0.05 | U | | 0.05 | U | | 0.05 | UJ | G | | | |

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

**PITT-06-9-072**

**TO:** **M. MENGEL** **DATE:** **JULY 19, 1999**

**FROM:** **TERRI L. SOLOMON** **COPIES:** **DV FILE**

**SUBJECT:** **INORGANIC DATA VALIDATION - METALS**
**CTO 267 - NSB NEW LONDON, CONNECTICUT**
**SDG – NSBQ299**

**SAMPLES:** 22/Aqueous/

| | | |
|---|---|---|
| DRMO-6MW10D-GW-04 | DRMO-6MW10D-GW-04-F | DRMO-6MW10S-GW-04 |
| DRMO-6MW10S-GW-04-F | DRMO-6MW11D-GW-04 | DRMO-6MW11D-GW-04-F |
| DRMO-6MW11S-GW-04 | DRMO-6MW11S-GW-04-F | DRMO-6MW1S-GW-04 |
| DRMO-6MW1S-GW-04-F | DRMO-6MW2D-GW-04 | DRMO-6MW2D-GW-04-F |
| DRMO-6MW2S-GW-04 | DRMO-6MW2S-GW-04-F | DRMO-6MW6D-GW-04 |
| DRMO-6MW6D-GW-04-F | DRMO-6MW6S-GW-04 | DRMO-6MW6S-GW-04-F |
| DRMO-6MW9S-GW-04 | DRMO-6MW9S-GW-04-F | GWFD-042199 |
| GWFD-0442199-F | | |

Overview

The sample set for CTO 267, NSB New London, SDG NSBQ299, consists of twenty-two (22) aqueous environmental samples. Two (2) field duplicate pairs (DRMO-6MW2S-GW-04 / GWFD-042199 and DRMO-6MW2S-GW-04-F / GWFD-042199-F) were included within this SDG.

All samples, with the exception of those designated -F, were analyzed for total Target Analyte List (TAL) metals. Samples designated -F were analyzed for dissolved TAL metals. The samples were collected by Tetra Tech NUS on April 19, 20, 21, 22 and 23, 1999 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. The TAL metals analyses were conducted using "USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis", document ILM04.0. All analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA). These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Calibration Verifications
• Laboratory Blank Analyses
• Interference Check Sample Analyses
• Matrix Spike Results
* • Laboratory Duplicate Results
* • Field Duplicate Results
* • Serial Dilution Analyses
* • Detection Limits
* • Sample Quantitation

* - All quality control criteria were met for this parameter.

Calibration Verifications

The Contract Required Detection Limit (CRDL) Percent Recovery (%R) for lead affecting all samples was > 120% quality control limit. Positive results < 3X CRDL reported for the aforementioned analyte were qualified as estimated, "J".

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

| Analyte | Maximum Concentration | Aqueous Action Level |
|---|---|---|
| aluminum[2] | -75.41 | |
| aluminum | 15.27 ug/L | 76.35 ug/L |
| antimony | 3.62 ug/L | 18.1 ug/L |
| barium[2] | -0.28 ug/L | |
| beryllium | 0.64 ug/L | 3.2 ug/L |
| cadmium | 2.28 ug/L | 11.4 ug/L |
| calcium[1] | 36.470 ug/L | 182.35 ug/L |
| copper[2] | -1.28 ug/L | |
| iron[1] | 12.910 ug/L | 64.55 ug/L |
| magnesium[2] | -26.81 ug/L | |
| magnesium | 18.47 ug/L | 92.35 ug/L |
| nickel | 1.09 ug/L | 5.45 ug/L |
| sodium | 144.530 ug/L | 722.65 ug/L |
| thallium | 6.88 ug/L | 34.4 ug/L |
| zinc[1] | 7.410 ug/L | 37.05 ug/L |

Affects samples: All

(1) Maximum concentration present in an aqueous preparation blank
(2) Maximum concentration present in a method blank affecting samples DRMO-6MW10D-GW-04, DRMO-6MW2S-GW-04, DRMO-6MW2D-GW-04, GWFD-042199, DRMO-6MW11D-GW-04, DRMO-6MW10D-GW-04-F, DRMO-6MW2S-GW-04-F, DRMO-6MW2D-GW-04-F, GWFD-042199-F and DRMO-6MW11D-GW-04-F only.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Dilution factors and sample aliquots were taken into consideration when evaluating for blank contamination. Positive results less than the action level for aluminum, antimony, beryllium, cadmium, iron, nickel, thallium and zinc have been qualified as nondetected, "U". Action was not taken for the remaining elements as the results were either greater than the action level or were nondetects.

The blank results for aluminum, barium, copper and magnesium were > 2X the negative Instrument Detection Limit (IDL). The possibility of false negatives may exist, therefore the positive results and nondetects reported for the aforementioned analytes in the affected samples on instrument TJA Trace ICP were qualified as estimated, "J" and "UJ", respectively.

Matrix Spike Results

The matrix spike (MS) percent recoveries (%Rs) for selenium affecting the TAL metals and the dissolved TAL metals were < 30% quality control limit. The positive results reported for the aforementioned analyte were qualified as estimated, "J". The nondetected results reported for the aforementioned analyte were qualified as rejected, "UR".

The MS %R for arsenic affecting the dissolved TAL metals was > 125% quality control limit. The positive results reported for the aforementioned analyte were qualified as estimated, "J".

The MS %R for thallium affecting the dissolved TAL metals was < 75% quality control limit. The nondetected results reported for the aforementioned analyte were qualified as estimated, "UJ".

Notes

Several continuing calibration percent recoveries for arsenic and nickel were > 110% quality control limit. However, no validation actions were required as no sample results were affected by these noncompliances.

Several CRDL %Rs for chromium, lead, selenium and thallium were outside the 80-120% quality control limits. However, no validation actions were required as no sample results were affected by these noncompliances.

The CRDL %R for thallium was > 120% quality control limit. However, no validation actions were warranted as all sample results were either nondetects or were qualified as blank contamination.

Several ICP interference percent recoveries were outside the 80-120% quality control limits. However, no validation actions were required as no sample results were affected by these noncompliances.

Sample results < 2X the Instrument Detection Limit (IDL) for arsenic, lead, manganese and mercury were qualified as estimated, "J".

It should be noted that saveral rounding differences were present between the Form Is and the electronic data.

Executive Summary

**Laboratory Performance:** Several CRDL %Rs were outside the 80-120% quality control limits. Several analytes were detected in the laboratory method / preparation blanks.

**Other Factors Affecting Data Quality:** The MS %Rs for selenium affecting the TAL metals and the dissolved TAL metals were < 30% quality control limit. The MS %R for arsenic affecting the dissolved TAL metals was > 125% quality control limit. The MS %R for thallium affecting the dissolved TAL metals was < 75% quality control limit. Sample results < 2X the IDL for arsenic, lead, manganese and mercury were qualified as estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994, "EPA Region I Functional Guidelines for Evaluating Inorganic Analyses", February 1989 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Terri L. Solomon
Chemist

Tetra tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4. Appendix D - Support Documentation

**Qualifier Codes:**

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicat Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

# APPENDIX A
## Qualified Analytical Results

# CTO267 - NSB NEW LONDON
## WATER DATA
## KATAHDIN
## SDG: NSBQ299



| SAMPLE NUMBER: | DRMO-6MW10D-GW-04 | | | DRMO-6MW10D-GW-04-F | | | DRMO-6MW10S-GW-04 | | | DRMO-6MW10S-GW-04-F | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 04/20/99 | | | 04/20/99 | | | 04/20/99 | | | 04/20/99 | | |
| LABORATORY ID: | WP2147-3 | | | WP2147-14 | | | WP2147-4 | | | WP2147-15 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 105 | UJ | A | 105 | UJ | A | 22.6 | U | A | 10.8 | U | |
| ANTIMONY | 10.5 | U | A | 14.8 | U | A | 4.0 | U | A | 4.6 | U | A |
| ARSENIC | 10.4 | U | | 10.4 | U | | 2.1 | U | | 2.1 | U | |
| BARIUM | 65.0 | J | A | 61.3 | J | A | 112 | | | 115 | | |
| BERYLLIUM | 1.1 | U | | 1.05 | U | | 0.38 | U | A | 0.56 | U | A |
| CADMIUM | 1.3 | U | | 1.3 | U | | 1.9 | U | | 1.9 | U | |
| CALCIUM | 192000 | | | 190000 | | | 95000 | | | 93500 | | |
| CHROMIUM | 3.0 | U | | 5.1 | | | 4.3 | U | | 4.3 | U | |
| COBALT | 3.2 | U | | 5.8 | | | 4.5 | U | | 4.5 | U | |
| COPPER | 2.8 | UJ | A | 3.2 | J | A | 6.9 | | | 1.6 | U | |
| IRON | 1630 | | | 1300 | | | 1540 | | | 1470 | | |
| LEAD | 5.5 | U | | 5.45 | U | | 2.0 | J | CP | 1.1 | U | |
| MAGNESIUM | 417000 | J | A | 416000 | J | A | 166000 | | | 161000 | | |
| MANGANESE | 716 | | | 701 | | | 463 | | | 450 | | |
| MERCURY | 0.02 | U | | 0.02 | U | | 0.02 | U | | 0.02 | U | |
| NICKEL | 17.7 | U | A | 16.4 | U | A | 20.4 | | | 28.6 | | |
| POTASSIUM | 146000 | | | 143000 | | | 56100 | | | 55400 | | |
| SELENIUM | 12.9 | UR | D | 12.9 | UR | D | 2.6 | UR | D | 2.6 | UR | D |
| SILVER | 3.5 | U | | 5.5 | | | 2.5 | U | | 2.5 | U | |
| SODIUM | 3680000 | | | 3590000 | | | 1380000 | | | 1370000 | | |
| THALLIUM | 22.5 | U | | 22.5 | UJ | D | 4.5 | U | | 4.5 | UJ | D |
| VANADIUM | 3.1 | U | | 3.1 | U | | 48.1 | | | 40.6 | | |
| ZINC | 513 | | | 451 | | | 24.1 | U | A | 7.8 | U | A |

# CTO267 - NSB NEW LONDON
## WATER DATA
## KATAHDIN
## SDG: NSBQ299



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW11D-GW-04 | | | DRMO-6MW11D-GW-04-F | | | DRMO-6MW11S-GW-04 | | | DRMO-6MW11S-GW-04-F | | |
| SAMPLE DATE: | 04/22/99 | | | 04/22/99 | | | 04/22/99 | | | 04/22/99 | | |
| LABORATORY ID: | WP2147-9 | | | WP2147-20 | | | WP2147-8 | | | WP2147-19 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 184 | J | A | 105 | UJ | A | 32.0 | U | A | 10.8 | U | |
| ANTIMONY | 9.1 | U | | 21.0 | U | A | 4.2 | U | A | 1.8 | U | |
| ARSENIC | 10.4 | U | | 10.4 | U | | 2.7 | J | P | 2.1 | U | |
| BARIUM | 269 | J | A | 265 | J | A | 83.2 | | | 76.1 | | |
| BERYLLIUM | 1.1 | U | | 1.1 | U | | 0.62 | U | A | 0.38 | U | A |
| CADMIUM | 1.3 | U | | 1.3 | U | | 1.9 | U | | 1.9 | U | |
| CALCIUM | 333000 | | | 346000 | | | 97400 | | | 93600 | | |
| CHROMIUM | 23.2 | | | 3.0 | U | | 4.3 | U | | 4.3 | U | |
| COBALT | 3.2 | U | | 4.0 | | | 4.5 | U | | 4.5 | U | |
| COPPER | 2.8 | UJ | A | 2.8 | UJ | A | 7.1 | | | 1.6 | U | |
| IRON | 2700 | | | 2110 | | | 530 | | | 429 | | |
| LEAD | 5.5 | U | | 5.5 | U | | 1.7 | J | CP | 1.1 | U | |
| MAGNESIUM | 827000 | J | A | 866000 | J | A | 211000 | | | 205000 | | |
| MANGANESE | 991 | | | 1010 | | | 336 | | | 322 | | |
| MERCURY | 0.04 | J | P | 0.02 | U | | 0.02 | J | P | 0.02 | U | |
| NICKEL | 4.3 | U | | 7.6 | U | A | 13.2 | U | | 13.2 | U | |
| POTASSIUM | 262000 | | | 267000 | | | 69800 | | | 68000 | | |
| SELENIUM | 17.1 | J | D | 12.9 | UR | D | 2.6 | UR | D | 2.6 | UR | D |
| SILVER | 3.5 | U | | 3.9 | | | 2.5 | U | | 2.5 | U | |
| SODIUM | 6540000 | | | 6660000 | | | 1740000 | | | 1700000 | | |
| THALLIUM | 22.5 | U | | 22.5 | UJ | D | 4.5 | U | | 4.5 | UJ | D |
| VANADIUM | 3.1 | U | | 3.1 | U | | 27.6 | | | 22.8 | | |
| ZINC | 8.9 | U | A | 4.6 | U | A | 45.3 | | | 5.0 | U | A |

7-19-99
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# CTO267 - NSB NEW LONDON
## WATER DATA
## KATAHDIN
## SDG: NSBQ299



| SAMPLE NUMBER: | DRMO-6MW1S-GW-04 | DRMO-6MW1S-GW-04-F | DRMO-6MW2D-GW-04 | DRMO-6MW2D-GW-04-F |
|---|---|---|---|---|
| SAMPLE DATE: | 04/23/99 | 04/23/99 | 04/21/99 | 04/21/99 |
| LABORATORY ID: | WP2147-10 | WP2147-21 | WP2147-6 | WP2147-17 |
| QC_TYPE: | NORMAL | NORMAL | NORMAL | NORMAL |
| % SOLIDS: | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| UNITS: | UG/L | UG/L | UG/L | UG/L |
| FIELD DUPLICATE OF: | | | | |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 10.8 | U | | 10.8 | U | | 263 | J | A | 105 | UJ | A |
| ANTIMONY | 2.8 | U | A | 5.2 | U | A | 14.0 | U | A | 16.2 | U | A |
| ARSENIC | 2.1 | U | | 2.1 | U | | 10.4 | U | | 10.4 | U | |
| BARIUM | 9.9 | | | 11.2 | | | 168 | J | A | 164 | J | A |
| BERYLLIUM | 0.33 | U | | 0.33 | U | | 1.1 | U | | 1.1 | U | |
| CADMIUM | 1.9 | U | | 1.9 | U | | 1.3 | U | | 1.3 | U | |
| CALCIUM | 55200 | | | 56300 | | | 298000 | | | 303000 | | |
| CHROMIUM | 4.3 | U | | 4.3 | U | | 4.8 | | | 3.0 | U | |
| COBALT | 4.5 | U | | 4.5 | U | | 3.2 | U | | 3.2 | U | |
| COPPER | 1.6 | U | | 1.6 | U | | 4.8 | J | A | 2.8 | UJ | A |
| IRON | 16.3 | U | A | 16.7 | U | A | 4300. | | | 3370 | | |
| LEAD | 1.1 | U | | 1.1 | U | | 5.5 | U | | 5.5 | U | |
| MAGNESIUM | 144000 | | | 147000 | | | 805000 | J | A | 820000 | J | A |
| MANGANESE | 0.97 | U | | 1.9 | J | P | 715 | | | 720 | | |
| MERCURY | 0.02 | U | | 0.02 | U | | 0.02 | U | | 0.02 | U | |
| NICKEL | 13.2 | U | | 13.2 | U | | 7.2 | U | A | 7.5 | U | A |
| POTASSIUM | 48000 | | | 49900 | | | 292000 | | | 286000 | | |
| SELENIUM | 2.6 | UR | D | 2.6 | UR | D | 12.9 | UR | D | 12.9 | UR | D |
| SILVER | 2.5 | U | | 2.5 | U | | 3.5 | U | | 3.5 | U | |
| SODIUM | 1180000 | | | 1210000 | | | 6870000 | | | 6830000 | | |
| THALLIUM | 4.5 | U | | 4.5 | UJ | D | 22.5 | U | | 22.5 | UJ | D |
| VANADIUM | 3.6 | U | | 3.6 | U | | 3.1 | U | | 3.1 | U | |
| ZINC | 9.6 | U | A | 10.3 | U | A | 14.6 | U | A | 43.6 | U | A |

# CTO267 - NSB NEW LONDON
## WATER DATA
## KATAHDIN
## SDG: NSBQ299



| SAMPLE NUMBER: | DRMO-6MW2S-GW-04 | | | DRMO-6MW2S-GW-04-F | | | DRMO-6MW6D-GW-04 | | | DRMO-6MW6D-GW-04-F | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 04/21/99 | | | 04/21/99 | | | 04/19/99 | | | 04/19/99 | | |
| LABORATORY ID: | WP2147-5 | | | WP2147-16 | | | WP2147-2 | | | WP2147-13 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 105 | UJ | A | 105 | UJ | A | 23.2 | U | A | 10.8 | U | |
| ANTIMONY | 19.3 | U | A | 13.6 | U | A | 1.8 | U | | 3.5 | U | A |
| ARSENIC | 10.4 | U | | 10.4 | U | | 2.1 | U | | 2.1 | U | |
| BARIUM | 21.9 | J | A | 20.5 | J | A | 47.1 | | | 44.2 | | |
| BERYLLIUM | 1.1 | U | | 1.1 | U | | 0.37 | U | A | 0.33 | U | |
| CADMIUM | 1.3 | U | | 1.3 | U | | 2.4 | U | A | 1.9 | U | |
| CALCIUM | 160000 | | | 148000 | | | 94500 | | | 89200 | | |
| CHROMIUM | 3.0 | U | | 3.0 | U | | 4.3 | U | | 4.3 | U | |
| COBALT | 3.2 | U | | 3.2 | U | | 4.5 | U | | 4.5 | U | |
| COPPER | 2.8 | UJ | A | 3.3 | J | A | 1.6 | U | | 3.9 | | |
| IRON | 61.5 | U | | 61.5 | U | | 5730 | | | 776 | | |
| LEAD | 5.5 | U | | 5.5 | U | | 1.1 | U | | 1.1 | U | |
| MAGNESIUM | 477000 | J | A | 444000 | J | A | 78500 | | | 74200 | | |
| MANGANESE | 10.9 | | | 8.4 | | | 4000 | | | 3680 | | |
| MERCURY | 0.06 | | | 0.02 | U | | 0.02 | U | | 0.02 | U | |
| NICKEL | 4.3 | U | | 4.3 | U | | 13.8 | | | 13.2 | U | |
| POTASSIUM | 160000 | | | 148000 | | | 25500 | | | 23700 | | |
| SELENIUM | 12.9 | UR | D | 12.9 | UR | D | 2.6 | UR | D | 2.6 | UR | D |
| SILVER | 3.5 | U | | 3.5 | U | | 2.5 | U | | 2.5 | U | |
| SODIUM | 4040000 | | | 3660000 | | | 650000 | | | 633000 | | |
| THALLIUM | 22.5 | U | | 22.5 | UJ | D | 4.6 | U | A | 4.5 | UJ | D |
| VANADIUM | 3.1 | U | | 5.4 | | | 3.6 | U | | 3.6 | U | |
| ZINC | 22.9 | U | A | 27.9 | U | A | 13.0 | U | A | 13.7 | U | A |

# CTO267 - NSB NEW LONDON
## WATER DATA
## KATAHDIN
## SDG: NSBQ299



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | DRMO-6MW6S-GW-04 | | | DRMO-6MW6S-GW-04-F | | | DRMO-6MW9S-GW-04 | | | DRMO-6MW9S-GW-04-F | | |
| SAMPLE DATE: | 04/19/99 | | | 04/19/99 | | | 04/23/99 | | | 04/23/99 | | |
| LABORATORY ID: | WP2147-1 | | | WP2147-12 | | | WP2147-11 | | | WP2147-22 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| UNITS: | UG/L | | | UG/L | | | UG/L | | | UG/L | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 16.2 | U | A | 10.8 | U | | 394 | | | 307 | | |
| ANTIMONY | 2.8 | U | A | 1.8 | U | | 2.5 | U | A | 1.8 | U | |
| ARSENIC | 2.1 | U | | 2.1 | U | | 2.1 | U | | 3.2 | J | D |
| BARIUM | 35.8 | | | 33.5 | | | 15.9 | | | 14.5 | | |
| BERYLLIUM | 0.33 | U | | 0.33 | U | | 0.42 | U | A | 0.33 | U | |
| CADMIUM | 1.9 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| CALCIUM | 15100 | | | 14000 | | | 2770 | | | 2630 | | |
| CHROMIUM | 4.3 | U | | 4.3 | U | | 4.3 | U | | 4.3 | U | |
| COBALT | 4.5 | U | | 4.5 | U | | 6.0 | | | 9.7 | | |
| COPPER | 1.6 | U | | 1.6 | U | | 3.0 | | | 2.5 | | |
| IRON | 26.3 | U | A | 8.2 | U | A | 36.7 | U | A | 12.3 | U | A |
| LEAD | 1.1 | U | | 1.1 | U | | 1.1 | U | | 1.1 | U | |
| MAGNESIUM | 3560 | | | 3300 | | | 793 | | | 746 | | |
| MANGANESE | 0.97 | U | | 0.97 | U | | 216 | | | 218 | | |
| MERCURY | 0.02 | U | | 0.02 | U | | 0.02 | U | | 0.02 | U | |
| NICKEL | 13.2 | U | | 13.2 | U | | 13.2 | U | | 13.2 | U | |
| POTASSIUM | 2920 | | | 2720 | | | 832 | | | 604 | | |
| SELENIUM | 2.6 | UR | D | 2.6 | UR | D | 2.6 | UR | D | 2.6 | UR | D |
| SILVER | 2.5 | U | | 2.5 | U | | 2.5 | U | | 2.5 | U | |
| SODIUM | 39500 | | | 35400 | | | 3360 | | | 3220 | | |
| THALLIUM | 5.2 | U | A | 4.5 | UJ | D | 4.5 | U | | 4.5 | UJ | D |
| VANADIUM | 3.6 | U | | 3.6 | U | | 3.6 | U | | 3.6 | U | |
| ZINC | 2.2 | U | A | 2.5 | U | A | 126 | | | 122 | | |

# CTO267 - NSB NEW LONDON
## WATER DATA
## KATAHDIN
## SDG: NSBQ299



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | GWFD-042199 | | | GWFD-042199-F | | | | | | | | |
| SAMPLE DATE: | 04/21/99 | | | 04/21/99 | | | / / | | | / / | | |
| LABORATORY ID: | WP2147-7 | | | WP2147-18 | | | | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | | | | | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | UG/L | | | | | | | | |
| FIELD DUPLICATE OF: | DRMO-6MW2S-GW-04 | | | DRMO-6MW2S-GW-04-F | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 105 | UJ | A | 105 | UJ | A | | | | | | |
| ANTIMONY | 14.1 | U | A | 11.0 | U | A | | | | | | |
| ARSENIC | 10.4 | U | | 10.4 | U | | | | | | | |
| BARIUM | 23.3 | J | A | 20.3 | J | A | | | | | | |
| BERYLLIUM | 1.1 | U | | 1.1 | U | | | | | | | |
| CADMIUM | 1.3 | U | | 1.3 | U | | | | | | | |
| CALCIUM | 162000 | | | 166000 | | | | | | | | |
| CHROMIUM | 4.8 | | | 3.0 | U | | | | | | | |
| COBALT | 7.4 | | | 3.2 | U | | | | | | | |
| COPPER | 2.8 | UJ | A | 2.8 | UJ | A | | | | | | |
| IRON | 61.5 | U | | 61.5 | U | | | | | | | |
| LEAD | 5.5 | U | | 5.5 | U | | | | | | | |
| MAGNESIUM | 484000 | J | A | 499000 | J | A | | | | | | |
| MANGANESE | 10.8 | | | 17.9 | | | | | | | | |
| MERCURY | 0.02 | U | | 0.02 | U | | | | | | | |
| NICKEL | 4.3 | U | | 4.3 | U | | | | | | | |
| POTASSIUM | 160000 | | | 160000 | | | | | | | | |
| SELENIUM | 12.9 | UR | D | 12.9 | UR | D | | | | | | |
| SILVER | 4.3 | | | 3.5 | U | | | | | | | |
| SODIUM | 4000000 | | | 3990000 | | | | | | | | |
| THALLIUM | 27.3 | U | A | 22.5 | U | | | | | | | |
| VANADIUM | 3.1 | U | | 3.1 | UJ | D | | | | | | |
| ZINC | 22.5 | U | A | 21.2 | U | A | | | | | | |