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Round 2 Groundwater Monitoring Report for Area A Landfill

Naval Submarine Base New London

Groton, Connecticut

Northern Division Naval Facilities Engineering Command

Contract Number N62472-90-D-1298

Contract Task Order 0203

April 2000

TETRA TECH NUS, INC.

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ROUND 2 GROUNDWATER MONITORING REPORT FOR AREA A LANDFILL

NAVAL SUBMARINE BASE - NEW LONDON GROTON, CONNECTICUT

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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1.0 INTRODUCTION

This Round 2 Groundwater Monitoring Report for the Area A Landfill 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) 0203.

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 SCOPE AND OBJECTIVE

An Interim Remedial Action (IRA) was completed in 1997 at the Area A Landfill site to address the risk from direct exposure to landfill material and to minimize the risk of migration of chemicals of concern (COCs) from the landfill to the surrounding areas via groundwater. The IRA consisted of capping the site with a multi-layer low-permeability cover system and installing a surface water and shallow groundwater interception and diversion system upgradient from the cover system. The groundwater monitoring is being conducted to evaluate the effectiveness of the IRA.

The objective of this Round 2 Groundwater Monitoring Report is to present the results of the second round of long-term groundwater monitoring at the Area A Landfill site. Five existing Phase I and Phase II Remedial Investigation (RI) monitoring wells and 10 monitoring wells installed in May 1999 were sampled and analyzed for a suite of analytes based on an evaluation of site history and previous analytical results. One additional monitoring well and ten surface water locations were also to be sampled; however, due to freezing temperature conditions samples were not obtained. Sampling and analyses were performed in accordance to the Groundwater Monitoring Plan (GMP) prepared for the Area A Landfill (TtNUS, January 1999). Because this is an interim report for the second round of groundwater monitoring, evaluation of monitoring results is limited to a comparison of these results to the criteria identified in the GMP for the Area A Landfill (TtNUS, January 1999).

1.2 BACKGROUND INFORMATION

1.2.1 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 (Figure 1-1). 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.

1.2.2 Site Description and History

The Area A Landfill is located in the northeastern and north central part of NSB-NLON and encompasses approximately 13 acres (Figure 1-2). The Area A Landfill is relatively flat and is bordered by a steep, wooded hillside that rises to the south, a steep wooded ravine to the west, and the Area A Wetland to the north. Access to the west end of the landfill is via a gate off Wahoo Avenue and access to the east end of the landfill is via a paved road and gate adjacent to a parking lot and the Area A recreational facilities.

Before the Area A Landfill was opened, dredge spoil from the Thames River was deposited continuously along a major portion of the hillside and within the former valley, which is currently the Area A Wetland. The Area A Landfill reportedly opened sometime before 1957. However, a 1957 aerial photograph (USEPA, EPIC, 1957) shows no apparent landfilling activities, indicating a somewhat later start-up date. After the NSB-NLON incinerator closed in 1963, most of the wastes generated by submarine and base operations were disposed of in the landfill, including all non-salvageable materials.

The area fill method was reportedly used in landfill operations at the Area A Landfill. The area fill method consists of filling an area in a sequence of cells and lifts. Each lift is a specified thickness and consists of several cells. Each cell can be viewed as a rectangular area that is filled from back to front. The front area is the "working face" and is the location were new refuse is placed and is the area that is covered on a daily basis. The cover material used on the landfill was gravel obtained from the Groton water supply reservoir. The Area A Landfill closed in 1973.

After closure, a bituminous concrete pad approximately 160 x 100 feet in size was constructed in the southwest portion of the landfill for above-ground storage of industrial wastes. Steel drums, transformers, and electrical switches were stored on this pad. All of these materials have been properly disposed of off-site. This pad was also used for crane testing and test weights were stored there. The remainder of the Area A Landfill was unpaved and included a gravel covered parking lot (Deployed Parking) that was located in the central part of the landfill.

Site investigations were conducted at the Area A Landfill as part of a base-wide Phase I Remedial Investigation (RI) (Atlantic, August 1992) and a base-wide Phase II RI (B&R Environmental, March 1997).

A site-specific Area A Landfill Focused Feasibility Study (FFS) (Atlantic, May 1995), and a Proposed Remedial Action Plan (PRAP), (Atlantic, June 1995) were also prepared. A Record of Decision (ROD) was prepared and signed by the Navy and United States Environmental Protection Agency (USEPA) Region I on September 26, 1995. The major components of the selected alternative as described in the ROD were as follows:

- Restricting access to the contaminated areas of the site using perimeter fencing and institutional controls.
- Capping the site with a low-permeability multi-layer cover system to prevent water infiltration into the landfill.
- Constructing an interception system to collect shallow groundwater and storm water and re-route these around the landfill
- Establishing landfill gas controls to manage landfill gas migration.
- Developing a groundwater monitoring plan to monitor the quality of groundwater after the landfill closure is completed.

A remedial design for the proposed landfill cover system was first prepared by Atlantic Environmental Services, Inc. (Atlantic, July 1994) and subsequently amended and finalized by Brown & Root Environmental (B&R Environmental, December 1996b). As part of the re-design effort, a Geotechnical Field Investigation (HNUS, May 1995), an Area A East End Investigation (B&R Environmental, December 1996a), and a Groundwater/Leachate Modeling Study (B&R Environmental, October 1996) were also conducted.

Construction of the landfill cover system (including gas control and storm water and shallow groundwater interception systems) was completed as part of an Interim Remedial Action (IRA) in September 1997 by Foster Wheeler Environmental Corporation. Prior to commencement of construction, a large quantity of metal, concrete and wood debris, several thousand sandbags, the Deployed Parking lot, the electrical storage building (Building 496), the Master at Arms Building (Building 373), salt storage shed, and various other items that had been located on the surface of the landfill were removed or relocated. The majority of the surficial debris was disposed of off-site as scrap metal or at an off-site landfill. The debris that was salvageable by NSB-NLON was removed and relocated to other areas of NSB-NLON.

The preparation of the subgrade to the cover required excavation from the northern slope of the landfill and placement of the excavated material on the southern slope. Also, approximately 4,000 cubic yards of soil from the Rubble Fill Area at Bunker A 86 (Site 4) and 1,000 cubic yards of common fill were placed over the eastern portion of the landfill, beneath the area of the relocated Deployed Parking. The soils were then compacted. During the subgrade preparation activities, two storm water drainage structures located within the limits of the site were decommissioned. These structures consisted of open catch basins on the southern edge of the landfill that discharged into a reinforced concrete culvert running through the landfill and ultimately into the Area A Wetland. Both culverts were entirely filled with flowable concrete to eliminate potential voids in the subgrade due to pipe collapse. The catch basins were filled with materials unsuitable for placement in the landfill subgrade (e.g., tires, large metal and wood debris, large concrete debris, etc.) followed by encapsulation with flowable concrete fill.

1.2.3 Previous Site Investigations

Six field investigations have been conducted at the Area A Landfill. These include the following:

- the field investigation performed for the base-wide Phase I RI (Atlantic, August 1992)
- the supplemental field investigation performed for the Area A Landfill FFS (Atlantic, May 1995)
- the field investigation performed for the base-wide Phase II RI (B&R Environmental, March 1997)
- the Geotechnical Field Investigation (HNUS, May 1995) and Area A East End Investigation (B&R Environmental, December 1996a) performed in support of the Area A Landfill Remedial Design (B&R Environmental, December 1996b)
- the field investigation performed for the Groundwater/Leachate Modeling Study, which supported the Area A Landfill Remedial Design (B&R Environmental, October 1996)

1.2.3.1 Base-Wide Phase I RI

Atlantic conducted a field investigation at the Area A Landfill in 1990 as part of the base-wide Phase I RI (Atlantic, August 1992). A total of 13 monitoring wells (2LMW7S, 2LMW7D, 2LMW8S, 2LMW8D, 2LMW9S, 2LMW9D, 2LMW13S, 2LMW13D, 2LMW14D, 2LMW17S, 2LMW17D, 2LMW18S, 2LMW18D) and 7 test borings (2LTB1 through 2LTB7) were installed. A total of 12 soil and 12 groundwater samples were collected from these monitoring wells and test borings. Soil samples were analyzed for Target Compound List (TCL) organics, Target Analyte List (TAL) inorganics, polychlorinated biphenyls (PCBs),

pesticides, and Toxicity Characteristics Leaching Procedure (TCLP) pesticides and metals. Groundwater samples were analyzed for the same parameters, except TCLP, plus radiological elements.

1.2.3.2 Area A Landfill FFS

Atlantic conducted a supplemental field investigation at the Area A Landfill in October and November 1993 to support the Area A Landfill FFS (Atlantic, May 1995). The main purpose of these field activities was to characterize the subsurface soil in the vicinity of the bituminous concrete pad located at the southwestern end of the landfill.

Twenty-four soil borings (2LTB8 through 2LTB31) were drilled to a depth of 16 feet or auger refusal. Based on field screening for volatile organic compounds (VOCs), with an HNu organic vapor analyzer and for PCBs with a field gas chromatograph, 13 subsurface soil sample were selected for analysis of TCL organics, PCBs, pesticides and TAL inorganics. Selected samples were also analyzed for organic content, cation exchange capacity, total organic carbon (TOC), dioxin and geotechnical parameters, including grain-size distribution, moisture content, and specific gravity. Two samples were also analyzed by the TCLP for all toxicity constituents.

1.2.3.3 Base-Wide Phase II RI

B&R Environmental conducted a field investigation at the Area A Landfill in 1994 as part of the base-wide Phase II RI (B&R Environmental, March 1997). A total of 10 monitoring wells (2LPW1S, 2LOW1S, 2LOW1D, 2LOW2S, 2LOW3S, 2LOW4S, 2LMW19S, 2LMW19D, 2LMW20S, 2LMW20D) were installed. Eleven soil samples were collected from two soil borings (2LTB13, 2LTB23). Two rounds of groundwater level measurements and groundwater sampling were conducted, including one in March and one in August 1994. Groundwater samples were analyzed for TCL organics, TAL inorganics, PCBs, and radiological elements.

1.2.3.4 Geotechnical Field Investigation

B&R Environmental conducted field activities at the Area A Landfill in February and March 1995 as part of the Geotechnical Field Investigation (HNUS, March 1995) performed in support of the remedial design for a landfill cover system. The purpose of the Geotechnical Field Investigation was to confirm the areal extent of the fill material and obtain additional geotechnical field data.

Twenty test pits (LF-TP01 to LF-TP13 and LF-TP15 to LF-TP21) were excavated along the edges of the Area A Landfill to allow for visual observation of subsurface conditions. The purpose of excavating these

test pits was primarily to determine the lateral extent of the fill material and, wherever practical (especially along the southern edge of the landfill), establish the depth and competence of bedrock.

Eight soil borings were drilled at strategic locations on the landfill plateau to establish the depth of bedrock and thickness of the fill and dredge spoil material. The soil borings were also used to collect six soil samples to be tested for geotechnical parameters (particle size, moisture content, classification, Atterberg limits, and triaxial compression) and three soil samples to be tested for analytical parameters (TCL organics, PCBs, and pesticides, and TAL inorganics). Four borings (LF-SB01 and LF-SB03 through LF-SB05) were advanced through the overburden to auger refusal at the bedrock. Two borings (LF-SB02, LF-SB06) were advanced through the overburden and approximately 5 feet into competent bedrock. Two borings (LF-TP01 and LF-TP07) were drilled through approximately 5 feet of bedrock at the bottom of previously excavated test pits.

1.2.3.5 Area A East End Investigation

B&R Environmental conducted field activities at the Area A Landfill in September 1995 as part of the Area A East End Investigation (B&R Environmental, December 1996a) performed in support of the remedial design for the landfill cover system. The purpose of the Area A East End Investigation was to verify that the fill used for the construction of the recreational facilities (Racquetball Building, tennis courts, and ball field) located at the extreme east end of Area A is of a different nature from that placed in the rest of the Area A Landfill, i.e., does not contain contaminated waste material, and therefore, does not need to be capped.

Six test trenches (LF-TP22 through LF-TP27) were excavated along the eastern boundary of the Area A Landfill cover system as designed to verify the eastern limit of contaminated fill material. The test trenches were field-screened for the presence of VOCs, and four soil samples were collected and analyzed TCL organics, PCBs, and pesticides; TAL inorganics and cyanide; and, total petroleum hydrocarbon (TPH).

Three soil borings (SB06 through SB08) were drilled in the vicinity of the Area A East End recreational facilities. These soil borings were advanced through the overburden to the bedrock to auger refusal. A total of six soil samples were collected from the fill and dredge spoil material and analyzed for TCL organics, PCBs, and pesticides; TAL inorganics and cyanide; and, TPH.

1.2.3.6 Groundwater/Leachate Modeling Study

B&R Environmental conducted field activities at the Area A Landfill in November/December 1995 as part of the Groundwater/Leachate Modeling Study (B&R Environmental, October 1996) performed in support

of the remedial design for the landfill cover system. The purpose of the Groundwater/Leachate Modeling Study was to evaluate the impact of the proposed landfill cover system on the saturated thickness of landfill material and on the flow and composition of the groundwater/leachate discharge from the landfill.

The modeling field investigation activities included the performance of the following activities:

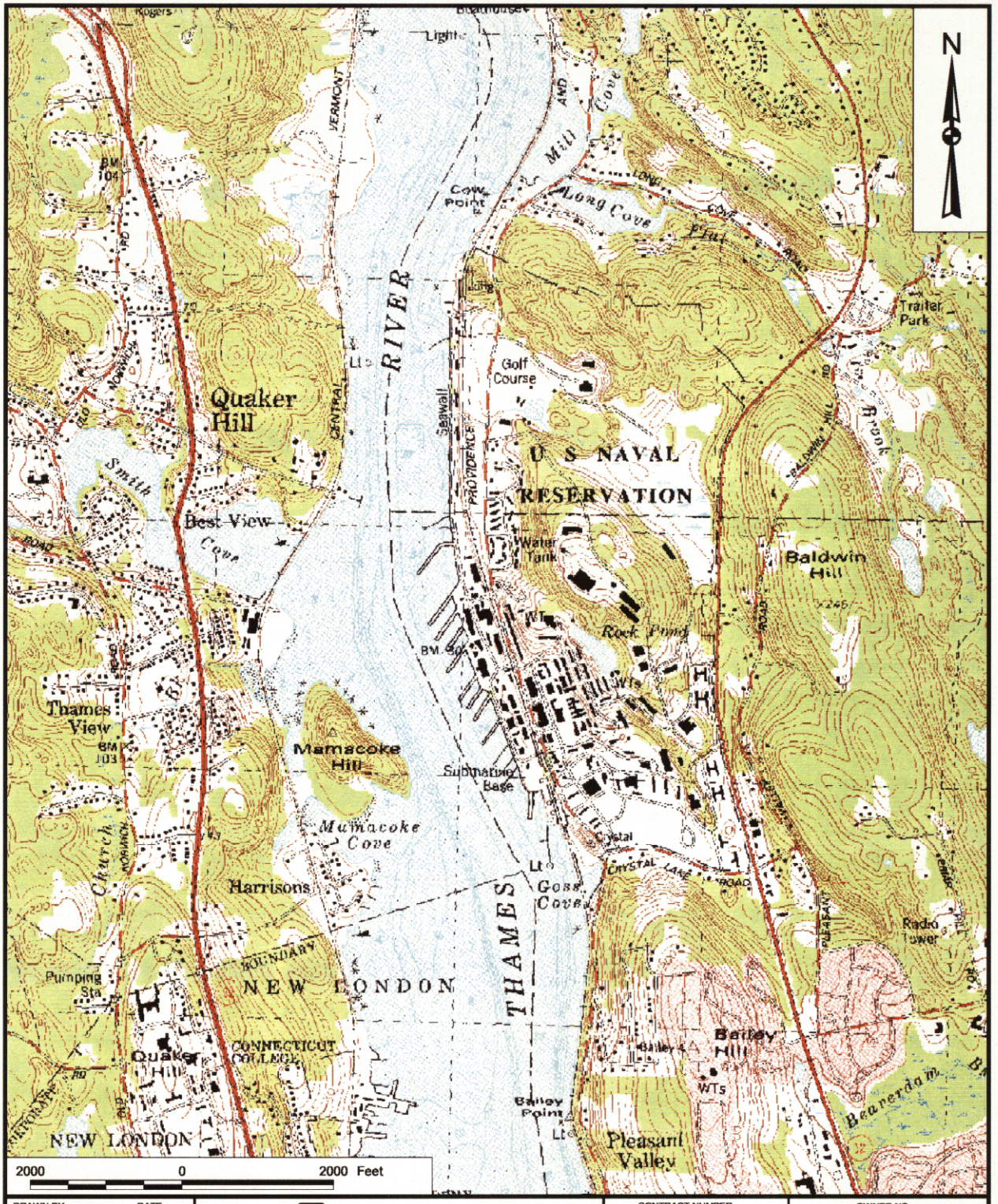
- Surface infiltration tests at 10 locations (2LT1 thru 2LT10) throughout the surface of the landfill
- Installation of 13 overburden monitoring wells, including 6 in the landfill material (2LMW28F through 2LMW33F) and 7 in the underlying dredge spoil or alluvium (2LMW28DS, 2LMW29A, 2LMW30DS through 2LMW34DS).
- Installation of three bedrock wells, including two located upgradient from the Area A Landfill (2LMW35B and 2LMW36B) and one at the northeast end of the landfill (2LMW32B).
- Installation of 10 piezometers, including 7 (2LPZ1DS thru 2LPZ7DS) along the boundary between the Area A Landfill and Area A Wetland and 3 (2LPZ1F, 2LPZ2F, and 2LMW32PZ) at the northeast end of the landfill.
- Installation of eight staff gauges (SG07 thru SG14) along the boundary between the Area A Landfill and Area A Wetland.
- Slug testing of the newly installed wells and one piezometer (2LMW32PZ).
- Water level measurement for all newly installed monitoring wells, piezometers, and staff gauges as well as for all previously existing monitoring wells.
- Flow measurement and sampling of the groundwater seep (3MSP01) from the western face of the Area A Landfill into the Overbank Disposal Area (OBDA) (Site 3) of the adjoining Area A Downstream site. This sample was analyzed for TCL organics and TAL inorganics.

The Groundwater/Leachate Modeling Study provided a comprehensive analysis of the site geology and hydrogeology. The report provided surface contour maps of the four units (landfill material, dredge spoil, alluvium and bedrock) underlying the site; thickness maps for the landfill material and dredge spoil; surface contour maps for the water table and bedrock groundwater; geologic cross-sections; conceptual flow nets; and an analysis of vertical flow gradients.

Additionally, the Groundwater/Leachate Modeling Study concluded that the Area A Landfill cover system would reduce the thickness of the saturated landfill material by approximately 0.1 foot along the Area A Wetland boundary, by approximately 0.5 foot at the eastern end of the landfill, by approximately 0.2 foot in the center of the landfill, and by over one foot at the western end of the landfill. The study concluded that the cover system would reduce the flux of groundwater COCs from the Area A Landfill to the Area A Wetland by 16 to 55 percent and that none of these COCs would exceed either the Federal AWQCs or the Connecticut's SWPCs.

1.3 REPORT ORGANIZATION

This report has been prepared in the following format to address the requirements for long-term groundwater monitoring at the Area A Landfill. Section 1.0 is this brief introduction including the project scope and objective and a discussion of previous investigations. Section 2.0 describes Round 2 field activities. Section 3.0 presents and evaluates the analytical results from the Round 2 sampling effort.



DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NO.
J. BELLONE	2/16/00		5082	—
CHECKED BY	DATE	LOCATION MAP	APPROVED BY	DATE
MLN	4/25/00	NSB-NLON	Mark L. Mingel	4/25/00
COST/SCHEDULE-AREA		GROTON, CONNECTICUT	APPROVED BY	DATE
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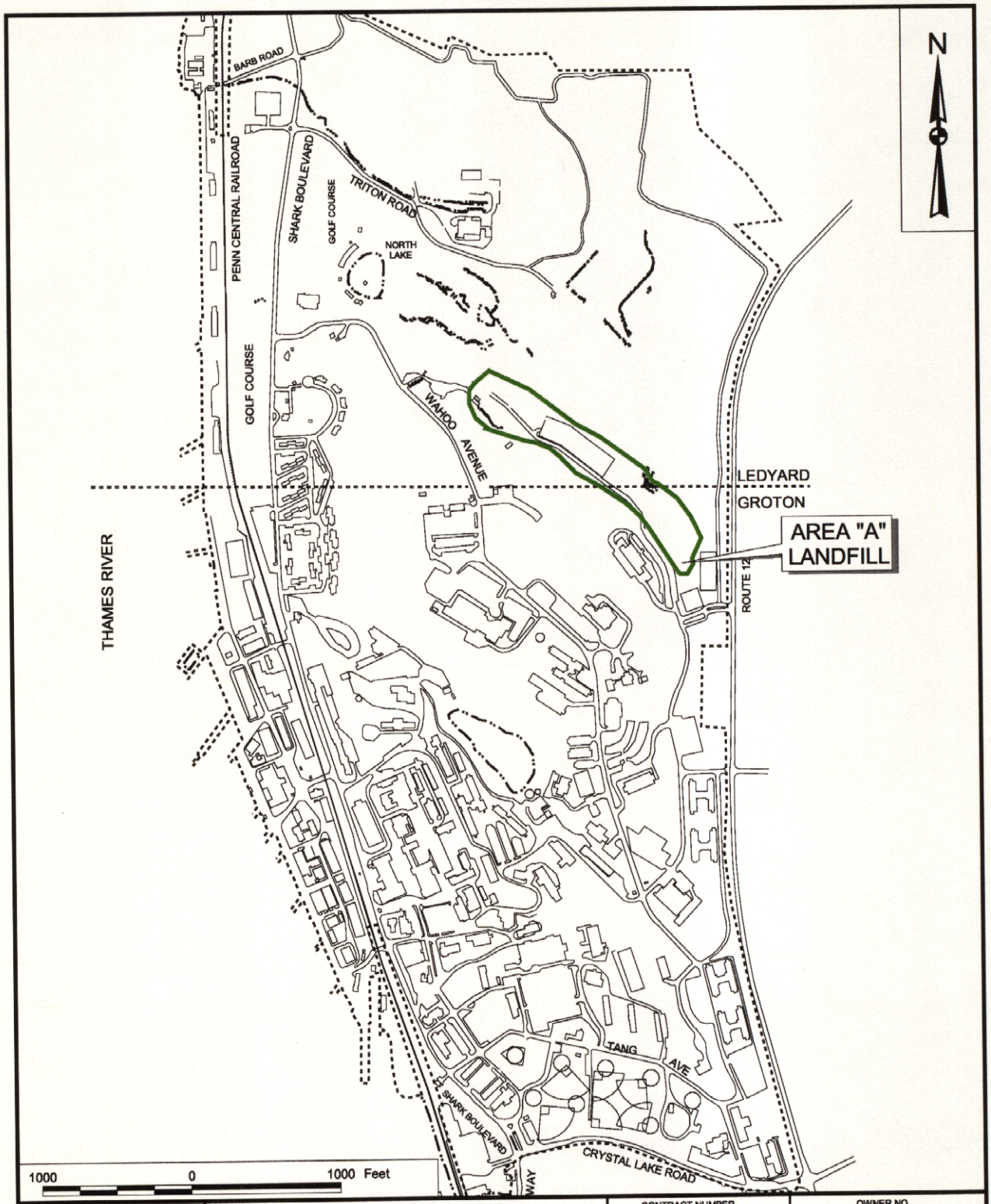

DRAWN BY J. BELLONE — DATE 2/16/00	Tetra Tech NUS, Inc.	CONTRACT NUMBER 5082	OWNER NO. —
CHECKED BY MLM — DATE 2/18/00	SITE MAP NSB NLON GROTON, CONNECTICUT	APPROVED BY Mark L. Mengel — DATE 2/18/00	
COST/SCHEDULE-AREA		APPROVED BY — — DATE —	
SCALE AS NOTED		DRAWING NO. FIGURE 1-2	REV 0

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2.0 FIELD INVESTIGATION ACTIVITIES

Field investigation activities performed as part of the second round of the groundwater monitoring at Area A Landfill included one round of water level measurements and a round of groundwater sampling of 5 existing and 10 newly installed monitoring wells. One additional monitoring well and ten surface water locations were also to be sampled; however, due to freezing temperature conditions samples were not obtained. Round 2 occurred in January 2000. Figure 2-1 illustrates sampling locations. The 11 new monitoring wells and associated surface water staff gauges were installed in May 1999 prior to the Round 1 sampling event. These activities were performed in accordance with the procedures and methodologies described in GMP for Area A Landfill (TtNUS, January 1999). Copies of the field logbook, sample logsheets, calibration logs, field measurements, and sample chain-of custody records are provided in Appendices A through E.

2.1 WATER LEVEL MEASUREMENT

Prior to groundwater purging and sampling and surface water sampling, one round of water levels was measured from 11 new and 5 existing monitoring wells. Water levels were also measured at 11 new and 2 existing staff gauge locations; however, the measurements were obtained from the wrong measuring point. Therefore, the elevation data was not used in preparing the potentiometric surface map. The one existing staff gauge (SG-06) was located at the top of the headwall along the southern side of the dike. The other existing staff gauge (SG-25, formerly SG-12) was located along the shoreline of the pond northeast of the crane test pad. Table 2-1 summarizes the water level measurements minus the staff gauge data. Figure 2-2 illustrates the potentiometric surface map for the shallow groundwater at the Area A Landfill. Groundwater level measurement sheets are provided in Appendix B.

2.2 GROUNDWATER SAMPLING

A total of 15 monitoring wells comprised of 5 existing wells (2LMW20S, 2WMW21S, 4MW1S, 3MW12S and 3MW12D) and 10 newly installed monitoring wells (2WMW38DS through 2WMW47DS and 3MW37S) were sampled during the second round of groundwater monitoring. One additional monitoring well (2WMW44DS) was frozen at the water surface and was not sampled. Low-flow purging and sampling techniques, as described in Sections 4.1.6 and 4.1.7 of the GMP (TtNUS, January 1999), were used.

The wells were purged using a peristaltic pump with disposable Teflon® tubing. Prior to purging, the initial static water level was measured in the well using a water-level indicator. During purging, the water level was measured every 3 to 5 minutes. The pumping rate was initially set at less than 0.3 liter per minute and reduced to 0.1 to 0.2 liter per minute. The pumping rate was adjusted to not allow drawdown to exceed

0.3 foot during the purging (except for wells with low recharge rates). Copies of the low-flow purge data sheets are provided in Appendix D.

During purging, water quality parameters of pH, turbidity, specific conductance, temperature, Eh, salinity, and dissolved oxygen were measured and recorded every 5 minutes using a water quality meter and flow-through cell until all of the parameters stabilized and the minimum purge volume (equal to the stabilized drawdown volume plus the tubing volume) was removed. Stabilization of the above parameters is defined as follows:

- pH ± 0.2 standard units
- turbidity ± 10 % for values greater than 1 NTU
- specific conductance ± 10 %
- temperature ± 10 %
- Eh ± 10 mV
- dissolved oxygen ± 10 %.

Monitoring wells 2WMW38DS through 2WMW46DS were dewatered during purging due to the low recharge rate of the screened formation. The dewatered wells were sampled the following day. Well 2WMW38DS was sampled over 3 days due to insufficient recharge for supplying volume for the sample containers.

All purge water was containerized in 55-gallon drums for off-site disposal by a disposal subcontractor, as discussed in Section 2.4.

Following purging, samples were collected directly from the discharge end of the tubing. All sample containers were filled by allowing the discharge to flow gently down the inside of the container with minimal turbulence. Samples analyzed for VOCs were collected by drawing a column of water into the tubing with the pump; crimping the discharge end of the tubing; disconnecting the tubing from the well; releasing the tubing; and decanting the sample into the sample vials from an intake end of the tubing via gravity flow. For filtered inorganic samples, an in-line 0.45-micron filter was used, pre-rinsed with approximately 400 ml of deionized water and attached to the discharge end of the pump tubing. Groundwater samples were analyzed for select TCL VOCs, SVOCs, PAHs, pesticides and PCBs; TAL metals (total and dissolved); TOC; chemical oxygen demand; and water chemistry parameters of total dissolved solids, alkalinity, chloride, sulfate, and hardness. Copies of the groundwater sample logsheets and Chain of Custody Records are provided in Appendix D and E, respectively. Analytical results of the samples are discussed in Section 3.0.

2.3 SURFACE WATER SAMPLING

As detailed in Section 4.0 of the Groundwater Monitoring Plan for the Area A Landfill (TtNUS, January 1999), 10 staff gauge locations and 1 seep sampling location were to be sampled as part of the sampling program. Due to below freezing temperatures for an extended period of time during round 2, the surface water locations could not be sampled.

2.4 DECONTAMINATION AND INVESTIGATION-DERIVED WASTE

All decontamination fluids were collected and containerized in 55-gallon drums. All water quality and water level meters were decontaminated by rinsing with deionized water prior to and after use.

All investigation derived waste (IDW), including purge water, and decontamination fluids were disposed off-site by Capitol Environmental Services, Inc, a licensed disposal company, subcontracted by TtNUS.

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TABLE 2-1

WATER LEVEL ELEVATIONS (JANUARY 2000)
ROUND 1 GROUNDWATER WATER MONITORING REPORT
AREA A LANDFILL, NSB-NLON, GROTON, CONNECTICUT

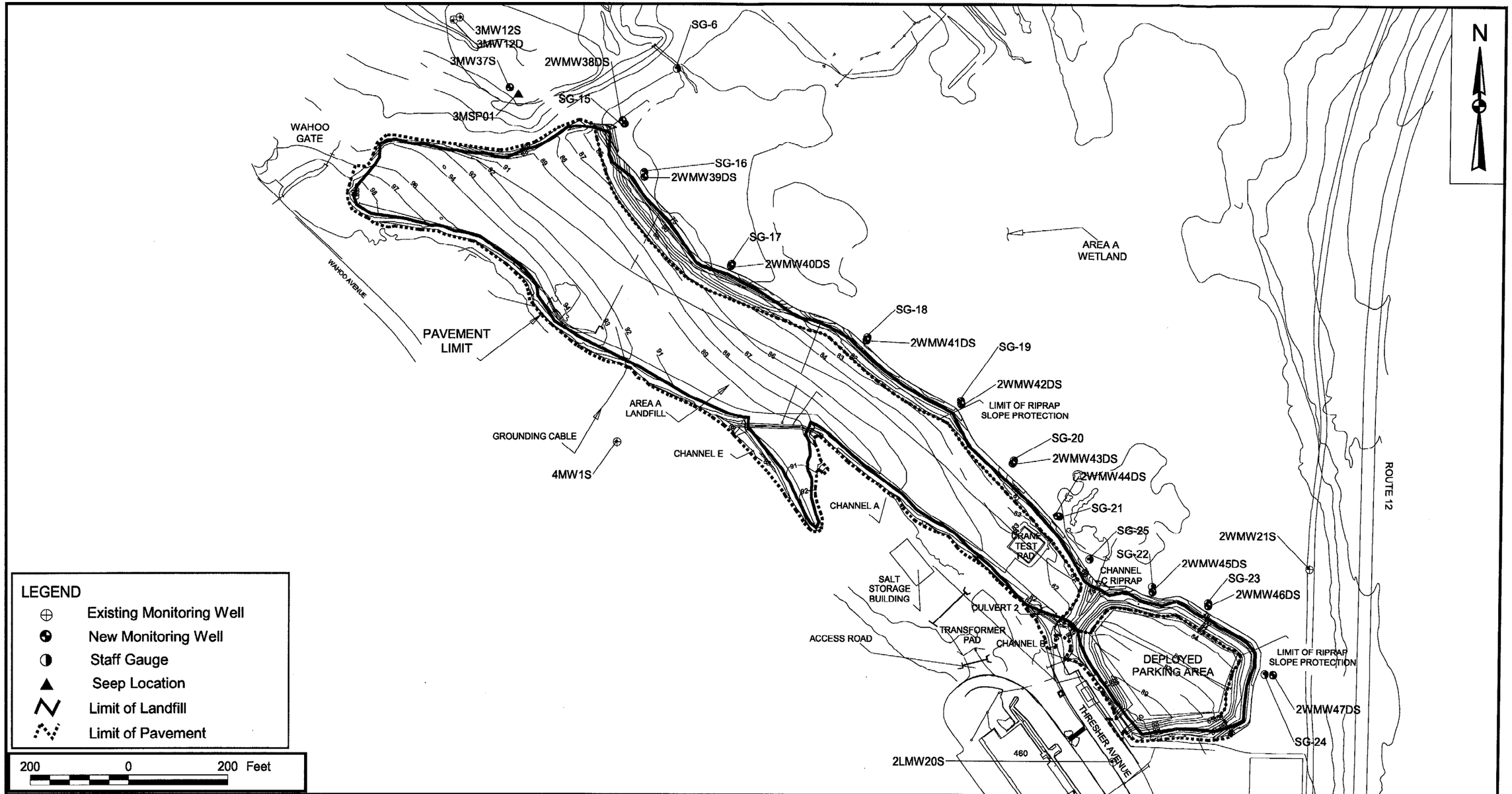
Well/ Staff Gauge Number	Ground Surface Elevation[1] (feet msl)	Reference Elevation[1] (feet msl)	Depth to Water (feet)	Water Elevation (feet msl)	Screened Unit[4]
2LMW20S	87.19	86.83	14.64[2]	72.19	F/A
2WMW21DS	74.59	76.31	4.32[2]	71.99	DS
2WMW38DS	72.29	74.06	6.45[2]	67.61	DS
2WMW39DS	71.59	73.53	3.58[2]	69.95	SS/DS
2WMW40DS	71.49	73.21	3.09[2]	70.12	DS
2WMW41DS	70.99	73.39	2.36[2]	71.03	DS
2WMW42DS	71.19	73.65	2.01[2]	71.64	DS
2WMW43DS	71.39	74.36	2.39[2]	71.97	DS
2WMW44DS	70.99	73.72	1.54[2]	72.18	DS
2WMW45DS	72.19	74.24	2.12[2]	72.12	DS
2WMW46DS	71.69	73.53	1.42[2]	72.11	DS
2WMW47DS	71.99	73.39	1.34[2]	72.05	SS/DS
3MW12D	41.09	43.54	[2] [5]	[5]	BR
3MW12S	40.79	72.25	2.35[2]	41.16	A
3MW37S	44.09	47.39	3.47[2]	43.92	A
4MW1S	127.99	129.55	6.24[2]	123.31	BR
2LOW1S		88.57	11.02[3]	77.55	F/DS
2LMW28DS		87.61	14.16[3]	73.43	DS
SG-6	[6]	85.22	--	--	--
SG-15	71.29	74.03	--	--	--
SG-16	71.19	73.50	--	--	--
SG-17	71.19	73.57	--	--	--
SG-18	70.99	75.92	--	--	--
SG-19	70.99	75.83	--	--	--
SG-20	71.09	75.19	--	--	--
SG-21	70.39	75.32	--	--	--
SG-22	71.79	76.13	--	--	--
SG-23	71.09	75.83	--	--	--
SG-24	71.59	76.68	--	--	--
SG-25[7]	--	74.51	--	--	--

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 January 17, 2000.
3 Depth to water is from top of well casing. Measured January 23, 2000.
4 F = fill; DS = dredge spoil; A = alluvium; BR = bedrock; SS = surficial sand
5 Artesian flow from well – not measured.
6 Headwall of dike – ground surface elevation not surveyed.
7 Former staff gauge SG-12

P:\GIS\NLON\50820370.APR\AREA A LANDFILL - MONITORING LOCATIONS LAYOUT JCB 4/24/00



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

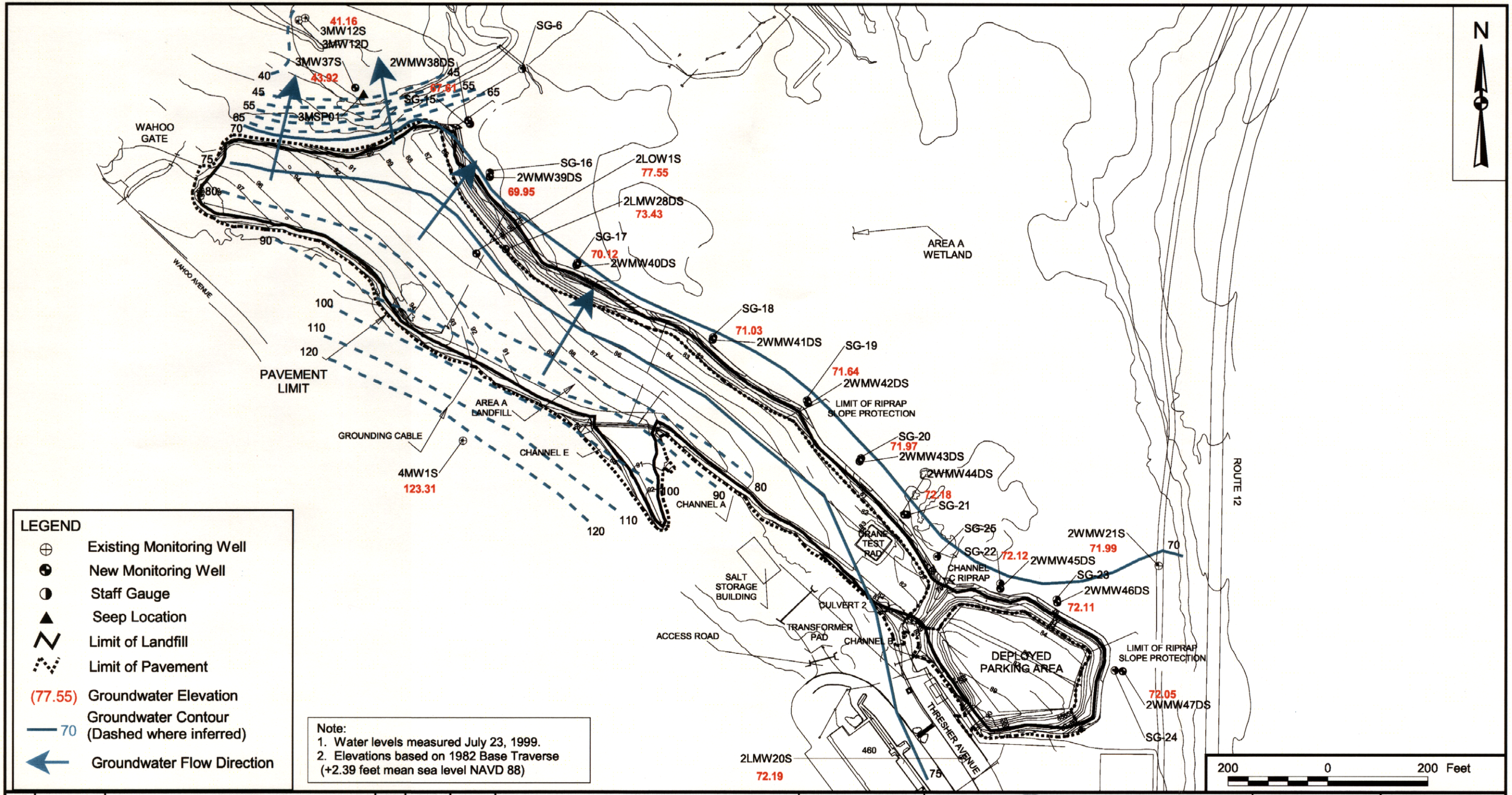
DRAWN BY: J. BELLONE — DATE: 1/12/00
CHECKED BY: MLM — DATE: 4/25/00
COST/SCHEDULE-AREA
SCALE: AS NOTED

Tetra Tech NUS, Inc.

SAMPLING LOCATIONS
ROUND 2 GROUNDWATER MONITORING
AREA A LANDFILL
NSB-NEW LONDON, GROTON, CONNECTICUT

CONTRACT NUMBER: 5082
OWNER NUMBER: —
APPROVED BY: Mark R. Mengel — DATE: 4/25/00
APPROVED BY: — DATE: —
DRAWING NO.: FIGURE 2-1
REV: 0

P:\GIS\NLON\50820370.APR\AREA A - POTENTIOMETRIC CONTOURS - ROUND 2 JCB 4/25/00



LEGEND

- Existing Monitoring Well
- New Monitoring Well
- Staff Gauge
- Seep Location
- Limit of Landfill
- Limit of Pavement
- (77.55) Groundwater Elevation
- 70 Groundwater Contour (Dashed where inferred)
- Groundwater Flow Direction

Note:
1. Water levels measured July 23, 1999.
2. Elevations based on 1982 Base Traverse (+2.39 feet mean sea level NAVD 88)

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY J. BELLONE	DATE 4/13/00
CHECKED BY MLM	DATE 4/25/00
COST/SCHEDULE-AREA	
SCALE AS NOTED	

Tetra Tech NUS, Inc.

POTENTIOMETRIC SURFACE MAP
ROUND 2 GROUNDWATER MONITORING
AREA A LANDFILL
NSB-NEW LONDON, GROTON, CONNECTICUT

CONTRACT NUMBER 5082	OWNER NUMBER —
APPROVED BY Mark R. Mengel	DATE 4/25/00
APPROVED BY —	DATE —
DRAWING NO. FIGURE 2-2	REV 0

3.0 MONITORING RESULTS

The groundwater samples collected from fifteen monitoring wells were analyzed for TCL organic compounds, TAL inorganic (total and dissolved) analytes, and water chemistry parameters. One additional monitoring well (2WMW44DS) and ten surface water locations were also to be sampled; however, due to freezing temperature conditions samples were not obtained. Monitoring focused on the following organic and inorganic chemicals of potential concern, as identified in the GMP Monitoring Plan (TtNUS, January 1999).

- Ethylbenzene
- 1,1,2,2-Tetrachloroethane
- Xylenes
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Bis(2-ethylhexyl)phthalate
- Phenanthrene
- Aroclor 1016
- Aroclor 1254
- Aroclor 1260
- Dieldrin
- Heptachlor
- Arsenic
- Beryllium
- Cadmium
- Chromium
- Copper
- Lead
- Zinc

The contaminants listed above have been detected either in groundwater at concentrations exceeding the Connecticut Department of Environmental Protection (CTDEP) Surface Water Protection Criteria (SWPCs) or in soil and landfill material at concentrations above their respective CTDEP Pollutant Mobility Criteria for GB groundwater.

The Round 1 analytical results are summarized on Tables 3-1 which also compare the analytical results to the primary and secondary monitoring criteria, as established in the GMP (TtNUS, January 1999). 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 detections of VOCs, SVOCs, pesticides, or PCBs.

- Detections of arsenic (in 5 of 15 groundwater samples) exceeded the primary monitoring criteria, which is the Connecticut SWPC for substances in groundwater.

- Arsenic was detected in the 3 unfiltered and 5 filtered samples from monitoring wells as shown on Figure 3-1. The concentrations in unfiltered samples ranged from 9.4 to 20.5 µg/L, while the concentrations in the filtered sample ranged from 5.1 to 12.2 µg/L. All detections exceeded the primary criterion of 4 µg/L, which is the Connecticut SWPC for substances in groundwater. No

detections exceeded the secondary criterion of 150 µg/L, which is the Federal Ambient Water Quality Criterion (AWQC) for protection of aquatic life (chronic, freshwater).

- Chromium was detected in the unfiltered sample from monitoring well 3MW12S at a concentration of 36.2 µg/L. This exceeded the secondary monitoring criterion of 11 µg/L, which is the Federal AWQC for protection of aquatic life (chronic, freshwater).

As discussed in Section 1.2, because this is only an interim report for the initial 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. Initial conclusions and recommendations will be addressed in the Year 1 Summary Report based on the first four quarterly rounds of results.

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

TABLE 3-1

ROUND 2 GROUNDWATER MONITORING
AREA A LANDFILL
NSB - NEW LONDON, GROTON, CONNECTICUT
PAGE 1 OF 3

Chemical	Primary Monitoring Criterion [1]	Secondary Monitoring Criterion	2LMW20S 2LGW20S-02 1/22/00	2LMW20S (DUP) GWFD012200 1/22/00	2WMW21S 2WGW21S-02 1/23/00	2WMW38DS 2WGW38DS-02 1/25/00	2WMW39DS 2WGW39DS-02 1/21/00	2WMW40DS 2WGW40DS-02 1/21/00	2WMW41DS 2WGW41DS-02 1/21/00
VOCs (ug/L)									
1,1,2,2-TETRACHLOROETHANE	110	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	580,000	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
XYLENES, TOTAL	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SVOCs (ug/L)									
BENZO(A)ANTHRACENE	0.3	NA	0.17 U	0.16 U	0.17 U	2 U	0.17 U	0.19 U	0.17 U
BENZO(A)PYRENE	0.3	NA	0.17 U	0.16 U	0.17 U	2 U	0.17 U	0.19 U	0.17 U
BENZO(B)FLUORANTHENE	0.3	NA	0.17 U	0.16 U	0.17 U	2 U	0.17 U	0.19 U	0.17 U
BENZO(K)FLUORANTHENE	0.3	NA	0.17 U	0.16 U	0.17 U	2 U	0.17 U	0.19 U	0.17 U
BIS(2-ETHYLHEXYL)PHTHALATE	59	NA	2.1 U	2 U	2.1 U	2 U	2 U	2 U	2 U
PHENANTHRENE	0.077	NA	1.1 U	1 U	1.1 U	2 U	1.1 U	1.2 U	1.1 U
Pesticides/PCBs (ug/L)									
AROCLOR-1016	0.5	0.014[2]	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
AROCLOR-1254	0.5	0.014[2]	0.21 U	0.21 U	2 U	0.21 U	0.21 U	0.21 U	0.21 U
AROCLOR-1260	0.5	0.014[2]	0.21 U	0.21 U	2 U	0.21 U	0.21 U	0.21 U	0.21 U
DIELDRIN	0.1	0.0019[3]	0.021 U	0.021 U	0.2 U	0.021 U	0.021 U	0.021 U	0.021 U
HEPTACHLOR	0.05	0.0038[2]	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (ug/L)									
ARSENIC	4	150[2]	2.6 U/2.6 U	2.6 U/2.6 U	2.6 UJ/2.6 UJ	/5.1 J	2.6 U/2.6 U	2.6 UJ/5.2 J	3.5 J/2.6 UJ
BERYLLIUM	4	NA	0.48 U/0.2 U	0.57 U/0.2 U	0.67 U/0.2 U	/0.2 U	0.41 U/0.2 U	0.44 U/0.2 U	0.4 U/0.2 U
CADMIUM	6	0.62[3]	0.3 U/0.3 U	0.3 U/0.3 U	0.3 UJ/0.3 UJ	/0.3 U	0.3 U/0.3 U	0.3 UJ/0.3 UJ	0.3 UJ/0.3 UJ
CHROMIUM[4]	110	11[2]	1 UJ/1 UJ	1 UJ/1.4 U	1 UJ/5.6 U	/2.7 U	2.2 U/1.3 U	1 UJ/3.2 U	1 UJ/2.5 U
COPPER	48	4.8[3]	1.3 UJ/1.3 UJ	1.3 UJ/1.3 UJ	5.8 U/2 U	/6.7 U	1.3 UJ/1.3 U	1.3 UJ/1.4 U	1.3 UJ/1.3 UJ
LEAD	13	1.2[3]	1.8 U/1.8 U	1.8 U/1.8 U	1.8 UJ/1.8 UJ	/1.8 U	1.8 U/1.8 U	1.8 UJ/1.8 UJ	1.8 UJ/1.8 UJ
ZINC	123	58.2[3]	11.2/58.1 J	35.9/7.8 J	7.6 J/4.9 J	/27.7 J	11.1/7.2 J	6.8 J/10.8 J	7.5 J/6.6 J
Miscellaneous Parameters (mg/L)									
CHEMICAL OXYGEN DEMAND	NA	NA	20 U	20 U	1030	46.2	914	1280	914
CHLORIDE	NA	NA	67.4	70.2	9740	202	452	9090	9370
SULFATE	NA	NA	20 U	20 U	246	69.6	20 U	948	274
TOTAL DISSOLVED SOLIDS	NA	NA	242	201	15100	760	974	15600	15900
TOTAL ORGANIC CARBON	NA	NA	2.1 J	2.1 J	33.3 J	15.1 J	137 J	32.2 J	45.3 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. (CTDEP, January 1996)
(2) Federal Ambient Water Quality Criteria for protection of aquatic life (chronic, freshwater). (USEPA, 1999)
(3) Connecticut Water Quality Criteria for protection of human health from consumption of organisms. (CTDEP, 1997)
(4) Hexavalent Chromium
(5) No samples was collected from this well due to below freezing water temperatures.
J Estimated Value
R Rejected Value
U Undetected
NA Not Available

DRAFT

TABLE 3-1

ROUND 2 GROUNDWATER MONITORING
AREA A LANDFILL
NSB - NEW LONDON, GROTON, CONNECTICUT
PAGE 2 OF 3

Chemical	Primary Monitoring Criterion [1]	Secondary Monitoring Criterion	2WMW42DS 2WGW42DS-02 1/21/00	2WMW43DS 2WGW43DS-02 1/22/00	2WMW44DS 2WGW44DS-02	2WMW45DS 2WGW45DS-02 1/23/00	2WMW46DS 2WGW46DS-02 1/24/00	2WMW47DS 2WGW47DS-02 1/24/00	3MW12D 3GW12D-02 1/24/00
VOCs (ug/L)									
1,1,2,2-TETRACHLOROETHANE	110	NA	1 U	1 U	[5]	1 U	1 U	1 U	1 U
ETHYLBENZENE	580,000	NA	1 U	1 U	[5]	1 U	1 U	1 U	1 U
XYLENES, TOTAL	NA	NA	1 U	1 U	[5]	1 U	1 U	1 U	1 U
SVOCs (ug/L)									
BENZO(A)ANTHRACENE	0.3	NA	0.17 U	0.19 U	[5]	0.17 U	0.17 U	0.15 U	0.16 U
BENZO(A)PYRENE	0.3	NA	0.17 U	0.19 U	[5]	0.17 U	0.17 U	0.15 U	0.16 U
BENZO(B)FLUORANTHENE	0.3	NA	0.17 U	0.19 U	[5]	0.17 U	0.17 U	0.15 U	0.16 U
BENZO(K)FLUORANTHENE	0.3	NA	0.17 U	0.19 U	[5]	0.17 U	0.17 U	0.15 U	0.16 U
BIS(2-ETHYLHEXYL)PHTHALATE	59	NA	2 U	1.3 J	[5]	2.1 U	2 U	2 U	2 U
PHENANTHRENE	0.077	NA	1.1 U	1.2 U	[5]	1.1 U	1.2 U	1 U	1.1 U
Pesticides/PCBs (ug/L)									
AROCLOR-1016	0.5	0.014[2]	0.21 U	0.21 U	[5]	0.22 U	0.21 U	0.2 U	0.2 U
AROCLOR-1254	0.5	0.014[2]	0.21 U	0.21 U	[5]	0.22 U	0.21 U	0.2 U	0.2 U
AROCLOR-1260	0.5	0.014[2]	0.21 U	0.21 U	[5]	0.22 U	0.21 U	0.2 U	0.2 U
DIELDRIN	0.1	0.0019[3]	0.021 U	0.021 U	[5]	0.022 U	0.021 U	0.02 U	0.02 U
HEPTACHLOR	0.05	0.0038[2]	0.01 U	0.01 U	[5]	0.011 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (ug/L)									
ARSENIC	4	150[2]	20.5 J/11.2 J	2.6 J/3 J	[5]	2.9 J/3.2 J	9.4 J/10.6 J	11.8 J/12.2 J	2.6 U/2.6 U
BERYLLIUM	4	NA	0.82 U/0.2 U	0.52 J/0.2 U	[5]	0.48 U/0.2 U	0.79 U/0.2 U	0.63 U/1.1 U	0.24 U/0.2 U
CADMIUM	6	0.62[3]	0.3 UJ/0.3 UJ	0.3 U/0.3 UJ	[5]	0.3 U/0.81 U	0.3 UJ/0.3 UJ	0.3 U/2.1 U	0.3 U/0.41 U
CHROMIUM[4]	110	11[2]	1 UJ/2 U	1 UJ/9.6 J	[5]	1 UJ/3.1 U	6 U/4.6 U	1 UJ/2.4 U	4.7 U/1 UJ
COPPER	48	4.8[3]	1.3 UJ/1.3 UJ	1.3 UJ/2.5 U	[5]	1.3 UJ/1.5 U	8.6 U/1.3 UJ	1.3 UJ/1.3 UJ	1.3 UJ/1.3 UJ
LEAD	13	1.2[3]	1.8 UJ/1.8 UJ	1.8 UJ/1.8 UJ	[5]	1.8 U/1.8 U	1.8 UJ/1.8 UJ	1.8 U/6.4 U	1.8 U/1.8 U
ZINC	123	58.2[3]	18.7 J/4.4 J	10.6 J/3.8 U	[5]	10.8/4.5 J	50.4 J/9.5 J	12.4/7.4 J	12/8.1 J
Miscellaneous Parameters (mg/L)									
CHEMICAL OXYGEN DEMAND	NA	NA	686	1030	[5]	59	1260	20 U	20.5
CHLORIDE	NA	NA	7140	12700	[5]	1720	16300	1500	964
HARDNESS AS CaCO3	NA	NA	193	340	[5]	20 U	437	20 U	85.8
SULFATE	NA	NA	12900	19100	[5]	3100	26200	2790	1830
TOTAL ALKALINITY	NA	NA	29.3 J	31.9 J	[5]	12.9 J	4.2 J	10.5 J	3.9 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. (CTDEP, January 1996)
(2) Federal Ambient Water Quality Criteria for protection of aquatic life (chronic, freshwater). (USEPA, 1999)
(3) Connecticut Water Quality Criteria for protection of human health from consumption of organisms. (CTDEP, 1997)
(4) Hexavalent Chromium
(5) No samples was collected from this well due to below freezing water temperatures.
J Estimated Value
R Rejected Value
U Undetected
NA Not Available

DRAFT

TABLE 3-1

ROUND 2 GROUNDWATER MONITORING
AREA A LANDFILL
NSB - NEW LONDON, GROTON, CONNECTICUT
PAGE 3 OF 3

Chemical	Primary Monitoring Criterion (1)	Secondary Monitoring Criterion	3MW12S 3GW12S-02 1/24/00	3MW12S (DUP) GWFD012400 1/24/00	3MW37S 3GW37S-02 1/22/00	4MW1S 4GW01S-02 1/23/00
VOCs (ug/L)						
1,1,2,2-TETRACHLOROETHANE	110	NA	1 U	1 U	1 U	1 U
ETHYLBENZENE	580,000	NA	1 U	1 U	1 U	1 U
XYLENES, TOTAL	NA	NA	1 U	1 U	1 U	1 U
SVOCs (ug/L)						
BENZO(A)ANTHRACENE	0.3	NA	0.17 U	0.17 U	0.16 U	0.17 U
BENZO(A)PYRENE	0.3	NA	0.17 U	0.17 U	0.16 U	0.17 U
BENZO(B)FLUORANTHENE	0.3	NA	0.17 U	0.17 U	0.16 U	0.17 U
BENZO(K)FLUORANTHENE	0.3	NA	0.17 U	0.17 U	0.16 U	0.17 U
BIS(2-ETHYLHEXYL)PHTHALATE	59	NA	2 U	2 U	2 U	2 U
PHENANTHRENE	0.077	NA	1.2 U	1.1 U	1 U	1.1 U
Pesticides/PCBs (ug/L)						
AROCLOR-1016	0.5	0.014(2)	0.2 U	0.2 U	0.2 U	0.21 U
AROCLOR-1254	0.5	0.014(2)	0.2 U	0.2 U	0.2 U	0.21 U
AROCLOR-1260	0.5	0.014(2)	0.2 U	0.2 U	0.2 U	0.21 U
DIELDRIN	0.1	0.0019(3)	0.02 U	0.02 U	0.02 U	0.021 U
HEPTACHLOR	0.05	0.0038(2)	0.01 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (ug/L)						
ARSENIC	4	150(2)	2.6 U/2.6 U	2.6 U/2.6 U	2.6 U/2.6 U	2.6 U/2.6 U
BERYLLIUM	4	NA	0.2 U/0.2 U	0.87 U/0.2 U	0.7 U/0.2 U	0.53 U/0.2 U
CADMIUM	6	0.62(3)	0.3 U/0.56 U	0.62 U/0.3 U	0.3 U/0.3 U	0.3 U/0.3 U
CHROMIUM(4)	110	11(2)	36.2 J/1 U	1 UJ/1 UJ	1 UJ/1.1 U	1 UJ/1.6 U
COPPER	48	4.8(3)	1.3 UJ/1.3 UJ	1.3 UJ/1.3 UJ	1.3 UJ/2.4 U	1.3 UJ/2 U
LEAD	13	1.2(3)	1.8 U/1.8 U	1.8 U/1.8 U	1.8 U/1.8 U	1.8 U/1.8 U
ZINC	123	58.2(3)	6.1 J/31.8 J	26.7/20.2 J	18.3/6 J	26.8/51.3 J
Miscellaneous Parameters (mg/L)						
CHEMICAL OXYGEN DEMAND	NA	NA	23.1	20 U	20 U	20 U
CHLORIDE	NA	NA	913	1000	238	23.9
HARDNESS AS CaCO3	NA	NA	74.4	85.1	21.9	43.1
SULFATE	NA	NA	1730	1840	481	156
TOTAL ALKALINITY	NA	NA	3.8 J	36.3 J	3.5 J	1.4 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. (CTDEP, January 1996)
(2) Federal Ambient Water Quality Criteria for protection of aquatic life (chronic, freshwater). (USEPA, 1999)
(3) Connecticut Water Quality Criteria for protection of human health from consumption of organisms. (CTDEP, 1997)
(4) Hexavalent Chromium
(5) No samples was collected from this well due to below freezing water temperatures.
J Estimated Value
R Rejected Value
U Undetected
NA Not Available

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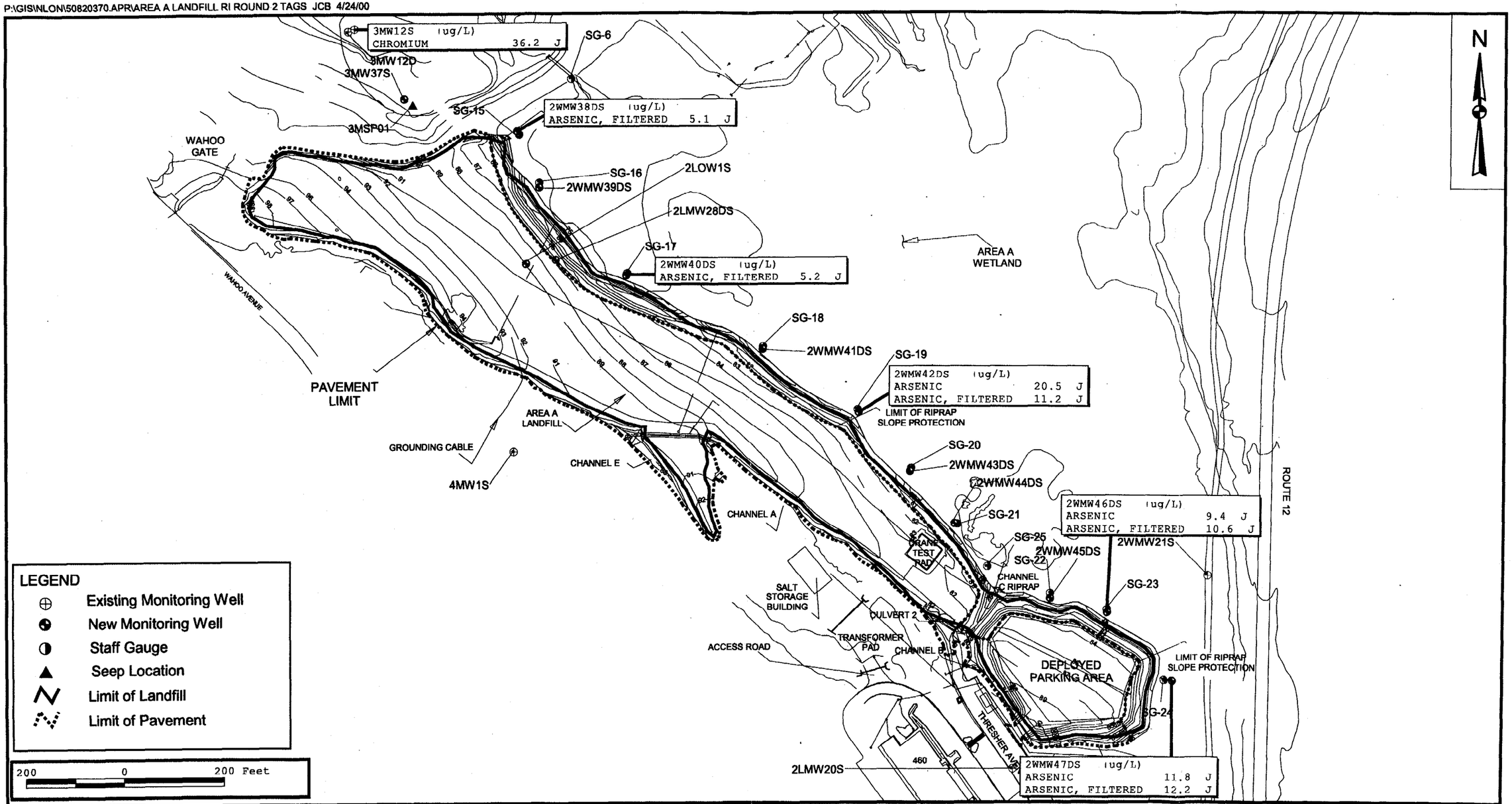
P:\GIS\NLON\50820370.APR\AREA A LANDFILL RI ROUND 2 TAGS JCB 4/24/00



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY J. BELLONE DATE 4/24/00
CHECKED BY MLM DATE 4/25/00
COST/SCHEDULE-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

COC EXCEEDANCES OF MONITORING CRITERIA
ROUND 2 GROUNDWATER SAMPLING
AREA A LANDFILL
NSB-NLON, GROTON, CONNECTICUT

CONTRACT NUMBER 5082
OWNER NUMBER —
APPROVED BY Mark L Mungel DATE 4/25/00
APPROVED BY — DATE —
DRAWING NO. FIGURE 3-1
REV 0

1081 B047

REFERENCES

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APPENDIX A

FIELD ACTIVITIES LOG BOOK

TITLE NSB-NION

PROJECT NO. 5082

BOOK NO. 1244

MONDAY 1.17.00

Work continued from Page WEATHER: CLEAR, COLD 25° F

0645 KEITH SIMPSON & SCOTT NEIL @ PGH AIRPORT TO
1110 GROTON. CHECK INTO HOTEL / LUNCH PICK-UP 2 NITROGEN
CYL. TO BASE (M.L KING DAY) BASE IS CLOSED
DARLENE WARD HAD LEFT US A KEY TO BLD 166
1250 KS & SN PREP EQUIPMENT & BOTTLES. TO AREA A
1400 FOR SITE WATER LEVELS COMPLETED AREA A WATER
1705 LEVELS MW & SG's RETURN TO BLD 166
PREP EQUIPMENT FOR ORMO SAMPLING
SEE ALSO WD BOOK 2415

1905 DEPART BASE FOR HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE K. J. S. Simpson

DATE 1.17.00

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

TITLE NSB NLON

PROJECT NO. 5082

BOOK NO. 1244

Work continued from Page SUMMARY AREA A ROUND 2

SAMPLE POINTS	DATE SAMPLED	QA	COMMENTS
3MW37S	1/22/00	—	PURGED and SAMPLED on THE SAME DAY
2WMW38DS	1/21,23,25/00	—	Purged on 1/19/00
SG15	NA	—	DRY
2WMW39DS	1/21/00	—	Purged on 1/20/00
SG16	NA	—	DRY
2WMW40DS	1/21/00	—	Purged on 1/19/00
SG17	NA	—	DRY
2WMW41DS	1/21/00	—	Purged on 1/19/00
SG18	NA	—	FROZEN
2WMW42DS	1/21/00	—	Purged on 1/20/00
SG19	NA	—	FROZEN
2WMW43DS	1/22/00	—	Purged on 1/21/00
SG20	NA	—	FROZEN
2WMW44DS	NA	—	FROZEN AT STATIC WATER LEVEL
SG21	NA	—	FROZEN
2WMW45DS	1/23/00	—	Purged on 1/22/00
SG22	NA	—	FROZEN
2WMW46DS	1/24/00	—	Purged on 1/23/00
SG23	NA	—	FROZEN
2WMW47DS	1/24/00	—	PURGED and SAMPLED THE SAME DAY
SG24	NA	—	FROZEN
2EMW20S	1/22/00	DUP/MS/MSD	Duplicate, MS/MSD
2WMW21S	1/23/00	—	
3MW12S	1/24/00	DUP	Duplicate
3MW12D	1/24/00	—	
4MW1S	1/23/00	—	
3MSP01	NA	—	SEEP - FROZEN

SCIENTIFIC BINDERY PRODUCTION CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE | DATE

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60621 MADE IN U.S.A.

WEDNESDAY 1/19/00

Work continued from Page WEATHER (AM): Sunny, windy, cold 10-17°F.

0650 KS and SN on site and prep for today's activities. KS will do DRMO well and SN will begin purging Area A wells.

0715 SN departs BLDG 160 for Area A.

0730 SN at Area A well 2WMW38DS. Setup equipment to begin purging. Tubing is frozen - water inside tubing froze and won't let the pump bring water to the surface. Take tubing out of the well and place into clean plastic garbage bag. Put inside of car and let thaw.

0815 After putting tubing back into well, purging begins. static water level = 7.58 Ft, total depth = 12.79 Ft, one casing = 0.8 gallons. Refer to Low-Flow Purge Data Sheet for specific purge data on well 2WMW38DS.

0847 Well purged dry to the setting of the tubing. Disconnect the flow-thru cell and lower tubing to the bottom of the well and begin evacuating remainder of the water in the well.

0858 Purging ends. Well was purged dry. Will allow to recover overnight and begin sampling on 1/20/00. Load vehicle and move to well 2WMW40DS.

0935 Arrive at well 2WMW40DS and set-up equipment for purging. Ice inside of tubing. Place tubing in a clean garbage bag and heat it up inside the vehicle to thaw.

1000 Begin purging. TD = 17.38', static H_2O level = 4.15', one casing volume = 2.2 gallons. Refer to the Low Flow Purge Data Sheet for specific purge data for well 2WMW40DS.

1059 End purging - continue to pump water from the well w/ the flow-thru cell disconnected until well has been dried out. Will →

Work continued to Page 49

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

SIGNATURE Scott W. [illegible] DATE 1/19/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 6065 MADE IN U.S.A.

Work continued from Page 47 WEATHER (PM): Clear + Cold, low 20's - mid teens.

will ~~purge~~ sample on 1/19/00.

1105 KS arrives at site. Begin loading equipment into SN's vehicle.

1120 KS + SN depart for lunch.

1200 KS + SN back at BLDG 166. Unload equipment from Area A and prep for DEMO wells this afternoon. See also Logbook #2415.

1508 SN returns to BLDG 166 from DEMO - preps for purging at Area A.

1526 SN to gas station and then on to Area A.

1552 SN at Area A well # 2WMW41DS and begins setting up to purge.

1610 Begin purging well # 2WMW41DS. Static water level = 3.46 ft. Refer to the Low Flow Purge Data Sheet for well # 2WMW41DS for specific purge information / data.

1727 End purging of well # 2WMW41DS. Lower tubing to the bottom of the well to evacuate completely. Load equipment into the vehicle. Dump purge water into 55-gallon drum staged at Area A.

1800 SN arrives at BLDG 166 and unloads equipment.

1830 SN and KS to hotel.

VOID 1/19/00 SWN

Work continued to Page

SIGNATURE [signature] DATE 1/19/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60601 MADE IN USA

Thursday 1/20/00

Work continued from Page WEATHER (AM): overcast, windy, light snow, upper teens - low 20's.

0650 KS + SN arrive on site at BLDG 166. Prep bottles and equipment for purging and sampling at Area A.

0730 KS + SN depart for High Tide water levels at the DRMO. (See logbook # 2445).

0845 KS + SN at BLDG 166 for bottles and equipment for Area A purging and sampling.

0900 KS + SN depart BLDG 166 for Area A. KS will purge well # 2WMW39DS, and SN will attempt to sample well #'s 2WMW40DS and 2WMW41DS.

0907 KS arrives at well # 2WMW39DS and sets up equipment for purging. Refer to the Low Flow Purge Data Sheet that corresponds with this well for specific purge data. SN arrives at well # 2WMW40DS and sets up to sample.

0914 SN takes water level at well # 2WMW40DS - water level not at sufficient level for sampling (11.03 FT) - will proceed to well # 2WMW41DS and check water level.

0925 SN checks water level at well # 2WMW40DS - water level has not recovered sufficiently to begin sampling (9.84 FT.). Will attempt to sample later.

0930 SN proceeds to well # 2WMW42DS to begin purging.

0940 SN at well # 2WMW42DS to begin purging. Refer to the Low Flow Purge Data Sheet that corresponds to well # 2WMW42DS for specific purge data.

1115 KS finishes purging 2WMW39DS. Will sample on 1/21/00.

Work continued to Page 53

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

SIGNATURE Scott W. Neil DATE 1/20/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60605 MADE IN USA

TITLE NSB-NLON

PROJECT NO. 5082

BOOK NO. 1244

THURSDAY 1/20/00

Work continued from Page 51 WEATHER (PM): Light snow, low 20's.

1158 SN completes purging of 2WMW420S. Will sample on 1/21/00. Pack vehicle w/ equipment and depart for BLDG 166.

218 At BLDG 166 - KS & SN to Lunch.

1255 Return to BLDG 166 and prep for DRMO sampling. See also Logbook # 2415.

VOID
SWN
1/20/00

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE Scott W. Neo

DATE 1/20/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60605 MADE IN USA

Friday 1/21/00

Work continued from Page Weather (am): Overnight snow (≈ 2 inches), windy, mid teen's.

0650 SW + KS arrive at BLDG 166. Prep for Area A sampling.

0710 KS departs for Area A. Will sample well # 2WMW39DS.

0722 SW departs for Area A. Will sample 2WMW38DS as much as possible - historically 2WM38DS is a very poor producer.

0745 SW begins ~~sampling~~ sampling well # 2WMW38DS. Sample ID is 2W-GW38DS-02.

0820 SW fills VOAs, one SVOC, and one PAH before well dries out. Move to well # 2WMW41DS to sample.

0843 SW Begins sampling well # 2WMW41DS. Sample ID is 2W-GW41DS-02. Refer to the GW Sample Log Sheet that corresponds to sample # 2W-GW41DS for specific sampling data.

1027 KS arrives at well 2WMW41DS. KS sampled well #'s 2WMW39DS and 2WMW40DS, sample ID's 2W-GW39DS-02 and 2W-GW40DS-01 respectively. KS departs for BLDG 166.

1048 SW ~~departs~~ ends sampling 2W-GW41DS-02. Loads equipment into vehicle and departs for BLDG 166.

1112 SW at BLDG 166 w/ KS. Unload samples then to lunch

1208 SW + KS at BLDG 166. SW preps for Area A purging and sampling; KS preps for Drums purging and sampling.

1230 SW departs for Area A; well # 2WMW43DS to be purged today and sampled tomorrow (1/22/00).

1300 SW begins purging well # 2WMW43DS - refer to the Low Flow Purge Data Sheet that corresponds to this well for specific purge data

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page 57

SIGNATURE Scott W. Neil DATE 1/21/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60605 MADE IN USA

FRIDAY 1/21/00

Work continued from Page 55 WEATHER (PM): Sunny, windy, cold, upper teens.

1459 SW ends purging well # 2WMW43DS to the inlet of the sample tubing. Lower the tubing to the bottom of the well and evacuate completely. After completely purging the well dry, load equipment into vehicle and depart for sampling of well # 2WMW42DS.

1555 Begin sampling well # 2WMW42DS - sample ID 2W-GW42DS-02. Refer to the GW Sample Log Sheet which corresponds to well # 2WMW42DS / sample ID 2W-GW42DS-02 for specific sample information.

1756 End sampling. Load equipment into vehicle and depart Area A for BLDG 166.

1810 SW arrives at BLDG 166. SW + KS unload samples and equipment from vehicle.

1833 KS + SW depart for hotel.

VOID
SWN
1/21/00

SIGNATURE Scott W. Neu DATE 1/21/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60605 MADE IN USA

SATURDAY 1/22/00

Work continued from Page WEATHER (AM): Windy and cold, low teens; single digits.

0700 KS + SN at BLDG 166. Begin prep for Area A purging and sampling activities for today.

0745 KS + SN depart BLDG 166 for Area A. KS will sample and do a duplicate and MS/MSD on well # 2L MW20S. SN will purge well # 2WMW44DS.

0807 SN cannot purge well # 2WMW44DS due to a frozen static water level - will attempt to sample well # 2WMW43DS.

0833 SN attempts to begin sampling well # 2WMW43DS, however the water level has not recovered enough. Will attempt to sample on the afternoon of 1/22/00

0930 SN begins purging well # 3MW37S. Refer to the Low Flow Purge Data Sheet that corresponds to well # 3MW37S for purging data.

1045 End purging of well # 3MW37S.

1048 Begin sampling. Sample ID 3-GW37S-02. Refer to the GW Sample Log Sheet that corresponds to sample ID 3-GW37S-02/ well ID 3MW37S for sampling data.

1224 End sampling. Load equipment and samples into vehicle, dump purge water and depart Area for BLDG 166 and lunch.

1355 SN departs BLDG 166 for Area A. KS still sampling. Will stop by to check on his progress. KS has already finished sampling well # 2L MW20S, and departed for lunch.

1430 KS at Area A to sample well # 2WMW43DS / Sample ID 2W-GW43DS-02.

Work continued to Page 61

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

SIGNATURE Scott W. [illegible] DATE 1/22/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60605 MADE IN USA

TITLE NSB-NLON

PROJECT NO. 5082

BOOK NO. 1244

Saturday 1/22/00

Work continued from Page 59 WEATHER (PM): Cold, windy, mid teen's - lower teens.

1445 SN to well 2WMW44DS - static water level frozen solid - Cannot penetrate. Move on to well # 2WMW45DS

1545 SN begins sampling well # 2WMW45DS. Refer to the Low Flow Purge Data Sheet that corresponds to this well for specific purge data.

1710 Turbidity not functioning - battery error on the LCD screen.

1723 KS arrives - brings a new battery for turbidity meter. Turbidity meter not functioning with new battery. KS takes turbidity meter to the vehicle to warm up the meter.

1735 KS returns with turbidity meter - meter functioning properly.

1741 Well is purged dry to the pump inlet. Load equipment into vehicle. Dump purge water and return to BLDG 166.

1757 SN & KS at BLDG 166. Unload equipment and put meters on charge.

1826 SN & KS depart site for hotel.

1010
SN 1/22/00

U.S. STAFO BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE [signature] DATE 1/22/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60601 MADE IN USA

Sunday 1/23/00

Work continued from Page WEATHER (AM): CLOUDY, LOW TEMPS, to upper single digits

0655 SW + KS at BLDG 166. Prep for purging and sampling activities at Area A.

0720 KS departs for well # 4MW1S, and SW departs for well # 2WMW38DS to sample as ~~much~~ many parameters as possible before well dries out.

0751 SW begins sampling well # 2WMW38DS / Sample ID 2W-GW38DS-02. Refer to the corresponding GW Sample Log Sheet for specific sampling data.

0825 Finish filling Total + dissolved metals, COD, and TOC at 2WMW38DS. Depart for well # 2WMW21S.

0847 Arrive at well # 2WMW21S and setup equipment for purging.

0910 Begin purging. Refer to the corresponding Low Flow Purge Data Sheet for specific purging data.

1045 End purging. Water level and parameters are stable.

1048 Begin ~~sampling~~ SW sampling - sample ID 2W-GW21S-02. Sample has a strong sulphur odor and black in color.

1217 End sampling. Load equipment into vehicle and depart well for purge drum to dump purge water. KS to waterlevels.

1231 KS + SW to lunch, then to Wal-Mart for field supplies

1530 KS + SW at Area A for water levels per Tim Evans request.

1430 End water levels. KS to well 2WMW45DS to sample

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60608 MADE IN USA

Work continued to Page 65

SIGNATURE Scott W. Reid DATE 1/23/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60601 MADE IN USA

TITLE NSB - NLON

Sunday 1/23/00

PROJECT NO. 5082

BOOK NO. 1244

Work continued from Page

1435 SW to BLDG 166 for supplies, then to gas station for ice and gas, then to well # JWMW460S.

1615 SW begins purging. Before purging begins, dedicated tubing had a hole in it; had to use a new piece of tubing.

1817 End purging. KS at well and helps pack equipment. Dump purge water and depart for BLDG 166.

1844 SW + KS @ BLDG 166. Unload vehicles, charge meters, finish paperwork.

1905 SW + KS depart site for hotel.

Void

SWN 1/23/00

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60625 MADE IN USA

Work continued to Page

SIGNATURE Scott W. Neil

DATE 1/23/00

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

BINDERY PRODUCTS CHICAGO 606 MADE IN U.S.A.

Monday 1/24/00

Work continued from Page WEATHER (am): Mostly cloudy, low 20's.

0655 KS + SN at BLDG 166. Ready samples for pick-up by Accutest. Prep and load equipment for purging + sampling activities.

0808 KS + SN arrive at wells 3MW12S and 3MW12D. Setup equipment for purging and sampling.

0830 KS begins purging 3MW12D. Refer to the corresponding Low Flow Purge Data Sheet that corresponds with this well for specific purge data.

0832 SN begins purging 3MW12S. Refer to the corresponding Low Flow Purge Data Sheet that corresponds with this well for specific purge data.

0945 KS begins sampling 3MW12D; Sample ID ~~3-GW~~ SN 3-GW12D-02. Refer to the GW Sample Log Sheet for specific sample data.

0932 SN begins sampling 3MW12S. This sample point has a duplicate associated with it - duplicate ID GWFB012400. Sample ID is 3-GW12S-02. Refer to the GW Sample Log Sheet that corresponds with this well for specific sample data.

1042 KS ends sampling 3MW12D. Loads equipment and samples into his vehicle and assists SN.

1128 SN ends sampling. KS + SN load samples and equipment into vehicle. Depart to dump purge water then to BLDG 166.

1145 KS + SN at BLDG 166 - unload vehicles then to lunch.

1257 Back from lunch - prep for purging + sampling activities.

NATIONAL BLANK PRODUCTION CHICAGO 60605 MADE IN USA

Work continued to Page 69

SIGNATURE [signature] DATE 1/24/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

SCIENTIFIC BINDERY PRODUCTS CHICAGO 60601 MADE IN USA

MONDAY 1/24/00

Work continued from Page 67 WEATHER (PM): Mostly sunny, upper 20's.

1320 KS to HAZ WASTE area to count IDW drums then to well 2WMW46DS to sample. SN to well 2WMW44DS to purge.

1335 SN cannot penetrate very thick layer of ice at static water level of 2WMW44DS. KS + SN agree to allow the well to sit in hope of ~~the~~ the ice thawing.

1356 SN to well 2WMW47DS to purge and sample.

1415 Static water level is frozen. SN is able to draw water from the well.

1425 Begin purging. Water level measurements cannot be taken due to a frozen initial static water level. Will monitor and attempt to measure water levels if ice thaws. Refer to the Low Flow Purge Data Sheet for specific purge data.

1432 Tubing thaws from the ice - able to lift tubing from the bottom of the well and set @ ≈ 1 foot from bottom.

1600 End purging after stable parameters. Tried several times to penetrate layer of ice ~~and~~ in well with M-scope pump but was unsuccessful, therefore no water level measurements could be recorded.

1605 Begin sampling. Sample ID 2W-GW47DS-02. Refer to the GW Sample Log Sheet that corresponds to this well for specific sample data.

1748 End sampling. KS arrives at well. KS takes purge water to dump. SN loads samples + equipment into the vehicle and departs for BLDG 1660.

1630 KS + SN depart site for hotel. — END —

SCIENTIFIC BINDERY PRODUCTS, CHICAGO 60608 MADE IN USA

Work continued to Page

SIGNATURE Scott W. Neil DATE 1/24/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

1.25.00

DRUM INVENTORY

NSB-NLON HAZ-WASTE STORAGE AREA
IN WASTE SHED C2

4 DRUMS, CLOSED TOPS

3 DRMO GROUNDWATER
1 AREA A GROUND WATER

THESE 4 DRUMS ARE FROM PAST SAMPLING EFFORTS.
CHECKED WITH LINDA & ED AT HAZ WASTE AREA AND THIS ARE ALL "THNUS" DRUMS AT HAZ-WASTE AREA.

ALSO:

FROM THIS SAMPLE EFFORT (JAN 2000)
1 DRUM OF GW @ DRMO
1 DRUM OF GW @ AREA A

TOTAL OF 6 DRUMS OF GW FROM THNUS SAMPLING ON BASE.

SCIENTIFIC BINDERY PRODUCTS, CHICAGO 60605 MADE IN USA

TUESDAY 1/25/00

Work continued from Page WEATHER: SNOW, MID 20's - low 30's.

0650 KS & SN on site. Prep for purging and sampling activities.

0718 KS departs for HCZ. Waste, then to Area A; SN to Area A well 2WMW38DS.

0728 SN begins sampling well # 2WMW38DS / Sample ID 2W-GW38DS-00. Refer to the corresponding GW Sample Log Sheet for specific sample data.

0746 End sampling of 2WMW38DS. Total of 3 days to sample all parameters. KS arrives from well 2WMW44DS - water inside of the riser pipe is still frozen - could not get tubing past the ice to sample. Well 2WMW44DS will not be sampled this round.

0755 KS + SN depart for BLDG 166.

0805 KS & SN at BLDG 166 for demob.

1130 KS & SN depart site for hotel, then airport.

NOID 1/25/00 SWN

END OF ROUND 2

BINDERY PRODUCTION CHICAGO 60601 MADE IN USA

SIGNATURE [signature] DATE 1/25/00

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

APPENDIX B

GROUNDWATER LEVEL MEASURMENT SHEET

WATER LEVEL MEASUREMENT SHEET

Project Name: NSB-NLON, Area A
Location: Groton, CT
Weather Conditions: CLEAR, COLD ~~25°~~ 16° F

Project No.: CTO 203 5082
Personnel: Simpson / Neil
Measuring Device: HERON
Remarks:

M-SCOPE
SLOPE INDICATOR
FOR SG's

Well ID	Date	Time	Water Level *	Thickness of Free Product	PID Reading ppm RP	PID Reading ppm BZ	Comments SG #	Comments WL
2WMW21S	1.17.00	1420	4.32	NA	4.1	0	—	—
2LMW20S		1435	14.64	NA	0	0	WATER FROZEN IN FLUSH MT. —	—
2WMW47DS		1425	1.34	NA	1.7	0	SG 24	6.31
2WMW46DS		1505	1.42	NA	286	0	SG 23	5.56
2WMW45DS		1510	2.12	NA	1.1	0	SG 22	3.87
2WMW44DS		1516	1.54	NA	1.1	0	SG 21	5.53
2WMW43DS		1520	2.39	NA	650	0	SG 20	4.20
2WMW42DS		1530	2.01	NA	1.1	0	SG 19	8.97
2WMW41DS		1536	2.36	NA	3.9	0	SG 18	6.00
2WMW40DS		1547	3.09	NA	6.2	0	SG 17	3.62
2WMW39DS		1553	3.59	NA	1.0	0	SG 16	PIPE BROKEN
2WMW38DS	↓	1600	6.45	NA	2.2	0	SG 15	3.91

* All measurements to the nearest 0.01 foot

Signature(s): [illegible]

2WMW21S TPVC TO T OF PROTECTIVE STEEL CAP 0.16'

WATER LEVEL MEASUREMENT SHEET

Project Name: NSB - NLON, GROTON, CT
Project No.: CTO 203 5082
Location: AREA A
Personnel: SIMPSON / NEIL
Weather Conditions: COLD, OVERCAST NO SNOW / RAIN THIS WEEK 19° F
Measuring Device: HERON NYS 001
Remarks:

Well ID	Date	Time	Water Level *	Thickness of Free Product	PID Reading ppm RP	PID Reading ppm BZ	Comments BTM
2LMW13S	1.23.00	1055	15.02	NONE	NA	NA	17.75'
2LMW13D		1053	NA	NA			NO ACCESS LOCK ON WITH LOCK IN VAULT. NEED TO BREAK OFF
2LOW1S		1339	11.02				16.74 NEED BOLT CUTTERS
2LMW17S		1359	10.24				20.94
2LMW18S		~~1402~~ 1400	9.75				17.12 (2LMW18S)
2WMW3S		1430	7.01				22.50
2LMW28DS		1345	14.16	14.16			20.71 NEED BOLT CUTTERS
2LMW30DS		1329	11.15				24.74

* All measurements to the nearest 0.01 foot

Signature(s): [illegible]

WATER LEVEL MEASUREMENT SHEET

Project Name: NSB-NLON, Area A
Location: Groton, CT
Weather Conditions: SUNNY, COLD 16°F

Project No.: CTO 203 5082 SLOPE INDICATOR FOR SG-'S
Personnel: Simpson / Neil
Measuring Device: MERON
Remarks:

Well ID	Date	Time	Water Level *	Thickness of Free Product	PID Reading ppm RP	PID Reading ppm BZ	Comments
3MW37S	1.17.00	1612	3.47	NA	3.7	0	
3MW12S		1625	2.35	NA	[illegible]	0	TALLER WHITE STICK-UP
3MW12D		1618	0	NA	0	0	ARTESIAN
4MW1S		1638	6.24	NA	0	0	
SG6		1007	16.83 *	NA	NA	0	* FROZEN; TO ICE
SG25		1650	3.56 *	NA	NA	0	* " "
				NA			
				NA			
				NA			
				NA			
				NA			
				NA			

* All measurements to the nearest 0.01 foot

Signature(s): [illegible]

APPENDIX C

MONITORING INSTRUMENT CALIBRATION LOG

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : YSI 610 DM

PROJECT NAME : NSB - NION AREA A/DRMO

MANUFACTURER : YSI SER. # 193933R

PROJECT NUMBER : 5082/7363

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
1.18.00		SP. COND	AS PER MGR.	CALL ALL	PAR.	RSF	SP. COND.
1.19.00		1,000 µS/CM				RSF	PH 7 & 4
1.20.00						RSF	DO
1.21.00						RSF	ORP
1.22.00						RSF	
1.23.00						RSF	
1.24.00						RSF	SP. COND. 1000 µS/CM
							LOT 990705
							EXP 7/00
							PH 7 LOT 990504
							EXP 5/00
							PH 4 LOT 990601
							EXP. 6/01
							ZOBELL
							LOT 98M0410
							EXP 10/00
							FOLLOWED EQUIPMENT
							MANUEL FOR CALIBRATION

Instrument Rented From: US ENVIRONMENTAL

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : YSI 610 DM

PROJECT NAME : NSB-NION AREA-A/DRMO

MANUFACTURER : YSI SER.# 193454R

PROJECT NUMBER : 5082/7363

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
1.18.00						RSP	
1.19.00						RSP	
1.20.00						RSP	SEE
1.21.00						RSP	OTHER CALIBRATION
1.22.00						RSP	LOG FOR YSI
1.23.00						RSP	
1.24.00						RSP	
1.25.00						RSP	

Instrument Rented From: US ENVIRONMENT.

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : PHOTOVAC 2020

MANUFACTURER : PE (SERIAL # EDFK-201)

PROJECT NAME : NSB-NLON (DEMO and AREA A)

PROJECT NUMBER : 7363/CTO 267 5082/CTO 203

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
1/17/00	0.0	ISOBUTYLENE	PER MAN.	NONE	100 ppm	Scott Neil	100 ppm standard
1/18/00	0.0	"	"	"	100 ppm	Scott Neil	"
1/19/00	0.0	"	"	"	100 ppm	Scott Neil	"
1.20.00	0.0	"	"	"	100 PPM	RSS	"
1.21.00	0.0	"	"	"	100 PPM	RSS	"
1.22.00	0.0	"	"	"	100 PPM	RSS	"
1/23/00	0.0	"	"	"	100 ppm	SWN	"
1.24.00	0.0	"	"	"	100 PPM	RSS	"

Instrument Rented From: TENUS PITTSBURGH WAREHOUSE

APPENDIX D

GROUNDWATER SAMPLE LOGSHEETS AND LOW-FLOW PURGE DATA SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 3-GW375-02
Sample Location: 3MW375
Sampled By: S. NEIL
C.O.C. No.: 012000-02
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: 1/22/00								
Time: 1048								
Method: Peristaltic Pump	CLEAR	6.22	0.841	4.8	0.5	1.67	55	0.41

PURGE DATA:

Date: 1/22/00
Method: Peristaltic Pump
Monitor Reading (ppm): 0.9
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 8.45'
Static Water Level (WL): 4.60'
One Casing Volume(gal): 0.6
Start Purge (hrs): 0930
End Purge (hrs): 1045
Total Purge Time (min): 75
Total Vol. Purged (gal): 1.9

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	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) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

END SAMPLING @ 1224.
FINAL H_2O LEVEL = 5.08 FT.

Circle if Applicable:

MS/MSD ____ Duplicate ID No.: ____

Signature(s): Scott W. Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB # 5082

WELL ID.: 2WMW375
DATE: 1/22/00

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	Eh mV	Sal. (ppt)	Comments
0930	4.62								→	BEGIN PURGING
0935	5.06	115	6.72	0.555	54	4.31	3.0	26	0.42	REDUCE FLOW
0940	5.05	95	6.53	0.450	22	7.62	2.8	49	0.22	
0945	5.05	95	6.39	0.541	17	6.63	3.7	57	0.41	
0950	5.05	95	6.35	0.541	16	5.25	3.6	61	0.41	
0955	5.06	95	6.29	0.531	6.7	4.19	3.9	63	0.41	
1000	5.06	95	6.27	0.530	4.9	3.68	4.1	63	0.41	
1005	5.06	95	6.25	0.819	3.0	2.76	4.3	63	0.40	
1010	5.06	95	6.25	0.811	4.3	2.55	4.6	60	0.40	
1015	5.05	95	6.24	0.819	4.8	2.32	4.1	59	0.40	
1020	5.04	95	6.24	0.818	2.9	1.72	4.0	59	0.40	
1025	5.05	95	6.23	0.804	2.6	1.69	4.1	58	0.39	
1030	5.04	95	6.23	0.801	2.0	1.63	4.9	57	0.39	
1035	5.04	95	6.22	0.814	0.8	1.70	4.7	55	0.41	
1040	5.04	95	6.22	0.836	0.8	1.61	4.7	55	0.41	
1045	5.04	95	6.22	0.841	0.5	1.67	4.8	55	0.41	End purging
	BEGIN SAMPLING @ 1048. SAMPLE ID 2W-GW375-02.									
	END SAMPLING @ 1224.									

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2W-GW38DS-02
Sample Location: 2W MW 38 DS
Sampled By: S. NEIL
C.O.C. No.: 012400-02
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Eh	Salinity
Date: 1/21, 23, 25/00	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	ppt
Time: 0745, 0751, 0728								
Method: Peristaltic Pump	CLEAR	7.10	0.911	8.6	4.3	4.40	47	0.39

PURGE DATA:

Date: 1/19/00
Method: Peristaltic Pump
Monitor Reading (ppm): 0.0
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 12.51'
Static Water Level (WL): 7.58'
One Casing Volume(gal): 0.8
Start Purge (hrs): 0815
End Purge (hrs): 0858
Total Purge Time (min): 43
Total Vol. Purged (gal): 0.8

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	HCL / 4° C	(3) 40 ml Vial 1/21/00 C	0745
TCL SEMIVOLATILES	4° C	(1) Qt. Amber Glass 1/21/00 C	0745
TCL PEST/PCBs	4° C	(1) Qt. Amber Glass 1/25/00 C	0728
TCL PAH	4° C	(1) Qt. Amber Glass 1/21/00 C	0745
TAL METALS (TOTAL) + Hardness	HNO_3 / 4° C	(1) L PE 1/23/00 C	0751
TAL METALS (DISSOLVED)	HNO_3 / 4° C	(1) L PE 1/23/00 C	0751
Total Organic Carbon (TOC)	HCL / 4° C	(1) 60 mL Glass 1/23/00 C	0751
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	(1) 250 mL PE 1/23/00 C	0751
Alkalinity, Chloride, Sulfate, TDS	4° C	(1) 500 mL PE 1/25/00 C	0728

OBSERVATIONS / NOTES:

Well purged dry on 1/19/00.
water level prior to sampling on 1/21/00 = 10.44 ft.
water level prior to sampling on 1/23/00 = 10.53 ft.
water level prior to sampling on 1/25/00 = 10.52 ft.

Circle if Applicable:

MS/MSD ____ Duplicate ID No.: ____

Signature(s): [illegible]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2WMW38DS
DATE: ~~1/18~~ 1/19/00 (EN)

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. ppt	Comments
0815	7.58									Begin Purging.
0820	8.24	155	7.83	0.847	8.4	8.60	8.3	55	0.42	Reduce Flow
0825	8.84	130	7.87	0.782	7.1	6.96	8.2	54	0.38	
0830	9.64		7.15	0.782	6.5	5.61	8.5	61	0.38	
0835	10.21		7.13	0.786	4.7	5.08	8.6	58	0.39	
0840	10.67		7.12	0.801	4.1	4.77	8.6	55	0.39	
0845	11.20		7.10	0.811	4.3	4.40	8.6	47	0.39	
0847	11.34	Purged dry. Disconnect the flow-thru cell and pump dry to the bottom. Let recharge overnight. End purging @ 0858.								

SIGNATURE(S): Scott W. Reid

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2WGW39DS 02
Sample Location: 39DS AREA A
Sampled By: K. SIMPSON
C.O.C. No.: 012000-02
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: 1.21.00								
Time: 0915								
Method: Peristaltic Pump	CLEAR	7.02	6.446	8.4	4.7	~~7.53~~ 8	-206	3.52

PURGE DATA:

Date: 1.20.00
Method: Peristaltic Pump
Monitor Reading (ppm): 0
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 16.7
Static Water Level (WL): 3.62
One Casing Volume(gal): 2.1
Start Purge (hrs): 0920
End Purge (hrs): 1115
Total Purge Time (min): 115
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	HCL / 4° C	40 ml Vial	
TCL SEMIVOLATILES	4° C	Qt. Amber Glass	
TCL PEST/PCBs	4° C	Qt. Amber Glass	
TCL PAH	4° C	Qt. Amber Glass	
TAL METALS (TOTAL) + Hardness	HNO_3 / 4° C	L PE	
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	

OBSERVATIONS / NOTES:

LT SULFUR ODOR PURGED 1.20.00
SAMPLED AFTER RECHARGE

SAMPLED 1.21.00 WL = 4.19 PUMP RATE = 100 ML/MIN.
END SAMPLING @1025 WL = 12.20 . CLEAR

Circle If Applicable:

MS/MSD — Duplicate ID No.:

Signature(s): K. S. Simpson

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2WMW39DS
DATE: 1.20.00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal.	Comments
0925	4.36	250	7.03	7.985	2.5	0	8.9	-198	4.47	
0935	6.30	140	6.98	7.245	2.3	0	8.2	-227	4.01	
0945	7.21	130	6.90	5.960	2.2	0	8.3	-216	3.29	
0950	7.63	150	6.88	5.500	2.4		8.3	-218	3.00	
0955	8.04		6.85	4.968	2.7		8.3	-203	2.69	
1005	8.94		6.85	3.833	3.9		8.2	-183	2.05	
1015	9.81		6.88	3.472	4.5		8.2	-178	1.82	
1025	10.86		6.86	3.295	5.4		8.2	-165	1.73	
1035	11.78	140	6.83	3.614	4.6		8.5	-181	1.90	
1045	12.64		6.82	4.006	4.6		9.0	-188	2.12	
1055	13.79		6.84	4.831	3.8		9.2	-208	2.59	
1105	15.08		6.89	6.002	4.9		9.4	-243	3.26	
1115	15.96		7.02	6.446	4.7		8.4	-206	3.52	END PURGE DRY TO PUMP INLET

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2W-GW40DS-02
Sample Location: 2WMW40DS (AREA A)
Sampled By: K. SIMPSON
C.O.C. No.: 012000-02
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: 1.21.00								
Time: 0740								
Method: Peristaltic Pump	GRAY	7.11	26.20	9.4	42	0.16	-328	15.98

PURGE DATA:

Date: 1/19/00
Method: Peristaltic Pump
Monitor Reading (ppm): 0.0
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 17.38'
Static Water Level (WL): 4.15'
One Casing Volume(gal): 2.2
Start Purge (hrs): 1000
End Purge (hrs): 1059
Total Purge Time (min): 59
Total Vol. Purged (gal): 2.2

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLED 1.21.00 WL = 7.29 FLOW = 100 ML/MIN
END SAMPLE @ 0845 WL = 16.80'

BLACK FINES INCREASED AS WL DROPPED

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	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) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

Well was purged dry on 1/19/00 and will be sampled on 1/20/00.

Circle If Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2W.MW-10DS
DATE: 1/15/01

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. ppt	Comments
1000	4.15								→	Begin purging
1005	5.40	150	7.08	35.74	3.4	0.34	8.5	-336	22.35	Swampy odor - Suspended
1010	6.44	150	7.06	34.63	3.2	0.20	8.7	-331	21.62	black fines.
1015	7.47	150	7.05	32.62	2.6	0.26	8.9	-342	20.23	
1020	8.55	150	7.04	29.08	4.1	0.17	8.9	-337	17.82	
1025	9.43	150	7.02	25.91	4.6	0.15	8.9	-334	15.73	
1030	10.56	150	7.09	20.58	11	0.23	8.8	-332	13.01	
1035	11.30	150	7.16	19.06	14	0.30	8.8	-330	11.50	
1040	12.11	150	7.25	18.20	20	0.33	8.6	-329	10.75	
1045	13.70	150	7.19	20.03	25	0.18	8.9	-333	11.99	
1050	15.21	150	7.15	22.42	27	0.05	9.3	-338	13.51	
1055	15.73	150	7.12	24.36	37	0.09	9.3	-339	14.76	
1059	16.07	150	7.11	26.20	42	0.16	9.4	-328	15.98	Well is dry - disconnect
										flow - thru cell and
										evacuate to bottom -
										end purging @ 1109.

SIGNATURE(S): Scott W. [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-N LCN / AREA A
Project No.: JOB# 5082 CTO 203

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

Sample ID No.: 2W-GW41DS-02
Sample Location: 2WMW41DS (AREA A)
Sampled By: S. NEIL
C.O.C. No.: 012000 02
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Eh mV	Salinity ppt
Date: 1/21/00								
Time: ~~0849~~ 0843								
Method: Peristaltic Pump	LGT YELLOW	6.86	27.73	9.7	32	4.02	-326	17.07

PURGE DATA:

Date: 1/19/00	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Eh	Salinity
Method: Peristaltic Pump								
Monitor Reading (ppm): 6.2								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 16.65'								
Static Water Level (WL): 3.46'			SEE LOW FLOW PURGE DATA SHEET					
One Casing Volume(gal/L): 2.1								
Start Purge (hrs): 1610								
End Purge (hrs): 1727								
Total Purge Time (min): 77								
Total Vol. Purged (gal/L): 3.4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL Volatile Organic Compounds	HCl/4°C	(3) 40mL Vials	✓
TCL Semivolatile Organic Compounds	4°C	(2) 1L Amber Glass	✓
TCL PAH	4°C	(2) 1L Amber Glass	
TCL Pesticides/PCB	4°C	(2) 1L Amber Glass	
TAL Metals (Total)	HNO_3/4°C	(1) 1L Polyethylene	
Dissolved Metals	HNO_3/4°C	(1) 1L Polyethylene	
Total Organic Carbon (TOC)	HCl/4°C	(1) 60mL Glass	
Chemical Oxygen Demand (COD)	H_2SO_4/4°C	(1) 250mL Polyethylene	
Alkalinity, Chloride, Sulfate, TDS	4°C	(1) 1L Polyethylene	
~~Hardness~~	~~HNO_3/4°C~~	~~(1) 250mL Polyethylene~~	← (SN)

OBSERVATIONS / NOTES:

Purged well "dry" on 1/19/00. Begin sampling on 1/21/00. water level did not recover sufficiently on 1/20/00 to sample.
water level on 1/21/00 prior to sampling ~ 8.05 ft.
Sample water is light yellow - heavy effervescence in VOAs.
unpreserved sample bottles - water is dark gray
End sampling @ 1048 on 1/21/00.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Scott W. Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2W.MW41DS
DATE: 1/19/00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. ppt	Comments
									→	BEGIN PURGING
1610	3.46									
1615	5.34	210	7.01	30.74	6.8	3.14	8.8	-309	18.99	STRONG SULPHUR ODOR / MODERATE FINES / LGT YELLOW 1050
1620	5.92	150	6.96	29.52	5.1	4.46	8.3	-306	18.04	DECREASE FLOW @ 1616.
1625	6.82	150	6.91	29.88	4.3	4.89	8.5	-314	18.44	
1630	7.87	150	6.90	27.04	5.5	4.04	8.2	-317	16.43	2250
1635	8.81	170	6.90	25.01	9.6	3.94	8.0	-320	16.03	
1640	9.94	170	6.88	24.17	15	3.75	7.9	-327	15.42	Pump stopped - changed battery
1645	Dry 10.60	170	6.86	22.24	21	3.49	9.0	-317	13.35	
1650	11.12	170	6.89	19.63	28	3.84	9.4	-312	11.63	
1655	11.69	170	6.99	17.29	37	3.08	9.0	-303	10.17	
1700	12.15	170	6.97	16.15	29	3.01	8.8	-283	9.44	
1705	13.26	170	6.92	17.59	25	3.27	8.9	-296	10.07	
1710	14.18	170	6.88	19.59	24	3.52	9.2	-310	11.69	
1715	14.95	170	6.87	21.51	27	4.14	9.4	-316	12.91	
1720	15.49	170	6.87	24.20	35	4.65	9.5	-322	14.68	
1725	15.57	170	6.86	27.73	32	4.02	9.7	-326	17.07	
1727	"Dry" to level of the inlet of tubing. Disconnect flow-thru cell and lower tubing to bottom of the well to evacuate completely.									

SIGNATURE(S): Scott W. Stein

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2WGW42DS-02
Sample Location: 2WMW42DS (AREA A)
Sampled By: S. NEIL
C.O.C. No.: 012000-02
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: 1/21/00								
Time: 1555								
Method: Peristaltic Pump	LGT YELLOW	6.96	28.94	8.6	22	2.04	-328	19.21

PURGE DATA:

Date: 1/20/00
Method: Peristaltic Pump
Monitor Reading (ppm): 11.4
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 16.91'
Static Water Level (WL): 3.18
One Casing Volume(gal): 2.2
Start Purge (hrs): 1005
End Purge (hrs): 1158
Total Purge Time (min): 110
Total Vol. Purged (gal): 3.5

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	HCL / 4° C	40 ml Vial	3
TCL SEMIVOLATILES	4° C	Qt. Amber Glass	2
TCL PEST/PCBs	4° C	Qt. Amber Glass	SN ~~2~~ 1
TCL PAH	4° C	Qt. Amber Glass	2
TAL METALS (TOTAL) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

Purged "dry" on 1/20/00. Will attempt to sample on 1/21/00.
Water level at sample time = 5.18 ft.
Sample color is gray. VOAs have a strong effervescence when filling.
End sampling @ 1756.

Circle if Applicable:

MS/MSD —
Duplicate ID No.:

Signature(s): Scott W. Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: SW.MW-12.DS
DATE: 1/20/00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. ppt	Comments
										BEGIN PURGING
1005	3.18									
1010	4.31	190	7.21	37.33	21	2.47	7.2	-298	24.07	DECREASE FLOW
1015	5.60	110	7.09	37.95	10	0.76	7.1	-341	23.81	SLAMPEDCKR - SUSPENDED
1020	6.55	140	7.01	36.67	14	0.29	7.0	-337	22.94	YELLOW TINT
1025	6.91	110	6.98	34.53	1	-0.30	7.2	-329	21.67	
1030	7.80	140	6.95	33.[illegible]	10	0.86	6.9	-320	20.52	REDUCE FLOW
1035	8.61	110	[illegible]	32.21	[illegible]	0.62	7.2	-316	19.61	
1040	9.04	110	6.86	28.31	10	0.72	7.2	-307	17.26	
1045	9.91	110	6.81	24.01	7.4	0.99	7.4	-308	15.11	
1050	10.42	110	6.76	21.43	7.6	1.58	7.4	-311	12.[illegible]	
1055	10.86	110	6.85	19.39	9.0	1.18	7.4	-312	11.40	
1100	11.40	110	6.88	17.99	7.4	1.69	7.3	-312	10.59	
1105	11.92	110	6.94	17.51	7.4	1.77	7.3	-310	10.28	
1110	12.28	110	6.97	17.83	10.0	1.42	7.3	-310	10.58	
1115	12.61	110	6.96	18.09	7.0	0.76	7.7	-314	10.70	
1120	12.95	110	6.96	18.73	5.4	0.95	7.8	-309	11.08	
1125	13.52	110	6.95	19.93	4.9	0.95	8.0	-310	11.86	
1130	13.94	110	6.95	20.95	4.4	2.11	8.2	-312	12.51	
1135	14.71	110	6.95	23.25	5.0	2.08	8.4	-316	14.02	
1140	15.33	110	6.96	24.95	6.1	1.98	8.4	-321	15.88	
1145	15.97	110	6.95	26.19	10.0	1.50	8.2	-323	17.04	
1150	16.55	110	6.96	27.55	14	1.91	8.5	-327	18.51	
1155	16.84	110	6.96	28.94	22	2.04	8.6	-328	19.21	purged "dry" to the inlet of the sample tubing. Disconnected the flow-thru cell and lowered tubing to the bottom of the well. Evacuated well completely @ 1158.

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2W-GW43DS-02
Sample Location: 2WMW43DS/AREA A
Sampled By: S. NEIL
C.O.C. No.: 012000-02
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: 1.22.00								
Time: 1510								
Method: Peristaltic Pump	Dark Gray	6.69	38.66	7.4	40.2	6.30	-320	24.34

PURGE DATA:

Date: 1/21/00
Method: Peristaltic Pump
Monitor Reading (ppm): 26.5
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 16.98'
Static Water Level (WL): 3.35'
One Casing Volume(gal): 2.2
Start Purge (hrs): 1300
End Purge (hrs): 1459
Total Purge Time (min): 119
Total Vol. Purged (gal): 3.7

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	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) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

Purged dry on 1/21/00. EFFERVECSING IN HCL
WL 1.22.00 @ 1505 = 6.97'
SAMPLE PUMP RATE = 130 ml/MIN - LT. GRAY COLOR
STRONG "SWAMP" SULFUR ODOR

Circle If Applicable:

MS/MSD — Duplicate ID No.: —

Signature(s): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB # 5082

WELL ID.: 2WMW43DS
DATE: 1/21/00

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	Eh mV	Sal. (ppt)	Comments
1300	3.35								→	BEGIN PURGING
1305	4.58	140	6.77	42.21	9.6	1.83	6.8	-321	26.71	DECREASE FLOW.
1310	5.49	125	6.74	41.39	4.9	0.18	6.7	-317	26.12	WITH 2L HNO3 + STRONG
1315	6.03	125	6.72	39.30	3.1	0.08	6.4	-312	24.67	"SUMMY" SMELL AND LOT
1320	6.61	125	6.71	37.57	4.6	1.35	6.1	-309	23.47	YELLOW COLOR; SUSPENDED
1325	7.21	105	6.74	35.15	6.2	2.27	5.8	-306	21.79	BLK FINES.
1330	7.69	105	6.79	33.70	6.6	2.96	5.8	-304	20.91	
1335	8.06	105	6.81	32.58	6.9	3.09	6.0	-305	20.08	
1340	8.40	105	6.83	32.16	8.0	2.42	6.1	-306	19.82	
1345	8.84	105	6.82	32.14	8.1	1.77	6.2	-308	19.81	
1350	9.22	105	6.83	31.92	9.7	2.20	6.3	-307	19.67	
1355	9.44	105	6.83	31.90	9.4	1.74	6.2	-310	19.65	
1400	9.85	105	6.83	31.96	9.0	2.20	6.2	-311	19.65	
1405	10.24	105	6.82	31.87	10.4	2.12	6.1	-311	19.62	
1410	10.62	105	6.82	31.90	9.4	2.24	5.6	-310	19.64	
1415	10.97	105	6.81	31.93	10.[illegible]	2.06	6.1	-310	19.65	
1420	11.35	105	6.80	31.93	10.2	1.54	6.0	-312	19.64	
1425	11.73	105	6.80	31.51	12.4	2.15	6.4	-312	19.43	
1430	12.26	105	6.78	31.89	11.4	2.34	6.9	-312	19.70	
1435	12.92	145	6.78	31.38	21.8	2.45	7.2	-317	19.35	Increase flow due to
1440	13.51	145	6.75	32.83	33.7	4.10	7.4	-320	20.38	unstable H2O level - will
1445	14.12	145	6.74	33.61	50.3	4.32	7.6	-320	20.59	purge completely and
1450	14.65	145	6.73	34.42	70.8	4.78	7.6	-322	21.46	sample on 1/22/00
1455	15.12	145	6.70	36.39	81.6	5.72	7.9	-323	22.83	
1459	15.44	145	6.69	36.66	96.2	6.30	7.4	-320	24.34	End of purging to tubing inlet; lower tubing to the bottom of the well and evacuate completely.

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2W GW44DS 02
Sample Location: 2W MW44DS
Sampled By: K. SIMPSON
C.O.C. No.: NA
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: 1.25.00								
Time: 0730								
Method: Peristaltic Pump								

PURGE DATA:

Date:
Method: Peristaltic Pump
Monitor Reading (ppm):
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD):
Static Water Level (WL):
One Casing Volume(gal):
Start Purge (hrs):
End Purge (hrs):
Total Purge Time (min):
Total Vol. Purged (gal):

(NO PG. 2)

See Attached Low Flow Purge Data Sheet for Purge Data

NOT SAMPLED

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	HCL / 4° C	40 ml Vial	
TCL SEMIVOLATILES	4° C	Qt. Amber Glass	
TCL PEST/PCBs	4° C	Qt. Amber Glass	
TCL PAH	4° C	Qt. Amber Glass	
TAL METALS (TOTAL) + Hardness	HNO_3 / 4° C	L PE	
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	

OBSERVATIONS / NOTES:

GW IN RISER IS FROZEN, TRIED TO BREAK THRU OVER THE LAST 4 DAY. WE WERE ABLE TO MOVE THE ICE DOWN THE RISER (LIKE A PISTON) AND IT FLOATED BACK TO THE SURFACE. UNABLE TO GET SAMPLE TUBING PAST ICE.

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): K. S. Simpson

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2W-GW45DS-02
Sample Location: 2WMW45DS
Sampled By: S. NEIL
C.O.C. No.: 012000-02
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: 1.23.00								
Time: 1515								
Method: Peristaltic Pump	CLEAR	6.85	39.68	8.1	6.2	5.17	-340	24.93

PURGE DATA:

Date: 1/22/00
Method: Peristaltic Pump
Monitor Reading (ppm): 19.1
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 16.75'
Static Water Level (WL): 3.13'
One Casing Volume(gal): 2.2
Start Purge (hrs): 1545
End Purge (hrs): 1741
Total Purge Time (min): 116
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	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) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

1.23.00 @ 1510 WL = 2.13'
STRONG SULFUR ODOR
END SAMPLING @ 1623 WL = 9.61
SAMPLE PUMP RATE = 130 ML/MIN
CLEAR @ START TURNS DARK GRAY AFTER PAH'S

Circle If Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5092

WELL ID.: 2W MW45DS
DATE: 1/21/00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. PPT	Comments
1545	3.13									Begin Purging
1550	4.48	100	7.00	41.53	6.7	1.58	4.2	-326	26.05	Water in riser pipe
1555	5.08	100	6.97	41.05	1.9	0.31	4.4	-316	25.72	frozen @ static H2O
1600	5.70	100	6.94	40.48	1.0	0.34	5.2	-321	25.40	level; also residual
1605	6.20	100	6.92	40.11	1.6	1.31	5.5	-311	25.19	H2O frozen in distribution
1610	6.77	130	6.90	36.47	1.6	1.70	5.8	-314	24.76	tubing - had to thaw
1615	7.23	130	6.90	35.63	2.4	2.36	6.1	-320	24.22	ice out in tubing.
1620	7.59	130	6.90	37.29	2.7	3.45	6.6	-326	23.66	Water has strong
1625	7.97	130	6.94	36.47	3.1	2.01	6.3	-321	22.57	"swampy" odor and
1630	8.30	130	6.90	35.44	3.3	2.02	6.3	-317	22.05	Bulk suspended lines.
1635	8.72	130	6.91	32.78	3.9	4.28	6.3	-320	20.15	
1640	9.14	165	6.93	28.18	3.5	4.69	6.5	-321	17.13	
1645	9.58	165	6.91	23.50	3.9	4.21	6.6	-315	14.19	
1645	10.31	165	6.88	21.38	4.4	4.16	6.7	-313	12.73	
1655	10.84	165	6.86	21.81	6.0	2.64	6.8	-315	13.62	
1700	11.33	165	6.86	22.66	7.1	3.01	6.9	-316	13.92	
1705	11.91	165	6.86	24.98	6.9	3.55	7.1	-320	14.88	
1710	12.61	165	6.87	27.30	NA	4.14	7.2	-322	16.71	TURBIDITY METER NOT
1715	13.06	165	6.88	25.58		3.00	7.4	-319	17.51	WORKING DUE TO FREEZING
1720	13.57	165	6.89	21.14		4.36	7.7	-322	17.88	CONDITIONS.
1725	13.96	165	6.91	31.66		7.44	8.0	-327	19.65	
1730	14.36	165	6.92	34.31		5.04	8.1	-333	21.34	
1735	15.04	165	6.87	37.69	10.1	5.81	8.0	-336	23.81	
1740	15.58	165	6.85	41.65	6.2	5.17	8.1	-340	24.93	End purging
1741	well purged dry to the inlet of the pump tubing.									

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: AN-MW460S-02
Sample Location: 2NMW46DS
Sampled By: K. SIMPSON
C.O.C. No.: 012400-02
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: 1.24.00								
Time: 1350								
Method: Peristaltic Pump	YELLOW	7.12	41.45	7.4	67	2.76	-328	26.28

PURGE DATA:

Date: 1/23/00
Method: Peristaltic Pump
Monitor Reading (ppm): 20.3
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 17.32'
Static Water Level (WL): 2.65'
One Casing Volume(gal):
Start Purge (hrs): 1615
End Purge (hrs): 1817
Total Purge Time (min): 122
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	HCL / 4° C	40 ml Vial	3
TCL SEMIVOLATILES	4° C	Qt. Amber Glass	2
TCL PEST/PCBs	4° C	(1.5 QT) Qt. Amber Glass	2
TCL PAH	4° C	Qt. Amber Glass	2
TAL METALS (TOTAL) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

Well purged on 1/23/00. will sample on 1/24/00.
"SWAMPY" ODOR
SAMPLES EFFERVESCING IN HCL (VOC, TOC)
SAMPLE PUMP RATE = 130 MS/L
1.24.00 WL = 6.91' @ 1338

DRY @ 1519
LOW VOL ON DIS. METALS & PEST/PCB

Circle If Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2WMW46DS
DATE: 1/23/00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. (ppt)	Comments
1615	2.65								→	BEGIN PURGING
1620	3.69	115	7.08	45.13	16	1.65	6.3	-332	28.75	Strong sulphur
1625	4.77	115	7.06	44.50	6.0	1.23	6.6	-330	28.57	odor / yellow color
1630	5.45	115	7.02	44.89	5.9	2.77	6.6	-327	28.65	
1635	6.26	115	7.00	45.21	4.6	3.41	6.8	-326	28.85	
1640	7.00	120	6.98	45.20	5.0	3.32	7.0	-326	28.83	
1645	7.68	120	6.98	45.07	5.3	3.76	7.3	-327	28.82	
1650	8.06	120	6.97	45.02	5.7	3.97	7.3	-328	28.74	
1655	8.59	120	6.97	44.75	8.2	3.59	7.3	-328	28.58	
1700	9.16	120	6.99	44.37	7.5	4.09	7.2	-326	28.24	
1705	9.84	120	7.00	43.77	8.6	3.73	7.2	-327	27.86	
1710	10.45	120	7.14	42.26	15	3.44	7.1	-323	26.52	
1715	11.03	120	7.15	41.76	22	2.43	6.9	-323	26.44	
1720	11.42	120	7.17	41.57	26	2.21	7.0	-323	26.30	
1725	11.83	120	7.19	41.54	27	1.96	6.9	-323	26.30	
1730	12.46	120	7.19	41.54	31	2.12	6.8	-324	26.29	
1735	12.97	120	7.15	41.50	37	2.21	6.7	-324	26.27	
1740	13.32	120	7.15	41.23	46	2.12	6.8	-324	26.07	
1745	13.98	120	7.16	46.59	59	3.14	6.9	-324	25.76	[illegible]
1750	14.45	130	7.16	41.07	57	2.27	7.2	-325	26.01	
1755	14.90	130	7.14	41.68	138	2.59	7.3	-329	25.97	
1800	15.45	130	7.13	41.30	61	2.46	7.3	-328	26.20	
1805	15.94	130	7.13	41.09	64	2.56	7.2	-327	26.03	
1810	16.34	130	7.12	41.75	67	2.61	7.5	-330	26.50	
1815	16.90	130	7.12	41.45	67	2.76	7.4	-328	26.28	
1817	End of purging - well purged dry to inlet of pump tubing.									

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2W-GW47DS-02
Sample Location: 2WMW47DS
Sampled By: S. NEIL
C.O.C. No.: 012400 02
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: 1/24/00								
Time: 1605								
Method: Peristaltic Pump	Gray	6.62	7.341	6.5	52	0.76	-308	4.03

PURGE DATA:

Date: 1/24/00
Method: Peristaltic Pump
Monitor Reading (ppm): 1.4
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 16.20'
Static Water Level (WL): 2.23'
One Casing Volume(gal): 2.3
Start Purge (hrs): 1425
End Purge (hrs): 1600
Total Purge Time (min): 95
Total Vol. Purged (gal): 2.8

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	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) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	500 mL PE	1

OBSERVATIONS / NOTES:

Sample effervessing in VOAs
End sampling @ 1748.

Circle If Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Scott W. Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2W-MW-4705
DATE: 1/24/00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. PPT	Comments
1425	2.23*								→	BEGIN PURGING.
1430		130	7.19	40.50	91	2.72	7.4	-251	25.62	*Static water level
1435		130	7.16	38.03	54	1.46	7.4	-298	23.55	is measured to a layer
1440		110	7.17	36.14	27	1.29	7.4	-311	22.51	of unpenetratable ice
1445		110	7.08	32.41	19	0.85	7.4	-309	20.02	therefore water levels
1450		110	7.01	29.33	20	0.71	7.3	-306	17.96	cannot be measured during
1455		110	6.96	27.16	22	0.77	7.3	-309	16.52	purging. Water contains
1500		110	6.88	24.11	52	0.69	7.3	-312	14.50	moderate BLK solids.
1505		110	6.76	18.67	52	0.91	7.3	-297	10.60	
1510		110	6.73	14.36	32	0.74	7.2	-262	8.25	
1515		110	6.71	11.92	36	0.81	7.1	-238	6.77	
1520		110	6.69	9.966	35	0.82	7.1	-235	5.59	
1525		110	6.67	8.882	33	1.08	6.9	-241	4.95	
1530		110	6.67	8.345	36	0.92	6.8	-241	4.66	
1535		110	6.62	7.892	41	0.98	6.7	-273	4.37	
1540		110	6.65	7.812	50	0.70	6.7	-275	4.31	
1545		110	6.64	7.553	50	0.73	6.7	-289	4.21	
1550		110	6.61	7.543	52	0.77	6.6	-313	4.16	
1555		110	6.61	7.311	49	0.70	6.6	-310	4.00	
1600		110	6.62	7.341	52	0.76	6.5	-308	4.03	END PURGING.
										*Ice at static
	BEGIN SAMPLING @ 1605. SAMPLE ID 2W-GW4705-02.									water level never
	END SAMPLING @ 1748.									thawed to allow
										water level measurements.

SIGNATURE(S): Scott W. Neil

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2N-GW21S-02
Sample Location: 2NMW21S
Sampled By: S. NEIL
C.O.C. No.: 012000-02
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: 1/23/00								
Time: 1048								
Method: Peristaltic Pump	BLACK	6.84	34.25	7.6	3.2	3.48	-338	21.32

PURGE DATA:

Date: 1/23/00
Method: Peristaltic Pump
Monitor Reading (ppm): 29.9
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 17.30'
Static Water Level (WL): 5.30'
One Casing Volume(gal): 2.0
Start Purge (hrs): 0910
End Purge (hrs): 1045
Total Purge Time (min): 95
Total Vol. Purged (gal): 2.5

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	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) + Hardness	HNO_3 / 4° C	(1) L PE	✓
TAL METALS (DISSOLVED)	HNO_3 / 4° C	(1) L PE	✓
Total Organic Carbon (TOC)	HCL / 4° C	(1) 60 mL Glass	✓
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	(1) 250 mL PE	✓
Alkalinity, Chloride, Sulfate, TDS	4° C	(1) 500mL PE	✓

OBSERVATIONS / NOTES:

Sample in VOAs effervessing. Samples have strong sulphur odor.
End water level = 7.33 FT.

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Scott W. Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2WMW215
DATE: 1/23/00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. (PPT)	Comments
0910	5.30								→	Begin purging. Water is
0915	5.87	120	7.08	44.35	15	5.31	6.1	-327	28.20	yellow w/ Blk fines; sulfur odor.
0920	6.16	120	7.06	43.89	5.4	1.25	6.3	-327	27.89	Decrease flow.
0925	6.26	95	7.04	43.74	3.0	0.80	6.0	-325	27.78	
0930	6.38	95	7.00	43.54	2.5	1.21	6.0	-321	27.62	
0935	6.46	95	6.99	43.38	3.4	2.71	6.0	-303	27.52	
0940	6.56	95	6.98	42.73	2.3	3.55	6.1	-321	27.05	
0945	6.56	95	6.97	42.28	1.9	3.10	6.2	-323	26.75	
0950	6.58	95	6.96	41.71	1.8	2.32	6.3	-318	26.37	
0955	6.63	95	6.95	41.03	1.6	4.37	6.5	-320	25.91	
1000	6.70	95	6.95	40.49	1.7	2.47	6.6	-314	25.56	
1005	6.84	95	6.93	39.61	1.5	2.48	6.8	-303	24.93	
1010	6.92	95	6.92	38.96	1.5	2.61	6.9	-306	24.51	
1015	6.96	95	6.90	38.14	1.4	2.74	6.9	-316	23.95	
1020	7.04	95	6.87	37.08	1.4	3.07	7.2	-317	23.23	
1025	7.06	95	6.85	36.03	2.9	3.13	7.3	-321	22.51	
1030	7.07	95	6.84	35.35	3.1	3.26	7.4	-329	22.00	
1035	7.06	95	6.85	34.72	3.2	3.39	7.5	-334	21.65	
1040	7.06	95	6.84	34.50	3.5	3.41	7.6	-335	21.49	
1045	7.07	95	6.84	34.25	3.2	3.48	7.6	-338	21.32	End purging. ↓

Begin sampling @ 1048. Sample ID 2W-GW215-02.
End sampling @

SIGNATURE(S): Scott W. Reid

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 4GW01 S 02
Sample Location: 4MW01
Sampled By: R. SIMPSON
C.O.C. No.: 012000-02
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: 1.23.00								
Time: 0915								
Method: Peristaltic Pump	CLEAR	5.70	0.234	8.1	0	1.08	219	0.11

PURGE DATA:

Date: 1.23.00
Method: Peristaltic Pump
Monitor Reading (ppm):
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 20.30
Static Water Level (WL): 6.49
One Casing Volume(gal): 2.3
Start Purge (hrs): 0752
End Purge (hrs): 0910
Total Purge Time (min): 78
Total Vol. Purged (gal): 2.7

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	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) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

Circle If Applicable:

MS/MSD ___ Duplicate ID No.: ___

Signature(s): R. S. Simp

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 4MW01S
DATE: 1.23.00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. PPT	Comments
0755	6.54	140	6.51	0.236	3.2	8.04	7.8	114	0.11	START PURGE
0800	6.54		5.82	0.227	1.6	9.62	8.1	149	0.11	CLEAR, NO ODOR
0810	6.55		5.72	0.230	0.9	7.22	7.9	186	0.11	
0815	6.55		5.72	0.230	0.6	8.37	7.8	191	0.11	
0820	6.56		5.71	0.231	0.3	7.98	7.8	197		
0830	6.56		5.71	0.232	0.2	4.58	7.7	206		
0835	6.57		5.71	0.232	0	2.51	7.8	208		
0840	6.58		5.70	0.233		2.26	7.9	210		
0845	6.58		5.70	0.234		2.15	8.0	213		
0850	6.60		5.70	0.235		2.61	8.1	215		
0855	6.60		5.70	0.234		1.53	8.1	217		
0900	6.60		5.70	0.233		0.99	8.1	218		
0905	6.61		5.70	0.234		1.06	8.1	219		
0910	6.61		5.70	0.234		1.08	8.1	219		END PURGE
	END	SAMPLING @ 1012 WL = 6.63								

SIGNATURE(S): K. E. Simp

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 2LGW20S02
Sample Location: 2LMW20S
Sampled By: K. SIMPSON
C.O.C. No.: 012000 02
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: 1-22-00								
Time: 0935								
Method: Peristaltic Pump	CLEAR	6.42	0.394	8.8	0.5	2.19	-7	0.19

PURGE DATA:

Date: 1-22-00
Method: Peristaltic Pump
Monitor Reading (ppm):
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 18.85
Static Water Level (WL): 14.66
One Casing Volume(gal): 0.7
Start Purge (hrs): 0812
End Purge (hrs): 0927
Total Purge Time (min): 75
Total Vol. Purged (gal): 2.6

See Attached Low Flow Purge Data Sheet for Purge Data

HIGH WINDS MAY HAVE BLOWN SOME DUST/ROAD GRIT INTO SAMPLES.

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	HCL / 4° C	40 ml Vial	12
TCL SEMIVOLATILES	4° C	Qt. Amber Glass	8
TCL PEST/PCBs	4° C	Qt. Amber Glass	8
TCL PAH	4° C	Qt. Amber Glass	8
TAL METALS (TOTAL) + Hardness	HNO_3 / 4° C	L PE	3 ~~4~~ KS
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	3 ~~4~~ KS
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	4
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	4
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	4
		COLLECTED 4X VOC	
		DUP. SAMPLE & MS/MSD	

OBSERVATIONS / NOTES:

THIS FLUSH MT. IS ≈ 1.5" LOWER THAN THE ROAD SURFACE
THE VAULT IS ALWAYS FULL OF WATER/ICE AND MUST BE CLEANED EACH QTR.

FLUSH MT.

Circle if Applicable:

MS/MSD YES

Duplicate ID No.: GWFD 012200

Signature(s): K. Simpson

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 2LMW/20S
DATE: 1-22-00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. PPT	Comments
0820	14.82	200	6.68	0.683	4.9	-0.52	9.6	-38	0.33	START PURGE
0825	14.82	130	6.51	0.461	4.0	1.98	9.4	-47	0.22	
0835			6.48	0.439	3.5	4.47	8.9	-18	0.20	
0840			6.46	0.415	2.7	5.24	9.0	-16	0.20	
0850			6.44	0.430	2.5	4.73	8.6	-38	0.21	
0900			6.42	0.406	2.4	3.86	8.4	-19	0.20	
0905			6.42	0.406	1.3	3.27	8.4	-17	0.20	
0910			6.42	0.399	0.8	2.15	8.8	-8	0.19	
0915			6.42	0.397	0.4	2.19	8.7	-7	0.19	
0920			6.41	0.396	0.4	2.18	8.8	-6	0.19	
0925			6.42	0.394	0.5	2.19	8.8	-7	0.19	END PURGE
	START SAMPLING @		0928							
	END SAMPLING @		1348	WL	=		14.82			

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 3-GW125-02
Sample Location: 3MW125
Sampled By: S. NGIL
C.O.C. No.: 012400-02
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: 1/24/00								
Time: 0935								
Method: Peristaltic Pump	CLEAR	6.13	3.522	8.2	21	0.91	10	1.87

PURGE DATA:

Date: 1/24/00
Method: Peristaltic Pump
Monitor Reading (ppm): 0.0
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 15.11'
Static Water Level (WL): 3.52'
One Casing Volume(gal): 1.9
Start Purge (hrs): 0832
End Purge (hrs): 0932
Total Purge Time (min): 60
Total Vol. Purged (gal): 2.1

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	HCL / 4° C	6 40 ml Vial	✓
TCL SEMIVOLATILES	4° C	4 Qt. Amber Glass	✓
TCL PEST/PCBs	4° C	4 Qt. Amber Glass	✓
TCL PAH	4° C	4 Qt. Amber Glass	✓
TAL METALS (TOTAL) + Hardness	HNO_3 / 4° C	2 L PE	✓
TAL METALS (DISSOLVED)	HNO_3 / 4° C	2 L PE	✓
Total Organic Carbon (TOC)	HCL / 4° C	2 60 mL Glass	✓
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	2 250 mL PE	✓
Alkalinity, Chloride, Sulfate, TDS	4° C	2 500 mL PE	✓

OBSERVATIONS / NOTES:

END SAMPLING @ 1128
FINAL H_2O LEVEL = 3.69 FT.

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	GW FD012400

Signature(s): [illegible]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 3MW12S
DATE: 1/24/00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. PPT	Comments
0832	3.52								→	Begin purging
0837	3.63	115	6.45	3.645	45	5.24	6.6	-4	1.91	Real sticky.
0842	3.66	115	6.22	3.534	34	~~1.43~~	7.2	6	1.86	
0847	3.65	115	6.19	3.545	18	2.07	7.4	9	1.87	
0852	3.65	115	6.16	3.564	17	1.81	7.5	11	1.88	
0857	3.66	115	6.16	3.575	17	1.65	7.5	10	1.88	
0902	3.65	115	6.16	3.562	17	1.65	7.6	11	1.88	Increase flow.
0907	3.67	135	6.15	3.560	19	1.33	7.7	11	1.88	
0912	3.68	135	6.14	3.574	17	1.15	7.7	10	1.89	
0917	3.67	135	6.15	3.603	18	0.94	7.9	10	1.90	Increase flow.
0922	3.67	165	6.14	3.578	19	0.93	8.2	10	1.89	
0927	3.68	165	6.14	3.561	21	0.93	8.1	10	1.88	
0932	3.68	165	6.13	3.522	21	0.91	8.2	10	1.87	End purging.
	BEGIN SAMPLING @ 0935. SAMPLE ID 3-GMW12S-02									
	END SAMPLING @ 1123.									

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSB-NLON / AREA A
Project No.: CTO 203 5082

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

Sample ID No.: 3GW12D.02
Sample Location: 3MW12D
Sampled By: R. SIMPSON
C.O.C. No.: 012400-02
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: 1.24.00								
Time: 0945								
Method: Peristaltic Pump	CLEAR	6.80	3.434	7.9	3.3	1.2	-107	1.81

PURGE DATA:

Date: 1.24.00
Method: Peristaltic Pump
Monitor Reading (ppm): 0
Well Casing Diameter & Material
Type: ~~2" PVC~~ 4" STEEL
Total Well Depth (TD): 27.5
Static Water Level (WL): 0.4
One Casing Volume(gal): 15.4
Start Purge (hrs): 0923
End Purge (hrs): 0943
Total Purge Time (min): 80
Total Vol. Purged (gal): 2.8

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOLATILES	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) + Hardness	HNO_3 / 4° C	L PE	1
TAL METALS (DISSOLVED)	HNO_3 / 4° C	L PE	1
Total Organic Carbon (TOC)	HCL / 4° C	60 mL Glass	1
Chemical Oxygen Demand (COD)	H_2SO_4 / 4° C	250 mL PE	1
Alkalinity, Chloride, Sulfate, TDS	4° C	L PE	1

OBSERVATIONS / NOTES:

4" OPEN BOREHOLE (NO RISER) EXISTING WELL, STICK-UP.

4" = .653 GAL/FT

Circle if Applicable:

MS/MSD
Duplicate ID No.:

Signature(s): R. Simpson

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / AREA A
PROJECT NUMBER: CTO 203 JOB# 5082

WELL ID.: 3MW12D
DATE: 1.24.00

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	Eh	Sal. PPT	Comments
0830	0.45	100	6.83	3.408	10	0	6.2	-93	1.78	BLACK FINES IN PURGE WATER
0840	0.50	160	6.93	3.431	7.3	0	6.5	-86	1.80	CLEARING
0845	↓	130	6.95	3.426	3.1	0	7.1	-89	1.80	CLEANED CELL
0850	↓	↓	6.83	3.428	3.0	0	7.2	-93	1.80	
0855	↓	↓	6.83	3.430	2.9	-8.9	7.4	-97	1.80	
0900	↓	↓	6.83	3.433	3.1	-4.2	7.5	-99	1.81	
0905	↓	↓	6.82	3.434	3.5	-3.5	7.6	-102	1.81	
0910	↓	↓	6.83	3.437	3.6	-0.9	7.6	-103	1.81	
0915	↓	↓	6.83	3.437	3.7	0.1	7.7	-105	1.81	
0920	↓	↓	6.82	3.436	3.4	-0.1	7.8	-105	1.81	
0925	0.54	↓	6.82	3.437	3.1	1.0	7.9	-107	1.81	
0930	↓	↓	6.81	3.435	3.2	1.3	7.9	-107	1.81	
0935	↓	↓	6.81	3.436	3.2	1.4	7.9	-109	↓	
0940	0.55	↓	6.80	3.434	3.3	1.2	7.9	-107	↓	END PURGE
		END	SAMPLE @		1042	WL =	0.55			

SIGNATURE(S): K. J. S. Sunyer

APPENDIX E

CHAIN-OF-CUSTODY RECORDS

TETRA TECH NUS, INC.

AREA A CTO 203

CHAIN OF CUSTODY | NUMBER 012000-02 | PAGE 1 OF 2

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
5092	NSB NLON	MARK MENGEL 412 921 8723	ACCUTEST
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
K. S. Simpson		KEITH SIMPSON 412 921 8131	1235 ROUTE 130
		CARRIER/WAYBILL NUMBER	CITY, STATE
		ACCUTEST PICK-UP	DAYTON NJ 08810

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 40 ml HCL	TCL SVOC (L)	TCL PAH (L)	TCL PEST/PCBS (L)	ALK, CHLORIDE, SULFATE, TDS (L)	TAL METALS (L) HNO3	DISSOLVED METALS (L) HNO3	TOC (L) HCL	COD (L) H2SO4	COMMENTS
		CONTAINER TYPE PLASTIC (P) or GLASS (G)				G	G	G	G	P	P	P	G	P	
		PRESERVATIVE USED				—	—	—	—	—					
1/20	0715	TB 012000	AQ	G	2	2									TRIP BLANK
1/21	0740	2W GW 40DS 02	GW	G	14	3	2	2	2	1	1	1	1	1	(40DS)
	0915	2W GW 39DS 02	GW	G	14	3	2	2	2	1	1	1	1	1	
	0745	2W GW 38DS 02	GW	G	5	3	1	1							WELL SAMPLED OVER 6 DAYS
	0843	2W GW 41 DS 02	GW	G	14	3	2	2	2	1	1	1	1	1	
	1555	2W GW 42 DS 02	GW	G	13	3	2	2	1	1	1	1	1	1	SHORT VOL ON PEST/PCB
1/22	0935	2L GW 20S 02	GW	G	40	9	6	6	6	3	2	2	3	3	RUN ALSO MS/MSD
	1040	3GW 37S 02	GW	G	14	3	2	2	2	1	1	1	1	1	
	0000	GWFD 012200	GW	G	14	3	2	2	2	1	1	1	1	1	DUP OF 2LGW20S02
	1510	2W GW 43DS 02	GW	G	14	3	2	2	2	1	1	1	1	1	
1/23	0915	4GW 01S 02	GW	G	14	3	2	2	2	1	1	1	1	1	
	1040	2W GW 21S 02	GW	G	14	3	2	2	2	1	1	1	1	1	
	1515	2W GW 45D 02	GW	G	14	3	2	2	2	1	1	1	1	1	(2W GW 45DS02)

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY K. S. Simpson	1.24.00	0715	1. RECEIVED BY [signature]	1.24.00	0715
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) 3/99

AREA A

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER 012000-02 | PAGE 2 OF 2

PROJECT NO: 5092	SITE NAME: NSB NLON	PROJECT MANAGER AND PHONE NUMBER: MARK MUNGEL 412 921 8723	LABORATORY NAME AND CONTACT: ACCUTEST
SAMPLERS (SIGNATURE): K. S. Simpson		FIELD OPERATIONS LEADER AND PHONE NUMBER: KEITH SIMPSON 412 921 8131	ADDRESS: 2235 ROUTE 130
		CARRIER/WAYBILL NUMBER: ACCUTEST PICK-UP	CITY, STATE: DAYTON, NJ 08810

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

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

PRESERVATIVE USED: HNO_3 HNO_3 HCL H_2SO_4

TYPE OF ANALYSIS: TAL METALS (L) HARDNESS (L) DISSOLVED TAL METALS (L) TOC COD

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TAL METALS (L)	HARDNESS (L)	DISSOLVED TAL METALS (L)	TOC	COD					COMMENTS
1/23	0751	2WGW38DS02	GW	G	4	1	1	1	1						LOW VOL.

1. RELINQUISHED BY: K. S. Simpson	DATE 1-24-00	TIME 0715	1. RECEIVED BY: [signature]	DATE 1-24-00	TIME 0715
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)

AREA A

TETRA TECH NUS, INC. — **CHAIN OF CUSTODY** — **NUMBER** 012400-02 — **PAGE** 1 **OF** 1

PROJECT NO: 5092	SITE NAME: NSB- NIOP
PROJECT MANAGER AND PHONE NUMBER	MARK MARCOL 412 921 5723
LABORATORY NAME AND CONTACT:	ACCUTEST
SAMPLERS (SIGNATURE)	[signature]
FIELD OPERATIONS LEADER AND PHONE NUMBER	[illegible] 412 921 6131
ADDRESS	2235 ROUTE 130
CARRIER/WAYBILL NUMBER	ACCUTEST PICK-UP
CITY, STATE	DAYTON NJ 08810

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

DATE YEAR	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TCL VOC 40 ml VIAL	TCL SVOC (L)	TCL PAH (L)	TCL PEST/PCBs (L)	ALL CHLORIDE, SO4, NO3	SULFATE, TDS	TALKALINITY	HARDNESS	PHENOLICS (L)	TOC	COD	COMMENTS
		CONTAINER TYPE PLASTIC (P) or GLASS (G)				G	G	G	G	P	P	P		G	P		
		PRESERVATIVE USED				HCL	1	1	1	1	HNO3	HNO3		HCL	NaOH		
1/24	0710	TB 012400	AQ	G	2	2											TRIP BLANK
	0935	3GW125-02	GW	G	14	3	2	2	2	1	1	1	1	1			
	0945	3GW12D-02	GW	G	14	3	2	2	2	1	1	1	1	1			
	0000	GWFD 012400	GW	G	14	3	2	2	2	1	1	1	1	1			DUP OF 3GW125-02
	1350	2WGW46DS02	GW	G	14	3	2	2	2	1	1	1	1	1			[illegible]
	1605	2WGW47DS02	GW	G	14	3	2	2	2	1	1	1	1	1			
1/25	0725	2WGW39DS02	GW	G	2				1	1							[illegible]

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	1-26-00		1. RECEIVED BY	1-26-00	
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 F

DATA VALIDATION LETTERS AND LABORATORY DATA SHEETS

TETRA TECH NUS, INC.

INTERNAL CORRESPONDENCE

EPC-00-015

TO: MARK MENGEL

DATE: MARCH 31, 2000

FROM: KATHY A. LANDKROHN

COPIES: DV FILE

SUBJECT: ORGANIC DATA VALIDATION: VOA/PEST/PCB
CTO 203, NSB NEW LONDON
SDG E62513

SAMPLES: 19 Aqueous

2LGW20S-02	2WGW21S-02	2WGW38DS-02	2WGW39DS-02
2WGW40DS-02	2WGW41DS-02	2WGW42DS-02	2WGW43DS-02
2WGW46DS-02	2WGW47DS-02	2WGW4SD-02	3GW12D-02
3GW12S-02	3GW37S-02	4GW01S-02	GWFD012200
GWFD012400	TB012000	TB012400	

Overview

The sample set for the CTO 203, NSB New London, SDG E62513 consists of seventeen (17) aqueous environmental samples and two (2) trip blanks. Environmental samples were analyzed for volatile organic compounds and pesticides/polychlorinated biphenyls (PCBs). The trip blanks, designated TB, were analyzed for volatile organic compounds only. Two field duplicate pairs were included in the SDG: 2LGW20S-02/GWFD012200 and 3GW12S-02/GWFD012400. The field crew designated sample 2LGW20S-02 for Matrix Spike/Matrix Spike Duplicate (MS/MSD) analysis. The laboratory used sample 2WGW41DS-02 for volatile organic MS/MSD analysis and the field designated sample for pesticide/PCB MS/MSD analysis.

The samples were collected by TetraTech NUS on January 20, 21, 22, 23, and 24, 2000 and analyzed by Accutest Laboratories. Analyses were conducted using the Contract Laboratory Program (CLP) Statement of Work (SOW) OLC02.1 analytical and reporting protocols.

The data were evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibration
*	• Blanks
	• Surrogate Spike Recoveries
*	• Field Duplicate Precision
*	• Internal Standards Performance
*	• Instrument Performance
*	• Compound Identification
*	• Compound Quantitation
*	• Tentatively Identified Compounds (TICs)

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report.

CALIBRATIONS

The following tables summarize calibration non-compliances and corresponding actions:

Compound	IC 01/26/00	CC 01/27/00
Bromomethane		X

Associated Samples: 2WGW41DS-02
2WGW40DS-02
2WGW39DS-02
2WGW38DS-02
2LGW20S-02
3GW37S-02
2WGW43DS-02
4GW01S-02

Calibration Actions:

D - Percent Relative Standard Deviation > 30%, Estimated (UJ) nondetected results.
X - Percent Difference > 25%; Estimate (J) positive and (UJ) nondetected results.
R - Relative Response Factors < 0.05; Reject (R) nondetected results and estimated, (J) positive.

SURROGATE RECOVERY

Surrogate recoveries of decachlorobiphenyl were reported above the upper quality control limit for column DB5 in the pesticide/PCB fraction for the following samples: 2LGW20S-02, 2WGW21S-02, 2WGW38DS-02, 2WGW39DS-02, 2WGW40DS-02, 2WGW41DS-02, 2WGW42DS-02, 2WGW43DS-02, 2WGW46DS-02, 2WGW47DS-02, 2WGW4SD-02, 3GW37S-02, 4GW01S-02, and GWFD012200. Surrogate recoveries reported for the second column of these same samples were reported within the quality control limit. Nondetected results were not qualified as a result of this noncompliance.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries (%Rs) reported for bromoform were less than the lower quality control limit. Nondetected results were in the MS/MSD sample (sample 2LGW20S-02) were qualified as estimated, UJ.

ADDITIONAL COMMENTS

Positive results reported at concentrations below the CRQL were qualified as estimated, J.

The sample result reported for 4,4'-DDD for sample 2WGW21S-02 reflects a dilution of 1:10. The undiluted sample provided a result that exceeded the calibration of the instrument. Other pesticide/PCB results reported for this sample reflect the undiluted sample results.

The percent differences (%Ds) reported for methoxychlor and 4,4'-DDT contained in the PEM analyzed on 02/02/2000 on column DB1701 were greater than 25%. No action was taken since no samples in this SDG were analyzed during this analysis run.

The MS/MSD %R for Endrin was greater than the upper quality control limit. No action was taken since sample results were reported as nondetected.

The %D between the GC columns for gamma-chlordane was greater than 25% for the MS sample. No action was taken for this noncompliance.

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

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

OVERALL ASSESSMENT

Laboratory Performance: The laboratory was unable to obtain acceptable percent differences between initial and continuing calibration response factors for one volatile compound. Surrogate recoveries for thirteen samples in the pesticide/PCB fraction were above the upper quality control limit.

Other Factors Affecting Data Quality: One volatile and pesticide compound did not meet the quality control limits during MS/MSD analysis.

The data for these analyses were reviewed with reference to the Region I EPA "Volatile and Semivolatile Data Validation Functional Guidelines - Part II" (12/96).

"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)."

Kathy A. Landkrohn

TetraTech NUS
Kathy A. Landkrohn
Environmental Scientist

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

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

NSB NEW LONDON

SDG E62513

TABLE I. Summary of Tentatively Identified Volatile Compounds

TIC	2LGW20S-02	2WGW21S-02	2WGW38DS-02	2WGW39DS-02	2WGW40DS-02
Methanethiol					X
1-Butanol				X	
1-Hexanol				X	
Carbonyl sulfide		X			

TIC	2WGW41DS-02	2WGW42DS-02	2WGW43DS-02	2WGW46DS-02	2WGW47DS-02
Carbonyl sulfide	X				

TIC	2WGW4SD-02	3GW12D-02	3GW12S-02	3GW37S-02	4GW01S-02

TIC	GWFD012200	GWFD012400	TB012000	TB012400

APPENDIX A

QUALIFIED LABORATORY RESULTS

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2LGW20S-02			2WGW21S-02			2WGW38DS-02			2WGW39DS-02		
SAMPLE DATE:	01/22/00			01/23/00			01/21/00			01/21/00		
LABORATORY ID:	E62513-7			E62513-12			E62513-4			E62513-3		
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:	GWFD012200											
	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	U		1	U		1	U		1	U	
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	U		5	U		5	U		7		
2-HEXANONE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	5	U		5	U		5	U		42		
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	UJ	C	1	U		1	UJ	C	1	UJ	C
CARBON DISULFIDE	1	U		1	U		1	U		1		
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	2	U		2	U		2	U		1	J	P
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE							1	U			U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2LGW20S-02			2WGW21S-02			2WGW38DS-02			2WGW39DS-02		
SAMPLE DATE:	01/22/00			01/23/00			01/21/00			01/21/00		
LABORATORY ID:	E62513-7			E62513-12			E62513-4			E62513-3		
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:	GWFD012200											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TOLUENE	1	U		1	U		1	U		1		
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW40DS-02			2WGW41DS-02			2WGW42DS-02			2WGW43DS-02		
SAMPLE DATE:	01/21/00			01/21/00			01/21/00			01/22/00		
LABORATORY ID:	E62513-2			E62513-5			E62513-6			E62513-10		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
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	U		1	U		1	U		1	U	
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	6			5	U		5	U		8		
2-HEXANONE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	13			5	U		5	U		34		
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	UJ	D	1	U		1	U	
BROMOMETHANE	1	UJ	C	1	UJ	C	1	U		1	UJ	C
CARBON DISULFIDE	1			1			3			5		
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	2	U		2	U		2	U		2	U	
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE							1	U			U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW40DS-02			2WGW41DS-02			2WGW42DS-02			2WGW43DS-02		
SAMPLE DATE:	01/21/00			01/21/00			01/21/00			01/22/00		
LABORATORY ID:	E62513-2			E62513-5			E62513-6			E62513-10		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TOLUENE	1	U		1	U		0.7	J	P	1	U	
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

/50

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW46DS-02			2WGW47DS-02			2WGW4SD-02			3GW12D-02		
SAMPLE DATE:	01/24/00			01/24/00			01/23/00			01/24/00		
LABORATORY ID:	E62513-31			E62513-32			E62513-13			E62513-29		
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	U		1	U		1	U		1	U	
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	U		5	U		5	U		5	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	5	U		5	U		6			5	U	
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	2			1	U		2			1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	2	U		2	U		2	U		2	U	
STYRENE	1	U		1	U		1	U		1	U	
TE ILOR NE							1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW46DS-02			2WGW47DS-02			2WGW4SD-02			3GW12D-02		
SAMPLE DATE:	01/24/00			01/24/00			01/23/00			01/24/00		
LABORATORY ID:	E62513-31			E62513-32			E62513-13			E62513-29		
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												
TOLUENE	1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	3GW12S-02			3GW37S-02			4GW01S-02			GWFD012200		
SAMPLE DATE:	01/24/00			01/22/00			01/23/00			01/22/00		
LABORATORY ID:	E62513-28			E62513-8			E62513-11			E62513-9		
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:										2LGW20S-02-F		
	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	U		1	U		1	U		1	U	
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	U		5	U		5	U		5	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	5	U		5	U		5	U		5	U	
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	UJ	C	1	UJ	C	1	U	
CARBON DISULFIDE	1	U		1	U		1	U		1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1			1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	2	U		2	U		2	U		2	U	
STYRENE	1	U		1	U		1	U		1	U	
TE[illegible]HLOR[illegible]ENE	[illegible]	[illegible]		[illegible]	[illegible]		1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	3GW12S-02			3GW37S-02			4GW01S-02			GWFD012200		
SAMPLE DATE:	01/24/00			01/22/00			01/23/00			01/22/00		
LABORATORY ID:	E62513-28			E62513-8			E62513-11			E62513-9		
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:										2LGW20S-02-F		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TOLUENE	1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1			1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	GWFD012400			TB012000			TB012400			/ /		
SAMPLE DATE:	01/24/00			01/23/00			01/24/00					
LABORATORY ID:	E62513-30			E62513-1			E62513-27					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	3GW12S-02											
	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	U		1	U		1	U				
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	U		5	U		5	U				
2-HEXANONE	5	U		5	U		5	U				
4-METHYL-2-PENTANONE	5	U		5	U		5	U				
ACETONE	5	U		5	U		5	U				
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	U		1	U		1	U				
CHLOROFORM	1	U		1	U		1	U				
CHLOROMETHANE	1	U		1	U		1	U				
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U				
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U				
DIBROMOCHLOROMETHANE	1	U		1	U		1	U				
ETHYLBENZENE	2	U		2	U		2	U				
METHYLENE CHLORIDE	1	U		1	U		1	U				
STYRENE							1	U				

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	GWFD012400			TB012000			TB012400			/ /		
SAMPLE DATE:	01/24/00			01/23/00			01/24/00					
LABORATORY ID:	E62513-30			E62513-1			E62513-27					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	3GW12S-02											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
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	1	U		1	U		1	U				
VINYL CHLORIDE	1	U		1	U		1	U				
XYLENES, TOTAL	1	U		1	U		1	U				

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2LGW20S-02			2WGW21S-02			2WGW38DS-02			2WGW39DS-02		
SAMPLE DATE:	01/22/00			01/23/00			01/25/00			01/21/00		
LABORATORY ID:	E62513-7			E62513-12			E62513-33			E62513-3		
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	0.021	U		3.2			0.021	U		0.021	U	
4,4'-DDE	0.021	U		0.2	U		0.021	U		0.021	U	
4,4'-DDT	0.021	U		0.2	U		0.021	U		0.021	U	
ALDRIN	0.01	U		0.1	U		0.01	U		0.01	U	
ALPHA-BHC	0.01	U		0.1	U		0.01	U		0.01	U	
ALPHA-CHLORDANE	0.01	U		0.01	U		0.01	U		0.01	U	
AROCLOR-1016	0.21	U		0.21	U		0.21	U		0.21	U	
AROCLOR-1221	0.42	U		0.42	U		0.42	U		0.42	U	
AROCLOR-1232	0.21	U		2	U		0.21	U		0.21	U	
AROCLOR-1242	0.21	U		2	U		0.21	U		0.21	U	
AROCLOR-1248	0.21	U		0.21	U		0.21	U		0.21	U	
AROCLOR-1254	0.21	U		2	U		0.21	U		0.21	U	
AROCLOR-1260	0.21	U		2	U		0.21	U		0.21	U	
BETA-BHC	0.01	U		0.1	U		0.01	U		0.01	U	
DELTA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
DIELDRIN	0.021	U		0.2	U		0.021	U		0.021	U	
ENDOSULFAN I	0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN II	0.021	U		0.021	U		0.021	U		0.021	U	
ENDOSULFAN SULFATE	0.021	U		0.021	U		0.021	U		0.021	U	
ENDRIN	0.021	U		0.021	U		0.021	U		0.021	U	
ENDRIN ALDEHYDE	0.021	U		0.021	U		0.021	U		0.021	U	
ENDRIN KETONE	0.021	U		0.021	U		0.021	U		0.021	U	
GAMMA-BHC (LINDANE)	0.01	U		0.1	U		0.01	U		0.01	U	
GAMMA-CHLORDANE	0.01	U		0.1	U		0.01	U		0.01	U	
HEPTACHLOR	0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE	0.01	U		0.1	U		0.01	U		0.01	U	
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	1	U		10	U		1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW40DS-02			2WGW41DS-02			2WGW42DS-02			2WGW43DS-02		
SAMPLE DATE:	01/21/00			01/21/00			01/21/00			01/22/00		
LABORATORY ID:	E62513-2			E62513-5			E62513-6			E62513-10		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.021	U		0.021	U		0.021	U		0.021	U	
4,4'-DDE	0.021	U		0.021	U		0.021	U		0.021	U	
4,4'-DDT	0.021	U		0.021	U		0.021	U		0.021	U	
ALDRIN	0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-CHLORDANE	0.01	U		0.01	U		0.01	U		0.01	U	
AROCLOR-1016	0.21	U		0.21	U		0.21	U		0.21	U	
AROCLOR-1221	0.42	U		0.42	U		0.42	U		0.42	U	
AROCLOR-1232	0.21	U		0.21	U		0.21	U		0.21	U	
AROCLOR-1242	0.21	U		0.21	U		0.21	U		0.21	U	
AROCLOR-1248	0.21	U		0.21	U		0.21	U		0.21	U	
AROCLOR-1254	0.21	U		0.21	U		0.21	U		0.21	U	
AROCLOR-1260	0.21	U		0.21	U		0.21	U		0.21	U	
BETA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
DELTA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
DIELDRIN	0.021	U		0.021	U		0.021	U		0.021	U	
ENDOSULFAN I	0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN II	0.021	U		0.021	U		0.021	U		0.021	U	
ENDOSULFAN SULFATE	0.021	U		0.021	U		0.021	U		0.021	U	
ENDRIN	0.021	U		0.021	U		0.021	U		0.021	U	
ENDRIN ALDEHYDE	0.021	U		0.021	U		0.021	U		0.021	U	
ENDRIN KETONE	0.021	U		0.021	U		0.021	U		0.021	U	
GAMMA-BHC (LINDANE)	0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-CHLORDANE	0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR	0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE	0.01	U		0.01	U		0.01	U		0.01	U	
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	1	U		1	U		1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW46DS-02			2WGW47DS-02			2WGW4SD-02			3GW12D-02		
SAMPLE DATE:	01/24/00			01/24/00			01/23/00			01/24/00		
LABORATORY ID:	E62513-31			E62513-32			E62513-13			E62513-29		
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	0.021	U		0.02	U		0.022	U		0.02	U	
4,4'-DDE	0.021	U		0.02	U		0.022	U		0.02	U	
4,4'-DDT	0.021	U		0.02	U		0.022	U		0.02	U	
ALDRIN	0.01	U		0.01	U		0.011	U		0.01	U	
ALPHA-BHC	0.01	U		0.01	U		0.011	U		0.01	U	
ALPHA-CHLORDANE	0.01	U		0.01	U		0.011	U		0.01	U	
AROCLOR-1016	0.21	U		0.2	U		0.22	U		0.2	U	
AROCLOR-1221	0.42	U		0.4	U		0.44	U		0.4	U	
AROCLOR-1232	0.21	U		0.2	U		0.22	U		0.2	U	
AROCLOR-1242	0.21	U		0.2	U		0.22	U		0.2	U	
AROCLOR-1248	0.21	U		0.2	U		0.22	U		0.2	U	
AROCLOR-1254	0.21	U		0.2	U		0.22	U		0.2	U	
AROCLOR-1260	0.21	U		0.2	U		0.22	U		0.2	U	
BETA-BHC	0.01	U		0.01	U		0.011	U		0.01	U	
DELTA-BHC	0.01	U		0.01	U		0.011	U		0.01	U	
DIELDRIN	0.021	U		0.02	U		0.022	U		0.02	U	
ENDOSULFAN I	0.01	U		0.01	U		0.011	U		0.01	U	
ENDOSULFAN II	0.021	U		0.02	U		0.022	U		0.02	U	
ENDOSULFAN SULFATE	0.021	U		0.02	U		0.022	U		0.02	U	
ENDRIN	0.021	U		0.02	U		0.022	U		0.02	U	
ENDRIN ALDEHYDE	0.021	U		0.02	U		0.022	U		0.02	U	
ENDRIN KETONE	0.021	U		0.02	U		0.022	U		0.02	U	
GAMMA-BHC (LINDANE)	0.01	U		0.01	U		0.011	U		0.01	U	
GAMMA-CHLORDANE	0.01	U		0.01	U		0.011	U		0.01	U	
HEPTACHLOR	0.01	U		0.01	U		0.011	U		0.01	U	
HEPTACHLOR EPOXIDE	0.01	U		0.01	U		0.011	U		0.01	U	
METHOXYCHLOR	0.1	U		0.1	U		0.011	U		0.1	U	
TOXAPHENE	1	U		1	U		1.1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	3GW12S-02			3GW37S-02			4GW01S-02			GWFD012200		
SAMPLE DATE:	01/24/00			01/22/00			01/23/00			01/22/00		
LABORATORY ID:	E62513-28			E62513-8			E62513-11			E62513-9		
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:										2LGW20S-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.02	U		0.02	U		0.021	U		0.021	U	
4,4'-DDE	0.02	U		0.02	U		0.021	U		0.021	U	
4,4'-DDT	0.02	U		0.02	U		0.021	U		0.021	U	
ALDRIN	0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
ALPHA-CHLORDANE	0.01	U		0.01	U		0.01	U		0.01	U	
AROCLOR-1016	0.2	U		0.2	U		0.21	U		0.21	U	
AROCLOR-1221	0.4	U		0.4	U		0.42	U		0.42	U	
AROCLOR-1232	0.2	U		0.2	U		0.21	U		0.21	U	
AROCLOR-1242	0.2	U		0.2	U		0.21	U		0.21	U	
AROCLOR-1248	0.2	U		0.2	U		0.21	U		0.21	U	
AROCLOR-1254	0.2	U		0.2	U		0.21	U		0.21	U	
AROCLOR-1260	0.2	U		0.2	U		0.21	U		0.21	U	
BETA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
DELTA-BHC	0.01	U		0.01	U		0.01	U		0.01	U	
DIELDRIN	0.02	U		0.02	U		0.021	U		0.021	U	
ENDOSULFAN I	0.01	U		0.01	U		0.01	U		0.01	U	
ENDOSULFAN II	0.02	U		0.02	U		0.021	U		0.021	U	
ENDOSULFAN SULFATE	0.02	U		0.02	U		0.021	U		0.021	U	
ENDRIN	0.02	U		0.02	U		0.021	U		0.021	U	
ENDRIN ALDEHYDE	0.02	U		0.02	U		0.021	U		0.021	U	
ENDRIN KETONE	0.02	U		0.02	U		0.021	U		0.021	U	
GAMMA-BHC (LINDANE)	0.01	U		0.01	U		0.01	U		0.01	U	
GAMMA-CHLORDANE	0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR	0.01	U		0.01	U		0.01	U		0.01	U	
HEPTACHLOR EPOXIDE	0.01	U		0.01	U		0.01	U		0.01	U	
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	1	U		1	U		1	U		1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	GWFD012400			
SAMPLE DATE:	01/24/00	/ /	/ /	/ /
LABORATORY ID:	E62513-30			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L			
FIELD DUPLICATE OF:	3GW12S-02			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.02	U										
4,4'-DDE	0.02	U										
4,4'-DDT	0.02	U										
ALDRIN	0.01	U										
ALPHA-BHC	0.01	U										
ALPHA-CHLORDANE	0.01	U										
AROCLOR-1016	0.2	U										
AROCLOR-1221	0.4	U										
AROCLOR-1232	0.2	U										
AROCLOR-1242	0.2	U										
AROCLOR-1248	0.2	U										
AROCLOR-1254	0.2	U										
AROCLOR-1260	0.2	U										
BETA-BHC	0.01	U										
DELTA-BHC	0.01	U										
DIELDRIN	0.02	U										
ENDOSULFAN I	0.01	U										
ENDOSULFAN II	0.02	U										
ENDOSULFAN SULFATE	0.02	U										
ENDRIN	0.02	U										
ENDRIN ALDEHYDE	0.02	U										
ENDRIN KETONE	0.02	U										
GAMMA-BHC (LINDANE)	0.01	U										
GAMMA-CHLORDANE	0.01	U										
HEPTACHLOR	0.01	U										
HEPTACHLOR EPOXIDE	0.01	U										
METHOXYCHLOR	0.1	U										
TOXAPHENE	1	U										

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **MARK MENGEL** **DATE: APRIL 10, 2000**

FROM: **LINDA KARSONOVICH** **COPIES: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION: SVOA/PAH**
CTO 203, NEW LONDON
SDG E62513A

SAMPLES: 17/Aqueous/

2LGW20S-02	2WGW21S-02	2WGW38DS-02	2WGW39DS-02
2WGW40DS-02	2WGW41DS-02	2WGW42DS-02	2WGW43DS-02
2WGW46DS-02	2WGW47DS-02	2WGW4SD-02	3GW12D-02
3GW12S-02	3GW37S-02	4GW01S-02	GWFD012200
GWFD012400			

Overview

The sample set for the CTO 203, New London, SDG E62513A consists of seventeen (17) aqueous environmental samples. All samples were analyzed for selected semivolatile organic compounds and polynuclear aromatic hydrocarbons (PAH). Two field duplicate pairs were included in the SDG: GWFD012200 and 2LGW20S-02; and GWFD012400 and 3GW12S-02.

The samples were collected by TetraTech NUS on January 21-24, 2000 and were analyzed by Accutest. Analyses were conducted using SW-846 Methods 8270C and 8310 analytical and reporting protocols.

The data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • GC/MS Tuning
* • Calibration
* • Blanks
* • Surrogate Spike Recoveries
  • Matrix Spike/Matrix Spike Duplicate Results
  • Blank Spike Results
* • Field Duplicate Precision
* • Internal Standards Performance
* • Instrument Performance
* • Compound Identification
* • Compound Quantitation
* • Detection Limits

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report. The attached Table I summarizes the validation qualifications which were based on the following information:

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Several compounds fell below the lower quality control limits in the semivolatile MS/MSD. The compounds were not detected in the unspiked samples. Nondetected results for 4,6-dinitro-2-methylphenol, 3-nitroaniline, and pentachlorophenol were qualified as estimated, UJ, in the unspiked sample 2LGW20S-02.

BLANK SPIKE RESULTS

Several compounds fell below the lower quality control limits in the semivolatile blank spikes. The compounds were not detected in the unspiked samples. Nondetected results for phenol and benzoic acid were qualified as estimated, UJ, in samples associated with batch OP-6795 extracted on 01/26/00. Nondetected results for 4,6-dinitro-2-methylphenol, pentachlorophenol, 3,3'-dichlorobenzidine, and 3-nitroaniline were qualified as estimated, UJ, in samples associated with batch OP-6799 extracted on 01/27/00.

ADDITIONAL COMMENTS

Positive results reported at concentrations below the CRQL were qualified as estimated, (J).

Sample 2WGW38DS was not extracted and analyzed for PAH due to lack of sample volume. The PAHs were reported as part of the SVOC fraction for this sample only.

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

OVERALL ASSESSMENT

Laboratory Performance: All data quality parameters were met for this fraction. No qualifiers were assigned.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the Region I EPA "Volatile and Semivolatile Data Validation Functional Guidelines - Part II" (12/96).

"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)."

TetraTech NUS

Linda Karsonovich
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

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

FIELD DUPLICATES

PARAMETER	COMPOUND	GWFD012200	2LGW20S-02	%RPD
SVOC		ND	ND	
PAH		ND	ND	

PARAMETER	COMPOUND	GWFD012400	3GW37S-02	%RPD
SVOC	benzoic acid	20 U	1.8 J	NC
PAH		ND	ND	

ND – Not Detected
NC – Not Calculated, positive result less than the reporting limit.

Qualifier Codes:

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

APPENDIX A

QUALIFIED LABORATORY RESULTS

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2LGW20S-02			2WGW21S-02			2WGW39DS-02			2WGW40DS-02		
SAMPLE DATE:	01/22/00			01/23/00			01/21/00			01/21/00		
LABORATORY ID:	E62513-7A			E62513-12A			E62513-3A			E62513-2A		
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												
1-METHYLNAPHTHALENE	1.1	U		1.1	U		1.1	U		1.2	U	
2-METHYLNAPHTHALENE	1.1	U		1.1	U		1.1	U		1.2	U	
ACENAPHTHENE	1.1	U		1.1	U		1.1	U		1.2	U	
ACENAPHTHYLENE	1.1	U		1.1	U		1.1	U		1.2	U	
ANTHRACENE	1.1	U		1.1	U		1.1	U		1.2	U	
BENZO(A)ANTHRACENE	0.17	U		0.17	U		0.17	U		0.19	U	
BENZO(A)PYRENE	0.17	U		0.17	U		0.17	U		0.19	U	
BENZO(B)FLUORANTHENE	0.17	U		0.17	U		0.17	U		0.19	U	
BENZO(G,H,I)PERYLENE	0.17	U		0.17	U		0.17	U		0.19	U	
BENZO(K)FLUORANTHENE	0.17	U		0.17	U		0.17	U		0.19	U	
CHRYSENE	0.17	U		0.17	U		0.17	U		0.19	U	
DIBENZO(A,H)ANTHRACENE	0.17	U		0.17	U		0.17	U		0.19	U	
FLUORANTHENE	1.1	U		1.1	U		1.1	U		1.2	U	
FLUORENE	1.1	U		1.1	U		1.1	U		1.2	U	
INDENO(1,2,3-CD)PYRENE	0.17	U		0.17	U		0.17	U		0.19	U	
NAPHTHALENE	1.1	U		1.1	U		1.1	U		1.2	U	
PHENANTHRENE	1.1	U		1.1	U		1.1	U		1.2	U	
PYRENE	1.1	U		1.1	U		1.1	U		1.2	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2WGW41DS-02			2WGW42DS-02			2WGW43DS-02			2WGW46DS-02		
SAMPLE DATE:	01/21/00			01/21/00			01/22/00			01/24/00		
LABORATORY ID:	E62513-5A			E62513-6A			E62513-10A			E62513-31A		
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												
1-METHYLNAPHTHALENE	1.1	U		1.1	U		1.2	U		1.2	U	
2-METHYLNAPHTHALENE	1.1	U		1.1	U		1.2	U		1.2	U	
ACENAPHTHENE	1.1	U		1.1	U		1.2	U		1.2	U	
ACENAPHTHYLENE	1.1	U		1.1	U		1.2	U		1.2	U	
ANTHRACENE	1.1	U		1.1	U		1.2	U		1.2	U	
BENZO(A)ANTHRACENE	0.17	U		0.17	U		0.19	U		0.17	U	
BENZO(A)PYRENE	0.17	U		0.17	U		0.19	U		0.17	U	
BENZO(B)FLUORANTHENE	0.17	U		0.17	U		0.19	U		0.17	U	
BENZO(G,H,I)PERYLENE	0.17	U		0.17	U		0.19	U		0.17	U	
BENZO(K)FLUORANTHENE	0.17	U		0.17	U		0.19	U		0.17	U	
CHRYSENE	0.17	U		0.17	U		0.19	U		0.17	U	
DIBENZO(A,H)ANTHRACENE	0.17	U		0.17	U		0.19	U		0.17	U	
FLUORANTHENE	1.1	U		1.1	U		1.2	U		1.2	U	
FLUORENE	1.1	U		1.1	U		1.2	U		1.2	U	
INDENO(1,2,3-CD)PYRENE	0.17	U		0.17	U		0.19	U		0.17	U	
NAPHTHALENE	1.1	U		1.1	U		1.2	U		1.2	U	
PHENANTHRENE	1.1	U		1.1	U		1.2	U		1.2	U	
PYRENE	1.1	U		1.1	U		1.2	U		1.2	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2WGW47DS-02			2WGW4SD-02			3GW12D-02			3GW12S-02		
SAMPLE DATE:	01/24/00			01/23/00			01/24/00			01/24/00		
LABORATORY ID:	E62513-32A			E62513-13A			E62513-29A			E62513-28A		
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												
1-METHYLNAPHTHALENE	1	U		1.1	U		1.1	U		1.2	U	
2-METHYLNAPHTHALENE	1	U		1.1	U		1.1	U		1.2	U	
ACENAPHTHENE	1	U		1.1	U		1.1	U		1.2	U	
ACENAPHTHYLENE	1	U		1.1	U		1.1	U		1.2	U	
ANTHRACENE	1	U		1.1	U		1.1	U		1.2	U	
BENZO(A)ANTHRACENE	0.15	U		0.17	U		0.16	U		0.17	U	
BENZO(A)PYRENE	0.15	U		0.17	U		0.16	U		0.17	U	
BENZO(B)FLUORANTHENE	0.15	U		0.17	U		0.16	U		0.17	U	
BENZO(G,H,I)PERYLENE	0.15	U		0.17	U		0.16	U		0.17	U	
BENZO(K)FLUORANTHENE	0.15	U		0.17	U		0.16	U		0.17	U	
CHRYSENE	0.15	U		0.17	U		0.16	U		0.17	U	
DIBENZO(A,H)ANTHRACENE	0.15	U		0.17	U		0.16	U		0.17	U	
FLUORANTHENE	1	U		1.1	U		1.1	U		1.2	U	
FLUORENE	1	U		1.1	U		1.1	U		1.2	U	
INDENO(1,2,3-CD)PYRENE	0.15	U		0.17	U		0.16	U		0.17	U	
NAPHTHALENE	1	U		1.1	U		1.1	U		1.2	U	
PHENANTHRENE	1	U		1.1	U		1.1	U		1.2	U	
PYRENE	1	U		1.1	U		1.1	U		1.2	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	3GW37S-02	4GW01S-02	GWFD012200	GWFD012400
SAMPLE DATE:	01/22/00	01/23/00	01/22/00	01/24/00
LABORATORY ID:	E62513-8A	E62513-11A	E62513-9A	E62513-30A
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												
1-METHYLNAPHTHALENE	1	U		1.1	U		1	U		1.1	U	
2-METHYLNAPHTHALENE	1	U		1.1	U		1	U		1.1	U	
ACENAPHTHENE	1	U		1.1	U		1	U		1.1	U	
ACENAPHTHYLENE	1	U		1.1	U		1	U		1.1	U	
ANTHRACENE	1	U		1.1	U		1	U		1.1	U	
BENZO(A)ANTHRACENE	0.16	U		0.17	U		0.16	U		0.17	U	
BENZO(A)PYRENE	0.16	U		0.17	U		0.16	U		0.17	U	
BENZO(B)FLUORANTHENE	0.16	U		0.17	U		0.16	U		0.17	U	
BENZO(G,H,I)PERYLENE	0.16	U		0.17	U		0.16	U		0.17	U	
BENZO(K)FLUORANTHENE	0.16	U		0.17	U		0.16	U		0.17	U	
CHRYSENE	0.16	U		0.17	U		0.16	U		0.17	U	
DIBENZO(A,H)ANTHRACENE	0.16	U		0.17	U		0.16	U		0.17	U	
FLUORANTHENE	1	U		1.1	U		1	U		1.1	U	
FLUORENE	1	U		1.1	U		1	U		1.1	U	
INDENO(1,2,3-CD)PYRENE	0.16	U		0.17	U		0.16	U		0.17	U	
NAPHTHALENE	1	U		1.1	U		1	U		1.1	U	
PHENANTHRENE	1	U		1.1	U		1	U		1.1	U	
PYRENE	1	U		1.1	U		1	U		1.1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2LGW20S-02			2WGW21S-02			2WGW38DS-02			2WGW39DS-02		
SAMPLE DATE:	01/22/00			01/23/00			01/21/00			01/21/00		
LABORATORY ID:	E62513-7A			E62513-12A			E62513-4A			E62513-3A		
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	2.1	U		2.1	U		2	U		2	U	
1,2-DICHLOROBENZENE	2.1	U		2.1	U		2	U		2	U	
1,3-DICHLOROBENZENE	2.1	U		2.1	U		2	U		2	U	
1,4-DICHLOROBENZENE	2.1	U		2.1	U		2	U		2	U	
2,4,5-TRICHLOROPHENOL	5.3	U		5.2	U		5	U		5	U	
2,4,6-TRICHLOROPHENOL	5.3	U		5.2	U		5	U		5	U	
2,4-DICHLOROPHENOL	5.3	U		5.2	U		5	U		5	U	
2,4-DIMETHYLPHENOL	5.3	U		5.2	U		5	U		5	U	
2,4-DINITROPHENOL	21	U		21	U		20	U		20	U	
2,4-DINITROTOLUENE	2.1	U		2.1	U		2	U		2	U	
2,6-DINITROTOLUENE	2.1	U		2.1	U		2	U		2	U	
2-CHLORONAPHTHALENE	5.3	U		5.2	U		5	U		5	U	
2-CHLOROPHENOL	5.3	U		5.2	U		5	U		5	U	
2-METHYLNAPHTHALENE							2	U				
2-METHYLPHENOL	5.3	U		5.2	U		5	U		5	U	
2-NITROANILINE	5.3	U		5.2	U		5	U		5	U	
2-NITROPHENOL	5.3	U		5.2	U		5	U		5	U	
3&4-METHYLPHENOL	5.3	U		5.2	U		5	U		3.5	J	P
3,3'-DICHLOROBENZIDINE	5.3	UJ	E	5.2	UJ	E	5	UJ	E	5	UJ	E
3-NITROANILINE	5.3	UJ	DE	5.2	UJ	E	5	UJ	E	5	UJ	E
4,6-DINITRO-2-METHYLPHENOL	21	UJ	DE	21	UJ	E	20	UJ	E	20	UJ	E
4-BROMOPHENYL PHENYL ETHER	2.1	U		2.1	U		2	U		2	U	
4-CHLORO-3-METHYLPHENOL	5.3	U		5.2	U		5	U		5	U	
4-CHLOROANILINE	5.3	U		5.2	U		5	U		5	U	
4-CHLOROPHENYL PHENYL ETHER	2.1	U		2.1	U		2	U		2	U	
4-NITROANILINE	5.3	U		5.2	U		5	U		5	U	
4-NITROPHENOL	21	U		21	U		20	U		20	U	
ACENAPHTHENE							2	U				
ACENAPHTHYLENE							2	U				
ANTHRACENE							2	U				
BENZO(A)ANTHRACENE							2	U				
BENZO(A)PYRENE							2	U				
BENZO(B)FLUORANTHENE							2	U				
BENZO(G,H,I)PERYLENE							2	U				

CTO203 - NSB NEW LONDON

SDG:

SAMPLE NUMBER:	2LGW20S-02			2WGW21S-02			2WGW38DS-02			2WGW39DS-02		
SAMPLE DATE:	01/22/00			01/23/00			01/21/00			01/21/00		
LABORATORY ID:	E62513-7A			E62513-12A			E62513-4A			E62513-3A		
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												
BENZO(K)FLUORANTHENE							2	U				
BENZOIC ACID	21	U		21	U		20	U		14.5	J	P
BIS(2-CHLOROETHOXY)METHANE	2.1	U		2.1	U		2	U		2	U	
BIS(2-CHLOROETHYL)ETHER	2.1	U		2.1	U		2	U		2	U	
BIS(2-CHLOROISOPROPYL) ETHER	2.1	U		2.1	U		2	U		2	U	
BIS(2-ETHYLHEXYL)PHTHALATE	2.1	U		2.1	U		2	U		2	U	
BUTYLBENZYL PHTHALATE	2.1	U		2.1	U		2	U		2	U	
CARBAZOLE	2.1	U		2.1	U		2	U		2	U	
CHRYSENE							2	U				
DI-N-BUTYL PHTHALATE	2.1	U		2.1	U		2	U		2	U	
DI-N-OCTYL PHTHALATE	2.1	U		2.1	U		2	U		2	U	
DIBENZO(A,H)ANTHRACENE							2	U				
DIBENZOFURAN	5.3	U		5.2	U		5	U		5	U	
DIETHYL PHTHALATE	2.1	U		2.1	U		2	U		2	U	
DIMETHYL PHTHALATE	2.1	U		2.1	U		2	U		2	U	
FLUORANTHENE							2	U				
FLUORENE							2	U				
HEXACHLOROBENZENE	2.1	U		2.1	U		2	U		2	U	
HEXACHLOROBUTADIENE	5.3	U		5.2	U		5	U		5	U	
HEXACHLOROCYCLOPENTADIENE	21	U		21	U		20	U		20	U	
HEXACHLOROETHANE	5.3	U		5.2	U		5	U		5	U	
INDENO(1,2,3-CD)PYRENE							2	U				
ISOPHORONE	2.1	U		2.1	U		2	U		2	U	
N-NITROSO-DI-N-PROPYLAMINE	5.3	U		5.2	U		5	U		5	U	
N-NITROSODIPHENYLAMINE	5.3	U		5.2	U		5	U		5	U	
NAPHTHALENE							2	U				
NITROBENZENE	2.1	U		2.1	U		2	U		2	U	
PENTACHLOROPHENOL	21	UJ	DE	21	UJ	E	20	UJ	E	20	UJ	E
PHENANTHRENE							2	U				
PHENOL	5.3	U		5.2	U		5	U		5	U	
PYRENE							2	U				

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2WGW40DS-02			2WGW41DS-02			2WGW42DS-02			2WGW43DS-02		
SAMPLE DATE:	01/21/00			01/21/00			01/21/00			01/22/00		
LABORATORY ID:	E62513-2A			E62513-5A			E62513-6A			E62513-10A		
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	2	U		2	U		2	U		2.1	U	
1,2-DICHLOROBENZENE	2	U		2	U		2	U		2.1	U	
1,3-DICHLOROBENZENE	2	U		2	U		2	U		2.1	U	
1,4-DICHLOROBENZENE	2	U		2	U		2	U		2.1	U	
2,4,5-TRICHLOROPHENOL	5.1	U		5.1	U		5	U		5.2	U	
2,4,6-TRICHLOROPHENOL	5.1	U		5.1	U		5	U		5.2	U	
2,4-DICHLOROPHENOL	5.1	U		5.1	U		5	U		5.2	U	
2,4-DIMETHYLPHENOL	5.1	U		5.1	U		5	U		5.2	U	
2,4-DINITROPHENOL	20	U		20	U		20	U		21	U	
2,4-DINITROTOLUENE	2	U		2	U		2	U		2.1	U	
2,6-DINITROTOLUENE	2	U		2	U		2	U		2.1	U	
2-CHLORONAPHTHALENE	5.1	U		5.1	U		5	U		5.2	U	
2-CHLOROPHENOL	5.1	U		5.1	U		5	U		5.2	U	
2-METHYLPHENOL	5.1	U		5.1	U		5	U		0.93	J	P
2-NITROANILINE	5.1	U		5.1	U		5	U		5.2	U	
2-NITROPHENOL	5.1	U		5.1	U		5	U		5.2	U	
3&4-METHYLPHENOL	5.1	U		5.1	U		5	U		0.86	J	P
3,3'-DICHLOROBENZIDINE	5.1	UJ	E	5.1	UJ	E	5	UJ	E	5.2	UJ	E
3-NITROANILINE	5.1	UJ	E	5.1	UJ	E	5	UJ	E	5.2	UJ	E
4,6-DINITRO-2-METHYLPHENOL	20	UJ	E	20	UJ	E	20	UJ	E	21	UJ	E
4-BROMOPHENYL PHENYL ETHER	2	U		2	U		2	U		2.1	U	
4-CHLORO-3-METHYLPHENOL	5.1	U		5.1	U		5	U		5.2	U	
4-CHLOROANILINE	5.1	U		5.1	U		5	U		5.2	U	
4-CHLOROPHENYL PHENYL ETHER	2	U		2	U		2	U		2.1	U	
4-NITROANILINE	5.1	U		5.1	U		5	U		5.2	U	
4-NITROPHENOL	20	U		20	U		20	U		21	U	
BENZOIC ACID	20	U		9.4	J	P	20	U		9.2	J	P
BIS(2-CHLOROETHOXY)METHANE	2	U		2	U		2	U		2.1	U	
BIS(2-CHLOROETHYL)ETHER	2	U		2	U		2	U		2.1	U	
BIS(2-CHLOROISOPROPYL) ETHER	2	U		2	U		2	U		2.1	U	
BIS(2-ETHYLHEXYL)PHTHALATE	2	U		2	U		2	U		1.3	J	P
BUTYLBENZYL PHTHALATE	2	U		2	U		2	U		2.1	U	
CARBAZOLE	2	U		2	U		2	U		2.1	U	
DI-N-BUTYL PHTHALATE	2	U		2	U		2	U		2.1	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2WGW40DS-02			2WGW41DS-02			2WGW42DS-02			2WGW43DS-02		
SAMPLE DATE:	01/21/00			01/21/00			01/21/00			01/22/00		
LABORATORY ID:	E62513-2A			E62513-5A			E62513-6A			E62513-10A		
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												
DI-N-OCTYL PHTHALATE	2	U		2	U		2	U		2.1	U	
DIBENZOFURAN	5.1	U		5.1	U		5	U		5.2	U	
DIETHYL PHTHALATE	2	U		2	U		2	U		2.1	U	
DIMETHYL PHTHALATE	2	U		2	U		2	U		2.1	U	
HEXACHLOROBENZENE	2	U		2	U		2	U		2.1	U	
HEXACHLOROBUTADIENE	5.1	U		5.1	U		5	U		5.2	U	
HEXACHLOROCYCLOPENTADIENE	20	U		20	U		20	U		21	U	
HEXACHLOROETHANE	5.1	U		5.1	U		5	U		5.2	U	
ISOPHORONE	2	U		2	U		2	U		2.1	U	
N-NITROSO-DI-N-PROPYLAMINE	5.1	U		5.1	U		5	U		5.2	U	
N-NITROSODIPHENYLAMINE	5.1	U		5.1	U		5	U		5.2	U	
NITROBENZENE	2	U		2	U		2	U		2.1	U	
PENTACHLOROPHENOL	20	UJ	E	20	UJ	E	20	UJ	E	21	UJ	E
PHENOL	5.1	U		5.1	U		5	U		2.8	J	P

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2WGW46DS-02			2WGW47DS-02			2WGW4SD-02			3GW12D-02		
SAMPLE DATE:	01/24/00			01/24/00			01/23/00			01/24/00		
LABORATORY ID:	E62513-31A			E62513-32A			E62513-13A			E62513-29A		
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	2	U		2	U		2.1	U		2	U	
1,2-DICHLOROBENZENE	2	U		2	U		2.1	U		2	U	
1,3-DICHLOROBENZENE	2	U		2	U		2.1	U		2	U	
1,4-DICHLOROBENZENE	2	U		2	U		2.1	U		2	U	
2,4,5-TRICHLOROPHENOL	5	U		5	U		5.3	U		5	U	
2,4,6-TRICHLOROPHENOL	5	U		5	U		5.3	U		5	U	
2,4-DICHLOROPHENOL	5	U		5	U		5.3	U		5	U	
2,4-DIMETHYLPHENOL	5	U		5	U		5.3	U		5	U	
2,4-DINITROPHENOL	20	U		20	U		21	U		20	U	
2,4-DINITROTOLUENE	2	U		2	U		2.1	U		2	U	
2,6-DINITROTOLUENE	2	U		2	U		2.1	U		2	U	
2-CHLORONAPHTHALENE	5	U		5	U		5.3	U		5	U	
2-CHLOROPHENOL	5	U		5	U		5.3	U		5	U	
2-METHYLPHENOL	5	U		5	U		5.3	U		5	U	
2-NITROANILINE	5	U		5	U		5.3	U		5	U	
2-NITROPHENOL	5	U		5	U		5.3	U		5	U	
3&4-METHYLPHENOL	4.9	J	P	5	U		5.3	U		5	U	
3,3'-DICHLOROBENZIDINE	5	U		5	U		5.3	UJ	E	5	U	
3-NITROANILINE	5	U		5	U		5.3	UJ	E	5	U	
4,6-DINITRO-2-METHYLPHENOL	20	U		20	U		21	UJ	E	20	U	
4-BROMOPHENYL PHENYL ETHER	2	U		2	U		2.1	U		2	U	
4-CHLORO-3-METHYLPHENOL	5	U		5	U		5.3	U		5	U	
4-CHLOROANILINE	5	U		5	U		5.3	U		5	U	
4-CHLOROPHENYL PHENYL ETHER	2	U		2	U		2.1	U		2	U	
4-NITROANILINE	5	U		5	U		5.3	U		5	U	
4-NITROPHENOL	20	U		20	U		21	U		20	U	
BENZOIC ACID	20	UJ	E	20	UJ	E	2.1	J	P	20	UJ	E
BIS(2-CHLOROETHOXY)METHANE	2	U		2	U		2.1	U		2	U	
BIS(2-CHLOROETHYL)ETHER	2	U		2	U		2.1	U		2	U	
BIS(2-CHLOROISOPROPYL) ETHER	2	U		2	U		2.1	U		2	U	
BIS(2-ETHYLHEXYL)PHTHALATE	2	U		2	U		2.1	U		2	U	
BUTYLBENZYL PHTHALATE	2	U		2	U		2.1	U		2	U	
CARBAZOLE	2	U		2	U		2.1	U		2	U	
DI-N-BUTYL PHTHALATE	2	U		2	U		2.1	U		2	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	2WGW46DS-02			2WGW47DS-02			2WGW4SD-02			3GW12D-02		
SAMPLE DATE:	01/24/00			01/24/00			01/23/00			01/24/00		
LABORATORY ID:	E62513-31A			E62513-32A			E62513-13A			E62513-29A		
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												
DI-N-OCTYL PHTHALATE	2	U		2	U		2.1	U		2	U	
DIBENZOFURAN	5	U		5	U		5.3	U		5	U	
DIETHYL PHTHALATE	2	U		2	U		2.1	U		2	U	
DIMETHYL PHTHALATE	2	U		2	U		2.1	U		2	U	
HEXACHLOROBENZENE	2	U		2	U		2.1	U		2	U	
HEXACHLOROBUTADIENE	5	U		5	U		5.3	U		5	U	
HEXACHLOROCYCLOPENTADIENE	20	U		20	U		21	U		20	U	
HEXACHLOROETHANE	5	U		5	U		5.3	U		5	U	
ISOPHORONE	2	U		2	U		2.1	U		2	U	
N-NITROSO-DI-N-PROPYLAMINE	5	U		5	U		5.3	U		5	U	
N-NITROSODIPHENYLAMINE	5	U		5	U		5.3	U		5	U	
NITROBENZENE	2	U		2	U		2.1	U		2	U	
PENTACHLOROPHENOL	20	U		20	U		21	UJ	E	20	U	
PHENOL	22.8	J	E	5	UJ	E	5.3	U		5	UJ	E

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	3GW12S-02			3GW37S-02			4GW01S-02			GWFD012200		
SAMPLE DATE:	01/24/00			01/22/00			01/23/00			01/22/00		
LABORATORY ID:	E62513-28A			E62513-8A			E62513-11A			E62513-9A		
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:										2LGW20S-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	2	U		2	U		2	U		2	U	
1,2-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
1,3-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
1,4-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
2,4,5-TRICHLOROPHENOL	5.1	U		5	U		5	U		5	U	
2,4,6-TRICHLOROPHENOL	5.1	U		5	U		5	U		5	U	
2,4-DICHLOROPHENOL	5.1	U		5	U		5	U		5	U	
2,4-DIMETHYLPHENOL	5.1	U		5	U		5	U		5	U	
2,4-DINITROPHENOL	20	U		20	U		20	U		20	U	
2,4-DINITROTOLUENE	2	U		2	U		2	U		2	U	
2,6-DINITROTOLUENE	2	U		2	U		2	U		2	U	
2-CHLORONAPHTHALENE	5.1	U		5	U		5	U		5	U	
2-CHLOROPHENOL	5.1	U		5	U		5	U		5	U	
2-METHYLPHENOL	5.1	U		5	U		5	U		5	U	
2-NITROANILINE	5.1	U		5	U		5	U		5	U	
2-NITROPHENOL	5.1	U		5	U		5	U		5	U	
3&4-METHYLPHENOL	5.1	U		5	U		5	U		5	U	
3,3'-DICHLOROBENZIDINE	5.1	U		5	UJ	E	5	UJ	E	5	UJ	E
3-NITROANILINE	5.1	U		5	UJ	E	5	UJ	E	5	UJ	E
4,6-DINITRO-2-METHYLPHENOL	20	U		20	UJ	E	20	UJ	E	20	UJ	E
4-BROMOPHENYL PHENYL ETHER	2	U		2	U		2	U		2	U	
4-CHLORO-3-METHYLPHENOL	5.1	U		5	U		5	U		5	U	
4-CHLOROANILINE	5.1	U		5	U		5	U		5	U	
4-CHLOROPHENYL PHENYL ETHER	2	U		2	U		2	U		2	U	
4-NITROANILINE	5.1	U		5	U		5	U		5	U	
4-NITROPHENOL	20	U		20	U		20	U		20	U	
BENZOIC ACID	20	UJ	E	1.8	J	P	20	U		20	U	
BIS(2-CHLOROETHOXY)METHANE	2	U		2	U		2	U		2	U	
BIS(2-CHLOROETHYL)ETHER	2	U		2	U		2	U		2	U	
BIS(2-CHLOROISOPROPYL) ETHER	2	U		2	U		2	U		2	U	
BIS(2-ETHYLHEXYL)PHTHALATE	2	U		2	U		2	U		2	U	
BUTYLBENZYL PHTHALATE	2	U		2	U		2	U		2	U	
CARBAZOLE	2	U		2	U		2	U		2	U	
DI-N-BUTYL PHTHALATE	2	U		2	U		2	U		2	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	3GW12S-02			3GW37S-02			4GW01S-02			GWFD012200		
SAMPLE DATE:	01/24/00			01/22/00			01/23/00			01/22/00		
LABORATORY ID:	E62513-28A			E62513-8A			E62513-11A			E62513-9A		
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:										2LGW20S-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DI-N-OCTYL PHTHALATE	2	U		2	U		2	U		2	U	
DIBENZOFURAN	5.1	U		5	U		5	U		5	U	
DIETHYL PHTHALATE	2	U		2	U		2	U		2	U	
DIMETHYL PHTHALATE	2	U		2	U		2	U		2	U	
HEXACHLOROBENZENE	2	U		2	U		2	U		2	U	
HEXACHLOROBUTADIENE	5.1	U		5	U		5	U		5	U	
HEXACHLOROCYCLOPENTADIENE	20	U		20	U		20	U		20	U	
HEXACHLOROETHANE	5.1	U		5	U		5	U		5	U	
ISOPHORONE	2	U		2	U		2	U		2	U	
N-NITROSO-DI-N-PROPYLAMINE	5.1	U		5	U		5	U		5	U	
N-NITROSODIPHENYLAMINE	5.1	U		5	U		5	U		5	U	
NITROBENZENE	2	U		2	U		2	U		2	U	
PENTACHLOROPHENOL	20	U		20	UJ	E	20	UJ	E	20	UJ	E
PHENOL	5.1	UJ	E	5	U		5	U		5	U	

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	GWFD012400											
SAMPLE DATE:	01/24/00			/ /			/ /			/ /		
LABORATORY ID:	E62513-30A											
QC_TYPE:	NORMAL											
% SOLIDS:	0.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/L											
FIELD DUPLICATE OF:	3GW12S-02											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	2	U										
1,2-DICHLOROBENZENE	2	U										
1,3-DICHLOROBENZENE	2	U										
1,4-DICHLOROBENZENE	2	U										
2,4,5-TRICHLOROPHENOL	5	U										
2,4,6-TRICHLOROPHENOL	5	U										
2,4-DICHLOROPHENOL	5	U										
2,4-DIMETHYLPHENOL	5	U										
2,4-DINITROPHENOL	20	U										
2,4-DINITROTOLUENE	2	U										
2,6-DINITROTOLUENE	2	U										
2-CHLORONAPHTHALENE	5	U										
2-CHLOROPHENOL	5	U										
2-METHYLPHENOL	5	U										
2-NITROANILINE	5	U										
2-NITROPHENOL	5	U										
3&4-METHYLPHENOL	5	U										
3,3'-DICHLOROBENZIDINE	5	U										
3-NITROANILINE	5	U										
4,6-DINITRO-2-METHYLPHENOL	20	U										
4-BROMOPHENYL PHENYL ETHER	2	U										
4-CHLORO-3-METHYLPHENOL	5	U										
4-CHLOROANILINE	5	U										
4-CHLOROPHENYL PHENYL ETHER	2	U										
4-NITROANILINE	5	U										
4-NITROPHENOL	20	U										
BENZOIC ACID	20	UJ	E									
BIS(2-CHLOROETHOXY)METHANE	2	U										
BIS(2-CHLOROETHYL)ETHER	2	U										
BIS(2-CHLOROISOPROPYL) ETHER	2	U										
BIS(2-ETHYLHEXYL)PHTHALATE	2	U										
BUTYLBENZYL PHTHALATE	2	U										
CARBAZOLE	2	U										
DI-N-BUTYL PHTHALATE	2	U										

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513A

SAMPLE NUMBER:	GWFD012400											
SAMPLE DATE:	01/24/00			/ /			/ /			/ /		
LABORATORY ID:	E62513-30A											
QC_TYPE:	NORMAL											
% SOLIDS:	0.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/L											
FIELD DUPLICATE OF:	3GW12S-02											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DI-N-OCTYL PHTHALATE	2	U										
DIBENZOFURAN	5	U										
DIETHYL PHTHALATE	2	U										
DIMETHYL PHTHALATE	2	U										
HEXACHLOROBENZENE	2	U										
HEXACHLOROBUTADIENE	5	U										
HEXACHLOROCYCLOPENTADIENE	20	U										
HEXACHLOROETHANE	5	U										
ISOPHORONE	2	U										
N-NITROSO-DI-N-PROPYLAMINE	5	U										
N-NITROSODIPHENYLAMINE	5	U										
NITROBENZENE	2	U										
PENTACHLOROPHENOL	20	U										
PHENOL	5	UJ	E									

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. MENGEL**	**DATE:**	**APRIL 10, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS AND MISCELLANEOUS PARAMETERS**
CTO 203 - NSB NEW LONDON
SDG – E62513

SAMPLES: 34/Aqueous/

2LGW20S-02	2LGW20S-02-F
2WGW21S-02	2WGW21S-02-F
2WGW38DS-02	2WGW38DS-02-F
2WGW39DS-02	2WGW39DS-02-F
2WGW40DS-02	2WGW40DS-02-F
2WGW41DS-02	2WGW41DS-02-F
2WGW42DS-02	2WGW42DS-02-F
2WGW43DS-02	2WGW43DS-02-F
2WGW46DS-02	2WGW46DS-02-F
2WGW47DS-02	2WGW47DS-02-F
2WGW4SD-02	2WGW4SD-02-F
3GW12D-02	3GW12D-02-F
3GW12S-02	3GW12S-02-F
3GW37S-02	3GW37S-02-F
4GW01S-02	4GW01S-02-F
GWFD012200	GWFD012200-F
GWFD012400	GWFD012400-F

Overview

The sample set for CTO 203, NSB New London, SDG E62513, consists of thirty-four (34) aqueous environmental samples. Four (4) field duplicate pairs (2LGW20S-02 / GWFD012200, 2LGW20S-02-F / GWFD012200-F, 3GW12S-02 / GWFD012400 and 3GW12S-02-F / GWFD012400-F) were included within this SDG.

All samples, with exception to those designated –F and sample 2WGW38DS-02, were analyzed for target analyte list (TAL) metals, chemical oxygen demand (COD), chloride, hardness, sulfate, total alkalinity, total dissolved solids (TDS) and total organic carbon (TOC). Sample 2WGW38DS-02 was analyzed for COD, chloride, sulfate, total alkalinity, TDS and TOC. The samples designated –F were analyzed for dissolved TAL metals. The samples were collected by Tetra Tech NUS on January 21-25, 2000 and analyzed by Accutest Laboratories under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses were conducted in accordance with ILM04.0 methodologies. Total alkalinity analyses were conducted using EPA method 310.1. COD analyses were conducted using EPA method 410.1. Chloride analyses were conducted using EPA method 325.3. Sulfate analyses were conducted using EPA method 375.4. TDS analyses were conducted using EPA method 160.1.

TOC analyses were conducted using EPA method 415.1. Hardness analyses were conducted using EPA method 130.1.

All analyses, with the exception of mercury, were conducted using Inductively Couples Plasma (ICP) methodologies. Mercury analyses were conducted using cold vapor AA.

The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- Calibration Verifications
- Laboratory / Field Blank Analyses
- ICP Interference Check Sample Results
- * Laboratory Control Sample Results
- Matrix Spike Results
- * Laboratory Duplicate Results
- Field Duplicate Results
- * ICP Serial Dilution Results
- * Sample Quanitation
- * Detection Limits

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

Calibration Verifications

The Contract Required Detection Limit (CRDL) Percent Recoveries (%Rs) for chromium were both above and below the 80-120% quality control limit. The nondetected results reported for chromium were qualified as estimated, "UJ".

The CRDL %Rs for arsenic were >120% quality control limit. The positive results <3X CRDL reported for arsenic were qualified as estimated, "J".

Laboratory Blank Analyses

Affected samples: All

Analyte	Maximum Concentration	Action Level(aqueous)
Aluminum	189.8µg/L	949µg/L
Antimony	4.5µg/L	22.5µg/L
Beryllium	1.6µg/L	8.0µg/L
Cadmium	1.0µg/L	5.0µg/L
Calcium	137.1µg/L	685.5µg/L
Chromium	1.4µg/L	7.0µg/L
Cobalt	1.2µg/L	6.0µg/L
Copper	1.6µg/L	8.0µg/L
Iron	51.9µg/L	259.5µg/L
Lead	2.0µg/L	10.0µg/L
Magnesium	140.9µg/L	704.5µg/L
Manganese	0.9µg/L	4.5µg/L
Potassium	224.1µg/L	1120.5µg/L
Selenium	4.6µg/L	23.0µg/L
Sodium	568.4µg/L	2842µg/L
Thallium	7.8µg/L	39.0µg/L
Vanadium	5.7µg/L	28.5µg/L

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Dilution factors and sample aliquots were taken into consideration when evaluating for blank contamination. Positive results < the action level for aluminum, antimony, beryllium, cadmium, chromium, cobalt, copper, lead, selenium, thallium and vanadium were qualified as, "U", as a result of blank contamination.

Positive and nondetected results reported for chromium, copper and nickel were qualified as estimated, "J" and "UJ", respectively, as a result of blank results >2X the negative Instrument Detection Limit (IDL).

ICP Interference Check Sample Results

The interfering analyte magnesium was present in samples 2WGW21S-02 and 2WGW40DS-02 at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, thallium, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic, barium, cadmium, chromium, lead, nickel, selenium and zinc in the affected samples. The nondetected results reported for arsenic, cadmium, chromium, lead, nickel and selenium were qualified as estimated, "UJ". The positive results reported for barium and zinc were qualified as estimated, "J".

The interfering analyte magnesium was present in sample 2WGW21S-02-F at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, thallium, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic, barium, cadmium, lead, nickel, selenium and zinc in the affected sample. The nondetected results reported for arsenic, cadmium, lead, nickel and selenium were qualified as estimated, "UJ". The positive results reported for barium and zinc were qualified as estimated, "J".

The interfering analyte magnesium was present in samples 2WGW40DS-02-F and 2WGW42DS-02-F at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, thallium, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic, barium, cadmium, lead, nickel, selenium and zinc in the affected samples. The nondetected results reported for cadmium, lead and selenium were qualified as estimated, "UJ". The positive results reported for arsenic, barium, nickel and zinc were qualified as estimated, "J".

The interfering analyte magnesium was present in samples 2WGW41DS-02, 2WGW42DS-02 and 2WGW43DS-02 at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, thallium, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic, barium, cadmium, chromium, lead, nickel, selenium and zinc in the affected samples. The nondetected results reported for cadmium, chromium, lead and selenium were qualified as estimated, "UJ". The positive results reported for arsenic, barium, nickel and zinc were qualified as estimated, "J".

The interfering analyte magnesium was present in sample 2WGW41DS-02-F at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, arsenic, barium, beryllium, cadmium, chromium,

cobalt, copper, lead, manganese, nickel, selenium, thallium, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic, barium, cadmium, lead, nickel, selenium and zinc in the affected sample. The nondetected results reported for arsenic, cadmium, lead and selenium were qualified as estimated, "UJ". The positive results reported for barium, nickel and zinc were qualified as estimated, "J".

The interfering analyte magnesium was present in sample 2WGW43DS-02-F at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, thallium, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic, barium, cadmium, chromium, lead, nickel and selenium in the affected sample. The nondetected results reported for cadmium, lead and selenium were qualified as estimated, "UJ". The positive results reported for arsenic, barium, chromium and nickel were qualified as estimated, "J".

The interfering analytes calcium and magnesium were present in samples 2WGW46DS-02 and 2WGW46DS-02-F at concentrations which were comparable to the levels of calcium and magnesium in the Interference Check Sample (ICS) solution. Several analytes namely antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, thallium, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic, barium, cadmium, lead, nickel, selenium and zinc in the affected samples. The nondetected results reported for cadmium, lead and selenium were qualified as estimated, "UJ". The positive results reported for arsenic, barium, nickel and zinc were qualified as estimated, "J".

Field Duplicate Results

Field duplicate imprecision (>30% RPD when results >5CRDL or difference between results were >2X CRDL when results <5X CRDL) was noted for chromium and iron affecting the total metals. The positive results reported for chromium and iron in the affected samples were qualified as estimated, "J".

Field duplicate imprecision (>30% RPD when results >5CRDL or difference between results were >2X CRDL when results <5X CRDL) was noted for iron and zinc affecting the filtered metals. The positive results reported for iron and zinc in the affected samples were qualified as estimated, "J".

Field duplicate imprecision (>30% RPD) was noted for TOC. The positive results reported for TOC were qualified as estimated, "J".

Other Factor Affecting Data Quality

Positive results less than 2X the IDL reported for arsenic, barium, nickel and zinc were qualified as estimated, "J".

Notes

The CRDL %Rs for lead, selenium and thallium were >120% quality control limit. However, all results reported for lead, selenium and thallium were either nondetected or qualified, "U", as a result of blank contamination. Therefore, no validation action was required.

The Matrix Spike (MS) Percent Recovery (%R) for selenium was >125% quality control limit affecting the filtered metals. However, all results reported for selenium were either nondetected or qualified, "U", as a result of blank contamination. Therefore, no validation action was required.

Sample 2WGW38DS-02 was sampled for dissolved metal but, not total metals. A problem with well volume prevented the collection of the total metals fraction.

A comparison of field duplicate pairs (2LGW20S-02 / GWFD012200, 2LGW20S-02-F / GWFD012200-F, 3GW12S-02 / GWFD012400 and 3GW12S-02-F / GWFD012400-F) is included in Appendix C.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks. Positive and nondetected results reported for chromium, copper and zinc were qualified as estimated, "J" and "UJ", respectively, as a result of blank results >2X the negative Instrument Detection Limit (IDL). The CRDL %Rs for arsenic and chromium were outside the 80-120% quality control limits.

Other Factors Affecting Data Quality: The interfering analytes calcium and/or magnesium were present in several samples. Field duplicate imprecision was noted for iron and zinc affecting the dissolved metals. Field duplicate imprecision was noted for chromium and iron affecting the dissolved metals. Field duplicate imprecision was noted for TOC. Positive results less than 2X the IDL reported for arsenic, barium, nickel and zinc were qualified as estimated, "J".

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

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

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

Gretchen A Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional 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., 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

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2LGW20S-02			2LGW20S-02-F			2WGW21S-02			2WGW21S-02-F		
SAMPLE DATE:	01/22/00			01/22/00			01/23/00			01/23/00		
LABORATORY ID:	E62513-7			E62513-19			E62513-12			E62513-24		
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	139	U	A	72.5	U		1500			72.5	U	
ANTIMONY	2.1	U		2.1	U		2.1	U		5.5	U	A
ARSENIC	2.6	U		2.6	U		2.6	UJ	K	2.6	UJ	K
BARIUM	54.5			49.8			109	J	K	92.9	J	K
BERYLLIUM	0.48	U	A	0.20	U		0.67	U	A	0.20	U	
CADMIUM	0.30	U		0.30	U		0.30	UJ	K	0.30	UJ	K
CALCIUM	29500			27900			219000			222000		
CHROMIUM	1.0	UJ	AC	1.0	UJ	AC	1.0	UJ	ACK	5.6	U	A
COBALT	0.70	U		0.87	U	A	1.9	U	A	0.70	U	
COPPER	1.3	UJ	A	1.3	UJ	A	5.8	U	A	2.0	U	A
IRON	5650	J	G	5630	J	G	8600	J	G	1680	J	G
LEAD	1.8	U		1.8	U		1.8	UJ	K	1.8	UJ	K
MAGNESIUM	4510			4530			669000			712000		
MANGANESE	577			564			185			175		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	3.0	J	AP	5.0	J	A	1.9	UJ	AK	1.9	UJ	AK
POTASSIUM	4960			4800			290000			305000		
SELENIUM	3.4	U		3.4	U		3.4	UJ	K	3.4	UJ	K
SILVER	1.1	U		1.1	U		1.1	U		1.1	U	
SODIUM	42500			41100			5160000			5300000		
THALLIUM	4.1	U		4.1	U		4.1	U		4.3	U	A
VANADIUM	6.2	U	A	1.6	U	A	13.5	U	A	7.4	U	A
ZINC	11.2			58.1	J	G	7.6	J	K	4.9	J	GKP

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW38DS-02-F			2WGW39DS-02			2WGW39DS-02-F			2WGW40DS-02		
SAMPLE DATE:	01/23/00			01/21/00			01/21/00			01/21/00		
LABORATORY ID:	E62513-26			E62513-3			E62513-16			E62513-2		
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	112	U	A	251	U	A	72.5	U		436	U	A
ANTIMONY	2.6	U	A	2.1	U		2.4	U	A	2.1	U	
ARSENIC	5.1	J	CP	2.6	U		2.6	U		2.6	UJ	K
BARIUM	21.0			46.4			41.7			81.3	J	K
BERYLLIUM	0.20	U		0.41	U	A	0.20	U		0.44	U	A
CADMIUM	0.30	U		0.30	U		0.30	U		0.30	UJ	K
CALCIUM	45000			41400			40700			176000		
CHROMIUM	2.7	U	A	2.2	U	A	1.3	U	A	1.0	UJ	ACK
COBALT	0.87	U	A	1.1	U	A	1.3	U	A	0.70	U	
COPPER	6.7	U	A	1.3	UJ	A	1.3	U	A	1.3	UJ	A
IRON	15.4	U		12100	J	G	9330	J	G	10000	J	G
LEAD	1.8	U		1.8	U		1.8	U		1.8	UJ	K
MAGNESIUM	20600			11700			14300			552000		
MANGANESE	122			1030			969			1030		
MERCURY	0.1	U		0.10	U		0.10	U		0.10	U	
NICKEL	4.7	J	A	6.2	J	A	4.4	J	A	1.9	UJ	AK
POTASSIUM	19200			22800			25100			276000		
SELENIUM	3.4	U		3.4	U		4.3	U	A	3.4	UJ	K
SILVER	1.1	U		1.1	U		1.1	U		1.1	U	
SODIUM	177000			257000			282000			4190000		
THALLIUM	4.1	U		4.1	U		4.1	U		4.6	U	A
VANADIUM	20.2	U	A	5.3	U	A	0.70	U		8.2	U	A
ZINC	27.7	J	G	11.1			7.2	J	GP	6.8	J	KP

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW40DS-02-F			2WGW41DS-02			2WGW41DS-02-F			2WGW42DS-02		
SAMPLE DATE:	01/21/00			01/21/00			01/21/00			01/21/00		
LABORATORY ID:	E62513-15			E62513-5			E62513-17			E62513-6		
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	72.5	U		338	U	A	72.5	U		409	U	A
ANTIMONY	4.2	U	A	2.1	U		4.1	U	A	4.2	U	A
ARSENIC	5.2	J	CKP	3.5	J	CKP	2.6	UJ	K	20.5	J	CK
BARIUM	86.8	J	K	60.1	J	K	54.4	J	K	94.4	J	K
BERYLLIUM	0.20	U		0.40	U	A	0.20	U		0.82	U	A
CADMIUM	0.30	UJ	K	0.30	UJ	K	0.30	UJ	K	0.30	UJ	K
CALCIUM	174000			164000			160000			226000		
CHROMIUM	3.2	U	A	1.0	UJ	ACK	2.5	U	A	1.0	UJ	ACK
COBALT	1.9	U	A	2.7	U	A	3.5	U	A	1.1	U	A
COPPER	1.4	U	A	1.3	UJ	A	1.3	UJ	A	1.3	UJ	A
IRON	6340	J	G	10200	J	G	10800	J	G	2200	J	G
LEAD	1.8	UJ	K	1.8	UJ	K	1.8	UJ	K	1.8	UJ	K
MAGNESIUM	550000			501000			512000			726000		
MANGANESE	1120			1200			1180			741		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	3.5	J	AKP	4.3	J	AK	5.3	J	AK	1.9	UJ	AK
POTASSIUM	267000			237000			243000			365000		
SELENIUM	3.4	UJ	K	3.4	UJ	K	3.4	UJ	K	3.4	UJ	K
SILVER	1.1	U		1.1	U		1.1	U		1.1	U	
SODIUM	4060000			3740000			3660000			6020000		
THALLIUM	4.1	U		4.1	U		4.1	U		4.4	U	A
VANADIUM	2.6	U	A	7.5	U	A	2.4	U	A	16.1	U	A
ZINC	10.8	J	GK	7.5	J	KP	6.6	J	GKP	18.7	J	K

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SAMPLE NUMBER:	2WGW42DS-02-F			2WGW43DS-02			2WGW43DS-02-F			2WGW46DS-02		
SAMPLE DATE:	01/21/00			01/22/00			01/22/00			01/24/00		
LABORATORY ID:	E62513-18			E62513-10			E62513-22			E62513-31		
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	72.5	U		894	U	A	107	U	A	1720		
ANTIMONY	6.4	U	A	2.1	U		2.4	U	A	2.1	U	
ARSENIC	11.2	J	CK	2.6	J	CKP	3.0	J	CKP	9.4	J	CK
BARIUM	64.5	J	K	113	J	K	107	J	K	102	J	K
BERYLLIUM	0.20	U		0.52	J	A	0.20	U		0.79	U	A
CADMIUM	0.30	UJ	K	0.30	U	K	0.30	UJ	K	0.30	UJ	K
CALCIUM	178000			247000			241000			272000		
CHROMIUM	2	U	A	1.0	UJ	ACK	9.6	J	ACK	6.0	U	A
COBALT	0.73	U	A	2.5	U	A	1.5	U	A	2.8	U	A
COPPER	1.3	UJ	A	1.3	UJ	A	2.5	U	A	8.6	U	A
IRON	1450	J	G	8560	J	G	1660	J	G	3950	J	G
LEAD	1.8	UJ	K	1.8	UJ	K	1.8	UJ	K	1.8	UJ	K
MAGNESIUM	578000			795000			802000			914000		
MANGANESE	648			1180			1130			685		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	2.6	J	AKP	1.9	UJ	AK	5.6	J	AK	4.2	J	AK
POTASSIUM	293000			338000			346000			387000		
SELENIUM	3.4	UJ	K	3.4	UJ	K	3.4	UJ	K	3.4	UJ	K
SILVER	1.1	U		1.1	U		1.1	U		1.1	U	
SODIUM	4180000			5790000			5810000			6880000		
THALLIUM	4.1	U		7.3	U	A	4.1	U		6.2	U	A
VANADIUM	6.1	U	A	11.1	U	A	5.9	U	A	17.1	U	A
ZINC	4.4	J	GKP	10.6	J	K	3.8	U		50.4	J	K

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SAMPLE NUMBER:	2WGW46DS-02-F			2WGW47DS-02			2WGW47DS-02-F			2WGW4SD-02		
SAMPLE DATE:	01/24/00			01/24/00			01/24/00			01/23/00		
LABORATORY ID:	E62513-37			E62513-32			E62513-38			E62513-13		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	142	U	A	197	U	A	81.3	U	A	266	U	A
ANTIMONY	6.8	U	A	2.1	U		2.2	U	A	2.1	U	
ARSENIC	10.6	J	CK	11.8	J	C	12.2	J	C	2.9	J	CP
BARIUM	103	J	K	256			220			17.1		
BERYLLIUM	0.20	U		0.63	U	A	1.1	U	A	0.48	U	A
CADMIUM	0.30	UJ	K	0.30	U		2.1	U	A	0.30	U	
CALCIUM	275000			45500			51600			44900		
CHROMIUM	4.6	U	A	1.0	UJ	AC	2.4	U	A	1.0	UJ	AC
COBALT	1.5	U	A	5.0			6.8	U	A	0.70	U	
COPPER	1.3	UJ	A	1.3	UJ	A	1.3	UJ	A	1.3	UJ	A
IRON	734	J	G	79300	J	G	70300	J	G	40500	J	G
LEAD	1.8	UJ	K	1.8	U		6.4	U	A	1.8	U	
MAGNESIUM	952000			74500			99000			83900		
MANGANESE	572			3690			3540			644		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	4.0	J	AK	1.9	UJ	A	2.3	J	AP	1.9	UJ	A
POTASSIUM	396000			58500			66600			46900		
SELENIUM	3.4	UJ	K	3.4	U		3.4	U		3.4	U	
SILVER	1.1	U		1.1	U		1.1	U		1.1	U	
SODIUM	6830000			778000			1000000			698000		
THALLIUM	4.1	U		4.1	U		4.1	U		4.1	U	
VANADIUM	9.7	U	A	6.0	U	A	2.1	U	A	7.4	U	A
ZINC	9.5	J	GK	12.4			7.4	J	GP	10.8		

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SAMPLE NUMBER:	2WGW4SD-02-F			3GW12D-02			3GW12D-02-F			3GW12S-02		
SAMPLE DATE:	01/23/00			01/24/00			01/24/00			01/24/00		
LABORATORY ID:	E62513-25			E62513-29			E62513-35			E62513-28		
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	87.2	U	A	259	U	A	72.5	U		290	U	A
ANTIMONY	2.1	U		2.1	U		2.1	U		2.1	U	
ARSENIC	3.2	J	CP	2.6	U		2.6	U		2.6	U	
BARIUM	9.4	J	P	67.3			62.3			69.8		
BERYLLIUM	0.20	U		0.24	U	A	0.20	U		0.20	U	
CADMIUM	0.81	U	A	0.30	U		0.41	U	A	0.30	U	
CALCIUM	49000			68700			70900			71500		
CHROMIUM	3.1	U	A	4.7	U	A	1.0	UJ	AC	36.2	J	ACG
COBALT	1.1	U	A	16.5			16.6			5.2	U	A
COPPER	1.5	U	A	1.3	UJ	A	1.3	UJ	A	1.3	UJ	A
IRON	33400	J	G	12400	J	G	12900	J	G	59700	J	G
LEAD	1.8	U		1.8	U		1.8	U		1.8	U	
MAGNESIUM	100000			54000			57700			48600		
MANGANESE	695			6550			6900			7380		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	2.1	J	AP	3.8	J	AP	2.7	J	AP	34.6	J	A
POTASSIUM	54100			21300			21300			19900		
SELENIUM	3.4	U		3.4	U		3.4	U		3.4	U	
SILVER	1.1	U		1.1	U		1.1	U		1.1	U	
SODIUM	869000			433000			434000			419000		
THALLIUM	4.1	U		4.1	U		4.1	U		6.6	U	A
VANADIUM	0.95	U	A	4.4	U	A	0.70	U		5.0	U	A
ZINC	4.5	J	GP	12.0			8.1	J	G	6.1	J	P

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SAMPLE NUMBER:	3GW12S-02-F			3GW37S-02			3GW37S-02-F			4GW01S-02		
SAMPLE DATE:	01/24/00			01/22/00			01/22/00			01/23/00		
LABORATORY ID:	E62513-34			E62513-8			E62513-20			E62513-11		
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	82.1	U	A	245	U	A	72.5	U		164	U	A
ANTIMONY	2.1	U		2.1	U		2.5	U	A	2.1	U	
ARSENIC	2.6	U		2.6	U		2.6	U		2.6	U	
BARIUM	51.7			91.1			92.3			33.7		
BERYLLIUM	0.20	U		0.70	U	A	0.20	U		0.53	U	A
CADMIUM	0.56	U	A	0.30	U		0.30	U		0.30	U	
CALCIUM	70500			34600			34100			17300		
CHROMIUM	1.0	U	A	1.0	UJ	AC	1.1	U	A	1.0	UJ	AC
COBALT	5.3	U	A	7.9			8.0			0.70	U	
COPPER	1.3	UJ	A	1.3	UJ	A	2.4	U	A	1.3	UJ	A
IRON	57000	J	G	884	J	G	853	J	G	15.4	U	
LEAD	1.8	U		1.8	U		1.8	U		1.8	U	
MAGNESIUM	49600			10800			11200			2580		
MANGANESE	7430			2320			2390			14.2		
MERCURY	0.10	U		0.10	U		0.10	U		0.10	U	
NICKEL	2.9	J	AP	1.9	UJ	A	1.9	UJ	A	1.9	UJ	A
POTASSIUM	18500			6890			6960			2300		
SELENIUM	3.4	U		3.4	U		3.4	U		3.4	U	
SILVER	1.1	U		1.1	U		1.1	U		1.1	U	
SODIUM	396000			128000			128000			21300		
THALLIUM	4.1	U		4.1	U		4.1	U		4.1	U	
VANADIUM	0.70	U		4.4	U	A	0.70	U		4.2	U	A
ZINC	31.8	J	G	18.3			6.0	J	GP	26.8		

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SAMPLE NUMBER:	2LGW20S-02			2WGW21S-02			2WGW38DS-02			2WGW39DS-02		
SAMPLE DATE:	01/22/00			01/23/00			01/23/00			01/21/00		
LABORATORY ID:	E62513-7			E62513-12			E62513-14			E62513-3		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
ALKALINITY(MG/L)	88.6			297			298			203		
CHEMICAL OXYGEN DEMAND(MG/L)	20	U		1030			46.2			914		
CHLORIDE(MG/L)	67.4			9740			202			452		
HARDNESS(MG/L)	98.5			3580						154		
SULFATE(MG/L)	20	U		246			69.6			20	U	
TOTAL DISSOLVED SOLIDS(MG/L)	242			15100			760			974		
TOTAL ORGANIC CARBON(MG/L)	2.1	J	G	33.3	J	G	15.1	J	G	137	J	G

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW40DS-02	2WGW41DS-02	2WGW42DS-02	2WGW43DS-02
SAMPLE DATE:	01/21/00	01/21/00	01/21/00	01/22/00
LABORATORY ID:	E62513-2	E62513-5	E62513-6	E62513-10
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
ALKALINITY(MG/L)	1160			2030			1330			1680		
CHEMICAL OXYGEN DEMAND(MG/L)	1280			914			686			1030		
CHLORIDE(MG/L)	9090			9370			7140			12700		
HARDNESS(MG/L)	2950			2570			3940			4250		
SULFATE(MG/L)	948			274			193			340		
TOTAL DISSOLVED SOLIDS(MG/L)	15600			15900			12900			19100		
TOTAL ORGANIC CARBON(MG/L)	32.2	J	G	45.3	J	G	29.3	J	G	31.9	J	G

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	2WGW46DS-02			2WGW47DS-02			2WGW4SD-02			3GW12D-02		
SAMPLE DATE:	01/24/00			01/24/00			01/23/00			01/24/00		
LABORATORY ID:	E62513-31			E62513-32			E62513-13			E62513-29		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
ALKALINITY(MG/L)	1230			365			315			200		
CHEMICAL OXYGEN DEMAND(MG/L)	1260			20	U		59			20.5		
CHLORIDE(MG/L)	16300			1500			1720			964		
HARDNESS(MG/L)	4610			559			912			448		
SULFATE(MG/L)	437			20	U		20	U		85.8		
TOTAL DISSOLVED SOLIDS(MG/L)	26200			2790			3100			1830		
TOTAL ORGANIC CARBON(MG/L)	4.2	J	G	10.5	J	G	12.9	J	G	3.9	J	G

CTO203 - NSB NEW LONDON
WATER DATA
Accutest, NJ
SDG: E62513

SAMPLE NUMBER:	3GW12S-02			3GW37S-02			4GW01S-02			GWFD012200		
SAMPLE DATE:	01/24/00			01/22/00			01/23/00			01/22/00		
LABORATORY ID:	E62513-28			E62513-8			E62513-11			E62513-9		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
FIELD DUPLICATE OF:										2LGW20S-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
ALKALINITY(MG/L)	210			129			31.1			90.7		
CHEMICAL OXYGEN DEMAND(MG/L)	23.1			20	U		20	U		20	U	
CHLORIDE(MG/L)	913			238			23.9			70.2		
HARDNESS(MG/L)	358			138			57.3			89.5		
SULFATE(MG/L)	74.4			21.9			43.1			20	U	
TOTAL DISSOLVED SOLIDS(MG/L)	1730			481			156			201		
TOTAL ORGANIC CARBON(MG/L)	3.8	J	G	3.5	J	G	1.4	J	G	2.1	J	G

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SAMPLE NUMBER:	GWFD012400											
SAMPLE DATE:	01/24/00			/ /			/ /			/ /		
LABORATORY ID:	E62513-30											
QC_TYPE:	NORMAL											
% SOLIDS:	0.0 %			100.0 %			100.0 %			100.0 %		
FIELD DUPLICATE OF:	3GW12S-02											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
ALKALINITY(MG/L)	203											
CHEMICAL OXYGEN DEMAND(MG/L)	20	U										
CHLORIDE(MG/L)	1000											
HARDNESS(MG/L)	430											
SULFATE(MG/L)	85.1											
TOTAL DISSOLVED SOLIDS(MG/L)	1840											
TOTAL ORGANIC CARBON(MG/L)	36.3	J	G									