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Round 10 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 0257

March 2001

TETRA TECH NUS, INC.

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ROUND 10 GROUNDWATER MONITORING REPORT
FOR
DEFENSE REUTILIZATION AND MARKETING OFFICE

NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONNECTICUT

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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1.0 INTRODUCTION

This Round 10 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) 0257.

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, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (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 7 test borings and 5 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. Semivolatile 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, 4 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 was 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 10 Groundwater Monitoring Report is to present and evaluate the results of the tenth 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 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 tenth 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).

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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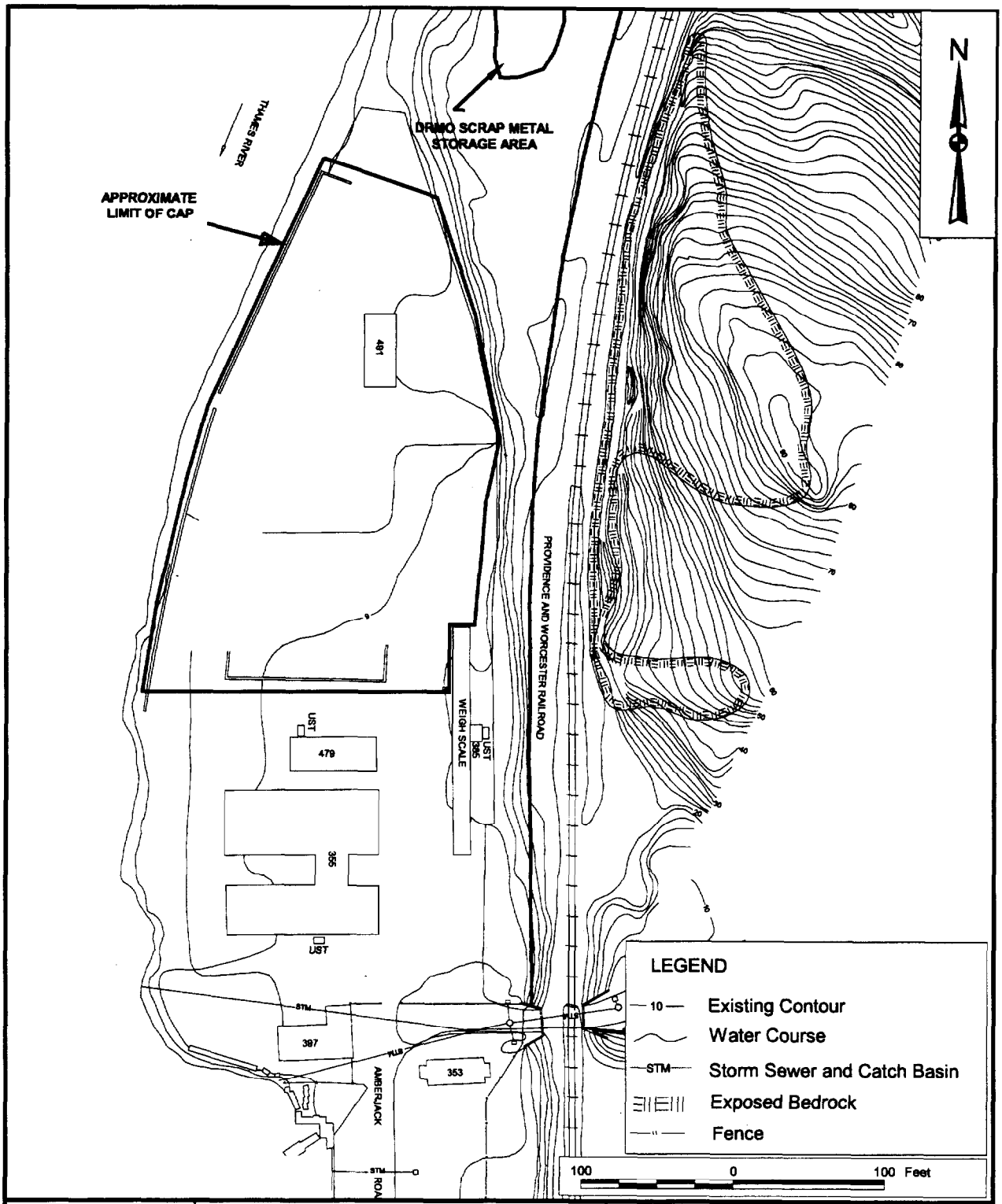
DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NO.
D. PERRY	23-FEB-99		7091	—
CHECKED BY	DATE	SITE LOCATION MAP NSB - NLON GROTON, CONNECTICUT	APPROVED BY	DATE
CAR	10-MAR-99		MDB	10-MAR-99
COST/SCHEDULE-AREA			APPROVED BY	DATE
			—	—
SCALE			DRAWING NO.	REV
AS NOTED			FIGURE 1-1	0

P:\GIS\NLON\7363_267.APR LOCATION MAP LAYOUT 2 MGS 3-2-01



DRAWN BY J. BELLONE DATE 10/1/99	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7363	OWNER NO.
CHECKED BY DATE	DRMO SITE PLAN NSB - NLON GROTON, CONNECTICUT	APPROVED BY Mark L. Mongol DATE 3/5/01	
COST/SCHEDULE-AREA		APPROVED BY — DATE —	
SCALE AS NOTED		DRAWING NO. FIGURE 1-2	REV 0

P:\GIS\NLON\7363ANNUAL.APR DRMO SITE PLAN LAYOUT 3-5-01 MGS

2.0 FIELD INVESTIGATION ACTIVITIES

Field investigation activities as part of the tenth round of groundwater monitoring included two rounds of groundwater level measurements and groundwater sampling of 10 monitoring wells. Monitoring well locations are shown on Figure 2-1. 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). 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 December 15 and 16, 2000, within time periods of 38 minutes prior to and 7 minutes following the predicted high tide on December 15 and 64 to 35 minutes prior to the predicted low tide on December 16 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 tenth 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 power source. Groundwater quality parameters, including pH, specific conductivity, temperature, dissolved oxygen, salinity, and Eh were measured during purging at 5 to 10 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 to 10-minute intervals. Purging continued until the above parameters stabilized. Copies of the low-flow purge data sheets are provided in Appendix E and disposed of.

Following purging, samples were collected directly from the discharge end of the Teflon®-lined pump tubing. The groundwater samples were collected and analyzed for VOCs, SVOCs, PAH, pesticides and PCBs, and total metals. 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.

IDW liquid wastewaters derived from the ongoing monitoring of existing groundwater wells at the DRMO have been extensively tested for COCs during the past two years of quarterly monitoring. The monitoring well waste waters generated has been determined to be non-hazardous and will be disposed directly to the OT-10 wastewater processing facility in compliance with the SUBASENLON Pre-Treatment Permit from the Connecticut Department of Environmental Protection.

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	7.23	5.20	1.4	3.43	Shallow
6MW2S	7.30	5.69	3.58	1.61	3.72	Shallow
6MW2D	7.85	5.67	4.04	2.18	3.81	Deep
6MW6S	12.16	9.02	9.05	3.14	3.11	Shallow
6MW6D	12.50	9.35	9.42	3.15	3.08	Bedrock
6MW9S	7.52	4.56	4.17	2.96	3.35	Shallow
6MW10S	5.19	3.20	2.12	1.99	3.07	Shallow
6MW10D	5.01	2.34	1.08	2.67	3.93	Deep
6MW11S	4.92	2.73	1.63	2.19	3.29	Shallow
6MW11D	5.31	2.22	0.95	3.09	4.36	Deep
SG-01	5.67	4.41	2.10	1.26	3.57	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 December 16, 2000.
3 Depth to water is from top of well casing. Measured December 15, 2000.
4 Well screen depths designated as shallow unconfined, deep unconfined, and bedrock groundwater.

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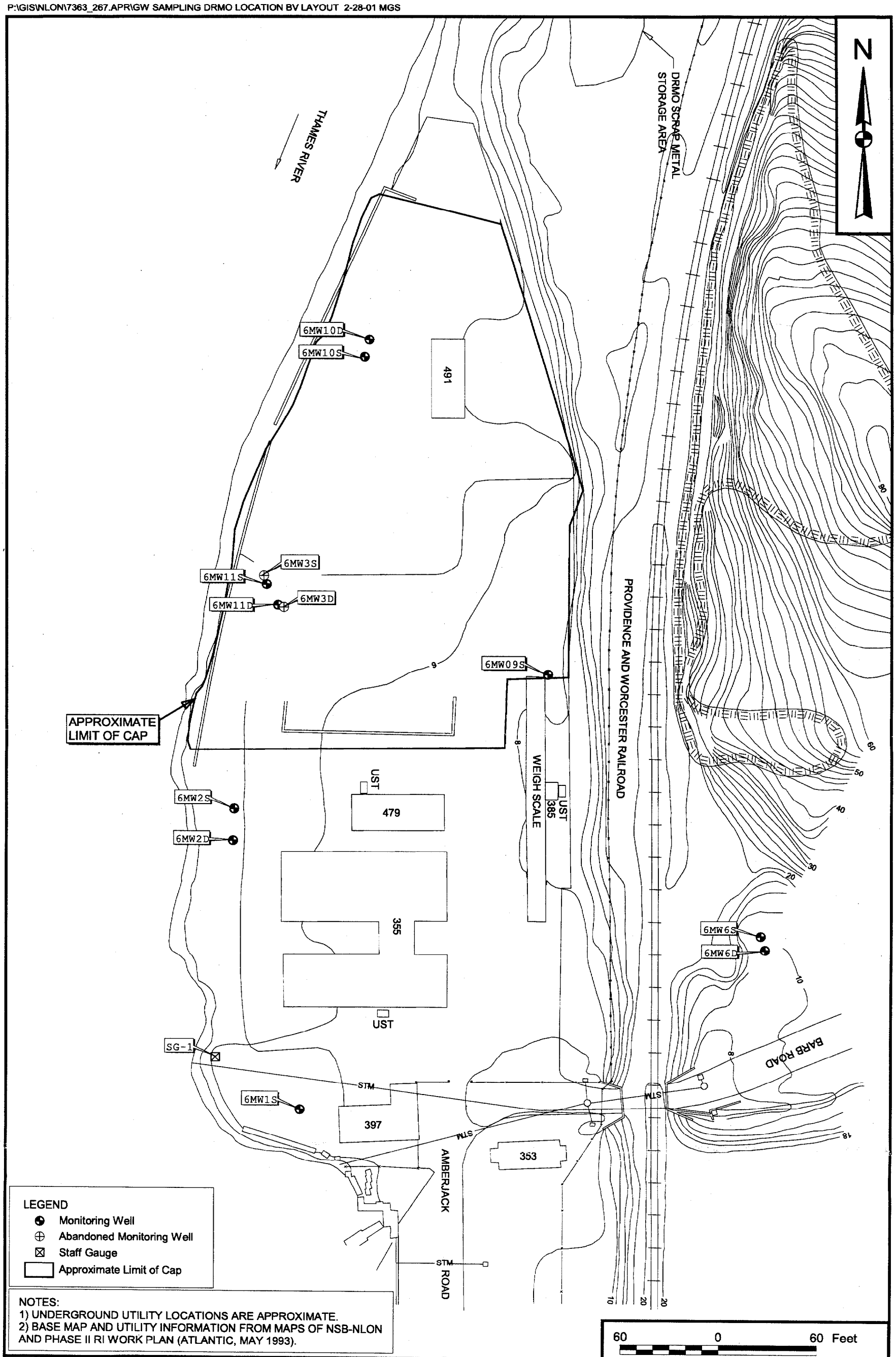
P:\GIS\NLON\7363_267.APR\GW SAMPLING DRMO LOCATION BV LAYOUT 2-28-01 MGS



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).

DRAWN BY M. Spangenberg DATE 2-28-01	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7363	OWNER NUMBER —
CHECKED BY — DATE —	MONITORING WELL LOCATIONS ROUND 10 GROUNDWATER SAMPLING FOR DRMO NSB-NLON, GROTON, CONNECTICUT	APPROVED BY Mark L. Mengel DATE 3/5/01	
COST/SCHEDULE-AREA		APPROVED BY — DATE —	
SCALE AS NOTED		DRAWING NO. FIGURE 2-1	REV 0

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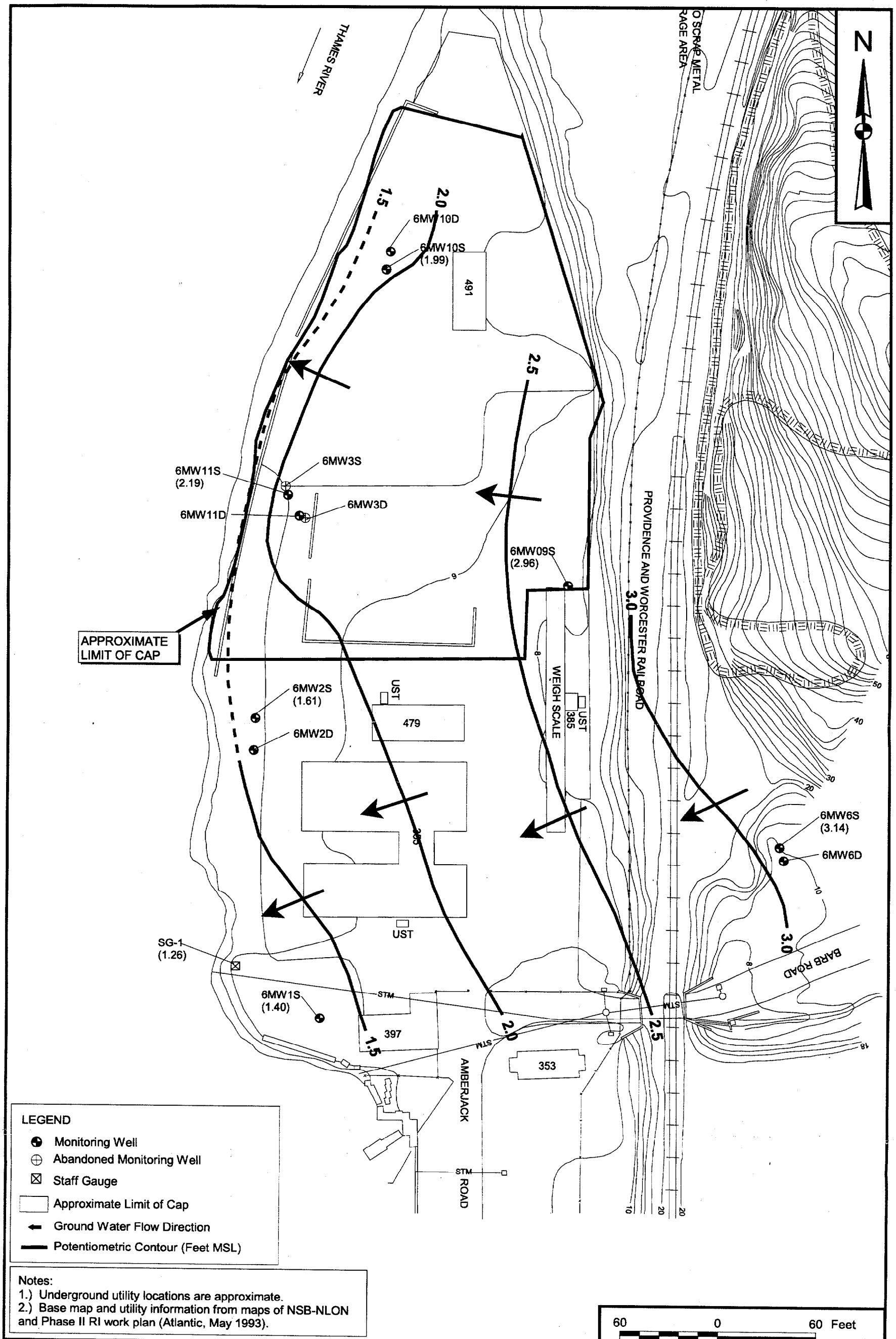
P:\GIS\NLON\7363_267.APR\POTENTIOMETIC CONTOURS- LOW TIDE- ROUND 10 MGS 3-6-01



DRAWN BY M. Spangenberg	DATE 2-28-01	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7901	OWNER NUMBER —
CHECKED BY	DATE	LOW TIDE POTENTIOMETRIC SURFACE MAP ROUND 10 GROUNDWATER SAMPLING DRMO NSB-NLON, GROTON, CONNECTICUT	APPROVED BY Mark L. Mengel	DATE 3/7/01
COST/SCHEDULE-AREA			APPROVED BY —	DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 2-2	REV 0

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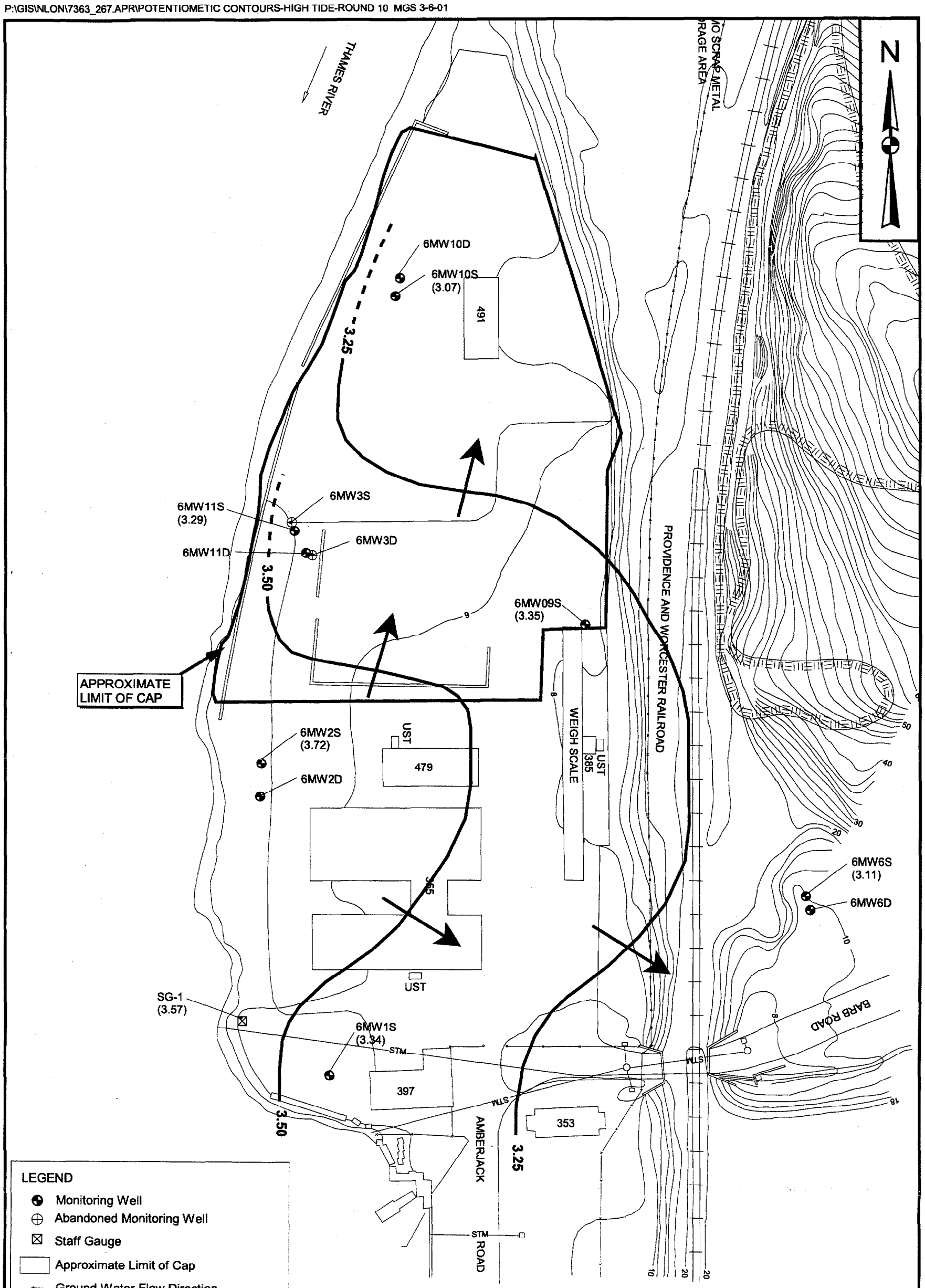

Notes:
1.) Underground utility locations are approximate.
2.) Base map and utility information from maps of NSB-NLON and Phase II RI work plan (Atlantic, May 1993).

60 0 60 Feet

DRAWN BY M. Spangenberg	DATE 2-28-01	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7091 / OWNER NUMBER —
CHECKED BY	DATE	HIGH TIDE POTENTIOMETRIC SURFACE MAP ROUND 10 GROUNDWATER SAMPLING DRMO NSB-NLON, GROTON, CONNECTICUT	APPROVED BY Mark L. Mengel DATE 3/7/01
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 2-3 / REV 0

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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 contaminants listed 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, in any of the organic or inorganic sample results.

- The semivolatile organic; bis(2-ethylhexyl)phthalate was detected in one sample (6MW1S) at a concentration of 25 µg/L. This concentration exceeded the secondary monitoring criteria (AWQC and WQS for protection of human health from consumption of aquatic organisms) of 5.9 µg/L for bis(2-ethylhexyl)phthalate.

- Arsenic was detected in the samples from monitoring wells 6MW10D (7.1 µg/L) and 6MW11D (8.2 µg/L). These concentrations exceed 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 samples from monitoring wells 6MW9S (19 µg/L) and 6MW11S (12.7 µg/L). These concentrations exceed the secondary monitoring criterion of 2.4 µg/L, which is the Federal AWQC for the protection of aquatic life (chronic, saltwater).

- Zinc was detected in the samples from monitoring wells 6MW9S (151 µg/L), 6MW11D (86.8 µg/L), and 6MW11S (299 µg/L). These detections exceed 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 tenth 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. Conclusions and recommendations have been discussed in the Year 1 and Year 2 Summary Reports. Additional conclusions and recommendations will be noted upon the completion of the third year of sampling.

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

TABLE 3-1

ROUND 10 ANALYTICAL RESULTS SUMMARY
INTERIM GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT

Chemical	Primary Monitoring Criterion [1]	Secondary Monitoring Criterion [1]	6MW1S ROUND 10 12/19/00	6MW2D ROUND 10 12/19/00	6MW2S ROUND 10 12/18/00	6MW6D ROUND 10 12/15/00	6MW6S ROUND 10 12/15/00	6MW6S (DUP) ROUND 10 12/15/00
VOCs (ug/L)								
1,1,2,2-TETRACHLOROETHANE	1,100	11 [3][4]	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 [3][4]	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	0.12 J	0.12 J	5.3	0.18 J	0.19 J
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 [3][4]	0.34 J	1 U	0.2 J	10	0.79 J	0.77 J
VINYL CHLORIDE	157,500	525 [3][4]	1 U	1 U	1 U	1 U	1 U	1 U
SVOCs (ug/L)								
BENZO(A)ANTHRACENE	3.0	0.049 [3][4]	0.2 U	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
BENZO(A)PYRENE	3.0	0.049 [3][4]	0.2 U	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
BENZO(B)FLUORANTHENE	3.0	0.049 [3][4]	0.2 U	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
BENZO(K)FLUORANTHENE	3.0	0.049 [3][4]	0.2 U	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
BENZOIC ACID	NA	NA	50 UJ	50 UJ	50 U	50 UJ	50 UJ	50 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 [3][4]	25	3.4 J	3.7 J	10 U	10 U	10 U
FLUORANTHENE	37,000	370 [3][4]	0.078 J	0.029 J	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
FLUORENE	1,400,000	14,000 [3][4]	0.2 U	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
NAPHTHALENE	NA	NA	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ
PHENANTHRENE	0.77	NA	0.26	0.023 J	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
PYRENE	1,100,000	11,000 [3][4]	0.038 J	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
Pesticides/PCBs (ug/L)								
4,4'-DDD	NA	0.00084 [3][4]	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 [3][4]	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 [3][4]	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 [3][4]	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Inorganics (total) (ug/L)								
ARSENIC	40	0.14 [3][4]	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
BARIUM	NA	NA	6.4	172	34.7	40.4	38.5	39.6
CADMIUM	60	NA	0.2 U	0.51 U	0.56 U	2.3	0.2 U	0.2 U
CHROMIUM	1,100	50 [2]	0.5 U	1.9 U	0.5 UJ	10.1	0.5 U	0.5 U
COPPER	480	2.4 [2]	1.5 U	3.6 U	5.6 U	1 U	1.8 U	1.8 U
LEAD	130	8.1 [2]	1 U	1 UJ	1 UJ	1 U	1 U	1 U
SILVER	120	1.9 [2]	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
ZINC	1,230	81 [2]	39.7 U	21.7 U	38.9 U	16 U	20.4 U	18.5 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 Federal Ambient Water Quality Criteria for protection of human health from consumption of organisms.
4 Connecticut Water Quality Criteria for protection of human health from consumption of organisms.
J Estimated Value
R Rejected Value
U Undetected
NA Not Available

TABLE 3-1

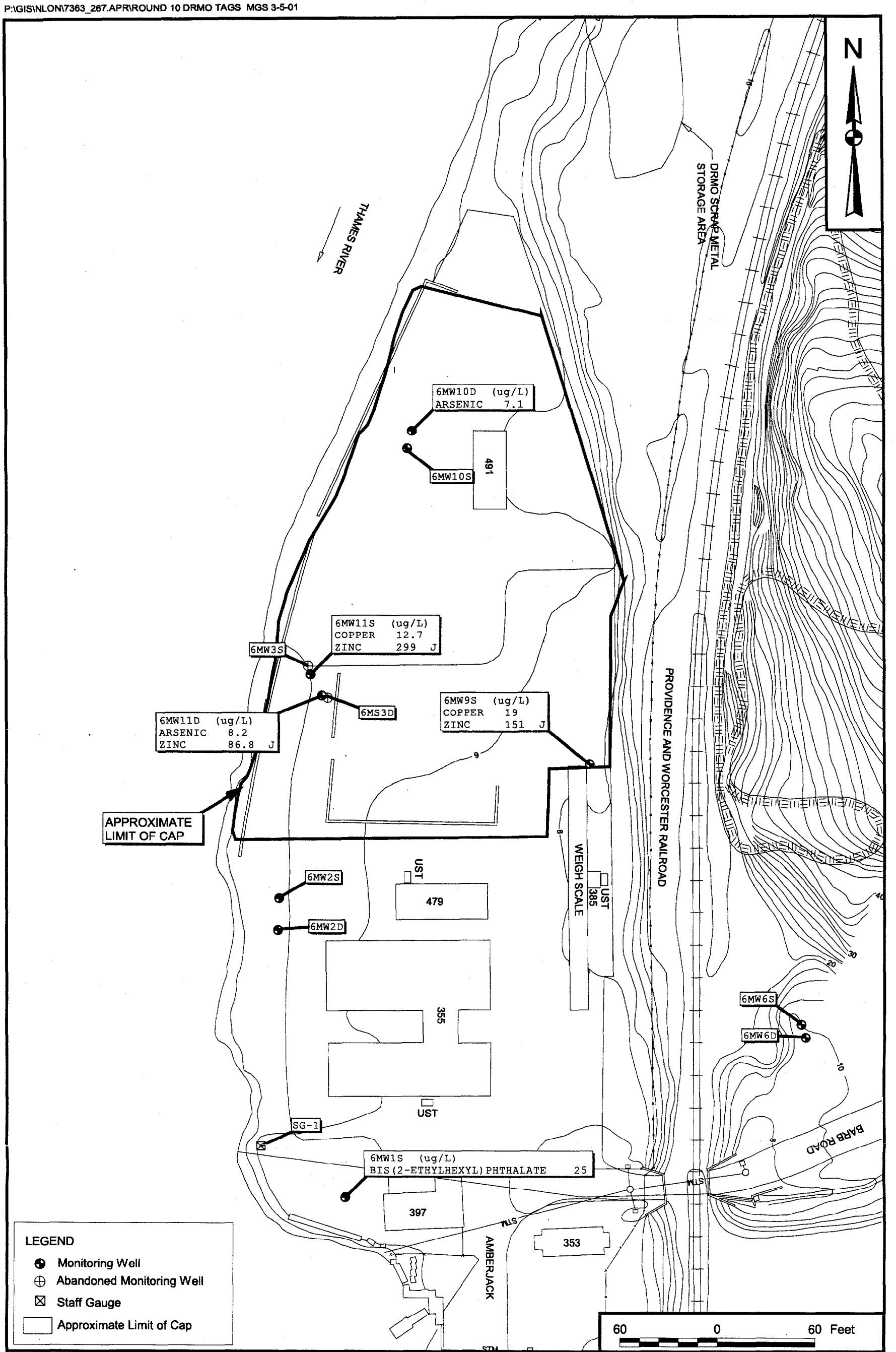
ROUND 10 ANALYTICAL RESULTS SUMMARY
INTERIM GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT

Chemical	Primary Monitoring Criterion (1)	Secondary Monitoring Criterion (1)	6MW9S ROUND 10 12/18/00	6MW10D ROUND 10 12/16/00	6MW10S ROUND 10 12/16/00	6MW11D ROUND 10 12/17/00	6MW11S ROUND 10 12/17/00
VOCs (ug/L)							
1,1,2,2-TETRACHLOROETHANE	1,100	11 (3)(4)	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 (3)(4)	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	17	0.84 J	1.5	0.79 J
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	0.21 J	1 U	1 U	0.12 J
TRICHLOROETHENE	23,400	81 (3)(4)	0.47 J	2.8	0.14 J	1 U	0.1 J
VINYL CHLORIDE	157,500	525 (3)(4)	1 U	1 U	1 U	1 U	0.56 J
SVOCs (ug/L)							
BENZO(A)ANTHRACENE	3.0	0.049 (3)(4)	0.2 UJ	0.2 U	0.2 U	0.2 UJ	0.2 U
BENZO(A)PYRENE	3.0	0.049 (3)(4)	0.2 UJ	0.2 U	0.2 U	0.2 UJ	0.2 U
BENZO(B)FLUORANTHENE	3.0	0.049 (3)(4)	0.2 UJ	0.2 U	0.2 U	0.2 UJ	0.2 U
BENZO(K)FLUORANTHENE	3.0	0.049 (3)(4)	0.2 UJ	0.2 U	0.2 U	0.2 UJ	0.2 U
BENZOIC ACID	NA	NA	50 U	50 U	50 U	50 U	50 U
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 (3)(4)	4.2 J	10 U	10 U	3.9 J	3.8 J
FLUORANTHENE	37,000	370 (3)(4)	0.2 UJ	0.027 J	0.13 J	0.023 J	0.14 J
FLUORENE	1,400,000	14,000 (3)(4)	0.2 UJ	0.2 U	0.2 U	0.2 UJ	0.2 U
NAPHTHALENE	NA	NA	1 UJ	1 U	1 U	1 UJ	1 U
PHENANTHRENE	0.77	NA	0.2 UJ	0.027 J	0.2 U	0.032 J	0.029 J
PYRENE	1,100,000	11,000 (3)(4)	0.2 UJ	0.2 U	0.15 J	0.2 UJ	0.15 J
Pesticides/PCBs (ug/L)							
4,4'-DDD	NA	0.00084 (3)(4)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 (3)(4)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 (3)(4)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 (3)(4)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Inorganics (total) (ug/L)							
ARSENIC	40	0.14 (3)(4)	2.2 U	7.1	2.2 U	8.2	2.2 U
BARIUM	NA	NA	12.7	36.7	174	162	133
CADMIUM	60	NA	0.42 U	0.37 U	0.28 U	0.5 U	1.1 U
CHROMIUM	1,100	50 (2)	0.5 U	0.5 UJ	0.5 UJ	1.2 U	0.5 UJ
COPPER	480	2.4 (2)	19	1.7 U	5.9 U	6.6 U	12.7
LEAD	130	8.1 (2)	3.9 U	1 UJ	1 UJ	1.1 U	4.9 U
SILVER	120	1.9 (2)	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
ZINC	1,230	81 (2)	151 J	59.1 U	52.8 U	86.8 J	299 J

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) Federal Ambient Water Quality Criteria for protection of human health from consumption of organisms.
(4) Connecticut Water Quality Criteria for protection of human health from consumption of organisms.
J Estimated Value
R Rejected Value
U Undetected
NA Not Available

DRAFT

P:\GIS\NLON\7363_267.APR\ROUND 10 DRMO TAGS MGS 3-5-01



DRAWN BY M. Spangenberg	DATE 3-2-01	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7091	OWNER NUMBER 257
CHECKED BY	DATE	ROUND 10 GROUNDWATER SAMPLING DRMO NSB-NLON, GROTON, CONNECTICUT	APPROVED BY Mark L. Mungel	DATE 3/5/01
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-1	REV 0

DRAFT

1089 B032

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(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

TABLE OF CONTENTS

SUBJECT

PAGE

TITLE NSB NLON

PROJECT NO. 7363/1001

BOOK 24/5

40's Foggy

Work continued from Page

12-11-00

0700 ~~FCW~~ FRANK Wudkwych ARRIVES AT Pittsburgh AIRPORT

0930 ARRIVES IN PROVIDENCE

1100 Meet Doug Munson @ hotel (GROTON) Proceed to BADGE + PASS OFFICE

1200 ARRIVE @ BLD 166 GO through Paper work

1210 Meet w/ Kate Schweitzer

1220 TALK TO ANDY STACKPOOL

1300 GO TO AREA A. DO WATER LEVELS

1430 GO TO DRMO could not Find All the wells

1500 Kathy Schweitzer talks to FCW ABOUT IDW BASE WILL PROVIDE w/ DRUMS

1600 BEGIN UN PACKING EQUIPMENT

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE FCW

DATE 12-11-00

WITNESS

DATE

Scientific Bindery Productions

TITLE NSB NLON

OVERCAST 40'S

PROJECT NO. 7363

BOOK 2415

Work continued from Page 12-11-00

1616 called STL (LAB), they did not ship any bottles to the site they only sent empty coolers

1700 LEAVE BASE FOR DAY

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE FN W—

DATE 12-11-00

WITNESS

DATE

TITLE NSB NLON

30'S Sunny

PROJECT NO. 7363/4091

BOOK 2415

Work continued from Page 12-15-00

0640 FCW + DM ARRIVE @ BLD 166
DM CALIBRATES YSI's, FCW GETS EQUIPMENT READY

0720 FCW sets up on 6MW65
DM sets up on 6MW60

0838 Collect DRMO-6MW65-GW-10
+ F+B GWFD-121500-01

0930 collect DRMO-6MW60-GW-10

1030 Return to BLD 166 to drop off samples

1045 DM GOES TO AREA TO FINISH SAMPLING
FCW GOES BACK TO DRMO TO DUMP H_2O and do H_2O Levels

1200 Return to BLD. 166
WORK ON AREA A FOR REMAINDER OFF DAY

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE FN W—

DATE 12-15-00

WITNESS

DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE

WITNESS

DATE

TITLE NSB NLON

PROJECT NO. 730J/409

30'S OVERCAST

BOOK 2415

Work continued from Page

12-16-00

0540 ARRIVE BLD 166. PICK UP EQUIP.

0600 Set up on MW10S +10D
Low Tide @ 07:50

0720 collect DRMO GMW 100-GW10

0725 collect DRMO GMW 10S-GW10

0800 DUMP PURGE H_2O

0830 Return To BLD 166

0900 WORK ON AREA A For Restof DAY

1845 FCW + DM Return to DRMO
TO DO LOW TIDE WATER LEVELS
Low tide @ ~~0900~~ 2000

1930 Leave Base For day

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE 12-16-00

WITNESS

DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE

WITNESS

DATE

TITLE NSB NLON 50'S Drizzling

PROJECT NO. 7367/1091

BOOK 2415

Work continued from Page 12-17-00

0640 FCW + DM ARRIVE @ BLD 166
Get EQUIPMENT.

0700 ARRIVE @ DRMO setup on
6MW115 and 6MW110

0825 sample DRMO-6MW110-GW-10
0826 Sample DRMO-6MW115-GW-10

0930 DUMP PURGE H_2O LEAVE
SITE

1000 RETURN TO BLD 166
WILL WORK ON AREA FOR
REMAINDER OF DAY

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE FCW

DATE 12-17-00

WITNESS

DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

Work continued to Page

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE

DATE

WITNESS

DATE

TITLE NSB NLON

PROJECT NO. 13631/1091

Low 30's breezy

BOOK 2497

Work continued from Page

12-18-00

0700 FCW + DM ARRIVE ON SITE @ BLD 166
DM CALIBRATES YSI's FCW GETS EQUIPMENT
READY

0800 ARRIVE @ DRMO
Set up on DRMO GMW25 + 20

0830 BEGIN PURGING 25
the pump From 20 is
only blowing air. cannot
Figure out problem.
will set up on 95
and fix 20 later

0930 collect DRMO GMW25 GW10 + MS/MSD

1005 Collect DRMO GMW95 GW10

1020 DUMP PURGE H2O

1045 Return TO BLD 166

1100 Nitrogen were not putting out enough
Pressure @ 20 TO overcome Head
pressure WELL IS OK

Work continued to Page Over.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE

DATE 12-18-00

WITNESS

DATE

TITLE NSB NLON PROJECT NO. 7363/7091

Low 30's breezy BOOK 2497

Work continued from Page 12-18-00

1100 WILL Sample 2D on 12-19-00
WILL WORK ON AREA A FOR REMAINDER OFF DAY.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE [signature] DATE 12-18-00

WITNESS DATE

TITLE NSB NLON PROJECT NO. 7091/7363

30's sunny BOOK 2497

Work continued from Page 12-19-00

0900 ARRIVE @ DRMO
FCW sets up on 2D
DM sets up on 1S

1035 collect DRMO GMW2D-GW-10
DRMO GMW 1S-GW-10

1130 Return DRMO Key to Kathy McRenalds

1200 Lunch

Finish Round 10

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE [signature] DATE 12-19-00

WITNESS DATE

APPENDIX B

TIDE TABLES

30	M	505am	L	0.4	1102am	H	3.2	549pm	L	0.2	1136pm H 2.5
31	Tu	553am	L	0.6	1146am	H	3.0	639pm	L	0.3	

New London, Connecticut
Tide Predictions (High and Low Waters) November, 2000
NOAA, National Ocean Service

Standard Time

Day		Time		Ht.	Time		Ht.	Time		Ht.	Time		Ht.
1	W	1225am	H	2.4	645am	L	0.7	1234pm	H	2.8	730pm	L	0.5
2	Th	119am	H	2.3	741am	L	0.9	126pm	H	2.7	824pm	L	0.5
3	F	219am	H	2.2	840am	L	0.9	224pm	H	2.5	918pm	L	0.6
4	Sa	319am	H	2.3	939am	L	0.9	324pm	H	2.5	1011pm	L	0.5
5	Su	415am	H	2.4	1035am	L	0.8	421pm	H	2.5	1100pm	L	0.5
6	M	504am	H	2.5	1126am	L	0.7	513pm	H	2.5	1145pm	L	0.4
7	Tu	547am	H	2.7	1214pm	L	0.5	600pm	H	2.6			
8	W	1228am	L	0.3	626am	H	2.9	1258pm	L	0.3	643pm	H	2.7
9	Th	108am	L	0.3	704am	H	3.1	141pm	L	0.1	726pm	H	2.8
10	F	148am	L	0.2	742am	H	3.3	224pm	L	-0.1	808pm	H	2.8
11	Sa	228am	L	0.1	821am	H	3.5	308pm	L	-0.2	851pm	H	2.9
12	Su	309am	L	0.1	903am	H	3.6	354pm	L	-0.3	936pm	H	2.8
13	M	352am	L	0.1	947am	H	3.7	442pm	L	-0.3	1024pm	H	2.8
14	Tu	440am	L	0.2	1035am	H	3.6	533pm	L	-0.3	1116pm	H	2.7
15	W	533am	L	0.3	1127am	H	3.5	628pm	L	-0.2			
16	Th	1213am	H	2.6	633am	L	0.4	1226pm	H	3.3	726pm	L	-0.1
17	F	116am	H	2.6	738am	L	0.4	130pm	H	3.1	826pm	L	0.0
18	Sa	224am	H	2.6	846am	L	0.5	241pm	H	2.9	926pm	L	0.1
19	Su	332am	H	2.7	954am	L	0.4	352pm	H	2.8	1025pm	L	0.1
20	M	436am	H	2.8	1058am	L	0.3	459pm	H	2.7	1120pm	L	0.1
21	Tu	534am	H	2.9	1157am	L	0.1	600pm	H	2.6			
22	W	1211am	L	0.1	625am	H	3.1	1251pm	L	0.0	654pm	H	2.6
23	Th	1259am	L	0.1	712am	H	3.2	141pm	L	-0.1	742pm	H	2.5
24	F	144am	L	0.1	754am	H	3.3	227pm	L	-0.1	825pm	H	2.5
25	Sa	228am	L	0.2	835am	H	3.3	311pm	L	-0.1	906pm	H	2.5
26	Su	310am	L	0.2	914am	H	3.2	355pm	L	-0.1	946pm	H	2.4
27	M	353am	L	0.3	953am	H	3.2	438pm	L	0.0	1026pm	H	2.4
28	Tu	438am	L	0.4	1032am	H	3.0	522pm	L	0.1	1109pm	H	2.3
29	W	524am	L	0.5	1113am	H	2.9	608pm	L	0.2	1155pm	H	2.3
30	Th	614am	L	0.6	1156am	H	2.7	656pm	L	0.3			

New London, Connecticut
Tide Predictions (High and Low Waters) December, 2000
NOAA, National Ocean Service

Standard Time

Day		Time		Ht.	Time		Ht.	Time		Ht.	Time		Ht.
1	F	1245am	H	2.2	708am	L	0.7	1244pm	H	2.6	746pm	L	0.3
2	Sa	138am	H	2.2	804am	L	0.8	136pm	H	2.4	837pm	L	0.4
3	Su	233am	H	2.2	902am	L	0.8	233pm	H	2.3	928pm	L	0.4
4	M	327am	H	2.3	958am	L	0.7	330pm	H	2.3	1017pm	L	0.4
5	Tu	417am	H	2.5	1051am	L	0.6	426pm	H	2.3	1103pm	L	0.3
6	W	502am	H	2.7	1140am	L	0.4	518pm	H	2.3	1147pm	L	0.3
7	Th	545am	H	2.9	1227pm	L	0.2	607pm	H	2.4			
8	F	1230am	L	0.2	628am	H	3.1	113pm	L	-0.1	654pm	H	2.5
9	Sa	113am	L	0.1	711am	H	3.3	159pm	L	-0.3	741pm	H	2.6
10	Su	156am	L	0.0	755am	H	3.5	245pm	L	-0.4	828pm	H	2.6
11	M	242am	L	-0.1	841am	H	3.7	333pm	L	-0.5	917pm	H	2.7
12	Tu	330am	L	-0.1	929am	H	3.7	422pm	L	-0.6	1008pm	H	2.7
13	W	422am	L	-0.1	1020am	H	3.6	513pm	L	-0.5	1101pm	H	2.7
14	Th	518am	L	0.0	1114am	H	3.4	607pm	L	-0.4	1159pm	H	2.7
15	F	618am	L	0.1	1213pm	H	3.2	703pm	L	-0.3			
16	Sa	100am	H	2.6	723am	L	0.1	116pm	H	2.9	801pm	L	-0.2
17	Su	204am	H	2.6	829am	L	0.2	223pm	H	2.7	900pm	L	-0.1
18	M	310am	H	2.7	936am	L	0.2	332pm	H	2.5	958pm	L	0.0
19	Tu	413am	H	2.8	1040am	L	0.1	440pm	H	2.3	1053pm	L	0.1
20	W	513am	H	2.9	1140am	L	0.0	543pm	H	2.3	1146pm	L	0.1
21	Th	606am	H	2.9	1234pm	L	0.0	637pm	H	2.2			
22	F	1235am	L	0.1	653am	H	3.0	123pm	L	-0.1	725pm	H	2.2
23	Sa	121am	L	0.1	735am	H	3.0	209pm	L	-0.1	807pm	H	2.2
24	Su	205am	L	0.2	815am	H	3.0	251pm	L	-0.1	846pm	H	2.2
25	M	248am	L	0.2	853am	H	3.0	333pm	L	-0.1	924pm	H	2.2
26	Tu	331am	L	0.2	930am	H	2.9	414pm	L	-0.1	1003pm	H	2.2
27	W	414am	L	0.3	1007am	H	2.9	455pm	L	-0.1	1044pm	H	2.2
28	Th	459am	L	0.4	1046am	H	2.7	538pm	L	0.0	1126pm	H	2.2
29	F	546am	L	0.4	1126am	H	2.6	623pm	L	0.1			
30	Sa	1210am	H	2.2	636am	L	0.5	1208pm	H	2.5	708pm	L	0.1

APPENDIX C

GROUNDWATER LEVEL MEASUREMENT SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project: NSB-NLON

Site: DRMO

Project No.: 7363

Personnel: FCW, DM

Temperature: 40's

Date: 12-16-00

Precipitation: Raining

Level Indicator Type: Slope indicator

Tide: Low Tide 2000 hrs 800pm

Serial Number: 14018

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	1915	8.63	7.23	1.4	15.68	Y	
6MW2S	1910	7.30	5.69	1.61	13.63	Y	
6MW2D	1911	7.85	5.67	2.18	88.84	Y	
6MW6S	1925	12.16	9.02	3.14	18.58	N	
6MW6D	1924	12.50	9.35	3.15	46.00	N	6" OPEN BOREHOLE *
6MW9S	1918	7.52	4.56	2.96	11.75	N	
6MW10S	1856	5.19	3.20	1.99	13.31	Y	
6MW10D	1858	5.01	2.34	2.67	54.06	Y	
6MW11S	1904	4.92	2.73	2.19	13.50	Y	
6MW11D	1902	5.31	2.22	3.09	85.00	Y	
SG-1	1913	5.67	4.41	1.26	--	Y	River Gauge

* Measurements to the nearest 0.01 foot.

* MEASURED AT TOP OF STEEL RISER

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project:	NSB-NLON	Site:	DRMO
Project No.:	7363	Personnel:	F. WUDKWYCH
Temperature:	30's sunny	Date:	12-15-00
Precipitation:	—	Level Indicator Type:	Slope Indicator
Tide:	high @ 1217	Serial Number:	14018

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	1139	8.63	5.20	3.43	15.68	Y	
6MW2S	1131	7.30	~~4.08~~ 3.58	~~3.22~~ 3.72	13.63	Y	
6MW2D	1128	7.85	4.04	3.81	88.84	Y	
6MW6S	1148	12.16	9.05	3.11	18.58	N	
6MW6D	1146	12.50	9.42	3.08	46.00	N	6" OPEN BOREHOLE *
6MW9S	1136	7.52	4.17	3.35	11.75	N	
6MW10S	1118	5.19	2.12	3.07	13.31	Y	
6MW10D	1117	5.01	1.08	3.93	54.06	Y	
6MW11S	1123	4.92	1.63	3.29	13.50	Y	
6MW11D	1124	5.31	0.95	4.36	85.00	Y	
SG-1	1143	5.67	2.10	3.57	--	Y	River Gauge

* Measurements to the nearest 0.01 foot.

* MEASURED AT TOP OF STEEL RISER

APPENDIX D

MONITORING INSTRUMENT CALIBRATION SHEETS

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME: NSB-NLON

INSTRUMENT NAME/MODEL: YSI/6820

SITE NAME: DRMO/AREA A

MANUFACTURER: YSI

PROJECT No.: CTO 203/267

SERIAL NUMBER: 96D49278

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
12/11/00	142	R.D Munson	PH 4.0	4.02	Cond	1020	2230/2437	
			7.0	6.93			2210	
			10.0	10.01			2231	
			DO%	90.4			—	
			ORP	167.0			2297	
12/15/00	142	RD Munson	PH 7	7.00	Cond	1000		
			PH 10	10.00				
			DO%	97.7				
			ORP	100.3				
12/18/00	142	RD Munson	PH 7.0	6.99	Cond	940		
			PH 10	10.01				
			DO%	—				DO not working
			ORP	100.1				

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME: NSB-NLON

INSTRUMENT NAME/MODEL: YSI/6820

SITE NAME: DRMO/ AREA A

MANUFACTURER: YSI

PROJECT No.: CTO 203/ 267

SERIAL NUMBER: 98F0134

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
12/11/00	161	R.D Munson	pH 4.0	4.19	cond	1007.0	2230/2437	
			7.0	6.93			2210	
			10.0	10.01			2231	
			DO	64.1				
			ORP	181.1			2297	
12/14/00	161	RDMunson	4.0			1000		
			7.0	7.00				
			10.0	10.03				
			DO	100.1				
			orp	100.3				
12/18/00	161	RDMunson	pH 7.0	6.99	cond	992		
			pH 10.0	10.01				
			DO	99.9				
			ORP	105.6				

APPENDIX E

GROUNDWATER SAMPLE LOGSHEETS
AND
LOW-FLOW PURGE DATA SHEETS

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO- 6MW15 - GW-10
Sample Location: 6MW15
Sampled By: RD Munson
C.O.C. No.: D-121900
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Eh	Salinity
Date: 12-19-00	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	ppt
Time: 1035								
Method: Low Flow/Bladder Pump	Clear	6.51	4.63	8.94	0.35	18.85	7.1	—

PURGE DATA:

Date: 12-19-00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm):
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 15.7
Static Water Level (WL): 7.64
One Casing Volume(gal): 1.32
Start Purge (hrs): 0935
End Purge (hrs): 1035 ~~0935~~ RDM
Total Purge Time (min): 60
Total Vol. Purged (gal): 4.28

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	40 ml Vial	3
TCL SEMIVOLATILES	4° C	Qt. Amber Glass	2
TCL PEST/PCBs	4° C	Qt. Amber Glass	2
TCL PAH	4° C	Qt. Amber Glass	2
TAL METALS (TOTAL)	HNO_3 / 4° C	LPE	1

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s): RD Munson

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW15

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

DATE: 12-19-00
WEATHER: Party Cloudy 35°F
PERSONNEL: RD Munson

Well Screen Depth: ____ / ____ ft.
Initial Water Level: 7.64 @ 0932 hrs.
Total Purge Volume= 4.28 (gal / L)

Pump Type/Material:
Pump Intake Depth:
Total Purge Time= 60 (min)

Tide Cycle: ☐ High @ ____ ☒ Low @ 1105 ☐ 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
0935	7.68		272	40R 40D 20PSR	8.41	6.68	5.71	17.24	1.8		-32.2	
0940	7.83		↓	↓	8.61	6.59	5.03	11.22	1.3		-26.1	
0945	7.87	2720	↓	↓	8.59	6.57	4.98	11.74	0.80		-20.8	
0950	7.89	4070	270	↓	8.57	6.55	4.94	11.85	0.40		-16.3	
0955	7.90	5420	↓	↓	8.65	6.54	4.90	11.81	0.38		-12.5	
1000	7.93	6770	↓	↓	8.71	6.53	4.85	13.03	0.40		-8.8	
1005	7.96	8120	↓	↓	8.76	6.53	4.85	14.10	0.50		-5.0	
1010	7.98	9470	↓	↓	8.73	6.53	4.82	17.78	0.40		-2.9	
1015	7.99	10820	↓	↓	8.77	6.52	4.77	17.94	0.35		-0.4	
1020	8.02	12170	↓	↓	8.77	6.52	4.75	15.91	0.40		1.4	
1025	8.06	13520	↓	↓	8.75	6.52	4.71	16.19	0.25		3.5	
1030	8.08	14870	↓	↓	8.82	6.52	4.68	16.51	0.30		5.6	End purge
1035	8.10	16220	↓	↓	8.94	6.51	4.63	18.85	0.35		7.1	
	Begin sample											
	1104 Sample complete											

Water Quality Meter (S/N): ____
Control Box Type (S/N): ____
Turbidimeter (S/N): ____

Notes: ____

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO-6MW 25-00 GW-10
Sample Location: 6 MW 25
Sampled By: R.D. Munson
C.O.C. No.: D-121600
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Eh mV	Salinity ppt
Date: 12-18-00								
Time: 0930								
Method: Low Flow/Bladder Pump	Clear	7.05	2.88	10.35	7	0.52	14	0

PURGE DATA:

Date: 12-18-00	See Attached Low Flow Purge Data Sheet for Purge Data
Method: Low Flow/Bladder Pump	
Monitor Reading (ppm): —	
Well Casing Diameter & Material Type: PVC	
Total Well Depth (TD): 13.60	
Static Water Level (WL): 7.05	
One Casing Volume(gal): 1.23	
Start Purge (hrs): 0830	
End Purge (hrs): 930	
Total Purge Time (min): 60	
Total Vol. Purged (gal): 4	

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	7 ~~4~~ 3 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	3 Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	3 Qt. Amber Glass	✓
TCL PAH	4° C	2 Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	2 LPE	✓

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s): R.D. Munson

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW25

PROJECT: NSB -NLON
PROJECT NUMBER: 7363
SITE: DRMO
DATE: 12-18-00
WEATHER: Clear windy cold
PERSONNEL: R.D. MUNSON

Well Screen Depth: 3.6 / 13.6 ft.
Initial Water Level: ~~5.43~~ 5.35 @ 0828 hrs.
Pump Type/Material: Bladder /PVC
Pump Intake Depth: 10'
Tide Cycle: ☐ High @ ☒ Low @ 1001 ☐ Not Affected
Total Purge Volume= 4 (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
0830	7.02			30D 30I 15 PSI								
0846	7.15		260		9.79	7.05	2.90	0.48	3.7	–	58	
0855	7.10				9.93	7.05	2.89	0.53	3.2	–	47	
0900	7.13				9.90	7.05	2.89	0.54	3.2	–	39	
0905	7.15				10.01	7.05	2.89	0.55	3.2	–	32	
0910	7.15				10.14	7.05	2.89	0.55	3.4	–	29	
0915	7.19				10.12	7.05	2.89	0.54	4.3	–	25	
0920	7.20				10.07	7.05	2.89	0.53	5.0	–	20	
0925	7.20				10.13	7.05	2.89	0.54	5.2	–	17	
0930	7.20				10.35	7.05	2.88	0.52	7.0	–	14	Sample
1005												End

Water Quality Meter (S/N): YSI
Control Box Type (S/N): QED
Turbidimeter (S/N): Lamotte

Notes:

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO-6MW2D - GW-10
Sample Location: 6MW2D
Sampled By: FW
C.O.C. No.: D-121900
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Eh	Salinity
Date: 12-19-00	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	ppt
Time: 1035								
Method:Low Flow/Bladder Pump	Clear	6.85	30.97	11.97	16	0.01	-358	—

PURGE DATA:

Date: 12-19-00
Method:Low Flow/Bladder Pump
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 78.8
Static Water Level (WL): 5.61
One Casing Volume(gal): 12
Start Purge (hrs): 0935
End Purge (hrs): 1035
Total Purge Time (min): 60
Total Vol. Purged (gal): 4.7

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	3 x 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	2 x Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	2 y Qt. Amber Glass	✓
TCL PAH	4° C	2 y Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	1 L PE	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD —
Duplicate ID No.: —

Signature(s): FW

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW20

PROJECT: NSB NLON
PROJECT NUMBER: CTO-267
SITE: DRMO
DATE: 12-19-00
WEATHER: 30's OVERCAST
PERSONNEL: F. WUDKWYCH

Well Screen Depth: 68.8 / 78.8 ft.
Initial Water Level: 5.61 @ 0920 hrs.
Pump Type/Material: bladder/PVC
Pump Intake Depth: 73
Tide Cycle: ☐ High @ ☑ Low @ 1105 ☐ Not Affected
Total Purge Volume= 4.7 (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
0935	5.61			35D 35R 50PS								
0940	6.10		230		11.14	6.89	30.48	0.09	19	–	-243	
0945	6.08		300		11.23	6.90	30.49	0.04	15	–	-269	
0950	6.02		300		11.36	6.89	30.53	0.06	10	–	-280	
0955	6.04		300		11.42	6.91	30.73	0.03	9.3	–	-298	
1000	6.05		300		11.45	6.91	30.90	0.00	15	–	-312	
1005	6.10		300		11.49	6.91	31.00	0.01	16	–	-327	
1010	6.02		300		11.52	6.90	31.05	0.01	15	–	-335	
1015	6.09		300		11.51	6.90	31.06	0.01	16	–	-340	
1020	6.05		300		11.64	6.88	31.04	0.01	17	–	-345	
1025	6.12		300		11.61	6.87	31.04	0.01	21	–	-347	
1030	6.07		300		11.65	6.86	30.99	0.00	20	–	-352	
1035	6.06		300		11.67	6.85	30.97	0.01	16		-358	sample
1100												End

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

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO-6MW65 - GW-10
Sample Location: 6MW65
Sampled By: FCW
C.O.C. No.: D-121500
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Eh	Salinity
	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	ppt
Date: 12-15-00								
Time: 0838								
Method: Low Flow/Bladder Pump	Clear	6.03	0.320	10.35	3.5	7.44	647	—

PURGE DATA:

Date: 12-15-00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 18.56
Static Water Level (WL): 9.37
One Casing Volume(gal): 1.5
Start Purge (hrs): 0728
End Purge (hrs): 0838
Total Purge Time (min): 70
Total Vol. Purged (gal): 5

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	3x 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	2x Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	2x Qt. Amber Glass	✓
TCL PAH	4° C	2x Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	1 L PE	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.: GWFD-121500-01

Signature(s): FCW

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW65

PROJECT:	NSB-NLON	**DATE:**	12-15-00
PROJECT NUMBER:	7363	**WEATHER:**	30's
SITE:	DRMO	**PERSONNEL:**	F. WUDKWYCH

Well Screen Depth: 8.6 / 18.6 ft.
Initial Water Level: 8.73 @ 0720 hrs.
Pump Type/Material: bladder/PVC
Pump Intake Depth: 14
Tide Cycle: ☐ High @ ☐ Low @ ☒ 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 ºC	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Salinity ppt	Eh mV	Comments
0728	9.37			20PSI 45D 45R								START
0738	9.50		280		10.33	6.34	0.322	6.80	11	—	25.8	
0748	9.40		280		10.35	6.11	0.322	7.22	9.1	—	39.9	
0758	9.20		276		10.30	6.04	0.321	7.52	6.3	—	47.7	
0808	9.20		276		10.42	6.04	0.321	7.19	4.8	—	52.1	
0818	9.20		276		10.36	6.03	0.320	6.77	3.7	—	56.9	
0828	9.20		276		10.32	6.03	0.321	8.01	5.8	—	61.2	
0838	9.20		276		10.35	6.03	0.320	7.44	3.9	—	64.7	Sample

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

Notes: MOVED + PULLED UP PUMP PRIOR TO PURGING / CHANGED WATER LEVEL

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO- 6MW6D GW-10
Sample Location: 6MW6D
Sampled By: RD Munson
C.O.C. No.: D-121500
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Eh	Salinity
Date: 12·15-00	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	ppt
Time: 0930								
Method: Low Flow/Bladder Pump	Clear	5.96	3.23	9.52	17.7	18.78	-24.5	—

PURGE DATA:

Date: 12·15·00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm):
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 46.0
Static Water Level (WL): 9.31
One Casing Volume(gal): 6
Start Purge (hrs): 0730
End Purge (hrs): 0930
Total Purge Time (min): 120
Total Vol. Purged (gal): 6.0

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	3 – 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	2 Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	2 Qt. Amber Glass	✓
TCL PAH	4° C	2 Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	1 LPE	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD — Duplicate ID No.:

Signature(s): RD Munson

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** GMW6D

PROJECT: NSB NLON
PROJECT NUMBER: 7363
SITE: DRMO

DATE: 12-15-00
WEATHER: Clear Lgt wind - Cold 30°F
PERSONNEL: R.D. Munson

Well Screen Depth: _____ / _____ ft.
Initial Water Level: 9.39 @ 0710 hrs.

Pump Type/Material: bladder/PVC
Pump Intake Depth: _____

Tide Cycle: ☐ High @ _____ ☐ Low @ _____ ☑ 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
0730	9.40		290 30psi	35D 33R	8.69	6.41	3.01	6.58	25.2		-56.9	
0740	9.41		↓	↓	9.13	6.12	3.19	10.08	24.7		-64.6	
0750	9.40		↓	↓	7.11	6.11	3.22	11.19	25.3		-62.0	
0800	9.40		90	↓	6.31	6.10	3.21	14.01	24.6		-59.7	
0810	9.40		135	45D 45R 25PSI	7.62	6.11	3.18	10.88	30.1		-53.2	
0820	9.41		↓	↓	7.81	6.08	3.19	10.97	38.2		-53.7	
0830	9.40		↓	↓	7.81	6.03	3.20	11.06	42.0		-48.1	
0840	9.40		↓	↓	8.12	6.00	3.19	~~13.60~~ 13.56	39.7		-42.4	
0850	9.44		276	↓	9.53	5.97	3.20	6.71	37.7		-38.0	
0900	9.42		↓	↓	9.53	5.96	3.22	17.40	31.2		-33.6	
0910	9.44		↓	↓	9.66	5.96	3.21	19.10	25.1		-30.0	
0920	9.42		↓	↓	9.54	5.96	3.26	18.50	20.9		-27.1	
0930	9.41		276		9.52	5.96	3.23	18.78	17.7		-24.3	End Purge
L	End purge	begin	sample									

Water Quality Meter (S/N): YSI
Control Box Type (S/N): QED
Turbidimeter (S/N): Lamotte

Notes: _____

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO- 6MW095 - GW-10
Sample Location: 6MW95
Sampled By: RD Munson
C.O.C. No.: 0-121600
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Eh mV	Salinity ppt
Date: 12.18.00								
Time: 1005								
Method: Low Flow/Bladder Pump	Clear	5.49	0.043	7.14	0.41	9.16	17.8	—

PURGE DATA:

Date: 12.18.00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 11.80
Static Water Level (WL): 3.84
One Casing Volume(gal): 1.29
Start Purge (hrs): 0917
End Purge (hrs): 1002
Total Purge Time (min): 45
Total Vol. Purged (gal): 1.98

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	40 ml Vial	3
TCL SEMIVOLATILES	4° C	Qt. Amber Glass	2
TCL PEST/PCBs	4° C	Qt. Amber Glass	2
TCL PAH	4° C	Qt. Amber Glass	2
TAL METALS (TOTAL)	HNO_3 / 4° C	L PE	1

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): RD Munson

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW9S

PROJECT: NSB NLON
PROJECT NUMBER: 7363
SITE: DRMO

DATE: 12.18.00
WEATHER: Clear, Windy, Cold
PERSONNEL: RD Munson

Well Screen Depth: 7.8 / 11.8 ft.
Initial Water Level: 3.84 @ 0910 hrs.
Pump Type/Material: Bladder/Re
Pump Intake Depth: 10.00
Tide Cycle: ☐ High @ ☐ Low @ ☑ Not Affected
Total Purge Volume= 1.98 (gal / L) **Total Purge Time=** ~~0940~~ 45 (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
0917	3.89		440	30R 30D 10PSI	7.00	6.44	055.0	9.35	6.06		-25.9	
0922	3.94		↓		7.10	5.71	0.044	9.26	1.84		-8.5	
0927	3.93		↓		7.12	5.56	0.044	9.24	2.67		-4.2	
0932	3.96		↓		7.10	5.52	0.044	9.17	1.59		0.1	
0937	3.95		430		7.15	5.51	0.044	9.20	1.33		2.8	
0942	4.02		↓		7.14	5.51	0.043	9.20	0.95		6.5	
0947	4.02		↓		7.13	5.49	0.043	9.18	0.61		9.7	
0952	4.08		↓		7.17	5.49	0.043	9.15	0.57		12.8	
~~0957~~ 1002	4.03		↓		7.12	5.49	0.043	9.14	0.41		16.2	
1002	4.06		↓		7.14	5.49	0.043	9.16	0.41		17.8	Purge ends
	1005 Start Sample											
	1030 End Sample											

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

Notes:

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO- 6MW105- GW-10
Sample Location: 6MW105
Sampled By: R.D MUNSON
C.O.C. No.: D-121600
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Eh mV	Salinity ppt
Date: 12.16.00								
Time: 0725								
Method: Low Flow/Bladder Pump	Clear	4.29	1.36	12.54	1.03	22.7	-34.50	—

PURGE DATA:

Date: 12-16-00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm): –
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 13.30
Static Water Level (WL): 3.90
One Casing Volume(gal): 1.53
Start Purge (hrs): 0622
End Purge (hrs): 0722
Total Purge Time (min): 60
Total Vol. Purged (gal): 6.0

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	3 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	2 Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	2 Qt. Amber Glass	✓
TCL PAH	4° C	2 Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	1 L PE	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
–	

Signature(s): R D Munson

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW10S

PROJECT: NSB - NLON
PROJECT NUMBER: 7363
SITE: DRMO
DATE: 12-16-00
WEATHER: OVERCAST 35°F
PERSONNEL: RD MUNSON

Well Screen Depth: _____ / _____ ft.
Initial Water Level: 3.90 @ 0600 hrs.
Pump Type/Material: _____
Pump Intake Depth: _____
Tide Cycle: ☐ High @ _____ ☒ Low @ 0750 ☐ Not Affected
Total Purge Volume= 6.0 (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
0622	4.27		420	30D 30Z 30PSI	12.87	7.06	1.35	6.04	18.0	—	-205.8	
0627	4.07				12.58	7.11	1.39	18.48	6.52		-238.6	
0632	4.01				12.51	7.15	1.39	20.17	3.70		-277.4	
0637	4.14				12.54	7.16	1.39	21.80	2.23		-294.4	
0642	4.19				12.54	7.18	1.38	23.24	2.19		-302.1	
0647	4.17				12.49	7.19	1.38	27.59	1.98		-313.0	
0652	4.18				12.41	7.20	1.37	18.56	1.44		-324.1	
0657	4.18				12.45	7.21	1.37	19.31	1.14		-329.6	
0702	4.20				12.45	7.22	1.36	24.16	0.96		-336.5	
0707	4.22				12.42	7.22	1.36	23.38	1.00		-338.7	
0712	4.28				12.42	7.22	1.36	24.64	1.22		-340.9	
0717	4.28				12.41	7.23	1.36	25.03	1.01		-342.7	
0722	4.29				12.54	7.23	1.36	22.7	1.03		-345.0	End purge
	Begin Sample @ 0725 End 0800											

Water Quality Meter (S/N): YSI
Control Box Type (S/N): QED
Turbidimeter (S/N): LaMotte

Notes: _____

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO- 6MW 10D GW-10
Sample Location: 6MW10D
Sampled By: FCV
C.O.C. No.: D-121600
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Eh mV	Salinity ppt
Date: 12-16-00								
Time: 0720								
Method: Low Flow/Bladder Pump	Clear	7.28	1.69	17.72	6.8	6.58	-243	—

PURGE DATA:

Date: 12-16-00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 54.10
Static Water Level (WL): 2.69
One Casing Volume(gal): 8.3
Start Purge (hrs): 0620
End Purge (hrs): 0720
Total Purge Time (min): 60
Total Vol. Purged (gal): 4.2

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	3 x 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	2 x Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	2 x Qt. Amber Glass	✓
TCL PAH	4° C	2 x Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	1 L PE	-

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): FCV

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** DRMO-6 MW100

PROJECT: NSB NLON
PROJECT NUMBER:
SITE: DRMO
DATE: 12-16-00
WEATHER: 30's
PERSONNEL: F. WOOKWYCH

Well Screen Depth: 44.10 / 54.10 ft.
Initial Water Level: 2.69 @ 0620 hrs.
Pump Type/Material: bladder/PVC
Pump Intake Depth: 49
Tide Cycle: ☐ High @ ☑ Low @ 0750 ☐ Not Affected
Total Purge Volume= _____ (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
0620	2.69											START
0625	2.74		220		12.71	7.23	1.78	0.57	2.5	–	-242	
0630	2.74		220		12.63	7.24	1.73	0.76	3.1	–	-245	
0635	2.79		220		12.53	7.25	1.71	1.31	2.0	–	-243	
0640	2.75		220		12.25	7.26	1.72	1.66	2.5	–	-242	
0645	2.72		220		11.73	7.26	1.72	2.35	2.3	–	-237	
0650	2.73		220		11.58	7.27	1.73	2.87	2.3	–	-235	
0655	2.73		240		12.66	7.29	1.76	3.53	1.8	–	-241	
0700	2.71		240		12.73	7.30	1.75	3.87	2.6	–	-243	
0705	2.70		240		12.69	7.28	1.70	4.77	2.3	–	-241	
0710	2.73		240		12.72	7.28	1.69	5.62	3.5	–	-242	
0715	2.70		220		12.68	7.28	1.69	5.49	4.5	–	-242	
0720	2.74				12.72	7.28	1.69	6.58	6.8		-243	Sample
0750												End

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

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO- 6MW 11S - GW-10
Sample Location: 6MW11S
Sampled By: FCW
C.O.C. No.: D-121600
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Eh	Salinity
Date: 12-17-00	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	ppt
Time: 0826								
Method: Low Flow/Bladder Pump	Clear	7.56	1.55	12.41	5.5	0.16	-269	—

PURGE DATA:

Date: 12-17-00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 13.50
Static Water Level (WL): 2.67
One Casing Volume(gal): 1.7
Start Purge (hrs): 0720
End Purge (hrs): 0826
Total Purge Time (min): 66
Total Vol. Purged (gal): 3.9

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	3x 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	2x Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	2x Qt. Amber Glass	✓
TCL PAH	4° C	2x Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	1 L PE	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): [illegible]

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW115

PROJECT:	NSB NLON	**DATE:**	12-17-00
PROJECT NUMBER:	7363	**WEATHER:**	breezy drizzling
SITE:	ORMO	**PERSONNEL:**	F. Wuokwych

Well Screen Depth: 3.50 / 13.50 ft.
Initial Water Level: 2.67 @ 0720 hrs.
Pump Type/Material: bladder/PVC
Pump Intake Depth: 11.0
Tide Cycle: ☐ High @ ☑ Low @ 0856 ☐ Not Affected
Total Purge Volume= 3.9 (~~gal~~/ L) **Total Purge Time=** 66 (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
0720	2.67			30PSI 500/50R								START PURGING
0726	2.76		280		12.43	7.27	7.82	1.28	34	–	-180	
0732	2.82		220		12.40	7.39	1.21	0.73	18	–	-207	
0738	2.84		220		12.40	7.44	1.35	0.51	12	–	-222	
0744	2.85		220		12.39	7.47	1.45	0.33	15	–	~~-235~~	-235
0750	2.84		220		12.39	7.49	1.48	0.26	7.2	–	-244	
0756	2.85		220		12.40	7.51	1.51	0.22	6.8	–	-251	
0802	2.86		220		12.42	7.53	1.52	0.18	6.8		-257	
0808	2.90		220		12.40	7.54	1.53	0.18	5.3		-261	
0814	2.92		220		12.40	7.55	1.54	0.17	5.4		-264	
0820	2.95		220		12.42	7.56	1.54	0.16	5.6		-266	
0825	2.96		220		12.41	7.56	1.55	0.16	5.5		-269	Sample End
0900												

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

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / DRMO
Project No.: 7363

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: DRMO-6MW 11D – GW-10
Sample Location: 6MW11D
Sampled By: R.D. MUNSON
C.O.C. No.: D-121600
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Eh	Salinity
Date: 12-17-00	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	ppt
Time: 0825								
Method: Low Flow/Bladder Pump	CLR *	7.08	1.76	12.43	7.90	29.53	-101.0	—

PURGE DATA:

Date: 12-17-00
Method: Low Flow/Bladder Pump
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: PVC
Total Well Depth (TD): 85'
Static Water Level (WL): 1.75
One Casing Volume(gal): 13.6
Start Purge (hrs): 0722
End Purge (hrs): 0822
Total Purge Time (min): 60
Total Vol. Purged (gal): 2.5

*with tan fines

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES (LOW-LEVEL)	HCL / 4° C	3 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	2 Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	2 Qt. Amber Glass	✓
TCL PAH	4° C	2 Qt. Amber Glass	✓
TAL METALS (TOTAL)	HNO_3 / 4° C	1 L PE	✓

OBSERVATIONS / NOTES:

TAN Fines in water

Circle if Applicable:

MS/MSD —
Duplicate ID No.: —

Signature(s): RD Munson

Tetra Tech NUS, Inc. **LOW FLOW PURGE DATA SHEET** **Well No.:** 6MW11 D

PROJECT: NSB-NLON
PROJECT NUMBER: 7363
SITE: DRMO
DATE: 12.17.00
WEATHER: Cloudy Fog hgTRAIN windy 50°F
PERSONNEL: RD Munson

Well Screen Depth: ____ / ____ ft.
Initial Water Level: 1.75 @ 0717 hrs.
Pump Type/Material:
Pump Intake Depth:
Tide Cycle: ☐ High @ ____ ☑ Low @ 0856 ☐ Not Affected
Total Purge Volume= ____ (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
0722	1.85		168	30D 30R 45 PSI	12.11	7.63	2.83	11.08	25.2		-64.2	
0727	1.79		↓		12.28	7.25	1.97	20.48	22.2		-121.3	
0732	1.81		↓		12.26	7.19	1.49	19.49	11.1		-120.0	
0737	1.78		165		12.28	7.16	1.28	19.27	6.96		-114.9	
0742	1.75		↓		12.31	7.13	1.23	20.01	6.32		-107.9	
0747	1.75		↓		12.32	7.11	1.29	21.33	5.99		-101.8	
0752	1.74		↓		12.35	7.10	1.40	22.83	6.96		-98.2	
0757	1.69		↓		12.39	7.09	1.52	24.91	8.48		-96.7	
0802	1.70		↓		12.39	7.09	1.59	26.13	9.26		-96.6	
0807	1.77		↓		12.41	7.08	1.64	27.54	10.76		-97.2	TAN Fines
0812	1.77		↓		12.42	7.08	1.69	28.01	8.82		-98.7	
0817	1.78		↓		12.42	7.08	1.72	29.18	9.46		-99.9	
0822	1.77		↓		12.43	7.08	1.76	29.53	7.90		-101.0	End of Purge
	0825-Sampling											
	0910 Finish Sampling											

Water Quality Meter (S/N): YSI
Control Box Type (S/N): QED
Turbidimeter (S/N): Lamotte

Notes:

APPENDIX F

CHAIN OF CUSTODY RECORDS

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER D-121900 | PAGE 1 OF 1

PROJECT NO: CTO-267	SITE NAME: DRMO	PROJECT MANAGER AND PHONE NUMBER: MARK MENGEL 412-921-8727	LABORATORY NAME AND CONTACT: STL VERONICA BORIOT
SAMPLERS (SIGNATURE): [signature]		FIELD OPERATIONS LEADER AND PHONE NUMBER: FRANK WUDKWYCH 412-921-8868	ADDRESS: 450 WILLIAM PITT WAY
		CARRIER/WAYBILL NUMBER: FED EX 8244 4672 4123	CITY, STATE: PITTSBURGH PA 15238

STANDARD TAT ☑
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TCL VOC	TCL SVOC	TCL PEST/PCB	TCL PAH	TAL METALS (TOTAL)				COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	G	P				
PRESERVATIVE USED						HCL	–	–	–	HNO3				
12-18	1230	TB-121800-01	AQ	G	2	X								TRIP BLANK
12-17	1035	DRMO-GMW2D-GW-10	↓	↓	10	X	X	X	X	X				
↓	1035	DRMO-GMW1S-GW-10	↓	↓	10	X	X	X	X	X				

1. RELINQUISHED BY [signature]	DATE 12/19/00	TIME 1530	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER D-121600 | PAGE 1 OF 1

PROJECT NO: CTO-267	SITE NAME: DRMO	PROJECT MANAGER AND PHONE NUMBER: MARK MENGEL 412-921-8723	LABORATORY NAME AND CONTACT: VERONICA BORTOT STL
SAMPLERS (SIGNATURE): [signature]		FIELD OPERATIONS LEADER AND PHONE NUMBER: FRANK WUDKWYCH 412-921-8868	ADDRESS: 450 WILLIAM PITT WAY
		CARRIER/WAYBILL NUMBER: FED EX 8244 4672 4112	CITY, STATE: PITTSBURGH PA 15238

STANDARD TAT ☑
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G G P

PRESERVATIVE USED: HCL – – – HNO3

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TCL VOC	TCL SVOC	TCL PEST/PCB	TCL PAH	TAL Metals (total)				COMMENTS
12-15	1300	TB-121500-01	AQ	G	2	X								TRIPBLANK
12-16	0720	DRMO-6MW 10D-GW-10			10	X	X	X	X	X				
↓	0725	DRMO-6MW10S-GW-10			10	X	X	X	X	X				
12-17	0826	DRMO-6MW11S-GW-10			10	X	X	X	X	X				
↓	0825	DRMO-6MW11D-GW-10			10	X	X	X	X	X				
12-18	0930	DRMO-6MW 2S-GW-10			17	X	X	X	X	X				DO MS/MSD
↓	1005	DRMO-6MW 9S-GW-10			10	X	X	X	X	X				

1. RELINQUISHED BY: [signature]	DATE: 12/18/00	TIME: 1530	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

FORM NO. TNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 0-121500 | PAGE 1 OF 1

PROJECT NO: CTO- 267	SITE NAME: DRMO	PROJECT MANAGER AND PHONE NUMBER: MARK MENGEL 412-921-8723	LABORATORY NAME AND CONTACT: STL VERONICA BORTOT
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: FRANK WVOKWYCH 412-921-8723	ADDRESS: 450 WILLIAM PITT WAY
		CARRIER/WAYBILL NUMBER: FEDEX 8244 4672 4101	CITY, STATE: Pittsburgh Pa 15238

STANDARD TAT ☑
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TCL VOC	TCL SVOC	TCL PESTIPCB	TCL PAH	TAL METALS (TOTAL)				COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	G	P				
PRESERVATIVE USED						HCL	–	–	–	HNO3				
12-14	1230	TB- 121400-01	AQ	G	2	X								TRIPBLANK
12-15	0838	DRMO - 6MW65 - GW-10	↓	↓	10	X	X	X	X	X				
↓	0930	DRMO- 6MW6D- GW-10	↓	↓	10	X	X	X	X	X				
↓	0000	GW FD - 121500 - 01	↓	↓	10	X	X	X	X	X				DUP OF 6MW65

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	12-15-00	1300	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TINUS 001

APPENDIX G

DATA VALIDATION LETTERS
AND
LABORATORY DATA SHEETS

TETRA TECH NUS, INC.

PHIL-14983

TO:	**M. MENGEL**	**DATE:**	**FEBRUARY 22, 2001**
FROM:	**JAMES LUCCHESE**	**COPIES:**	**FILE**

SUBJECT: ORGANIC DATA VALIDATION – TCL ORGANICS, PAHs, PESTICIDES/PCBs
CTO 267, NSB NEW LONDON, GROTON, CONNECTICUT
SDG NO. NL002

SAMPLES: 11 / Aqueous

DRMO-6MW1S-GW-10	DRMO-6MW11D-GW-10
DRMO-6MW2D-GW-10	DRMO-6MW11S-GW-10
DRMO-6MW6D-GW-10	DRMO-6MW2S-GW-10
DRMO-6MW6S-GW-10	DRMO-6MW9S-GW-10
DRMO-6MW10D-GW-10	GWFD-121500-01
DRMO-6MW10S-GW-10	

INTRODUCTION

The sample set for the CTO 267, New London Site, SDG NL002, consists of 11 aqueous environmental samples. All environmental samples were analyzed for volatile, semivolatile, polyaromatic hydrocarbons (PAHs), and pesticide/polychlorinated biphenyl (PCB) organic compounds.

The samples were collected by Tetra Tech NUS between December 15 and December 19, 2000, and analyzed by Severn Trent Laboratory (STL) according to the analytical and reporting protocols of CLP OLC02.1 for volatiles and pesticides, SW 846 Method 8270C for semivolatiles, Method 8310 for PAHs, and Method 8082 for PCBs.

The data contained in this SDG were validated with regard to the following parameters:

* • Holding Times
* • GC/MS Tuning and System Performance
• Initial/Continuing Calibrations
• Field and Laboratory Method Blank Results
* • Internal Standards Performance
• Surrogate Spike Recoveries
• Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
• Laboratory Control/Laboratory Control Spike Duplicate (LCS/LCSD) Results
* • Compound Identification
* • Compound Quantitation
* • Quantitation Limits
* • Tentatively Identified Compounds
* • Data Completeness

The symbol (*) indicates that all Quality Control (QC) criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendices C and D. Qualified analytical results are presented in Appendix A.

CALIBRATIONS

The following tables summarize calibration non-compliances and corresponding validation actions. The key associated with these tables is presented following the tables.

Volatiles

Compound	IC 12/18/00	CC 12/21/00
2-Butanone	X	X
1,2-Dibromo-3-chloropropane	X	X
Acetone	Y	X
Chloroethane	Y	NA
4-Methyl-2-pentanone	Y	NA
2-Hexanone	Y	NA
Associated Samples:	All	All

Semivolatiles

Compound	IC 01/07/01	CC 01/06/01
Benzoic Acid	Y	NA
2,4-Dinitrophenol	Y	W
Associated Samples:	DRMO-6MW1S-GW-10 DRMO-6MW2D-GW-10	DRMO-6MW2S-GW-10 DRMO-6MW9S-GW-10

Pesticides

Compound	IC 01/09/01 & 01/10/01 (column RTX-1701)
Alpha-BHC	Z
Delta-BHC	Z
Gamma-BHC (Lindane)	Z
Associated Samples:	All The %RSDs for column RTX-50 were acceptable therefore, results reported for these compounds did not require qualification.

Calibration Actions:

W - Percent Difference (%D) > ±25%; estimate positive results and non-detected results (J/UJ).
X - Relative Response Factor (RRF) < 0.05; estimate (J) positive results and reject (UR) non-detected results.
Y - Percent relative standard deviation (%RSD) > 30%; estimate positive results and non-detected results (J/UJ).
Z - %RSD > 20%; estimate positive results and non-detected results (J/UJ).
NA - Not Applicable

BLANKS

The following contaminants were detected in a laboratory method blank at the maximum concentrations indicated:

Compound	Maximum Concentration	Action Level (Water)
Acetone[1]	2.2 µg/L	22 µg/L
Methylene Chloride[1]	0.29 µg/L	2.9 µg/L

[1] Contaminant was detected at a maximum level in a laboratory method blank.

Blank Actions:

- Value < Contract Required Quantitation Limit (CRQL); report CRQL followed by a (U).
- Value > CRQL and < action level; report value followed by a (U).
- Value > CRQL and ≥ action level; report value unqualified.

Samples affected: All.

The aliquot used for analysis and dilution factors were considered during the application of all action levels. Positive results for all compounds were qualified in the manner indicated in the blank action table.

SURROGATE SPIKE RECOVERIES PERFORMANCE

PAHs

The analysis of the system monitoring compounds showed recoveries from both detectors that were below the lower QC limit for *p*-terphenyl in samples DRMO-6MW2D-GW-10, DRMO-6MW6D-GW-10 DRMO-6MW6S-GW-10, DRMO-6MW9S-GW-10, DRMO-6MW11D-GW-10, and GWFD121500-01. The same analysis showed recoveries from the UV detector that were less than the lower QC limit for *p*-terphenyl in sample DRMO-6MW10S-GW-10. Positive and non-detected results in all samples, except DRMO-6MW10S-GW-10, were qualified as estimated, "J/UJ", respectively.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Volatiles

The MSD Percent Recoveries (%R) for the volatile analysis was greater than the QC limit for *cis*-1,3-dichloropropene. No action was required as the aforementioned compound was not detected in the unspiked sample, DRMO-6MW2S-GW-10.

LABORATORY CONTROL/LABORATORY CONTROL SPIKE DUPLICATE RESULTS

Semivolatiles

The LCS/LCSD %R were less than 10% for 3,3'-dichlorobenzidine and hexachlorocyclopentadiene. Non-detected results for these compounds were rejected, "UR", in samples GWFD121500-01, DRMO-6MW6D-GW-10, DRMO-6MW6S-GW-10, DRMO-6MW10D-GW-10, DRMO-6MW10S-GW-10, DRMO-6MW11D-GW-10, DRMO-6MW11S-GW-10, DRMO-6MW2S-GW-10, and DRMO-6MW9S-GW-10.

The LCS/LCSD %R were less than 10% for 2,4'-dimethylphenol. Non-detected results for this compound were rejected, "UR", in samples DRMO-6MW10D-GW-10, DRMO-6MW10S-GW-10, DRMO-6MW11D-GW-10, DRMO-6MW11S-GW-10, DRMO-6MW2S-GW-10, and DRMO-6MW9S-GW-10.

The LCS/LCSD %R for the semivolatile analysis were outside the QC limits for N-nitrosodiphenylamine and benzoic acid. The affected samples were GWFD121500-01, DRMO-6MW6D-GW-10, and DRMO-6MW6S-GW-10. The %R for the aforementioned compounds were greater than 10% but less than the lower end of the QC limits. Non-detected results were qualified as estimated, "UJ".

The LCS/LCSD %R for the semivolatile analysis were outside the QC limits for N-nitrosodiphenylamine and 4-chloroaniline. The affected samples were DRMO-6MW10D-GW-10, DRMO-6MW10S-GW-10, DRMO-6MW11D-GW-10, DRMO-6MW11S-GW-10, DRMO-6MW2S-GW-10, and DRMO-6MW9S-GW-10. The %R for the aforementioned compounds were greater than 10% but less than the lower end of the QC limits. Non-detected results were qualified as estimated, "UJ".

The LCS/LCSD %R for the semivolatile analysis of 3,3'-dichlorobenzidine was outside the QC limits. The affected samples were DRMO-6MW2D-GW-10 and DRMO-6MW1S-GW-10. The %R for the aforementioned compounds were greater than 10% but less than the lower end of the QC limits. Non-detected results were qualified as estimated, "UJ".

PERCENT DIFFERENCE BETWEEN RESULTS

PAHs

The %D between detectors in the PAH analysis was greater than ±25% for fluoranthene in samples DRMO-6MW2D-GW-10, DRMO-6MW10D-GW-10, and DRMO-6MW11D-GW-10. The %D also exceeded ±25% for pyrene in sample DRMO-6MW1S-GW-10. The positive results reported for fluoranthene and pyrene in their respective samples were qualified as estimated, "J".

NOTES

Several compounds, namely, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene were reported in the volatile and semivolatile fractions. Additionally, naphthalene was reported in both the semivolatile and PAH fractions. Since the reporting limits in the volatile and PAH fractions are lower than the semivolatile reporting limits, the semivolatile compounds were removed from the database.

EXECUTIVE SUMMARY

Laboratory Performance: Two volatile compounds were detected at a maximum concentration in a laboratory method blank. LCS/LCSD %R were outside the QC limits for several semivolatile compounds. Several RRFs were outside the QC limits for the analysis of the volatiles. Initial calibration %RSD exceeded the QC limits for three pesticide compounds. One continuing calibration %D exceeded the QC limit in the semivolatile analyses. Surrogate recoveries were outside the QC limits for several PAH samples.

Other Factors Affecting Data Quality: The %D between detectors for the PAH analyses exceeded ±25% for several compounds.

The data for these analyses were reviewed with reference to the EPA "Functional Guidelines for Organic Data Review", as amended for use within EPA Region 1 (12/96), and the NFESC guidelines entitled "Naval IRCDQM", September 1999.

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, Inc.
for James Lucchese
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 - Region One Worksheets
4. Appendix D - Support Documentation

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., baseline 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	=	Pesticide/PCB % Difference Between Columns for Positive Results
v	=	Non-linear Calibrations, Tuning r < 0.995 (correlation coefficient)

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRM0-6MW1S-GW-10	DRM0-6MW2D-GW-10	DRM0-6MW6D-GW-10	DRM0-6MW6S-GW-10
SAMPLE DATE:	12/19/00	12/19/00	12/15/00	12/15/00
LABORATORY ID:	C0L200176002	C0L200176001	C0L160137002	C0L160137001
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
VOLATILES												
1,1,1-TRICHLOROETHANE	1	U		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-DIBROMO-3-CHLOROPROPANE	1	UR	C	1	UR	C	1	UR	C	1	UR	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	5	UR	C	5	UR	C
2-HEXANONE	5	UJ	C	5	UJ	C	5	UJ	C	5	UJ	C
4-METHYL-2-PENTANONE	5	UJ	C	5	UJ	C	5	UJ	C	5	UJ	C
ACETONE	5	U	A	5	U	A	5	U	A	5	U	A
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	0.15	J	P	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	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
CHLOROFORM	0.26	J	P	1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	1	U		0.12	J	P	5.3			0.18	J	P
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	U		2	U		2	U	A	2	U	
STYRENE	1	U		1	U		1	U		1	U	

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRM0-6MW1S-GW-10			DRM0-6MW2D-GW-10			DRM0-6MW6D-GW-10			DRM0-6MW6S-GW-10		
SAMPLE DATE:	12/19/00			12/19/00			12/15/00			12/15/00		
LABORATORY ID:	C0L200176002			C0L200176001			C0L160137002			C9L160137001		
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
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	0.34	J	P	1	U		10			0.79	J	P
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
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW10D-GW-10	DRMO-6MW10S-GW-10	DRMO-6MW11D-GW-10	DRMO-6MW11S-GW-10
SAMPLE DATE:	12/16/00	12/16/00	12/17/00	12/17/00
LABORATORY ID:	C0L190169001	C0L190169002	C0L190169004	C0L190169003
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
VOLATILES												
1,1,1-TRICHLOROETHANE	1	U		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	0.41	J	P	0.83	J	P	1	U		0.59	J	P
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UR	C	1	UR	C	1	UR	C	1	UR	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	0.11	J	P	1	U		1	U		0.13	J	P
2-BUTANONE	5	UR	C	5	UR	C	5	UR	C	5	UR	C
2-HEXANONE	5	UJ	C	5	UJ	C	5	UJ	C	5	UJ	C
4-METHYL-2-PENTANONE	5	UJ	C	5	UJ	C	5	UJ	C	5	UJ	C
ACETONE	5	U	A	5	U	A	5	U	A	5	U	A
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	0.41	J	P	1	U		0.62	J	P	1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	17			0.84	J	P	1.5			0.79	J	P
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	U		2	U		2	U		2	U	
STYRENE	1	U		1	U		1	U		1	U	

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW10D-GW-10			DRMO-6MW10S-GW-10			DRMO-6MW11D-GW-10			DRMO-6MW11S-GW-10		
SAMPLE DATE:	12/16/00			12/16/00			12/17/00			12/17/00		
LABORATORY ID:	C0L190169001			C0L190169002			C0L190169004			C0L190169003		
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
VOLATILES												
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	0.21	J	P	1	U		1	U		0.12	J	P
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	2.8			0.14	J	P	1	U		0.1	J	P
VINYL CHLORIDE	1	U		1	U		1	U		0.56	J	P
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW2S-GW-10			DRMO-6MW9S-GW-10			GWFD-121500-01					
SAMPLE DATE:	12/18/00			12/18/00			12/15/00			/ /		
LABORATORY ID:	C0L190169005			C0L190169006			C0L160137003					
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-6MW6S-GW-10					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U				
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U				
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U				
1,1-DICHLOROETHANE	1	U		1	U		1	U				
1,1-DICHLOROETHENE	1	U		1	U		1	U				
1,2-DIBROMO-3-CHLOROPROPANE	1	UR	C	1	UR	C	1	UR	C			
1,2-DIBROMOETHANE	1	U		1	U		1	U				
1,2-DICHLOROBENZENE	1	U		1	U		1	U				
1,2-DICHLOROETHANE	1	U		1	U		1	U				
1,2-DICHLOROPROPANE	1	U		1	U		1	U				
1,3-DICHLOROBENZENE	1	U		1	U		1	U				
1,4-DICHLOROBENZENE	1	U		1	U		1	U				
2-BUTANONE	5	UR	C	5	UR	C	5	UR	C			
2-HEXANONE	5	UJ	C	5	UJ	C	5	UJ	C			
4-METHYL-2-PENTANONE	5	UJ	C	5	UJ	C	5	UJ	C			
ACETONE	5	U	A	5	U	A	5	U	A			
BENZENE	1	U		1	U		1	U				
BROMOCHLOROMETHANE	1	U		1	U		1	U				
BROMODICHLOROMETHANE	1	U		1	U		1	U				
BROMOFORM	1	U		1	U		1	U				
BROMOMETHANE	1	U		1	U		1	U				
CARBON DISULFIDE	1	U		1	U		1	U				
CARBON TETRACHLORIDE	1	U		1	U		1	U				
CHLOROBENZENE	1	U		1	U		1	U				
CHLOROETHANE	1	UJ	C	1	UJ	C	1	UJ	C			
CHLOROFORM	1	U		1	U		0.1	J	P			
CHLOROMETHANE	1	U		1	U		1	U				
CIS-1,2-DICHLOROETHENE	0.12	J	P	1	U		0.19	J	P			
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U				
DIBROMOCHLOROMETHANE	1	U		1	U		1	U				
ETHYLBENZENE	1	U		1	U		1	U				
METHYLENE CHLORIDE	2	U		2	U		2	U	A			
STYRENE	1	U		1	U		1	U				

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW2S-GW-10	DRMO-6MW9S-GW-10	GWFD-121500-01	
SAMPLE DATE:	12/18/00	12/18/00	12/15/00	/ /
LABORATORY ID:	C0L190169005	C0L190169006	C0L160137003	
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-6MW6S-GW-10	

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TETRACHLOROETHENE	1	U		1	U		1	U				
TOLUENE	1	U		1	U		1	U				
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U				
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U				
TRICHLOROETHENE	0.2	J	P	0.47	J	P	0.77	J	P			
VINYL CHLORIDE	1	U		1	U		1	U				
XYLENES, TOTAL	1	U		1	U		1	U				

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRM0-6MW1S-GW-10			DRM0-6MW2D-GW-10			DRM0-6MW6D-GW-10			DRM0-6MW6S-GW-10		
SAMPLE DATE:	12/19/00			12/19/00			12/15/00			12/15/00		
LABORATORY ID:	C0L200176002			C0L200176001			C0L160137002			C0L160137001		
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												
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	50	UJ	C	50	UJ	C	50	U		50	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NITROANILINE	50	U		50	U		50	U		50	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	50	UJ	E	50	UJ	E	50	UR	E	50	UR	E
3-NITROANILINE	50	U		50	U		50	U		50	U	
4,6-DINITRO-2-METHYLPHENOL	50	U		50	U		50	U		50	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	50	U		50	U		50	U		50	U	
4-NITROPHENOL	50	U		50	U		50	U		50	U	
BENZOIC ACID	50	UJ	C	50	UJ	C	50	UJ	E	50	UJ	E
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	25			3.4	J	P	10	U		10	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	

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SDG: NL002

SAMPLE NUMBER:	DRM0-6MW1S-GW-10	DRM0-6MW2D-GW-10	DRM0-6MW6D-GW-10	DRM0-6MW6S-GW-10
SAMPLE DATE:	12/19/00	12/19/00	12/15/00	12/15/00
LABORATORY ID:	C0L200176002	C0L200176001	C0L160137002	G0L160137001
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												
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	50	U		50	U		50	UR	E	50	UR	E
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	UJ	E	10	UJ	E
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	50	U		50	U		50	U		50	U	
PHENOL	10	U		10	U		10	U		10	U	

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW10D-GW-10	DRMO-6MW10S-GW-10	DRMO-6MW11D-GW-10	DRMO-6MW11S-GW-10
SAMPLE DATE:	12/16/00	12/16/00	12/17/00	12/17/00
LABORATORY ID:	C0L190169001	C0L190169002	C0L190169004	C0L190169003
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												
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	UR	E	10	UR	E	10	UR	E	10	UR	E
2,4-DINITROPHENOL	50	U		50	U		50	U		50	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NITROANILINE	50	U		50	U		50	U		50	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	50	UR	E	50	UR	E	50	UR	E	50	UR	E
3-NITROANILINE	50	U		50	U		50	U		50	U	
4,6-DINITRO-2-METHYLPHENOL	50	U		50	U		50	U		50	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	UJ	E	10	UJ	E	10	UJ	E	10	UJ	E
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	50	U		50	U		50	U		50	U	
4-NITROPHENOL	50	U		50	U		50	U		50	U	
BENZOIC ACID	50	U		50	U		50	U		50	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	10	U		10	U		3.9	J	P	3.8	J	P
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		3.7	J	P	10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	

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QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW10D-GW-10	DRMO-6MW10S-GW-10	DRMO-6MW11D-GW-10	DRMO-6MW11S-GW-10
SAMPLE DATE:	12/16/00	12/16/00	12/17/00	12/17/00
LABORATORY ID:	C0L190169001	C0L190169002	C0L190169004	C0L190169003
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												
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	50	UR	E	50	UR	E	50	UR	E	50	UR	E
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	UJ	E	10	UJ	E	10	UJ	E	10	UJ	E
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	50	U		50	U		50	U		50	U	
PHENOL	10	U		10	U		10	U		10	U	

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW2S-GW-10			DRMO-6MW9S-GW-10			GWFD-121500-01					
SAMPLE DATE:	12/18/00			12/18/00			12/15/00			/ /		
LABORATORY ID:	C0L190169005			C0L190169006			C0L160137003					
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-6MW6S-GW-10					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U				
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U				
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U				
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U				
2,4-DICHLOROPHENOL	10	U		10	U		10	U				
2,4-DIMETHYLPHENOL	10	UR	E	10	UR	E	10	U				
2,4-DINITROPHENOL	50	UJ	C	50	UJ	C	50	UJ	C			
2,4-DINITROTOLUENE	10	U		10	U		10	U				
2,6-DINITROTOLUENE	10	U		10	U		10	U				
2-CHLORONAPHTHALENE	10	U		10	U		10	U				
2-CHLOROPHENOL	10	U		10	U		10	U				
2-METHYLPHENOL	10	U		10	U		10	U				
2-NITROANILINE	50	U		50	U		50	U				
2-NITROPHENOL	10	U		10	U		10	U				
3,3'-DICHLOROBENZIDINE	50	UR	E	50	UR	E	50	UR	E			
3-NITROANILINE	50	U		50	U		50	U				
4,6-DINITRO-2-METHYLPHENOL	50	U		50	U		50	U				
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U				
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U				
4-CHLOROANILINE	10	UJ	E	10	UJ	E	10	U				
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U				
4-METHYLPHENOL	10	U		10	U		10	U				
4-NITROANILINE	50	U		50	U		50	U				
4-NITROPHENOL	50	U		50	U		50	U				
BENZOIC ACID	50	U		50	U		50	UJ	EC			
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U				
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U				
BIS(2-ETHYLHEXYL)PHTHALATE	3.7	J	P	4.2	J	P	10	U				
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U				
CARBAZOLE	10	U		10	U		10	U				
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U				
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U				
DIBENZOFURAN	10	U		10	U		10	U				

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW2S-GW-10			DRMO-6MW9S-GW-10			GWFD-121500-01					
SAMPLE DATE:	12/18/00			12/18/00			12/15/00			/ /		
LABORATORY ID:	C0L190169005			C0L190169006			C0L160137003					
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-6MW6S-GW-10					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIETHYL PHTHALATE	10	U		10	U		10	U				
DIMETHYL PHTHALATE	10	U		10	U		10	U				
HEXACHLOROBENZENE	10	U		10	U		10	U				
HEXACHLOROBUTADIENE	10	U		10	U		10	U				
HEXACHLOROCYCLOPENTADIENE	50	UR	E	50	UR	E	50	UR	E			
HEXACHLOROETHANE	10	U		10	U		10	U				
ISOPHORONE	10	U		10	U		10	U				
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U				
N-NITROSODIPHENYLAMINE	10	UJ	E	10	UJ	E	10	UJ	E			
NAPHTHALENE	10	U		10	U		10	U				
NITROBENZENE	10	U		10	U		10	U				
PENTACHLOROPHENOL	50	U		50	U		50	U				
PHENOL	10	U		10	U		10	U				

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRM0-6MW1S-GW-10			DRM0-6MW2D-GW-10			DRM0-6MW6D-GW-10			DRM0-6MW6S-GW-10		
SAMPLE DATE:	12/19/00			12/19/00			12/15/00			12/15/00		
LABORATORY ID:	C0L200176002			C0L200176001			C0L160137002			C0L160137001		
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	
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
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW10D-GW-10	DRMO-6MW10S-GW-10	DRMO-6MW11D-GW-10	DRMO-6MW11S-GW-10
SAMPLE DATE:	12/16/00	12/16/00	12/17/00	12/17/00
LABORATORY ID:	C0L190169001	C0L190169002	C0L190169004	C0L190169003
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	
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
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW2S-GW-10			DRMO-6MW9S-GW-10			GWFD-121500-01					
SAMPLE DATE:	12/18/00			12/18/00			12/15/00			/ /		
LABORATORY ID:	C0L190169005			C0L190169006			C0L160137003					
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-6MW6S-GW-10					
	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				
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
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRM0-6MW1S-GW-10			DRM0-6MW2D-GW-10			DRM0-6MW6D-GW-10			DRM0-6MW6S-GW-10		
SAMPLE DATE:	12/19/00			12/19/00			12/15/00			12/15/00		
LABORATORY ID:	C0L200176002			C0L200176001			C0L160137002			C0L160137001		
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												
ACENAPHTHENE	1	U		1	UJ	R	1	UJ	R	1	UJ	R
ACENAPHTHYLENE	1	U		1	UJ	R	1	UJ	R	1	UJ	R
ANTHRACENE	0.09	J	P	0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
BENZO(A)ANTHRACENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
BENZO(A)PYRENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
BENZO(B)FLUORANTHENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
BENZO(G,H,I)PERYLENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
BENZO(K)FLUORANTHENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
CHRYSENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
DIBENZO(A,H)ANTHRACENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
FLUORANTHENE	0.078	J	P	0.029	J	PUR	0.2	UJ	R	0.2	UJ	R
FLUORENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
INDENO(1,2,3-CD)PYRENE	0.2	U		0.2	UJ	R	0.2	UJ	R	0.2	UJ	R
NAPHTHALENE	1	U		1	UJ	R	1	UJ	R	1	UJ	R
PHENANTHRENE	0.26			0.023	J	PR	0.2	UJ	R	0.2	UJ	R
PYRENE	0.038	J	UP	0.2	UJ	R	0.2	UJ	R	0.2	UJ	R

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW10D-GW-10	DRMO-6MW10S-GW-10	DRMO-6MW11D-GW-10	DRMO-6MW11S-GW-10
SAMPLE DATE:	12/16/00	12/16/00	12/17/00	12/17/00
LABORATORY ID:	C0L190169001	C0L190169002	C0L190169004	C0L190169003
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												
ACENAPHTHENE	1	U		1	U		1	UJ	R	1	U	
ACENAPHTHYLENE	1	U		1	U		1	UJ	R	1	U	
ANTHRACENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
BENZO(A)ANTHRACENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
BENZO(A)PYRENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
CHRYSENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
FLUORANTHENE	0.027	J	UP	0.13	J	P	0.023	J	PUR	0.14	J	P
FLUORENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U		0.2	U		0.2	UJ	R	0.2	U	
NAPHTHALENE	1	U		1	U		1	UJ	R	1	U	
PHENANTHRENE	0.027	J	P	0.2	U		0.032	J	PR	0.029	J	P
PYRENE	0.2	U		0.15	J	P	0.2	UJ	R	0.15	J	P

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW2S-GW-10			DRMO-6MW9S-GW-10			GWFD-121500-01					
SAMPLE DATE:	12/18/00			12/18/00			12/15/00			/ /		
LABORATORY ID:	C0L190169005			C0L190169006			C0L160137003					
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-6MW6S-GW-10					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
ACENAPHTHENE	1	U		1	UJ	R	1	UJ	R			
ACENAPHTHYLENE	1	U		1	UJ	R	1	UJ	R			
ANTHRACENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
BENZO(A)ANTHRACENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
BENZO(A)PYRENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
BENZO(B)FLUORANTHENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
BENZO(G,H,I)PERYLENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
BENZO(K)FLUORANTHENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
CHRYSENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
DIBENZO(A,H)ANTHRACENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
FLUORANTHENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
FLUORENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
INDENO(1,2,3-CD)PYRENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
NAPHTHALENE	1	U		1	UJ	R	1	UJ	R			
PHENANTHRENE	0.2	U		0.2	UJ	R	0.2	UJ	R			
PYRENE	0.2	U		0.2	UJ	R	0.2	UJ	R			

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. MENGEL**	**DATE:**	**FEBRUARY 21, 2001**
FROM:	**ERIN M. FAUST**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS**
CTO-267 NSB NEW LONDON
SAMPLE DELIVERY GROUP (SDG) – NL002

SAMPLES: 11/Aqueous/

DRM0-6MW1S-GW-10	DRM0-6MW2D-GW-10
DRM0-6MW6D-GW-10	DRM0-6MW6S-GW-10
DRM0-6MW10D-GW-10	DRM0-6MW10S-GW-10
DRM0-6MW-11D-GW-10	DRM0-6MW11S-GW-10
DRM0-6MW2S-GW-10	DRM0-6MW9S-GW-10
GWFD-121500-01	

Overview

The sample set for CTO 267, NSB New London, SDG NL002, consists of eleven (11) aqueous environmental samples. One field duplicate pair (GWFD-121500-01 / DRM0-6MW6S-GW-10) is included in this SDG.

All samples were analyzed for target analyte list (TAL) metals The samples were collected by TetraTech NUS from December 15-19, 2000 and analyzed by Severn Trent Laboratories under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of mercury, were conducted using SW 846 method 6010B. Mercury analyses were conducted using SW 846 method 7470A.

These data were evaluated based on the following parameters:

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

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

Calibration Recoveries

The contract required detection limit (CRDL) percent recovery (%R) was < 80% quality control limit for thallium. All nondetected results reported for thallium were qualified as estimated, "UJ". All positive results less than three times the CRDL 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	Action Level
Aluminum	121 µg/L	605 µg/L
Barium	0.8 µg/L	4.0 µg/L
Beryllium	0.8 µg/L	4.0µg/L
Cadmium	0.4 µg/L	2.0 µg/L
Calcium	145 µg/L	725 µg/L
Chromium	0.7 µg/L	3.5 µg/L
Copper	1.8 µg/L	9.0 µg/L
Iron	31.6 µg/L	158 µg/L
Lead	1.4 µg/L	7.0 µg/L
Magnesium	105 µg/L	525 µg/L
Manganese[1]	1.0 µg/L	5.0 µg/L
Potassium	29.7 µg/L	148.5 µg/L
Sodium	631 µg/L	3155 µg/L
Zinc[1]	15.6 µg/L	78.0 µg/L

[1] Maximum concentration present in a laboratory method blank.

An action level of 5X the maximum concentration were used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluation for blank contamination. Positive results less than the blank action levels for aluminum, cadmium, chromium, copper, iron, lead, manganese and zinc were qualified, "U", as a result of blank contamination.

ICP Interference Check Sample Results

The interfering analytes calcium and magnesium were present in sample DRM0-6MW2D-GW-10 at concentrations, which were comparable to the levels of calcium and magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, barium, cadmium, chromium, cobalt, lead, manganese, sodium, vanadium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for lead and vanadium in the affected sample. The positive result reported for vanadium was qualified as estimated, "J" and should be considered biased low. The nondetected result reported for lead was qualified as estimated, "UJ", and should be considered biased low.

The interfering analyte magnesium was present in sample DRM0-6MW10D-GW-10 at a concentration, which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, barium, cadmium, chromium, cobalt, lead, manganese, sodium, vanadium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for chromium,

cobalt, lead and vanadium in the affected sample. The positive result reported for cobalt was qualified as estimated, "J" and should be considered biased high. The nondetected results reported for chromium, lead and vanadium were qualified as estimated, "UJ", and should be considered biased low.

The interfering analyte magnesium was present in sample DRM0-6MW10S-GW-10 at a concentration, which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, barium, cadmium, chromium, cobalt, lead, manganese, sodium, vanadium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for chromium and lead in the affected sample. The nondetected results reported for chromium and lead were qualified as estimated, "UJ", and should be considered biased low.

The interfering analyte magnesium was present in sample DRM0-6MW11D-GW-10 at a concentration, which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, barium, cadmium, chromium, cobalt, lead, manganese, sodium, vanadium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for cobalt, vanadium and zinc in the affected sample. The positive results reported for cobalt and zinc were qualified as estimated, "J" and should be considered biased high. The positive result reported for vanadium was qualified as estimated, "J", and should be considered biased low.

The interfering analyte magnesium was present in sample DRM0-6MW11S-GW-10 at a concentration, which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, barium, cadmium, chromium, cobalt, lead, manganese, sodium, vanadium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for antimony and chromium in the affected sample. The positive result reported for antimony was qualified as estimated, "J" and should be considered biased high. The nondetected result reported for chromium was qualified as estimated, "UJ", and should be considered biased low.

The interfering analyte magnesium was present in sample DRM0-6MW2S-GW-10 at a concentration, which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, barium, cadmium, chromium, cobalt, lead, manganese, sodium, vanadium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for chromium, lead, manganese and vanadium in the affected sample. The positive result reported for manganese was qualified as estimated, "J" and should be considered biased high. The positive result reported for vanadium was qualified as estimated, "J", and should be considered biased low. The nondetected results reported for chromium and lead were qualified as estimated, "UJ", and should be considered biased low.

ICP Serial Dilution Results

The ICP serial dilution percent difference (%D) exceeded the 15% quality control limit for zinc. Positive results reported for zinc were qualified as estimated, "J".

Sample Quantitation

All positive results < 2X the IDL reported for cobalt and thallium were qualified as estimated, "J", per regional guidelines.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks. Thallium was qualified due to calibration noncompliance.

Other Factors Affecting Data Quality: Zinc was qualified due to ICP serial dilution noncompliance. The interfering analytes calcium and/or magnesium were present in several samples. Cobalt and thallium were qualified due to concentrations < 2X the IDL.

The data for these analyses were reviewed with reference to the EPA Region I "National Functional Guidelines for Inorganic Review", February 1989 and the NFESC document entitled "Navy IRCDQM" (September 1999).

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
Erin M. Faust
Environmental Scientist

TetraTech 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 - Support Documentation

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/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
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRM0-6MW1S-GW-10			DRM0-6MW2D-GW-10			DRM0-6MW6D-GW-10			DRM0-6MW6S-GW-10		
SAMPLE DATE:	12/19/00			12/19/00			12/15/00			12/15/00		
LABORATORY ID:	C0L200176002			C0L200176001			C0L160137002			C0L160137001		
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	12.9	U		294	U	A	12.9	U		258	U	A
ANTIMONY	1.8	U		1.8	U		1.8	U		1.8	U	
ARSENIC	2.2	U		2.2	U		2.2	U		2.2	U	
BARIUM	6.4			172			40.4			38.5		
BERYLLIUM	0.20	U		0.20	U		0.20	U		0.20	U	
CADMIUM	0.20	U		0.51	U	A	2.3			0.20	U	
CALCIUM	42000			277000			66300			15400		
CHROMIUM	0.50	U		1.9	U	A	10.1			0.50	U	
COBALT	0.60	U		0.60	U		0.82	J	P	0.60	U	
COPPER	1.5	U	A	3.6	U	A	1.0	U	A	1.8	U	A
IRON	16.2	U		3760			2520			387		
LEAD	1.0	U		1.0	UJ	K	1.0	U		1.0	U	
MAGNESIUM	110000			764000			54500			3250		
MANGANESE	2.7	U	A	777			2590			6.3		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	2.1	U		2.1	U		6.3			2.1	U	
POTASSIUM	51400			348000			22300			2790		
SELENIUM	2.9	U		2.9	U		2.9	U		2.9	U	
SILVER	0.90	U		0.90	U		0.90	U		0.90	U	
SODIUM	945000			6490000			490000			42000		
THALLIUM	7.1	UJ	C	12.4	J	PC	7.1	UJ	C	7.1	UJ	C
VANADIUM	0.60	U		3.0	J	K	0.60	U		0.60	U	
ZINC	39.7	U	A	21.7	U	A	16.0	U	A	20.4	U	A

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW10D-GW-10			DRMO-6MW10S-GW-10			DRMO-6MW11D-GW-10			DRMO-6MW11S-GW-10		
SAMPLE DATE:	12/16/00			12/16/00			12/17/00			12/17/00		
LABORATORY ID:	C0L190169001			C0L190169002			C0L190169004			C0L190169003		
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	12.9	U		12.9	U		298	U	A	23.1	U	A
ANTIMONY	1.8	U		1.8	U		1.8	U		4.3	J	K
ARSENIC	7.1			2.2	U		8.2			2.2	U	
BARIUM	36.7			174			162			133		
BERYLLIUM	0.20	U		0.20	U		0.20	U		0.20	U	
CADMIUM	0.37	U	A	0.28	U	A	0.50	U	A	1.1	U	A
CALCIUM	169000			155000			202000			150000		
CHROMIUM	0.50	UJ	K	0.50	UJ	K	1.2	U	A	0.50	UJ	K
COBALT	1.7	J	K	0.60	U		6.7	J	K	0.60	U	
COPPER	1.7	U	A	5.9	U	A	6.6	U	A	12.7		
IRON	2240			1130			2020			368		
LEAD	1.0	UJ	K	1.0	UJ	K	1.1	U	A	4.9	U	A
MAGNESIUM	373000			335000			503000			375000		
MANGANESE	834			622			1040			385		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	4.8			13.0			9.5			2.1	U	
POTASSIUM	173000			139000			202000			157000		
SELENIUM	2.9	U		2.9	U		2.9	U		2.9	U	
SILVER	0.90	U		0.90	U		0.90	U		0.90	U	
SODIUM	3120000			2680000			3940000			2960000		
THALLIUM	8.6	J	PC	13.7	J	PC	7.7	J	PC	9.7	J	PC
VANADIUM	0.60	UJ	K	175			3.7	J	K	26.3		
ZINC	59.1	U	A	52.8	U	A	86.8	J	IK	299	J	I

CTO267-NSB NEW LONDON
WATER DATA
QUANTERRA
SDG: NL002

SAMPLE NUMBER:	DRMO-6MW2S-GW-10			DRMO-6MW9S-GW-10			GWFD-121500-01					
SAMPLE DATE:	12/18/00			12/18/00			12/15/00			/ /		
LABORATORY ID:	C0L190169005			C0L190169006			C0L160137003					
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-6MW6S-GW-10					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	12.9	U		199	U	A	258	U	A			
ANTIMONY	1.8	U		1.8	U		1.8	U				
ARSENIC	2.2	U		2.2	U		2.2	U				
BARIUM	34.7			12.7			39.6					
BERYLLIUM	0.20	U		0.20	U		0.20	U				
CADMIUM	0.56	U	A	0.42	U	A	0.20	U				
CALCIUM	226000			3950			16000					
CHROMIUM	0.50	UJ	K	0.50	U		0.50	U				
COBALT	0.60	U		1.2			0.60	U				
COPPER	5.6	U	A	19.0			1.8	U	A			
IRON	16.2	U		23.4	U	A	390					
LEAD	1.0	UJ	K	3.9	U	A	1.0	U				
MAGNESIUM	713000			780			3380					
MANGANESE	37.0	J	K	139			7.6					
MERCURY	0.10	U		0.10	U		0.10	U				
NICKEL	2.1	U		5.3			2.1	U				
POTASSIUM	316000			747			2880					
SELENIUM	2.9	U		2.9	U		2.9	U				
SILVER	0.90	U		0.90	U		0.90	U				
SODIUM	5630000			3910			43800					
THALLIUM	9.1	J	PC	7.1	UJ	C	7.1	UJ	C			
VANADIUM	4.3	J	K	0.60	U		0.60	U				
ZINC	38.9	U	A	151	J	I	18.5	U	A			