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# Round 1 Groundwater Monitoring Report

for

# Goss Cove Landfill

## Naval Submarine Base New London

Groton, Connecticut

## Engineering Field Activity Northeast
## Naval Facilities Engineering Command

**Contract Number N62467-94-D-0888**

**Contract Task Order 0816**

May 2002

TETRA TECH NUS, INC.

040218/P

# ROUND 1 GROUNDWATER MONITORING REPORT
# FOR
# GOSS COVE LANDFILL

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

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

**Submitted to:**
**Engineering Field Activity Northeast**
**Environmental Branch Code EV**
**Naval Facilities Engineering Command**
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**CONTRACT NUMBER N62467-94-D-0888**
**CONTRACT TASK ORDER 0816**

**MAY 2002**


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# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| Atlantic | Atlantic Environmental Services, Inc. |
| B&R Environmental | Brown & Root Environmental |
| CLEAN | Comprehensive Long-term Environmental Action Navy |
| COCs | chemicals of concern |
| COPCs | chemicals of potential concern |
| CTDEP | Connecticut Department of Environmental Protection |
| CTO | Contract Task Order |
| DGI | Data Gap Investigation |
| FS | Feasibility Study |
| GMP | Groundwater Monitoring Plan |
| MW | monitoring well |
| NA | Not Available |
| ND | Not Detected |
| NOAA/NOS | National Oceanic and Atmospheric Administration/National Oceanic Service |
| NSB-NLON | Naval Submarine Base New London |
| NTU | nephelometric turbidity unit |
| O&M | Operation and Maintenance |
| OU | Operable Unit |
| PAH | Polycylic Aromatic Hydrocarbons |
| PCB | polychlorinated biphenyl |
| PCE | tetrachloroethene |
| PRAP | Proposed Remedial Action Plan |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| SAIC | Science Applications International Corporation |
| SVOC | semi-volatile organic compound |
| SWPC | Surface Water Protection Criteria (Connecticut) |
| TAL | Target Analyte List |
| TCL | Target Compound List |
| TIE | Toxicity Identification Evaluation |
| TtNUS | Tetra Tech NUS, Inc. |
| USEPA | United States Environmental Protection Agency |
| VOC | volatile organic compound |

# 1.0 INTRODUCTION

This Round 1 Groundwater Monitoring Report for the Goss Cove 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 N62467-94-D-0888, Contract Task Order (CTO) 0816.

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

A Record of Decision (ROD) (TtNUS, 1999b) was signed for the soil and sediment Operable Units (OUs) at the Goss Cove Landfill (Site 8). Based on the ROD a remedial action was required for the soil OU and no further action was required for the sediment OU. The selected remedy for the soil and waste/fill material within the Goss Cove Landfill consisted of containment using an engineered control cap, institutional controls, groundwater monitoring, operation and maintenance (O&M), and five-year reviews. The remedy also included the replacement of a storm sewer system that serves the southern portion of NSB-NLON and the Goss Cove Landfill parking lot and surrounding area with a 4-foot by 10-foot reinforced concrete box culvert. Groundwater monitoring is being conducted to evaluate the effectiveness of the remedial action, i.e., to assess whether contamination is migrating from the landfill to downgradient locations.

The objective of this Round 1 Groundwater Monitoring Report is to present the results of the first round of long-term groundwater monitoring at the Goss Cove Landfill site. Eleven monitoring wells were sampled and analyzed for Target Compound List (TCL) organics and Target Analyte List (TAL) metals (total and dissolved). Water quality parameters were monitored as well. Sampling and analyses were performed in accordance with the Groundwater Monitoring Plan (GMP) prepared for the Goss Cove Landfill (TtNUS, March 2001). Because this is an interim report for the first 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 Goss Cove Landfill.

## 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 687 acres on the east bank of the Thames River, approximately 6 miles north of Long Island Sound. The base is bounded to the east by Connecticut Route 12, to the south by Crystal Lake Road, and to the west by the Thames River (refer to Figure 1-1). The northern border is a low ridge that trends approximately east-southeast 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 submarine maintenance, repair, and overhaul.

### 1.2.2 Site Description and History

The Goss Cove Landfill is located in the southwestern corner of NSB-NLON, adjacent to the Thames River (refer to Figure 1-2). It is west of Shark Boulevard and the intersection of Crystal Lake Road and Military Highway, east of the Thames River and north of Goss Cove. Figure 1-3 displays the general site layout. The Nautilus Museum and a paved parking lot were constructed directly over the site of the former landfill. The Nautilus Museum is a submarine museum operated by the U.S. Navy and is open to the public.

Goss Cove Landfill is one of the 25 Installation Restoration Program (IRP) sites identified at NSB-NLON. The Initial Assessment Study (IAS) report (NEESA, 1983) indicated that a landfill was operated at this site from 1946 through 1957. Incinerator ash and inert rubble were disposed at the site, in what was then the northern portion of Goss Cove. It is not known if any other materials were disposed in the former landfill. It has been reported that several large compressed gas cylinders were uncovered during the excavation of a utility trench in the parking area north of the Nautilus Museum building. One of the cylinders was leaking propane, one was filled with ammonia, and the others were empty.

In a 1934 aerial photograph, the limits of Goss Cove appeared to be open water with no evidence of fill. Railroad tracks are shown at their present position between the cove and the Thames River. In 1951 aerial photographs, the fill extended south to approximately the location of an access driveway to the museum. The 1965 aerial photographs show the landfill extending to the present limit of encroachment on Goss Cove. Aerial photographs from 1965, 1970, 1975, and 1980 show cars parked on the landfill surface. In 1986 photographs, the Nautilus Museum is present on the southern limits of the landfill and a paved parking area extends over the remaining limit of the landfill to the north. Construction of the

Nautilus Museum was completed in 1985. Construction of an addition to the Nautilus Museum was initiated in 1999 and completed in the summer of 2000.

The boring logs generated during the construction of the Nautilus Museum indicated the presence of fill material consisting of cinders, metal, brick, glass, and sand and gravel to a depth of 15 feet. Beneath the fill is a layer of organic silt approximately 10 to 15 feet thick. This material is presumably the sediment bottom of the former cove. The silt is underlain by fine sand to depths ranging from 25 to 100 feet below the surface. The thickness of overburden increases from east to west, toward the river.

Remedial Investigation (RI) activities have been conducted at the Goss Cove Landfill and include sampling and analyses of various environmental media: surface soil, subsurface soil, groundwater, surface water, sediment, and air. Other RI activities that were completed include assessment of human health and ecological risks. A Feasibility Study (FS) was completed which concluded that the presumptive remedy of containment was the appropriate remedial action for the soil OU at the site. A Proposed Remedial Action Plan (PRAP) and ROD were subsequently prepared for the site. The remedial action consisted of excavation of surface soil, compacting excavated soil over the existing paved parking lot area, construction of a multi-layered impermeable soil-type cap, land use restrictions, groundwater monitoring, and five-year site reviews.

### 1.2.3 Previous Site Investigations

Various investigations have been conducted at the Goss Cove Landfill beginning with the IAS (NEESA, 1983). This study was conducted in June 1982 to identify and evaluate past hazardous waste disposal practices and assessed the potential for environmental contamination. Record searches, interviews with present long-term employees and former employees indicated that this area was used as a landfill for incinerator ash and inert rubble from 1946 to 1957.

Two phases of RI were conducted to determine the nature and extent of contamination at the Goss Cove Landfill. Atlantic Environmental Services, Inc. (Atlantic) conducted the Phase I RI field investigation from 1990 to 1992. This investigation consisted of a soil gas survey; test borings; monitoring well installation; and soil, surface water, and groundwater sampling. The soil gas survey was conducted in an attempt to locate potential sources of volatile organic contamination. Subsurface (3 feet deep) soil samples were collected from test borings and monitoring well borings to confirm the soil gas survey results. Overburden monitoring wells were installed within the former landfill and groundwater samples were obtained. One surface water sample was collected in the Thames River downstream of the landfill. The findings of this investigation were presented in the Phase I RI Report (Atlantic, August 1992).

Brown and Root (B&R) Environmental conducted the Phase II RI field investigation from 1993 to 1995. This investigation included the collection of surface (<3 feet deep) and subsurface (>3 feet deep) soil samples from well borings. Surface and subsurface soil samples were also collected from test borings. Shallow and deep monitoring wells were installed. Groundwater samples were collected from the Phase I monitoring wells and Phase II monitoring wells during each round of two rounds of sampling. Surface water and sediment samples were also collected during the Phase II RI. Surface water samples and sediment samples were collected from the perimeter of Goss Cove. Additional sediment sampling was conducted in Goss Cove to perform a supplemental toxicity identification evaluation. Three rounds of air sampling were performed. Air samples were collected from within and around the Nautilus Museum. The findings of this study were presented in the Phase II RI Report (B&R, March 1997)

A Data Gap Investigation (DGI) was conducted by B&R Environmental in January 1997 to determine if the source of the tetrachloroethene (PCE) contamination detected in the groundwater samples collected during the Phase II RI. Soil borings were drilled during this investigation then converted to monitoring wells. Groundwater samples were collected from each of the new wells and from select existing wells. Subsurface soil samples were collected from each boring. The DGI concluded that the source of PCE contamination detected in the groundwater is an upgradient, off site source. The Connecticut Department of Environmental Protection (CTDEP) verified the results of this investigation by conducting their own Phase I/II Environmental Site Assessments (CTDEP, 1999).

As part of the evaluation of remedial strategies for Goss Cove sediment and surface water, a desktop modeling effort was performed to evaluate the potential for migration of chemicals of concern (COCs) from the former Goss Cove Landfill into Goss Cove and an information package was prepared to present the results of this modeling. This information was included in the FS Report prepared by Tetra Tech NUS, Inc. (TtNUS, 1999a). Modeling was performed for two migration pathways; i.e., surface water runoff and groundwater movement. For each of these pathways two scenarios were evaluated, including existing site conditions and future site conditions after placement of an impervious cap over the former Goss Cove Landfill. Results of this modeling effort showed that migration of COCs is unlikely to occur in the future from the former Goss Cove Landfill to Goss Cove.

A Wetlands Function and Values Assessment was completed by TtNUS in July 1998 to evaluate if the ecological stress in the Goss Cove water body was a result of natural conditions or due to migration from other NSB-NLON sites. This study evaluated the marginal cove vegetation in terms of its ecological functions and values and identified the wetland species associated with the fringing belt. A detailed vegetation inventory of the taxa which included an inventory of all species of vascular plants present above mean high tide and an examination of the biota associated with the intertidal zone was undertaken. A few wetland species were found. The results of this assessment concluded that the contrast between

the Thames River and cove side is dramatic due to the lack of tidal flushing. Although the tidal range is reflected within the cove, it does not appear adequate to aid in supporting a rich viable intertidal algal population and invertebrate biota. This may be related to water quality since it appears that estuarine organisms can and have become established in the cove in the past but fail to thrive.

The purpose of the Evaluation of Chemical and Toxicological Data study, conducted by Science Applications International Corporation (SAIC, 1998) in 1998, was to evaluate chemical and toxicological relationships for sediments in Goss Cove. The objective of the study was to establish toxicological response relationships to contaminants in Goss Cove sediments, describe the extent of ecological risks associated with chemical contaminants in Goss Cove sediments, and identify risks for biological effects. Based on data needs, 10 stations were sampled for chemical, toxicological, and Toxicity Identification Evaluation (TIE). The TIE involves chemical manipulation of the sediment to separate contaminant classes. The TIE employed three manipulations, including C18 column extraction, EDTA chelation, and an aeration/Ulva treatment. These three steps remove organic compounds, metals, and hydrogen sulfide/ammonia, respectively. The study supports the conclusion that a complete pathway does not exist between contaminants and observed ecological effects. It may be possible to improve benthic habitat quality by reducing the hypoxic conditions in the cove, thereby reducing the ammonia concentrations which appear to cause depauperate aquatic community.

After the FS was finalized for the soil and sediment at this site, a PRAP was prepared and issued on June 8, 1999. The PRAP for the Goss Cove Landfill was discussed at a Public Meeting on June 23, 1999. The final ROD for the soil and sediment OUs at the site was issued on September 30, 1999.

## 1.3 REPORT ORGANIZATION

This report has been prepared in the following format to address the requirements for long-term groundwater monitoring at the Goss Cove 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 1 field activities. Section 3.0 presents and evaluates the analytical results from the Round 1 sampling effort.

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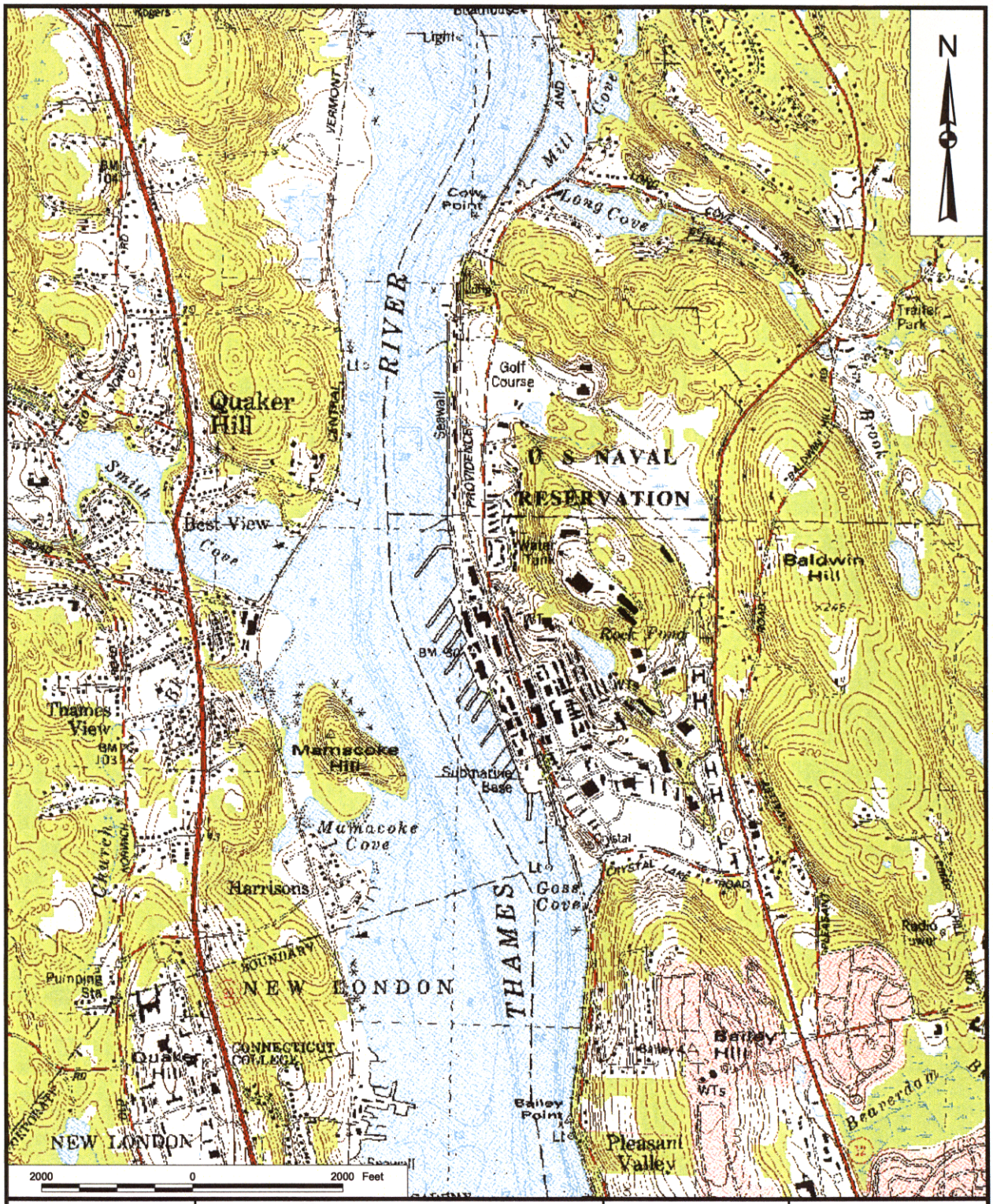


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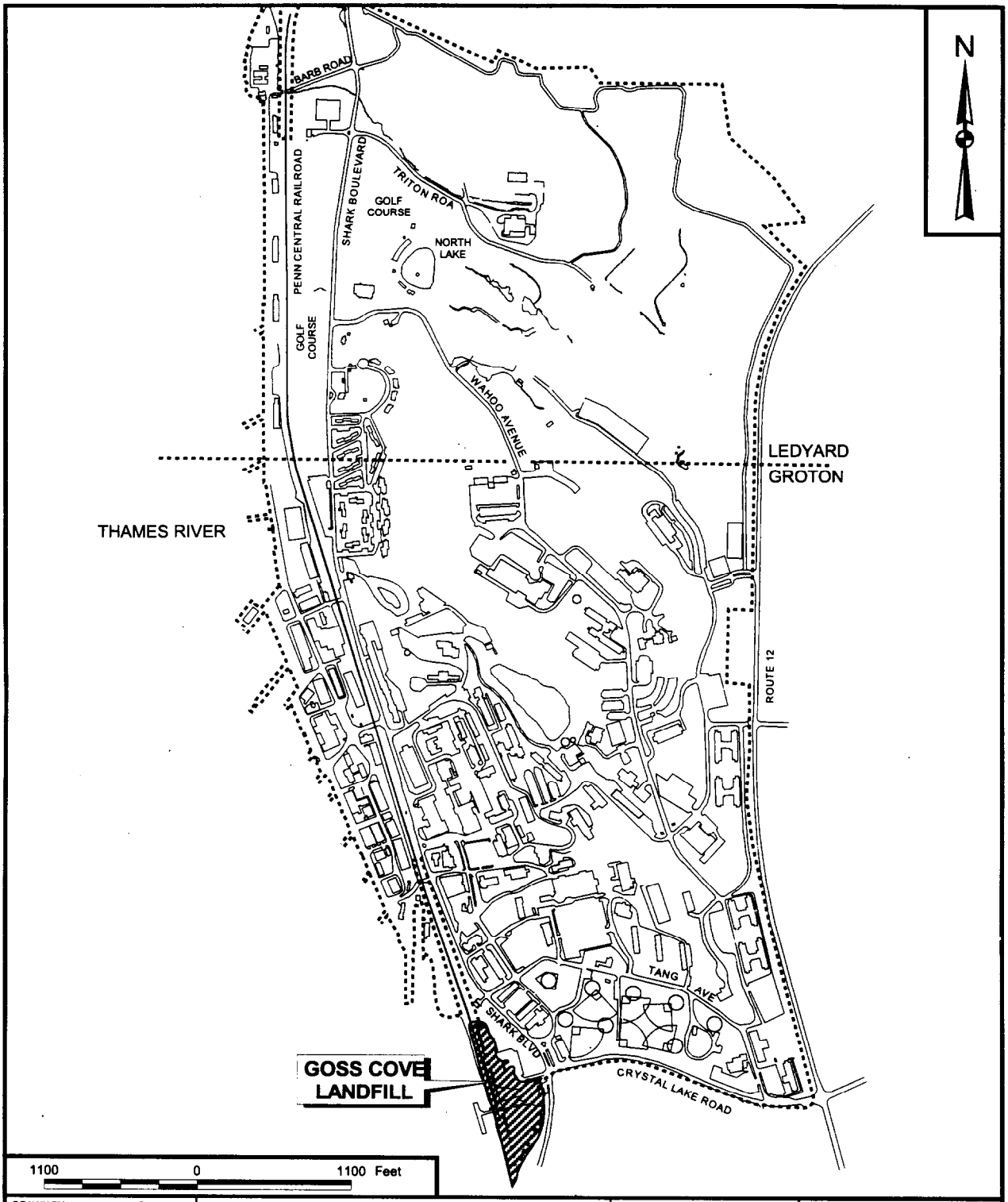
| CHECKED BY ____ — DATE ____ | LOCATION MAP<br>NSB-NLON<br>GROTON, CONNECTICUT | APPROVED BY CAR | DATE 5/1/02 |
| COST/SCHEDULE-AREA | | APPROVED BY — | DATE — |
| SCALE AS NOTED | | DRAWING NO. FIGURE 1 - 1 | REV 0 |

P:\GIS\50820370.APR LOCATION MAP 2\21\02 KMP

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| COST/SCHEDULE-AREA | | | APPROVED BY — / DATE — |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 1-2 / REV 0 |

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P:\GIS\NLON\GOSSCOVELANDFILL.APR SITE LAYOUT 4/30/02 JAL

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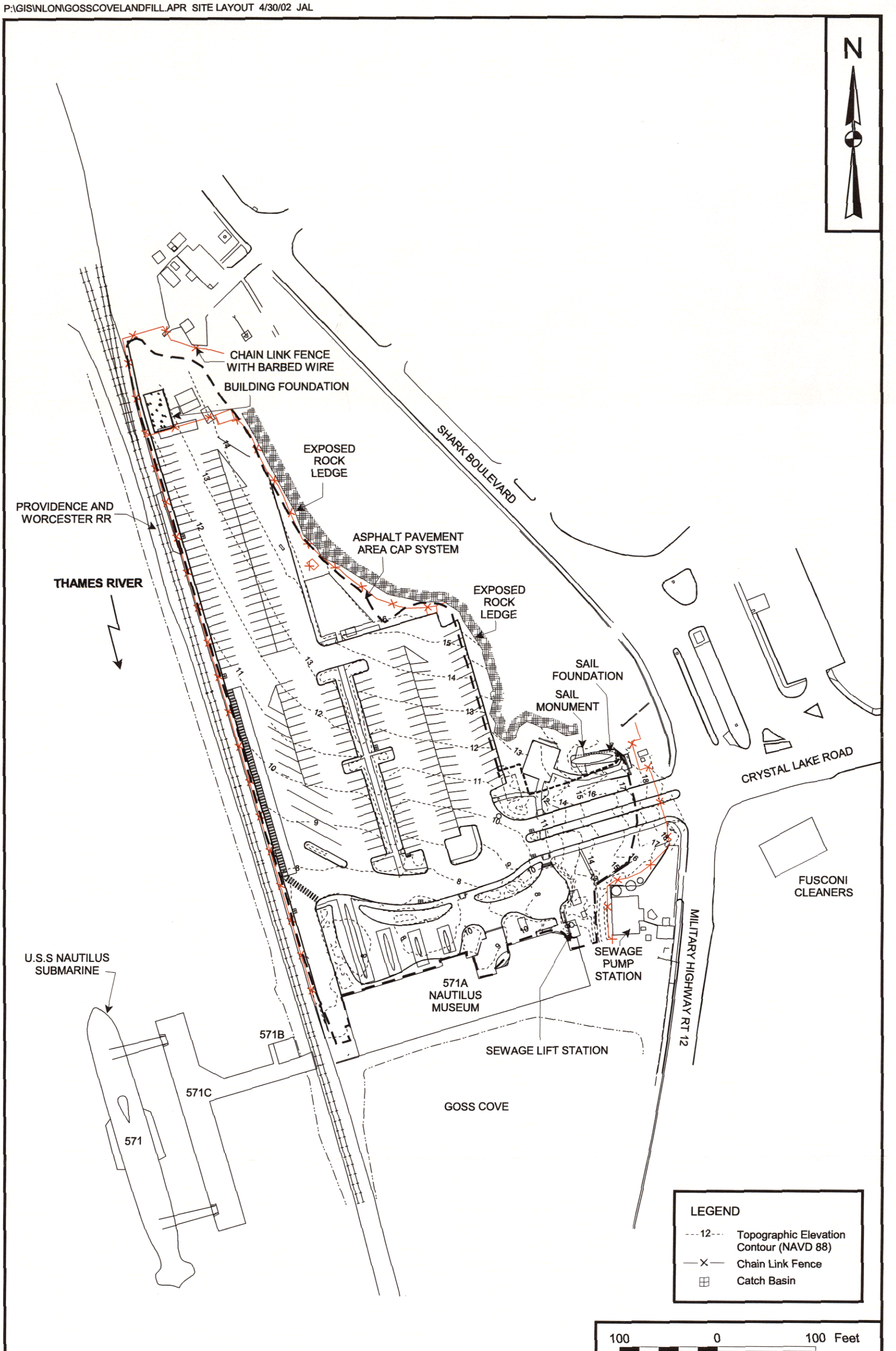


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| DRAWN BY J. LAMEY DATE 4/10/02 | Tetra Tech NUS, Inc. | CONTRACT NUMBER 2863 | OWNER NUMBER 816 |
| CHECKED BY DATE | GENERAL SITE LAYOUT<br>GOSS COVE LANDFILL<br>NSB NLON<br>GROTON, CONNECTICUT | APPROVED BY CAR | DATE 5/1/02 |
| COST/SCHEDULE-AREA | | APPROVED BY | DATE |
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# 2.0 FIELD INVESTIGATION ACTIVITIES

Field investigation activities performed as part of the first round of the groundwater monitoring at Goss Cove Landfill included the following:

- Inspection and development of 11 monitoring wells.
- Collection of two rounds of water level measurements (high and low tide) at 11 monitoring wells and one staff gauge in the vicinity of Goss Cove.
- Collection of groundwater samples from 11 monitoring wells.
- Measurement of field parameters and redox-sensitive parameters.
- A tidal study to determine tidal responses and proper sampling times for the tidally-influenced monitoring wells.

Round 1 field activities occurred in December 2001 and January 2002. Figure 2-1 illustrates the sampling locations. Copies of the field activities logbook; monitoring well inspection sheets; water level measurement sheets and survey results; monitoring instrument calibration logs; monitoring well development logs; groundwater sample logsheets and low-flow purge data sheets; chain-of-custody records; data validation letters and laboratory data sheets; waste characterization and waste manifest; and tidal study results for Round 1 are provided in Appendices A through J.

Monitoring well 8MW8S was to be included in the monitoring program per the GMP. During monitoring well inspection and development activities, it was determined that this well did not produce sufficient water volume for sampling. Historical information for the well was reviewed and it showed that this well had similar problems since it was installed. The Navy and USEPA discussed the issue and decided to replace 8MW8S with 8MW10S for the monitoring program. Monitoring well 8MW8S was eliminated from the program after well inspection, development activities, and the tidal study were completed.

## 2.1 MONITORING WELL INSPECTION

Prior to water level measurements, 11 monitoring wells were inspected. The monitoring wells were generally in good condition (refer to Appendix B). Issues noted during the inspection included several wells were unlabeled and did not have locks. Two wells (HNUS-23 and 8MW8S) had water in the vaults indicating a problem with the seals on the vaults.

## 2.2 WATER LEVEL MEASUREMENT

Water levels were measured at 11 monitoring wells and one staff gauge prior to the tidal study, at the start of the tidal study, and at two time periods during the tidal study. The tidal study was performed from December 17 to 19, 2001. The results of the tidal study are discussed in Section 2.5.

Water level measurements were also collected during low tide and high tide on January 9, 2002. Table 2-1 summarizes the January round of water level measurements. Figures 2-2 and 2-3 illustrate the potentiometric surface maps for the shallow groundwater at Goss Cove Landfill for Round 1. Reference elevations for all monitoring wells were re-surveyed after the remedial action and prior to this field sampling event. Groundwater level measurement sheets and survey results are provided in Appendix C.

## 2.3 MONITORING WELL DEVELOPMENT AND GROUNDWATER PURGING AND SAMPLING

Prior to purging activities, each well was re-developed. Well re-development served a dual purpose, testing well integrity and functionality, and reconditioning the well by removing any excess sediment that has settled over time. All wells were developed using a 12-volt submersible whale pump with the exception of wells 8MW2D and 8MW5. These wells were developed using a peristaltic pump due to space restriction (8MW2D) preventing the placement of the pump down the well casing, or due to an insufficient amount of water (8MW5). Prior to removing any water, each well was surged for approximately 5 minutes to loosen and agitate sediment from the well bottom and any potential scaling or fouling of the well screen for more efficient recovery. Following surging activities, groundwater was removed at a continuous rate while collecting the following parameters for each well volume:

- Temperature in Degrees Celsius (°C)
- pH
- Specific Conductance in microseimens per centimeter (mS/cm)
- Turbidity in nepholometric turbidity units (NTU)

The evacuation of water continued until the above parameters stabilized, and the water was observed as "clear" and free of visible sediment.

Once the wells were re-developed and allowed sufficient time to recharge, the wells were then prepared for sampling. Prior to sampling activities, each well was purged using a low flow method utilizing a dedicated bladder pump. 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 5 to 10 minutes. The pumping rate was initially set at 300 milliliter per minute and adjusted as necessary such that drawdown within the well did not exceed 0.3 feet. Copies of the low-flow purge data sheets are provided in Appendix F.

During purging, water quality parameters of pH, specific conductance, temperature, turbidity, dissolved oxygen, Eh, and salinity were measured and recorded every 5 to 10 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 %.

When these parameters had stabilized, iron (Fe+2) was measured in the field and recorded on the sample log sheets. 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 volatile organic compounds (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. Due to conditions mentioned previously, 8MW2D and 8MW5 samples were collected using a peristaltic pump. 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. Copies of the groundwater sample logsheets and Chain-of-Custody-Records are provided in Appendix F and G, respectively.

Groundwater samples were sent to the project laboratory (Katahdin) for analysis for select TCL VOCs, semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), pesticides and polychlorinated biphenyls (PCBs); TAL metals (total and dissolved); and water chemistry parameters (nitrate, sulfate, and hardness). Data validation letters and laboratory data sheets are provided in Appendix H. Analytical results for groundwater samples are discussed in Section 3.0.

## 2.4 DECONTAMINATION AND INVESTIGATION-DERIVED WASTE

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

Liquid IDW derived from the monitoring of groundwater at the Goss Cove Landfill was tested for COCs during the first round of monitoring. Waste was sampled, analyzed, and disposed offsite as non-hazardous waste. Waste profile and waste manifest documentation are provided in Appendix I.

## 2.5 TIDAL STUDY

A tidal study was conducted at the Goss Cove Landfill monitoring wells and a staff gauge in the Thames River from December 17 through 19, 2001. One objective was to determine the proper low-tide sampling times for the tidally-influenced monitoring wells. Previously, monitoring wells have been sampled during low tide based on tidal predictions that are readily available for Smith Cove, and it was necessary to validate whether low tide at Goss Cove occurs at a comparable time as Smith Cove. A second objective was to determine the magnitude and lag times of tidal influences on the monitoring wells across the site.

Pressure transducers and data loggers were placed in 10 monitoring wells and in the Thames River at the staff gauge. The pressure transducers/data loggers were set to measure and record water levels at 6-minute intervals. This interval corresponds to the frequency used by the National Oceanic and Atmospheric Administration/National Oceanic Service (NOAA/NOS).

Data collected during the study was verified against actual tidal data recorded by NOAA/NOS at the New London station (#8461490). Prior to the comparison, the tidal data from the New London station was corrected with the appropriate factors, as specified by NOAA/NOS, to estimate tidal data at the entrance to Smith Cove. This cove is located directly across the Thames River from NSB-NLON.

After the data was verified, it was used to determine the minimum and maximum tidal influence and the lag (response) time for each monitoring well. One lag time was calculated by taking the difference between the predicted time of low tide at Smith Cove and the actual time of low tide measured at the staff gauge. The Smith Cove to Goss Cove lag time for low tide was estimated as approximately 0.5 minutes; therefore, low tide predictions for Smith Cove are applicable to the Goss Cove area of the Thames River.

A second set of lag times was calculated as the time difference between the occurrence of low tide at the staff gauge and the low groundwater level at each monitoring well. This approach was taken because the monitoring wells are to be sampled at a time when the low tide effects on groundwater levels are greatest. Estimated low tide lag times for the monitoring wells ranged from 0 minutes at 8MW2D to 64 minutes at 8MW3.

Appendix J contains a summary of the tidal study results, supporting data, and calculations. Hydrographs at each monitoring well are provided with the Smith Cove and staff gauge elevations included as references. Tidal influences of measurable magnitude were observed at 8MW1, 8MW2D 8MW2S,

8MW3, 8MW5S (water drops below well screen at low tide), 8MW6D, and 8MW8D. Monitoring wells 8MW6S, 8MW7S, and 8MW8S were not tidally influenced. The results of this tidal study will be used to determine proper sampling times during subsequent sampling events at Goss Cove Landfill.

8MW8S DRY
USED 8MW10S

SEE pg 2-1
3RD ¶

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## TABLE 2-1

## GROUNDWATER LEVEL MEASUREMENTS AND ELEVATIONS
## GROUNDWATER MONITORING REPORT
## GOSS COVE LANDFILL, NSB-NLON, GROTON, CONNECTICUT

| Well Number | Reference Elevation[1] (feet) | Depth to Water[2] (feet) LOW TIDE | Depth to Water[2] (feet) HIGH TIDE | Groundwater Elevation (feet) LOW TIDE | Groundwater Elevation (feet) HIGH TIDE | Well Screen Depth[3] |
|---|---|---|---|---|---|---|
| 8MW1 | 11.97 | 13.30 | 12.11 | -1.33 | -0.14 | Shallow |
| 8MW2S | 9.63 | 10.10 | 10.08 | -0.47 | -0.45 | Shallow |
| 8MW2D | 9.93 | 10.88 | 9.75 | -0.95 | 0.18 | Deep |
| 8MW3 | 8.27 | 8.61 | 8.73 | 0.34 | -0.46 | Shallow |
| 8MW5S | 12.32 | 13.76 | 12.26 | -1.44 | -0.06 | Shallow |
| 8MW6S | 8.41 | 8.49 | 8.54 | -0.08 | -0.13 | Shallow |
| 8MW6D | 7.45 | 8.31 | 6.76 | -0.86 | 0.69 | Deep |
| 8MW7S | 9.19 | 9.14 | 9.20 | 0.05 | -0.01 | Shallow |
| 8MW8D | 17.20 | 17.20 | 16.14 | 0.00 | 1.06 | Bedrock |
| 8MW10S | 19.24 | 16.59 | 16.58 | 2.65 | 2.66 | Shallow |
| HNUS23 | 18.11 | 9.02 | 8.98 | 9.09 | 9.13 | Shallow |
| 8SG01 | 8.37 | 10.69 | 8.15 | -2.32 | 0.22 | NA |

NOTES:

1 Reference elevation is top of well casing (NGVD 1988).
2 Depth to water is from top of well casing. Measured January 9, 2002 for low and high tide.
3 Well screen depths designated as shallow unconfined, deep unconfined, and bedrock groundwater.

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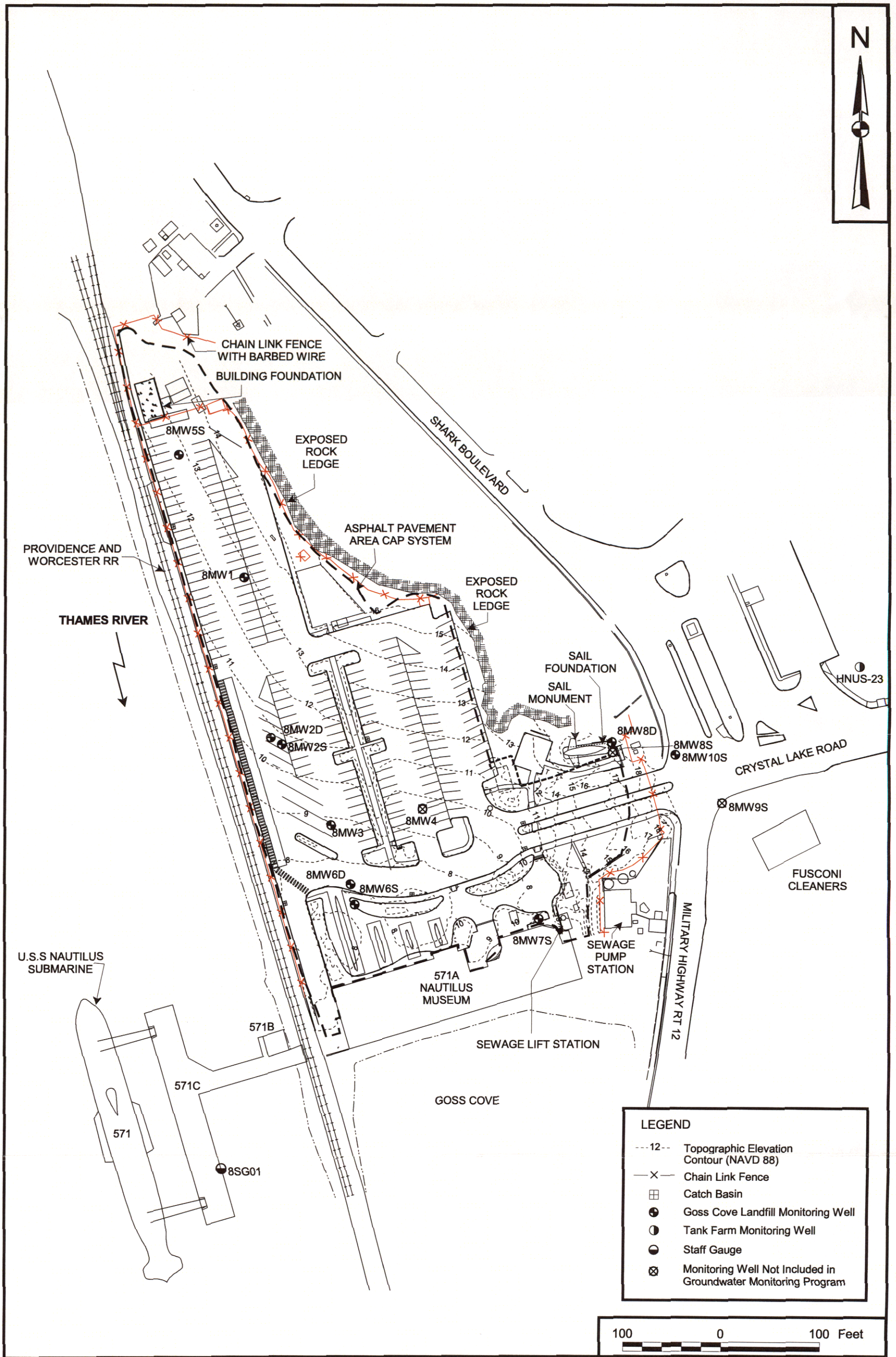
P:\GIS\NLON\GOSSCOVELANDFILL.APR SAMPLE LOCATION MAP 4/30/02 JAL




| | | | |
|---|---|---|---|
| DRAWN BY J. LAMEY | DATE 4/10/02 | Tetra Tech NUS, Inc. | CONTRACT NUMBER 2863 / OWNER NUMBER 816 |
| CHECKED BY | DATE | SAMPLING LOCATIONS FOR GROUNDWATER MONITORING<br>GOSS COVE LANDFILL<br>NSB NLON<br>GROTON, CONNECTICUT | APPROVED BY CAR / DATE 5/1/02 |
| COST/SCHEDULE-AREA | | | APPROVED BY / DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 2-1 / REV 0 |

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2-9

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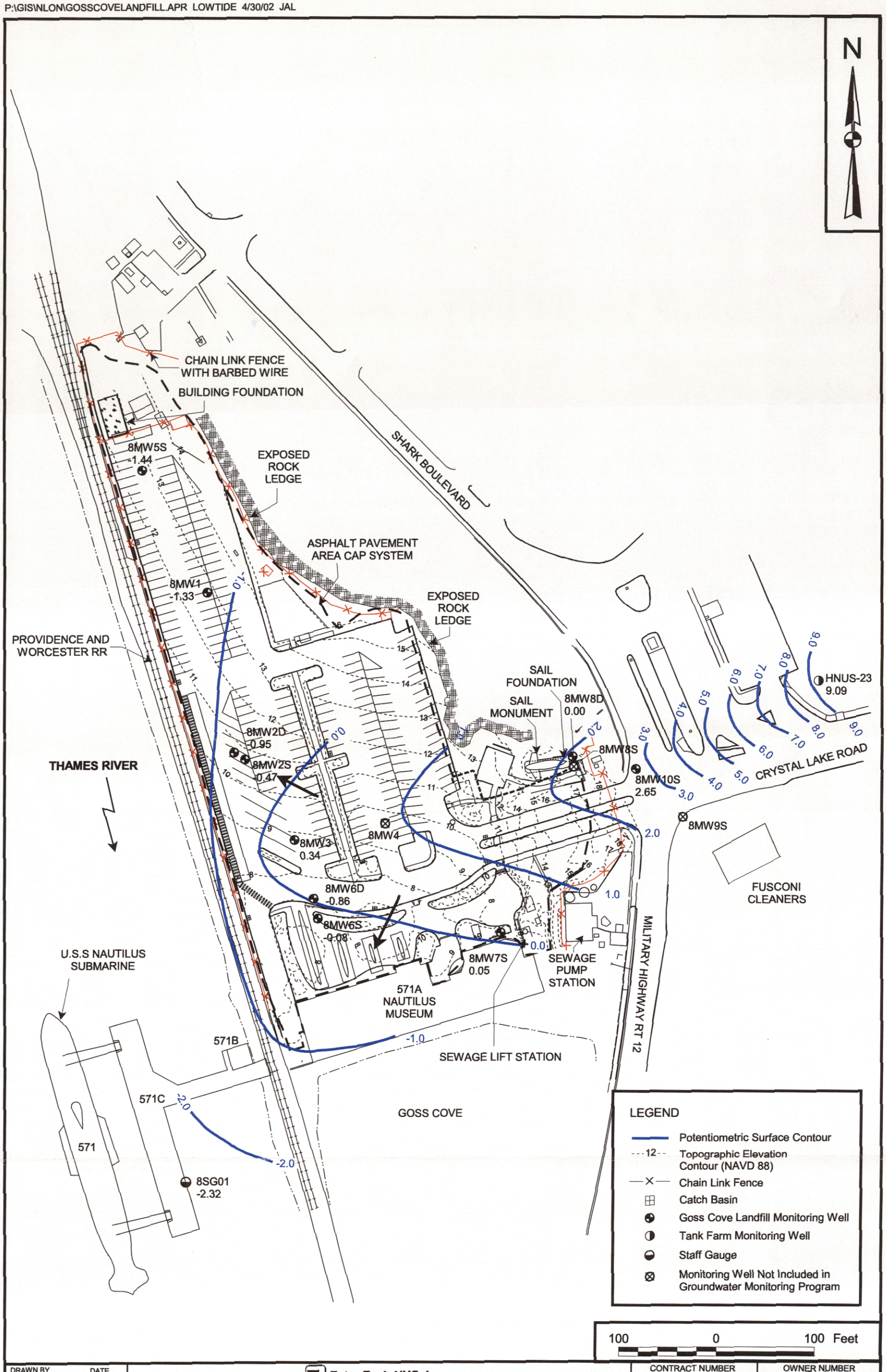


| | | | |
|---|---|---|---|
| DRAWN BY K. PEILA — DATE 4/19/02 | Tetra Tech NUS, Inc. | CONTRACT NUMBER 2863 | OWNER NUMBER B16 |
| CHECKED BY — DATE | POTENTIOMETRIC SURFACE MAP<br>LOW TIDE<br>ROUND 1 GROUNDWATER MONITORING<br>GOSS COVE LANDFILL (SITE 8)<br>NSB NLON<br>GROTON, CONNECTICUT | APPROVED BY CAR | DATE 5/1/02 |
| COST/SCHEDULE-AREA | | APPROVED BY | DATE |
| SCALE AS NOTED | | DRAWING NO. FIGURE 2-2 | REV 0 |

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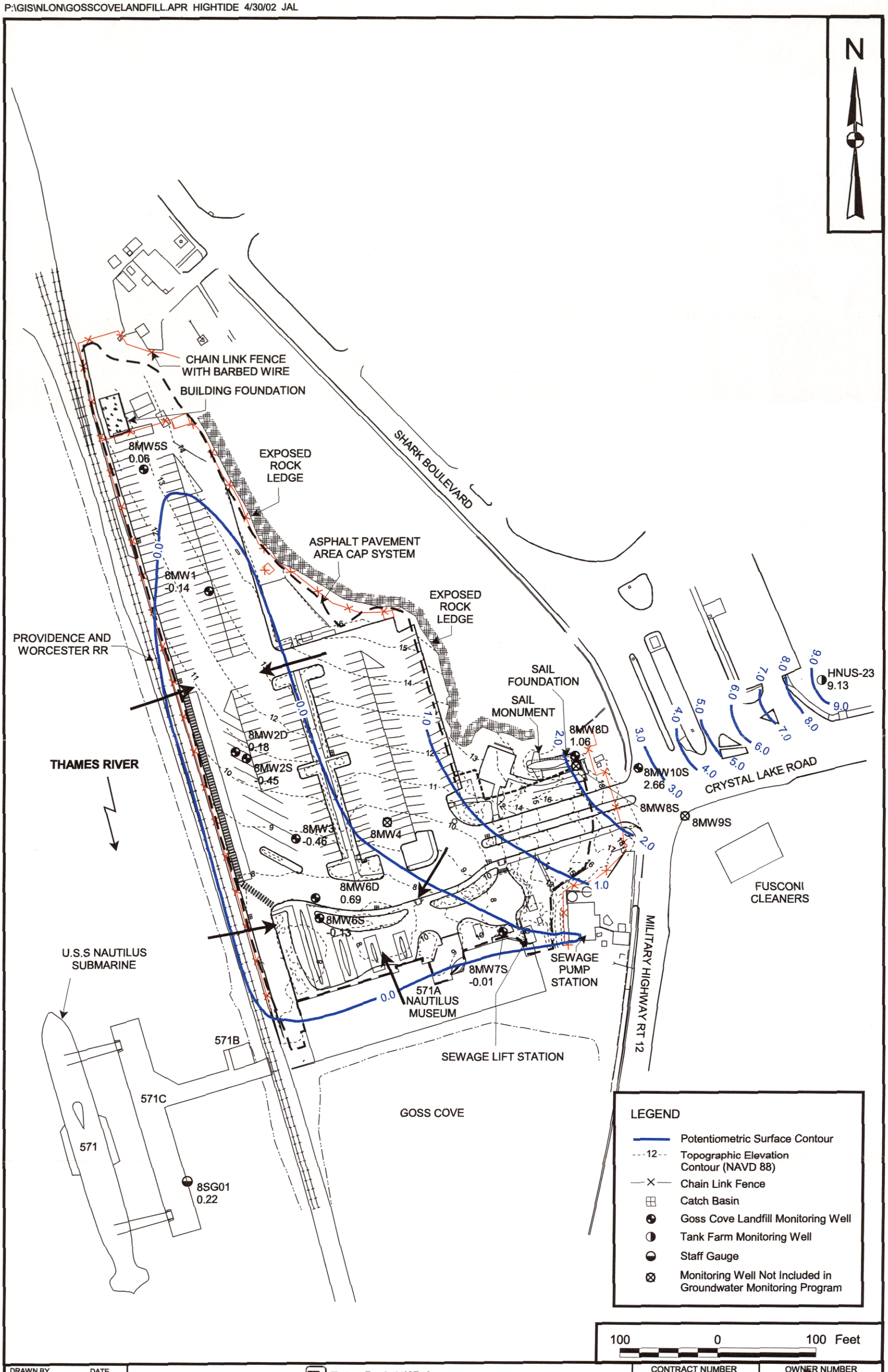


| | | | |
|---|---|---|---|
| DRAWN BY K. PEILA / DATE 4/19/02 | Tetra Tech NUS, Inc. | CONTRACT NUMBER 2863 | OWNER NUMBER 816 |
| CHECKED BY / DATE | POTENTIOMETRIC SURFACE MAP<br>HIGH TIDE<br>ROUND 1 GROUNDWATER MONITORING<br>GOSS COVE LANDFILL (SITE 8)<br>NSB NLON<br>GROTON, CONNECTICUT | APPROVED BY CAR | DATE 5/1/02 |
| COST/SCHEDULE-AREA | | APPROVED BY | DATE |
| SCALE AS NOTED | | DRAWING NO. FIGURE 2-3 | REV 0 |

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# 3.0 MONITORING RESULTS

The groundwater samples collected from 11 monitoring wells were analyzed for TCL VOCs, SVOCs, PAHs, pesticides and PCBs, TAL metals (total and dissolved), and water chemistry parameters (nitrate, sulfate, and hardness). Evaluation focused on the following organic and inorganic chemicals of potential concern (COPCs), as identified in the GMP (TtNUS, March 2001).

- Methylene Chloride
- Tetrachloroethane
- Xylenes
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(k)fluoranthene
- Bis(2-ethylhexyl)phthalate
- Carbazole
- Chrysene
- Dibenzo(a,h)anthracene
- Fluoranthene
- Indeno(1,2,3-cd)pyrene
- Phenanthrene
- Pyrene
- 4,4-DDD
- 4,4-DDE
- 4,4-DDT
- Aldrin
- Aroclor 1248
- Aroclor 1254
- Aroclor 1260
- Dieldrin
- Heptachlor
- Antimony
- Arsenic
- Beryllium
- Cadmium
- Copper
- Lead
- Mercury
- Nickel
- Vanadium
- 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 in Table 3-1. Of the above listed COPCs, all except methylene chloride, beryllium, and the pesticides/PCBs were detected. Within the table, the analytical results are compared to the primary and secondary monitoring criteria, as established in the GMP (TtNUS, March 2001) and background groundwater concentrations determined during the Basewide Groundwater OU RI (TtNUS, 2002). Chemicals exceeding either primary or secondary monitoring criteria or background concentrations are noted by shading. Figure 3-1 shows the chemicals detected in groundwater samples that exceed criteria. Data validation letters and laboratory data sheets are attached to this report as Appendix H.

The results of this comparison is summarized as follows:

- There were no detections of pesticides, PCBs, methylene chloride, or beryllium in groundwater.

- The VOC tetrachloroethene was detected in four of eleven groundwater samples. The concentrations were 1200, 50, 54, and 3000 µg/L, which were detected in the samples from monitoring wells 8MW10S, 8MW2D, 8MW2D(DUP), and 8MW8D respectively. The results for samples from monitoring wells 8MW10S and 8MW8D exceeded the primary monitoring criteria (88 µg/L). These wells are located upgradient of the site. The results from 8MW2D and 8MW2D(DUP) exceeded the secondary monitoring criteria (8.85 µg/L).

- The VOC total xylenes was detected in six of eleven groundwater samples. The concentrations ranged from 0.3 to 200 µg/L in the groundwater samples collected from 8MW2S, 8MW3, 8MW5S, 8MW6D, 8MW6S, and 8MW7S. None of these results exceeded the primary monitoring criteria (50,000 µg/L).

- The laboratory's detection limits for all SVOCs except bis(2-ethylhexyl)phthalate, carbazole, fluoranthene, and pyrene exceeded the secondary monitoring criteria in all samples with non-detected results. The project laboratory was unable to report defensible results below 0.1 µg/L using currently available laboratory equipment.

- The SVOC benzo(a)anthracene was detected in three of eleven groundwater samples. The concentrations were 0.4. 0.6, and 0.06 µg/L in samples from monitoring wells 8MW3, 8MW6D, and 8MW7S, respectively. These results exceeded the secondary monitoring criteria (0.031 µg/L) and the results from 8MW3 and 8MW6D exceeded the primary monitoring criteria (0.3 µg/L).

- The SVOC benzo(a)pyrene was detected in two of eleven groundwater samples. The concentrations were 0.4 and 1 µg/L in the samples from monitoring wells 8MW3 and 8MW6D, respectively. Both of these results exceeded the secondary monitoring criteria (0.031 µg/L) and the results from 8MW6D exceeded the primary monitoring criteria (0.3 µg/L).

- The SVOC benzo(b)fluoranthene was detected in two of eleven groundwater samples. The concentrations were 0.1 and 1 µg/L in the groundwater samples from 8MW3 and 8MW6D, respectively. These results exceeded the secondary monitoring criteria (0.031 µg/L) and the results from 8MW6D exceeded the primary monitoring criteria (0.3 µg/L).

- The SVOC benzo(g,h,i)perylene was detected in two of eleven groundwater samples. The concentrations were 0.1 and 1 µg/L in the groundwater samples from 8MW3 and 8MW6D, respectively. These results exceeded the secondary monitoring criteria (0.031 µg/L) and the results from 8MW6D exceeded the primary monitoring criteria (0.3 µg/L).

- The SVOC benzo(k)fluoranthene was detected in two of eleven groundwater samples. The concentrations were 0.2 and 1 µg/L in the groundwater samples from 8MW3 and 8MW6D, respectively. These results exceeded the secondary monitoring criteria (0.031 µg/L) and the results from 8MW6D exceeded the primary monitoring criteria (0.3 µg/L).

- The SVOC bis(2-ethylhexyl)phthalate was detected in one of eleven groundwater samples. The concentration was 3 µg/L in the sample from monitoring well HNUS-23. This result did not exceed either of the criterion.

- The SVOC carbazole was detected in three of eleven groundwater samples. The concentrations were 16, 14, and 0.9 µg/L in the samples from monitoring wells 8MW2S, 8MW3, and 8MW7S, respectively. None of these results exceeded either of the criterion.

- The SVOC chrysene was detected in three of eleven groundwater samples. The concentrations were 0.3, 1, and 0.06 µg/L in the samples from monitoring wells 8MW3, 8MW6D, and 8MW7S, respectively. These results exceeded the secondary monitoring criteria (0.031 µg/L). The result from sample 8MW6D (1 µg/L) also exceeded the primary monitoring criteria (0.3 µg/L).

- The SVOC dibenzo(a,h)anthracene was detected in one of eleven groundwater samples. The concentration was 0.2 µg/L in the sample from 8MW6D. This result exceeded the secondary monitoring criteria (0.031 µg/L).

- The SVOC fluoranthene was detected in six (plus the duplicate) of eleven groundwater samples. The concentrations ranged from 0.6 to 5 µg/L in the samples collected from monitoring wells 8MW2D, 8MW2D(DUP), 8MW2S, 8MW3, 8MW6D, 8MW6S, and 8MW7S. None of these results exceeded either of the criterion.

- The SVOC indeno(1,2,3-cd)pyrene was detected in two of eleven groundwater samples. The concentrations were 0.1 and 1 µg/L in the samples from monitoring wells 8MW3 and 8MW6D, respectively. These results exceeded the secondary monitoring criteria (0.031 µg/L) and the results from 8MW6D exceeded the primary monitoring criteria (0.3 µg/L).

- The SVOC phenanthrene was detected in six (plus the duplicate) of eleven groundwater samples. The concentrations ranged from 0.2 to 5 µg/L in the samples from 8MW2D, 8MW2S, 8MW3, 8MW6D, 8MW6S, and 8MW7S. The results from 8MW2D(DUP), 8MW2S, 8MW3, 8MW6D, 8MW6S, and 8MW7S (0.4, 4, 5, 0.7, 0.4, and 0.8 µg/L, respectively) exceeded the primary monitoring criteria (0.3 µg/L). All the results exceeded the secondary monitoring criteria (0.031 µg/L).

- The SVOC pyrene was detected in six (plus the duplicate) of eleven groundwater samples. The concentrations ranged from 0.2 to 4 µg/L in the samples from 8MW2D, 8MW2S, 8MW3, 8MW6D, 8MW6S, and 8MW7S. None of these results exceeded either of the criterion.

- The laboratory's detection limits for all pesticides exceeded the secondary monitoring criteria in all samples. The project laboratory was unable to report defensible results within two orders of magnitude of the secondary criteria using currently available laboratory equipment.

- Antimony was detected in one of eleven unfiltered groundwater samples. A concentration of 4.1 µg/L was detected in the sample from monitoring well 8MW3. This result did not exceed either of the criterion.

- Arsenic was detected in four unfiltered groundwater samples from wells 8MW1, 8MW2D, 8MW6D, and 8MW6S and one duplicate [8MW2D(DUP)] at concentrations ranging from 5 µg/L to 22.4 µg/L. Arsenic was also detected in filtered samples from three wells at concentrations ranging from 5.2 µg/L to 21.4 µg/L. The concentrations in the unfiltered samples from these four wells were 9.3, 22.4, 21.2 (DUP), 14.2, and 5 µg/L respectively, while the concentrations in the filtered samples 6.45U, 21.4, 17.7 (DUP), 11.2, and 5.2 µg/L respectively. All the detections of arsenic exceeded the primary criteria of 4 µg/L and the secondary criteria of 0.14 µg/L. One of the results for arsenic in the filtered sample was higher than the result in the unfiltered portion of the corresponding sample. Additionally, the unfiltered and filtered results from these wells exceeded NSB-NLON background concentrations (1.92 and 2.55 µg/L, respectively).

- Cadmium was detected in a sample collected from monitoring well 8MW6S in the unfiltered sample (0.29 µg/L). This detection did not exceed either of the criterion. There were no cadmium detections in the filtered samples. Cadmium was not detected in NSB-NLON background samples.

- Copper was detected in five unfiltered groundwater samples and two filtered samples collected from monitoring wells 8MW1, 8MW3, 8MW5S, 8MW6D, and 8MW6S. The concentrations in the unfiltered samples were 11, 83.4, 5, 28.1, and 12.2 µg/L, respectively. The concentrations in the filtered samples were 12.6, 0.84U, 2.1, 2.52U, and 1.66U µg/L, respectively. One of the detections of copper exceeded the primary criterion of 48 µg/L. All of the detections of copper exceeded the secondary criterion of 2.4 µg/L. One of the results for copper in the filtered sample was higher than the result in the unfiltered portion of the corresponding sample. However, no concentrations exceeded NSB-NLON background concentrations (107 and 39.4 µg/L, respectively).

- Lead was detected in three unfiltered groundwater samples collected from 8MW3, 8MW6D, and 8MW7S. The concentrations in the unfiltered samples were 85.6, 15.8, and 9.5 µg/L, respectively. Two of the detections of lead exceeded the primary criterion of 13 µg/L. All of the detections of lead exceeded the secondary criterion of 8.1 µg/L. There were no lead detections from the filtered samples. Additionally, these results exceeded NSB-NLON background concentration (6.63 µg/L).

- Mercury was detected in five of the unfiltered groundwater samples and five of the filtered groundwater samples collected from 8MW3, 8MW5S, 8MW6D, 8MW6S, 8MW7S, and HNUS-23. The concentrations in the unfiltered samples were 0.32, 0.05, 0.06, 0.04, 0.08, and 0.03U µg/L, respectively. The concentrations in the filtered samples were 0.03U, 0.05, 0.03, 0.04, 0.03, and 0.04 µg/L, respectively. All of the detections of mercury exceeded the secondary criterion of 0.025 µg/L. None of the detections exceeded the primary monitoring criteria (0.4 µg/L). One of the results for mercury in the filtered sample was higher than the result in the unfiltered portion of the corresponding sample. Mercury was not detected in NSB-NLON background samples.

- Nickel was detected in three of the unfiltered groundwater samples and three of the filtered groundwater samples collected from 8MW1, 8MW2S, 8MW3, 8MW6D, and 8MW6S. The concentrations in the unfiltered samples were 27.75U, 0.72U, 4.1, 6.6, and 1.8 µg/L, respectively. The concentrations in the filtered samples were 34.2, 1.3, 0.72U, 4, and 5.89U µg/L, respectively. One of the filtered detections of nickel (from 8MW1) exceeded the secondary monitoring criteria (8.2 µg/L). Two of the results for nickel in the filtered sample were higher than the result in the unfiltered portion of the corresponding sample. Additionally, the filtered sample from 8MW1 (34.2 µg/L) exceeded the NSB-NLON background concentration for nickel (15.3 µg/L).

- Vanadium was detected in three of the unfiltered groundwater samples (and one duplicate) and two of the filtered groundwater samples collected from 8MW2D, 8MW3, 8MW5S, and 8MW6D. The concentrations in the unfiltered samples were 4.8, 6 (DUP), 7.1, 1.56U, and 2.2 µg/L, respectively. The concentrations in the filtered samples were 4.66U, 4.66U (DUP), 0.58, 10.9, and 1.56U µg/L, respectively. Primary and secondary monitoring criterion are not available for vanadium. One of the results for vanadium in the filtered sample was higher than the result in the unfiltered portion of the corresponding sample. However, the filtered sample result from 8MW5S (10.9 µg/L) exceeded the NSB-NLON background concentration for vanadium (9.9 µg/L).

- Zinc was detected in one filtered groundwater sample collected from 8MW1. The concentration in the filtered groundwater sample was 139 µg/L, while the concentrations in the unfiltered sample was 108U µg/L. The concentration of zinc detected in the unfiltered sample exceeded the primary

criterion of 123 µg/L and the secondary criterion of 81 µg/L. Additionally, the unfiltered sample exceeded the NSB-NLON background concentration for zinc (109 µg/L).

As stated in Section 1.1, because this is only an interim report, the evaluation of the analytical results is limited to the above comparison. No conclusions or recommendations are drawn from this comparison. Subsequent conclusions and recommendations will be provided in the Year 1 Annual Groundwater Monitoring Report based on monitoring performed during year 1.

TABLE 3-1

ROUND 1 GROUNDWATER ANALYTICAL RESULTS SUMMARY
INTERIM GROUNDWATER MONITORING REPORT
GOSS COVE LANDFILL, NSB-NLON, GROTON, CONNECTICUT
PAGE 1 OF 3

| Chemical | Primary Monitoring Criterion[1] | Secondary Monitoring Criterion[4] | NSB-NLON Background Concentration[7] | 8MW1 1 1/13/2002 | 8MW10S 1 1/10/2002 | 8MW2D 1 1/9/2002 | 8MW2D (DUP) 1 1/9/2002 |
|---|---|---|---|---|---|---|---|
| **VOCs (ug/L)** | | | | | | | |
| METHYLENE CHLORIDE | 48,000 | 1,600 | -- | 1 U | 51 U | 1 U | 1 U |
| TETRACHLOROETHENE | 88 | 8.85 | -- | 1 U | 1200 J | 50 J | 54 |
| XYLENES, TOTAL | 50000[2] | NA | -- | 1 U | 50 U | 1 U | 1 U |
| **SVOCs (ug/L)** | | | | | | | |
| BENZO(A)ANTHRACENE | 0.3 | 0.031 | -- | 0.1 UJ | 0.1 U | 0.1 UJ | 0.1 U |
| BENZO(A)PYRENE | 0.3 | 0.031 | -- | 0.1 UJ | 0.1 U | 0.1 UJ | 0.1 U |
| BENZO(B)FLUORANTHENE | 0.3 | 0.031 | -- | 0.1 UJ | 0.1 U | 0.1 UJ | 0.1 U |
| BENZO(G,H,I)PERYLENE | 0.3[3] | 0.031 | -- | 0.1 UJ | 0.1 U | 0.1 UR | 0.1 U |
| BENZO(K)FLUORANTHENE | 0.3 | 0.031 | -- | 0.1 U | 0.1 U | 0.1 UJ | 0.1 U |
| BIS(2-ETHYLHEXYL)PHTHALATE | 59 | 5.9 | -- | 5 U | 5 U | 5 UJ | 5 U |
| CARBAZOLE | 29[3] | NA | -- | 5 UJ | 5 UJ | 5 UJ | 5 UJ |
| CHRYSENE | 0.3[3] | 0.031 | -- | 0.1 UJ | 0.1 U | 0.1 UJ | 0.1 U |
| DIBENZO(A,H)ANTHRACENE | NA | 0.031 | -- | 0.1 UJ | 0.1 UJ | 0.1 UR | 0.1 UJ |
| FLUORANTHENE | 3,700 | 370 | -- | 0.1 UJ | 0.1 U | 1 | 1 |
| INDENO(1,2,3-CD)PYRENE | 0.3[3] | 0.031 | -- | 0.1 UJ | 0.1 U | 0.1 UR | 0.1 U |
| PHENANTHRENE | 0.3 | 0.031 | -- | 0.1 UJ | 0.1 U | 0.2 | 0.4 |
| PYRENE | 110,000 | 11,000 | -- | 0.1 UJ | 0.1 U | 0.5 J | 0.6 |
| **Pesticides/PCBs (ug/L)** | | | | | | | |
| 4,4-DDD | NA | 0.00059[5] | -- | 0.019 U | 0.019 U | 0.019 U | 0.02 U |
| 4,4-DDE | NA | 0.00059 | -- | 0.019 U | 0.019 U | 0.019 U | 0.02 U |
| 4,4-DDT | NA | 0.00059 | -- | 0.019 U | 0.019 U | 0.019 U | 0.02 U |
| ALDRIN | NA | 0.00014 | -- | 0.01 U | 0.01 U | 0.01 U | 0.01 U |
| AROCLOR-1248 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.2 U |
| AROCLOR-1254 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.2 U |
| AROCLOR-1260 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.2 U |
| DIELDRIN | 0.1 | 0.00014 | -- | 0.019 U | 0.019 U | 0.019 U | 0.02 U |
| HEPTACHLOR | 0.05 | 0.00021 | -- | 0.01 U | 0.01 U | 0.01 U | 0.01 U |
| **Inorganics (total/dissolved) (ug/L)** | | | | | | | |
| ANTIMONY | 86,000 | 4,300 | 2.9/2.01 | 7.86 U/7.86 U | 3.65 U/3.65 U | 10.95 U/10.95 U | 10.95 U/10.95 U |
| ARSENIC | 4 | 0.14 | 1.92/2.55 | 9.3/6.45 U | 2.53 U/2.53 U | 22.4/21.4 | 21.2/17.7 |
| BERYLLIUM | 4 | 0.13 | ND | 1.1 U/1.1 U | 0.41 U/0.41 U | 0.41 U/0.41 U | 0.41 U/0.41 U |
| CADMIUM | 6 | 9.3[6] | ND | 8.94 U/8.94 U | 2.84 U/2.84 U | 2.84 U/2.84 U | 2.84 U/2.84 U |
| COPPER | 48 | 2.4 | 107/39.4 | 11 J/12.6 J | 1.66 U/1.66 U | 1.66 U/1.66 U | 1.66 U/1.66 U |
| LEAD | 13 | 8.1[6] | 6.63/2.52 | 4.11 UJ/4.11 U | 1.48 U/1.48 U | 4.44 U/4.44 U | 4.44 U/4.44 U |
| MERCURY | 0.4 | 0.025[6] | ND | 0.03 U/0.03 U | 0.03 U/0.03 U | 0.03 U/0.03 U | 0.03 U/0.03 U |
| NICKEL | 880 | 8.2 | 32.2/15.3 | 27.75 UJ/34.2 J | 5.89 U/5.89 U | 5.89 UJ/10.5 U | 5.89 UJ/6 U |
| VANADIUM | NA | NA | 10.2/9.9 | 11.52 U/11.52 U | 4.66 U/4.66 U | 4.8/4.66 U | 6/4.66 U |
| ZINC | 123 | 81 | 131/109 | 108 U/139 J | 20.8 U/22.7 U | 1.49 U/1.49 U | 2.5 U/1.49 U |



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TABLE 3-1

ROUND 1 GROUNDWATER ANALYTICAL RESULTS SUMMARY
INTERIM GROUNDWATER MONITORING REPORT
GOSS COVE LANDFILL, NSB-NLON, GROTON, CONNECTICUT
PAGE 2 OF 3

| Chemical | Primary Monitoring Criterion[1] | Secondary Monitoring Criterion[4] | NSB-NLON Background Concentration[7] | 8MW2S 1 1/11/2002 | 8MW3 1 1/11/2002 | 8MW5S 1 1/8/2002 | 8MW6D 1 1/10/2002 |
|---|---|---|---|---|---|---|---|
| **VOCs (ug/L)** | | | | | | | |
| METHYLENE CHLORIDE | 48,000 | 1,600 | -- | 1 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 88 | 8.85 | -- | 1 U | 1 U | 1 U | 1 U |
| XYLENES, TOTAL | 50000[2] | NA | -- | 160 | 200 | 0.3 J | 4 J |
| **SVOCs (ug/L)** | | | | | | | |
| BENZO(A)ANTHRACENE | 0.3 | 0.031 | -- | 1 UJ | 0.4 J | 0.1 U | 0.6 |
| BENZO(A)PYRENE | 0.3 | 0.031 | -- | 1 UJ | 0.1 J | 0.1 U | 1 |
| BENZO(B)FLUORANTHENE | 0.3 | 0.031 | -- | 1 UJ | 0.1 J | 0.1 U | 1 |
| BENZO(G,H,I)PERYLENE | 0.3 | 0.031 | -- | 1 UJ | 0.1 J | 0.1 U | 1 |
| BENZO(K)FLUORANTHENE | 0.3 | 0.031 | -- | 1 U | 0.2 | 0.1 U | 1 |
| BIS(2-ETHYLHEXYL)PHTHALATE | 59 | 5.9 | -- | 5 U | 25 U | 5 U | 5 U |
| CARBAZOLE | 29[3] | NA | -- | 16 J | 14 J | 5 UJ | 5 UJ |
| CHRYSENE | 0.3 | 0.031 | -- | 1 UJ | 0.3 J | 0.1 U | 1 |
| DIBENZO(A,H)ANTHRACENE | NA | 0.031 | -- | 1 UJ | 0.1 U | 0.1 UJ | 0.2 J |
| FLUORANTHENE | 3,700 | 370 | -- | 1 J | 2 J | 0.1 U | 5 |
| INDENO(1,2,3-CD)PYRENE | 0.3 | 0.031 | -- | 1 UJ | 0.1 J | 0.1 U | 1 |
| PHENANTHRENE | 0.3 | 0.031 | -- | 4 J | 5 J | 0.1 U | 0.7 |
| PYRENE | 110,000 | 11,000 | -- | 2 J | 0.9 J | 0.1 U | 4 |
| **Pesticides/PCBs (ug/L)** | | | | | | | |
| 4,4-DDD | NA | 0.00059[5] | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| 4,4-DDE | NA | 0.00059 | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| 4,4-DDT | NA | 0.00059 | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| ALDRIN | NA | 0.00014 | -- | 0.01 U | 0.01 U | 0.01 U | 0.009 U |
| AROCLOR-1248 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| AROCLOR-1254 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| AROCLOR-1260 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| DIELDRIN | 0.1 | 0.00014 | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| HEPTACHLOR | 0.05 | 0.00021 | -- | 0.01 U | 0.01 U | 0.01 U | 0.009 U |
| **Inorganics (total/dissolved) (ug/L)** | | | | | | | |
| ANTIMONY | 86,000 | 4,300 | 2.9/2.01 | 3.65 U/3.65 U | 4.1 J/3.65 U | 10.95 U/10.95 U | 10.95 U/10.95 U |
| ARSENIC | 4 | 0.14 | 1.92/2.55 | 2.53 U/2.53 U | 2.53 U/2.53 U | 7.59 U/7.59 U | 14.2/11.2 |
| BERYLLIUM | 4 | 0.13 | ND | 0.45 U/0.42 U | 0.32 U/0.29 U | 0.54 U/0.48 U | 0.54 U/0.54 U |
| CADMIUM | 6 | 9.3[6] | ND | 0.24 U/0.24 U | 0.24 U/0.24 U | 0.72 U/2.84 U | 0.72 U/0.72 U |
| COPPER | 48 | 2.4 | 107/39.4 | 0.84 U/0.84 U | 83.4/0.84 U | 5 J/2.1 J | 28.1 J/2.52 U |
| LEAD | 13 | 8.1 | 6.63/2.52 | 2.2 U/1.48 U | 85.6/1.48 U | 4.44 U/4.44 U | 15.8/4.44 U |
| MERCURY | 0.4 | 0.025 | ND | 0.03 U/0.03 U | 0.32/0.03 U | 0.05/0.05 | 0.06/0.03 |
| NICKEL | 880 | 8.2[6] | 32.2/15.3 | 0.72 U/1.3 J | 4.1/0.72 U | 10.5 U/5.89 UJ | 6.6/4 |
| VANADIUM | NA | NA | 10.2/9.9 | 0.52 U/0.52 U | 7.1/0.58 J | 1.56 U/10.9 | 2.2/1.56 U |
| ZINC | 123 | 81[6] | 131/109 | 5.2 U/0.47 U | 110 U/0.57 U | 36 U/14.3 U | 43 U/9.5 U |



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TABLE 3-1

ROUND 1 GROUNDWATER ANALYTICAL RESULTS SUMMARY
INTERIM GROUNDWATER MONITORING REPORT
GOSS COVE LANDFILL, NSB-NLON, GROTON, CONNECTICUT
PAGE 3 OF 3

| Chemical | Primary Monitoring Criterion[1] | Secondary Monitoring Criterion[4] | NSB-NLON Background Concentration[7] | 8MW6S 1 1/10/2002 | 8MW7S 1 1/8/2002 | 8MW8D 1 1/13/2002 | HNUS-23 1 1/10/2002 |
|---|---|---|---|---|---|---|---|
| **VOCs (ug/L)** | | | | | | | |
| METHYLENE CHLORIDE | 48,000 | 1,600 | -- | 2 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 88 | 8.85 | -- | 1 U | 1 U | 3000 | 1 U |
| XYLENES, TOTAL | 50000[2] | NA | -- | 7 | 14 J | 1 U | 1 U |
| **SVOCs (ug/L)** | | | | | | | |
| BENZO(A)ANTHRACENE | 0.3 | 0.031 | -- | 0.1 U | 0.06 J | 0.1 UJ | 0.1 U |
| BENZO(A)PYRENE | 0.3 | 0.031 | -- | 0.1 U | 0.1 U | 0.1 UJ | 0.1 U |
| BENZO(B)FLUORANTHENE | 0.3 | 0.031 | -- | 0.1 U | 0.1 U | 0.1 UJ | 0.1 U |
| BENZO(G,H,I)PERYLENE | 0.3[3] | 0.031 | -- | 0.1 U | 0.1 U | 0.1 UJ | 0.1 U |
| BENZO(K)FLUORANTHENE | 0.3 | 0.031 | -- | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| BIS(2-ETHYLHEXYL)PHTHALATE | 59 | 5.9 | -- | 5 U | 6 U | 5 U | 3 J |
| CARBAZOLE | 29[3] | NA | -- | 5 UJ | 0.9 J | 5 UJ | 5 UJ |
| CHRYSENE | 0.3[3] | 0.031 | -- | 0.1 U | 0.06 J | 0.1 UJ | 0.1 U |
| DIBENZO(A,H)ANTHRACENE | NA | 0.031 | -- | 0.1 UJ | 0.1 UJ | 0.1 UJ | 0.1 UJ |
| FLUORANTHENE | 3,700 | 370 | -- | 0.6 | 1 | 0.1 UJ | 0.1 U |
| INDENO(1,2,3-CD)PYRENE | 0.3[3] | 0.031 | -- | 0.1 U | 0.1 U | 0.1 UJ | 0.1 U |
| PHENANTHRENE | 0.3 | 0.031 | -- | 0.4 | 0.8 | 0.1 UJ | 0.1 UJ |
| PYRENE | 110,000 | 11,000 | -- | 0.2 | 0.5 | 0.1 UJ | 0.1 U |
| **Pesticides/PCBs (ug/L)** | | | | | | | |
| 4,4-DDD | NA | 0.00059[5] | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| 4,4-DDE | NA | 0.00059 | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| 4,4-DDT | NA | 0.00059 | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| ALDRIN | NA | 0.00014 | -- | 0.01 U | 0.01 U | 0.009 U | 0.01 U |
| AROCLOR-1248 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| AROCLOR-1254 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| AROCLOR-1260 | 0.5 | NA | -- | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| DIELDRIN | 0.1 | 0.00014 | -- | 0.019 U | 0.019 U | 0.019 U | 0.019 U |
| HEPTACHLOR | 0.05 | 0.00021 | -- | 0.01 U | 0.01 U | 0.009 U | 0.01 U |
| **Inorganics (total/dissolved) (ug/L)** | | | | | | | |
| ANTIMONY | 86,000 | 4,300 | 2.9/2.01 | 3.65 U/3.65 U | 3.65 U/3.65 U | 2.62 U/2.62 U | 3.65 U/3.65 U |
| ARSENIC | 4 | 0.14 | 1.92/2.55 | 5 J/5.2 | 2.53 U/2.53 U | 2.15 U/2.15 U | 2.53 U/2.53 U |
| BERYLLIUM | 4 | 0.13 | ND | 0.51 U/0.41 U | 0.41 U/0.41 U | 0.41 U/0.41 U | 0.41 U/0.41 U |
| CADMIUM | 6 | 9.3[6] | ND | 0.29 J/2.84 U | 2.84 U/2.84 U | 2.84 U/2.84 U | 2.84 U/2.84 U |
| COPPER | 48 | 2.4 | 107/39.4 | 0.84 U/1.66 U | 12.2/1.66 U | 1.66 U/1.66 U | 1.66 U/1.66 U |
| LEAD | 13 | 8.1 | 6.63/2.52 | 2 U/1.48 U | 9.5/1.48 U | 1.37 UJ/1.37 UJ | 1.48 U/1.48 U |
| MERCURY | 0.4 | 0.025[6] | ND | 0.04/0.04 | 0.08/0.03 | 0.03 U/0.03 U | 0.03 U/0.04 |
| NICKEL | 880 | 8.2[6] | 32.2/15.3 | 1.8/5.89 U | 10 U/6 U | 5.89 U/5.89 U | 5.89 U/5.89 U |
| VANADIUM | NA | NA | 10.2/9.9 | 0.52 U/4.66 U | 4.66 U/4.66 U | 4.66 U/4.66 U | 4.66 U/4.66 U |
| ZINC | 123 | 81[6] | 131/109 | 2.4 U/1.6 U | 19 U/1.8 U | 1.7 U/2.5 U | 3.5 U/2 U |

NOTES:
Bold numbers denote exceedance of secondary monitoring criterion, primary monitoring criterion, or background concentrations.
1 Surface Water Protection Criteria for Substances in Groundwater (CTDEP, January 1996)
2 Industrial/commercial volatilization criteria for groundwater (CTDEP, January 1996).
3 Surface Water Protection Criteria for Substances in Groundwater, using a site-specific dilution factor or 118 (TtNUS, September 1999).
4 Connecticut Water Quality Standards for the protection of Human Health from consumption of organisms. (CTDEP, April 1997)
5 National Recommended Water Quality Criteria for the protection of human health from consumption of oganisms (USEPA, April 1999)
6 Connecticut Water Quality Standards for the protection of aquatic life (chronic, saltwater). (CTDEP, April 1997)
7 Background Concentrations taken from Basewide Groundwater Operable Unit Remedial Investigation Report (TtNUS, January 2002)
J Estimated Value
R Rejected Value
U Undetected
NA Not Available
ND Not Detected in background samples
-- Not analyzed for in background samples.



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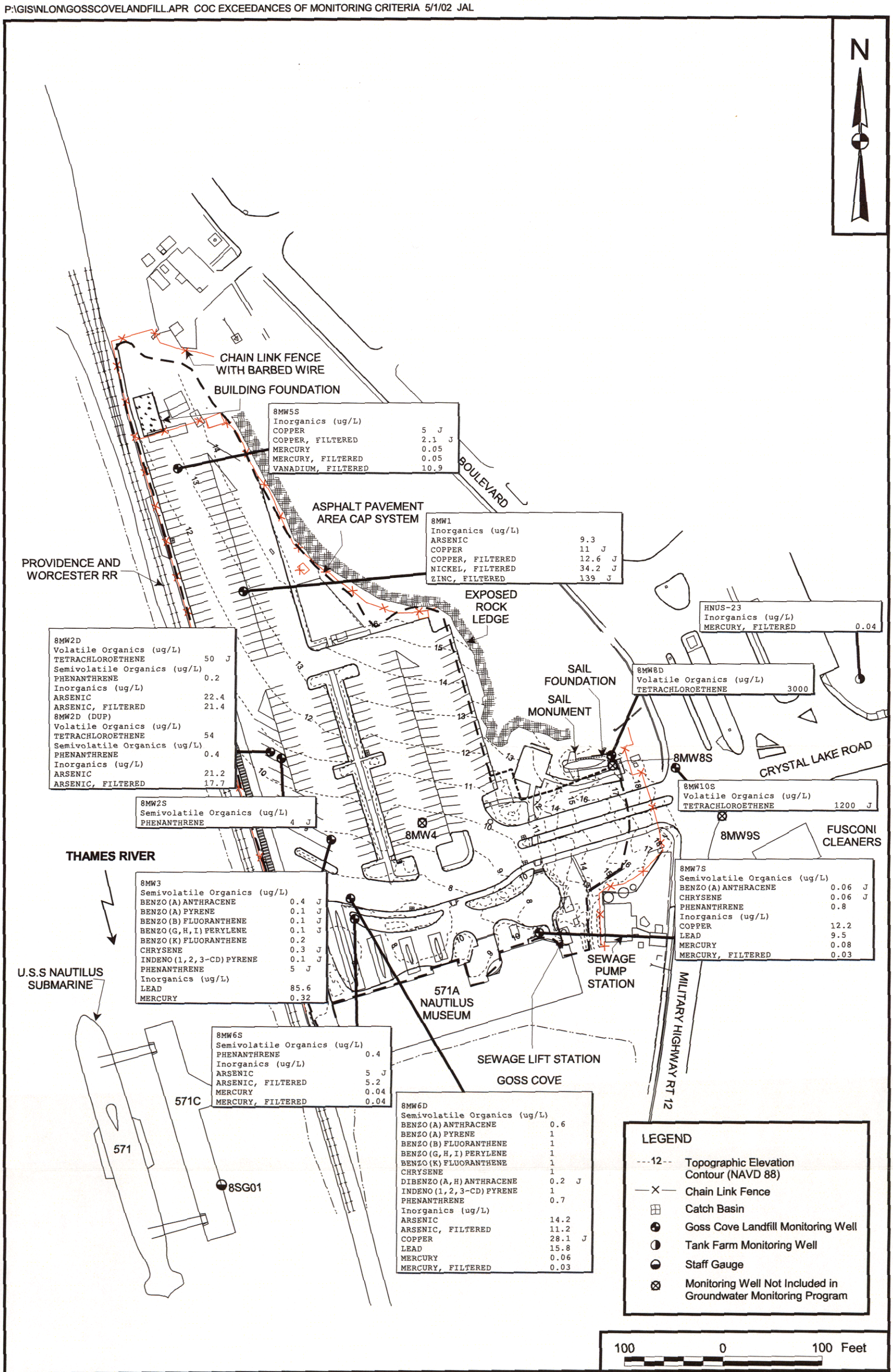


| DRAWN BY | DATE | Tetra Tech NUS, Inc. | CONTRACT NUMBER 2863 | OWNER NUMBER 816 |
|---|---|---|---|---|
| J. LAMEY | 5/1/02 | | | |
| CHECKED BY | DATE | COC EXCEEDANCES OF MONITORING CRITERIA<br>GOSS COVE LANDFILL<br>NSB NLON<br>GROTON, CONNECTICUT | APPROVED BY CAR | DATE 5/1/02 |
| COST/SCHEDULE-AREA | | | APPROVED BY | DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 3-1 | REV 0 |

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# APPENDIX A

# FIELD ACTIVITIES LOG BOOK

TITLE NSB NLON

PROJECT NO. N2863

BOOK NO. 1300



SUNDAY 12.16.01

Work continued from Page

1500 KEITH SIMPSON JAIME ROSTELNIK & BOB BAUROVEC
@ PGH AIRPORT TO NEW LONDON
CHECK INTO HOTEL

TRAVEL DAY
SUNDAY PM

30

35

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE

DATE 12.16.01

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

GOSS COVE

TIDAL STUDY

TROLL SP 4000 SET-UP

LEVEL SURFACE, POSITIVE UP

DECREASING WL CORRESPOND TO DECREASING READINGS

ALL TRANSDUCERS STARTED @ 1700 ON 12-17-01

1 READING EVERY 6 MIN.

ZERO @ START

**TITLE** NSB - N10N

12.17.01

**PROJECT NO.** N2863

**BOOK NO.** 1300



Work continued from Page

GOSS COVE TIDAL STUDY

| LOCATION | TRANSDUCER SN # | 12.17.01 START WL TIME | WATER LEVEL | 12.19.01 END WL TIME | WATER LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| 8MW1 | 12973 | 1707 | 11.90 | 0948 | 11.97 | |
| 8MW2S | 12787 | 1700 | 9.29 | 0935 | 9.82 | |
| 8MW2D | 11904 | 1701 | 10.38 | 0941 | 9.73 | RESTRICTED @ 22'± |
| 8MW3 | 11900 | 1658 | 8.15 | 0928 | 8.42 | |
| 8MW5S | 11102 | 1708 | 10.62 | 0957 | 12.32 | VERY LITTLE WATER @ L. TIDE |
| 8MW6S | 12974 | 1655 | 8.17 | 0852 | 8.28 | |
| 8MW6D | 11081 | 1654 | 7.48 | 0840 | 7.22 | |
| 8MW7S | 12994 | 1650 | 8.80* | 0732 | 8.94 | * TOP OF 6" PVC |
| 8MW8S | 11930 | 1645 | 15.13 | 0812 | • 15.00 | • AFTER PULLING TRAN. |
| 8MW8D | 12628 | 1616 | 16.99 | 0828 | 16.90 | |
| 8SG01 | 11906 | 1719 | 9.59 | 0909 | 8.42 | |
| HNUS23 | — | 1728 | 9.18 | 0718 | 9.16 | NO TRANS. WL ONLY |

* CAN NOT REACH 2" PVC READINGS FROM 6" PVC TOP
2" PVC TO TOC 6" PVC = 1.30'

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

**SIGNATURE** [signature] **DATE** 12.17.01

**DISCLOSED TO AND UNDERSTOOD BY** **DATE** **WITNESS** **DATE**

DAILY SUMMARY
12.17.01

ON SITE: T+NUS, KEITH SIMPSON
JAIME KOSTELNIK
BOB BALKOVEC

H&S SITE TRAINING
WL @ AREA A + INSPECTION
START TIDAL STUDY GC
3- WL @ GC + INSPECTION

MONDAY 12.17.01

Work continued from Page WEATHER: 40-50°F RAIN LT ALL DAY & NIGHT

0700 KEITH SIMPSON, JAIME KOSTELNIK & BOB BANKULEC @ PASS & ID, TO BLD 166 MET WITH DICK C., PICK-UP KEY TO BLD UNPACK ALL EQUIPMENT. CAL EQ AS NEEDED

0915 KS, JK & BB SITE TOUR OF BASE, AREA A, & OT 10

1000 KS & DICK C @ MUSEUM MET WITH LCDR BEN HOWARD AND PO WARRICK, MEETING WENT WELL WE HAVE OK FOR PLANNED WORK & DRUM STORAGE. TO PEIR WITH PO WARRICK & DICK C. PICKED LOCATION FOR 85G01, NE SIDE OF PEIR (BACK-GC SIDE).

1045 DRUMS DELIVERED WILL BE STORED ON PALLETS IN BACK NW AREA OF SITE, BEHIND RADIO CLUB BOB & JAMIE STARTED RD. OF WL & MW INSPECTION

1200 LUNCH BOB TO WAL-MART FOR SUPPLIES, KS & JK TO HARDWARE STORE
RETURN TO GOSS COVE START INSTALLING TRANSDUCERS.

1455 COMPLETE INSTALLATION JK & BB TO AREA A FOR WL
KS CHECKING TRANSDUCER SET-UP @ GOSS COVE

1630 START ROUND OF WL @ GC (KS)

1735 COMPLETE WL RETURN TO BLD 166
CLEAN-UP WORK EQ. PAPER WORK
JK & BB COMPLETE WL @ AREA A

1840 JK TO HOTEL, KS, BB TO GC & CHECK ON TIDAL STUDY
ALL TRANSDUCERS RUNNING ALSO COLLECTED WLs

1940 TO HOTEL KS & BB



Work continued to Page

SIGNATURE [signature] DATE 12.17.01

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

VOID
KES
12-18-01

Work continued from Page

AREA A LANDFILL SAMPLING
ROUND 9

| LOCATION | SAMPLE DATE | QA | COMMENTS |
|---|---|---|---|
| 3MW37S | 12.19.01 | — | |
| 2UM438DS | 12.20* .01 | — | PURGED 12.18.01 * 1.10.02 & 1.12.02 |
| 39DS | 12.19.01 | — | 12.18.01 |
| 40DS | 12.19.20.01 | — | 12.18.01 |
| 41DS | 12.19.20.01 | — | 12.18.01 |
| 42DS | 1.11.02 | — | 1.10.02 |
| 43DS | 1.11.02 | — | 1.10.02 |
| 44DS | 1.12.02 | — | 1.12.02 |
| 45DS | 1.12.02 | — | 1.11.02 |
| 46DS | 1.13.02 | — | 1.12.02 |
| 47DS | 1.12.02 | DUP | — |
| 2UMW20S | DRY | — | 1.13.02 |
| 2UMW21S | 12.20.01 | MS/MSD | — |
| 4MW15 | 1.12.02 | DUP | — |
| SWSG15 | DRY | — | |
| 16 | 12.19.01 | — | |
| 17 | DRY | — | |
| 18 | 12.18.01 | — | |
| 19 | 12.18.01 | — | |
| 20 | 12.18.01 | — | |
| 21 | 12.18.01 | DUP+MS/MSD | |
| 22 | DRY | — | |
| 23 | 12.20.01 | — | |
| 24 | DRY | — | |
| 3MSP01 | 12.20.01 | — | |

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE

DATE 12.18.01

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

DAILY SUMMARY
12.18.01

ON SITE: THUS; KEITH S.
JAIME R.
BOB B.

4 SW LOCATIONS SAMPLED

4 MWs PURGED DRY

RD OF WL @ GC

SHIPPED 5 COOLERS TO LAB

TUESDAY 12.18.01

Work continued from Page WEATHER: RAIN OVERNIGHT 38-48°F RAIN
RAIN STOPPING @ 1200
0700 KS, BB & JK @ BLD 166 CAL EQ. LOAD SUVs
COLLECTED RB ON PERISTALTIC PUMP TUBING
TEFLON, SILCONE + FILTER ON "F" METALS
CALLED LAB WE HAVE PICK-UP FOR TUES,
WED, THUR @ HOTEL 7:00 PM
0915 KS, JK, BB TO AREA A SET-UP ON WELL
38DS - KS & BB TO PASS & ID FOR PHOTO/
1000 1 YEAR PASSES, PICK-UP ICE, DROPPED BOB
OFF AT AREA A TO SAMPLE SW KS TO
166 THEN GC FOR WL ROUND
1110 KS STARTING WL ROUND @ GC
1150 COMPLETE GC WLs TO AREA A
1205 TO LUNCH RETURN TO BLD 166 KS & JK TO
HNUS-23 WL = 9.15' @ 1330
1335 THEN TO AREA A FOR SW SAMPLING
BOB B. WORKING ON GW SAMPLING @ AREA A
COMPLETED 2 SW LOCATIONS + 1 DUP & MS/MSD
@ SG-21
1540 TO BLD 166 SAMPLES ON ICE PAPER WORK RESTOCK
SUV
RETURN TO AREA A TO SAMPLE SW
1 SW SAMPLED SWSG-20
ALL 3 OF US TO 166 PACK SAMPLES
1800 BOB & JAIME TO HNUS 23 FOR WL
1830 KS COMPLETE PAPER WORK TO HOTEL

1905 COURIER @ HOTEL TRANFURED 5 COOLER TO HIS
VAN TO LAB

— DAILY SUMMARY —

ON SITE: T + NW'S, KEITH S.
BOB B.
JAIME K

COMPLETE TIDAL STUDY @ ~~AREA A~~ PS GOSS COVE
SAMPLED 2 MW'S @ AREA A
1 SW LOCATION SAMPLED @ AREA A
3 MW'S DEVELOPED @ GC

2 COOLERS TO LAB

WED. 12.19.01

Work continued from Page WEATHER: 45-50°F CLEAR

0650 KS, JK & BB @ BLD 166 CAL EQ LOAD SUV
BOB TO AREA A FOR GW SAMPLING
KS & JK TO GOSS COVE AND END TIDAL
0715 STUDY. WL @ HNUS 23 = 9.16 @ 0718
"PULL" ALL TRANDUCERS SAVED DATA, SENT
TIDAL STUDY RENTED EQ BACK TO US ENV.
+ 1 PID
RETURN TO BLD 166 PAPER WORK, CALLED
COREY. LOAD SUV FOR MW DEVELOPMENT
@ GC
BOB SAMPLED 1 MW @ AREA A
1230 TO LUNCH - KS & JK TO HARDWARE STORE
FOR SUPPLIES.
BOB BACK TO AREA A FOR GW SAMPLING
1325 KS & JK @ BLD 166 LOAD SUV FOR
1350 WELL DEVELOPMENT TO GOSS COVE
BOB COMPLETING SAMPLING FOR THE DAY
@ AREA A PACK SAMPLES & TO HOTEL TO
1815 MEET COURIER
KS & JK CONTINUE DEVELOPMENT @ GC
SAL. IN THAMES RIVER = 2.17%
PUMP USED FOR DEVELOPMENT QUIT ON 3RD
WELL, WILL CALL FOR REPLACEMENT THUR.
1820 KS & JK TO BLD 166 UNLOAD SUV, CLEAN
EQ., PAPER WORK, FAX COC
1850 DEPART BASE



SIGNATURE [signature] DATE 12.19.01
DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

# GOSS COVE MW DEVELOPMENT INSPECTION

12.19.01 **8MW6S** FLUSH MT, 2" PVC @ SURFACE, VAULT CLEARANCE 0.15', GOOD PRODUCER REMOVED 13 GAL @ 1.7 GPM VERY LITTLE DRAWDOWN

OK

**8MW6D** FLUSH MT., 2" PVC WITH 6" PVC OUTER CASE, VAULT OK WITH CLEARANCE, LOOSE SLIP JOINT ON 2" PVC RISER MAY NOT BE WATER TIGHT ≈ 2.5' DOWN INSIDE 6" PVC

OK

**8MW7S** FLUSH MT., 2" PVC ≈ 1.3' DOWN 6" PVC @ TOP USED FOR SURVEY & MEASUREMENT REF., CLEARANCE IS OK. GOOD PRODUCER

OK

12.20.01 **8MW8S** FLUSH MT, 2" PVC OK, VAULT OK FOR PUMP INSTALLATION. NO WATER ≈ 0.1 GAL REMOVED THEN DRY

X

**8MW8D** FLUSH MT, 2" PVC OK, VAULT OK FOR PUMP INSTALLATION DEVELOPED MAKES ≈ 700 ML/MIN.

OK

**8MW5S** FLUSH MT., 2" PVC, COUPLER ≈ 2' DOWN LOOSE MAY LEAK, VAULT OK NOT ENOUGH OF A WATER COL. FOR BLADDER PUMP OK FOR PERISTALTIC GOOD PRODUCER

OK FOR PERISTALTIC PUMP

OK = GOOD PRODUCER & OK FOR BLADDER PUMP INSTALLATION OR PERISTALTIC

Work continued from Page

8MW1 FLUSH MT., 2" PVC OK, VAULT IN GOOD SHAPE.
OK GOOD PRODUCER

8MW2D FLUSH MT., 2" PVC, RESTRICTION IN PVC RISER @ 16.5'± BELOW TOC. MAY BE OPEN = 1" WC
OK METER FIT PAST BUT NOT TRANDUCER OR SLUG
GOOD FOR PERISTALTIC

8MW2S FLUSH MT., 2" PVC VAULT OK, SOME RESTRICTIONS @ 12' TO BTM 17.7', A BLADDER PUMP SHOULD FIT.
OK DEVELOPED - GOOD PRODUCER

8MW3 FLUSH MT., 2" PVC & VAULT OK
FUEL ODOR, GOOD PRODUCER
OK

HNUS 23 FLUSH MT., 2" PVC & VAULT OK
OK

~~Hat~~ KS 8MW10S IN GOOD SHAPE, CONCRETE AROUND VAULT IS RESEALED = 1/2"
OK BUT ON ROAD GOOD PRODUCER
ON ROAD NEED POLICE TO BLOCK RD.
WILL BE A PROBLEM WITH TIME

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE DATE

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

DAILY SUMMARY
12.20.01

ON SITE: T + NUS, KEITH S.
BOB. B.
JAIME K.

1 SEEP SAMPLED @ AREA A
1 SW SAMPLED @ AREA A
MWs SAMPLED @ AREA A

WORKING ON MW DEVELOPMENT
@ GOSS COVE

SHIPPED 5 COOLERS TO LAB

THUR. 12.20.01

Work continued from Page WEATHER: 36-42°F NO RAIN

0700 KS, JK & BB @ BLD 166 CAL. EQ. LOAD SUVs

0740 BOB TO AREA A FOR GW SAMPLING
KS CALLED US ENVIRONMENTAL TALKED WITH JARROD POLIDORI, THEY WILL "SHUT-OFF" RENTAL CHARGES OVER THE HOLIDAY.
ALSO, 12V WHALE PUMP BROKE DOWN AFTER ON 3 WELL (PURCHASE) WE WILL SEND OLD PUMP BACK FOR FREE REPLACEMENT.
KS & JK TO GOSS COVE
COMPLETE DEVELOPMENT FOR SHIFT
5 WELLS COMPLETE (SEE DEVELOPMENT LOGS AND PG 72-73)

1155 TO LUNCH - RETURN TO BLD 166 BOB IS WORKING ON GW SAMPLING @ AREA A

1320 KS & JK SAMPLING SEEP & SW23.
COMPLETE SAMPLING TO HAZ WASTE BLD #562
KATE SCHWEITZER ISSUED DRUM LABELS FOR GOSS COVE DRUMS

1525 RETURN TO BLD 166 FILTER DIS. METAL SAMPLES, CLEAN EQUIPMENT, PAPER WORK, PACK SAMPLES
DEPART SITE TO HOTEL & CD&C

1735 PICK-UP OF SAMPLES



SIGNATURE
DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE 12-20-01

— DAILY SUMMARY —

ON SITE, T+NUS, BOB B.
JAIME K.
KEITH S.

SCIENTIFIC BINDERY PRODUCTS CHICAGO

**TITLE** NSB N10N

FRIDAY 12.21.01

**PROJECT NO.** N2863

**BOOK NO.** 1300



Work continued from Page WEATHER: WINDY 35-40°F NO RAIN

0700 KS, BB & JK @ BLD 166, CLEAN-UP, INVENTORY
JK TO GOSS COVE LABEL DRUMS (2 FULL)
PICK-UP OUR I DW BUCKETS
COMPLETE CLEAN-UP
LOCK EQ UP
0900 DEPART TO AIRPORT / HOME

END OF SHIFT



SIGNATURE [signature] DATE 12-21-01

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

GOSS COVE

1.7.02

— DAILY SUMMARY —

ON SITE, T+ NWS, KEITH SIMPSON
FRANK WUDRUCH

TRAVEL PGH TO NEW LONDON
REPAIR MWS
DEVELOPMENT 2 MWS

NEED TO TAKE
WL READINGS EVERY 2 HRS ALL DAY
@ 6S, 7S & 10S

MONDAY 1.7.02

Work continued from Page WEATHER: RAIN/SNOW MIX 30-35°F

0605 KEITH SIMPSON @ PGH AIRPORT MET FRANK WUDKWYCH @ GATE TO NSB-NION

1300 AT PASS & ID TO BLD 166 LOAD TRUCKS

1405 UNPACK EQUIPMENT. TO GOSS COLG WORKING ON WELL REPAIR

EXTENDED RISER 1.3' ± @ 8MW7S & ADDED SAND TO FILL AREA BETWEEN 6" PVC & RISER

ADDED SAND TO 5S, 2S & 2D

1524 START DEVELOPMENT @ 8MW2S COMPLETE DEVELOPMENT TO BLD 166 FOR DECON (HOT WATER/ SOAP)

1600 @ MW 8MW8D SURGE & PUMP (DEVELOP)

RETURN TO BLD 166, PAPER WORK, MAKE-UP BOTTLE SETS.

1810 OFF SITE

GOSS COVE

1.8.02

— DAILY SUMMARY —

ON SITE, T+NUS; K. SIMPSON
F. WUDKWYCH

SAMPLED 2 MWs @ GC
DEVELOPED 4 MWs @ GC

SHIPPED 2 COOLERS TO LAB

1-8-02 TUES

Work continued from Page WEATHER: SNOW 1" OVER NIGHT 25-35°F

0700 KS & FW @ BLD 166 PREP. FOR GW SAMPLING AND DEVELOPMENT AT GOSS COVE, CAL. EQ

0905 TO GOSS COVE & DEVELOP 8MW3

1000 COMPLETE DEVELOPMENT, DUMP WATER INTO DRUMS SET-UP TO PURGE & SAMPLE 8MW5S & 7S

1245 COMPLETE SAMPLING OFF SITE TO LUNCH. PICK-UP ICE TO BLD 166 CLEAN EQ., PACK SAMPLES, PAPER WORK

1420 RETURN TO GC FOR DEVELOPMENT DEVELOPED MW 8MW2D KS TO PASS & ID TALKED WITH LINDA BROWN (EX 4098) ABOUT BLOCKING ROAD TO ACCESS WELL 10S FOR DEVELOPMENT. BASE POLICE WILL BLOCK RD @ 1700 TODAY & THUR. FOR SAMPLING

1610 KS STARTS DEVELOPMENT @ 8MW1 COMPLETE 8MW1 DUMP WATER, DECON EQ. TO 8MW10S

1735 COMPLETE DEVELOPMENT DUMP WATER THEN TO 166 CLEAN-UP, PAPER WORK PREP. FOR 1-9-02

TO HOTEL TO MEET CD&L FOR SAMPLE

1840 PICK-UP

EXAMPLE

# STATE-REGULATED WASTE

THIS WASTE IS NOT REGULATED BY THE US ENVIRONMENTAL PROTECTION AGENCY

WASTE DESCRIPTION: GOSS COVE WELL WATER

PROFILE #: P1557 WASTE CODE: CR04 PENDING ANALYSI

ACTIVITY: TETRA TECH SITE #: S60

HW COORDINATOR: KEITH SIMPSON

STATE-REGULATED WASTE

Work continued from Page

GOSS COVE ROUND 1 SAMPLING
DECEMBER '01 / JANUARY '02

| LOCATION | DATE DEVEL. | DATE SAMPLED | PUMP USED | QA | COMMENTS |
|---|---|---|---|---|---|
| 8MW1 | 1.8.02 | 1.13.02 | B | — | |
| 8MW 2S | 1.7.02 | 1.11.02 | B | — | |
| 8MW 2D | 1.8.02 | 1.9.02 | P | DUP + MS/MSD | |
| 8MW 3 | 1.8.02 | 1.11.02 | B | — | |
| 8MW 5S | 12.20.01 | 1.8.02 | P | — | |
| 8MW 6S | 12.19.01 | 1.10.02 | B | — | |
| 8MW 6D | 12.19.01 | 1.10.02 | B | — | |
| 8MW 7S | 12.19.01 | 1.8.02 | P | — | |
| 8MW 8D | 1.7.02 | 1.13.02 | B | — | |
| 8MW 10S | 1.8.02 | 1.10.02 | P | — | ON ROAD - NEED PRICE TO BLOCK RD |
| HNUS 23 | 1.9.02 | 1.10.02 | B | — | |

PUMPS TO SAMPLE:
P = PERISTALTIC
B = BLADDER
S = 12V SUB. WHALER

8MW8S IS DRY

1-9-02

DAILY SUMMARY GOSS COVE

ON SITE, TTNUS, FRANK W.
KEITH S.
SURVEYORS (AM ONLY) MIKE GOSSELIN
CDEP MARK LEWIS 1300
1 MW DEVELOPED, ALL WELLS DEVELOPED

1 MW SAMPLED GMW20 + QA

INSTALLED ALL BLADDER PUMPS

COMPLETED 2 ROUNDS OF WLS
HIGH/LOW

3 COOLERS SHIPPED

WATER LEVELS IN FEET FROM TOP OF RISER

| TIME | 6S | 7S | 10S |
|---|---|---|---|
| 0800 | 8.43 | 9.16 | 16.55 |
| 1035 | 8.43 | 9.13 | 16.55 |
| 1250 | 8.49 | 9.14 | 16.59 |
| 1630 | 8.54 | 9.14 | 16.59 |
| 1755 | 8.54 | 9.20 | 16.58 |

WED 1.9.02

Work continued from Page WEATHER: 30-35°F OVERCAST

0650 KS & FW @ BLD 166 CLEAN EQ., CAL. HORIBA LOAD TRUCKS FOR WELL DEVELOPMENT
0720 KS & FW TO HNUS 23 SET-UP FOR DEVELOPMENT FRANK WORKING ON HNUS 23 KS TO GOSS COVE FOR WLs ON 6S 7S & 10S
0845 ~~MTKS~~ KS TO BOC GASES PICK-UP 3 NITROGEN CYL
0930 SURVEYOR MIKE GOSSELIN ON SITE, TOUR OF SITE + H&S WILL RETURN ON FRIDAY TO SURVEY
1040 KS TO BLD 166 PREP FOR GW SAMPLING
1130 TO GOSS COVE SET-UP, PURGE & SAMPLE 8MW2D ALSO COLLECTED DUP & MS/MSD
KS TAKING WL LOW TIDE @ 1245
1450 COLLECTED RB 010902 01 FROM NEW BLADDER PUMP FOR 8MW7S USED 4" PVC WITH END CAP (DECONED) TO HOLD DI WATER & PUMP. PUMPED THRU TUBING INTO BOTTLES
DI USED NERL DIAGNOSTICS, LOT 0510011 EXP. 05-2002
1535 FW @ BLD 166 PACKING SAMPLES
1620 TO GC FOR WLs @ 6S, 7S & 10S
THEN INSTALL BLADDER PUMPS
→ 1300 TO 1315 MARK LEWIS STOPPED @ GC AND TALKED WITH FRANK (CDEP)
1750 COMPLETE PUMP INSTALLATION, START ROUND OF HIGH TIDE WLS
COMPLETE WLs
1838 FW TO HOTEL FOR SAMPLE DROP OFF
KS PAPER WORK @ 166
1915 KS OFF SITE

AREA A & GOSS COVE

1.10.02

DAILY SUMMARY

ON SITE: T+ NUS, KEITH S.
FRANK W.

PURGED 2 WELLS DRY @ AREA A
SAMPLED 3 BDS (3 QTS)

SAMPLED 4 MWs @ GC

SHIPPED 3 COOLERS

**TITLE** NSB-NION

**PROJECT NO.** N2863

**BOOK NO.** 1330



THUR 1.10.02

Work continued from Page

WEATHER: CLOUDY 34-40°F

0650 PICK-UP ICE TO BLD 166, KS & FW, PREP FOR SAMPLING @ AREA A

0740 KS & FW TO AREA A FOR GW SAMPLING PURGED WELLS 43 & 42 DRY ALSO SAMPLED 38

KS & FW TO BLD 166, CLEAN-UP, LOAD EQ. FOR GC TO LUNCH

1140 AT GOSS COVE SET-UP ON 8MW6S & 6D

1430 COMPLETE SAMPLING FW TO BLD 166

KS TO HARDWARE STORE

1545 ADDED 0.59' TO RISER 8MW6D, RISER WAS TO FAR DOWN VAULT & PARKING LOT RUN OFF MAY HAVE GOTTEN INTO WELL.

1605 FW PURGING @ HNUS23 STOPPED & CHECKED ON FRANK

1630 CHECKED WITH GUARDS & ROAD WILL BE BLOCKED @ 1700 FOR SAMPLING OF 8MW10S

1700 SET-UP & START PURGE @ 8MW10S

1833 COMPLETE SAMPLING TO BLD 166

1850 FRANK TO HOTEL WITH SAMPLES FOR PICK-UP KS PAPER WORK & CLEAN-UP

1920 KS OFF SITE

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE

DATE 1.10.01

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

GOSS COVE AREA A

DAILY SUMMARY

ON SITE: T+NUS, FRANK W.
KEITH S.

GENERAL CHEM. CORP.; SCOTT SAVIOL
IDW (WASTE HAULERS)

CME/CPK DESIGN GROUP: JAMES ROSS A
(SURVEYORS) MIKE GOSSELIN

2 MWs SAMPLED @ GC
2 MWs SAMPLED @ AREA A
SHIPPED 3 COOLERS

CME/CPK Design Group
Architecture, Engineering, Environmental Science & Surveying
Offices in Norwich & Woodstock, CT and Southbridge, MA
CPK CHANDLER PALMER & KING
SURVEYORS
James Rossman
Project Manager
TEL: 860-889-3397
FAX: 860-886-7801
TOLL FREE: 888-291-3227
jrossman@cmeengineering.com
110 Broadway
Norwich, Ct 06360

— GOSS COVE —
LOW TIDE 2:16 + 10 MIN
LOW @ 2:26
@ MW2S LAG = 62 MIN
SAMPLE @ 3:28
@ MW3 LAG = 64 MIN
SAMPLE @ 3:30
@ SITE 2:20 ±

General Chemical Corp.
The Environmental Services Source
CVCC
Scott Savioli
Customer Service Representative
133-138 Leland Street
Framingham, MA 01702
508-872-5000 • Fax: 508-875-5271 • Direct: 508-782-4152
www.cyclechem.com • www.generalchemical.com
ssavioli@generalchemical.com

FRIDAY 1.11.02

Work continued from Page WEATHER: 36-46°F RAIN (START @ 0830)

0650 KS & FW @ BLD 166 CAL. EQ. LOAD SUV FOR GW SAMPLING @ AREA A

0707 FW TO AREA A

KS PAPER WORK 0815 TO GOSS COVE IDW/ SURVEYORS

0845 SCOTT SAVICH, GENERAL CHEM. CORP. ON SITE TO SAMPLE DRUMS. 6 DRUMS SCOTT WILL TAKE 2 COMP. SAMPLES (3 & 3) SURVEYORS ARE A NO SHOW.

0915 KS TO AREA A CHECK ON FRANK THEN TO 2W MW 45DS TO PURGE

1055 KS & FW TO BLD 166 CLEAN-UP RESTOCK SUVS

1205 TO LUNCH - STOPPED @ GOSS COVE SURVEYORS WERE ON SITE - WILL COMPLETE SURVEYING TODAY

1230 PICK-UP ICE BACK TO BLD 166

1415 CALLED TROY @ US ENVIRONMENAL FOR CAL. KIT MSDS WILL FAX TODAY

CLEANING BASEMENT STORAGE

1420 TO GOSS COVE FOR GW SAMPLING SET-UP ON 8MW3 & 2S

COMPLETE SAMPLING RETURN TO BLD 166 AFTER DUMPING PURGE WATER

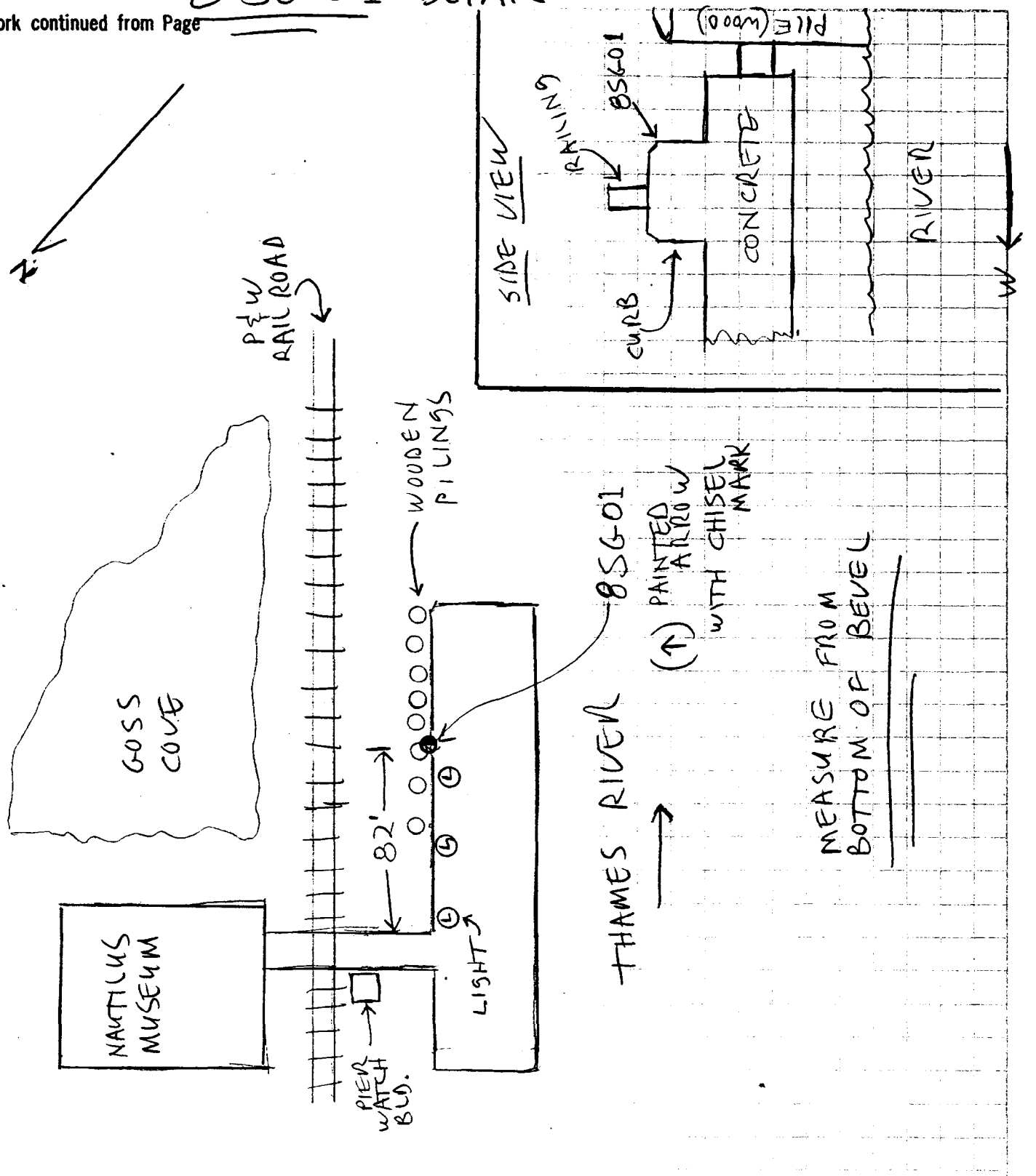
PACK SAMPLES, UNLOAD SUV, CLEAN EQ. PAPER WORK

1712 DEPART SITE FOR HOTEL & SAMPLE PICK-UP

RAIN ENDING AT 1410

8SG-01 DETAIL

Work continued from Page



AREA A

1.12.01

DAILY SUMMARY

ON SITE, T+N4S; KEITH S.
FRANK W.

SAMPLED 5 MWs AT AREA A

DUP 01 @ 4MW01

DUP 02 @ 2WMW47DS

TITLE NSB-NLON

PROJECT NO. N2863

BOOK NO. 1300



SAT. 1.12.02

Work continued from Page

WEATHER: NICE, CLOUDY 35-45 °F

0700 FW & KS AT BLD 166 CAL EQ, LOAD SUV PREP FOR GW SAMPLING AT AREA A

0735 TO AREA A

SAMPLED MWs 44, 45 & 38 - PURGED 46 DRY

1110 TO BLD 166 RESTOCK SUVs CLEAN-UP EQ.

TO LUNCH PICK-UP ICE RETURN TO BLD 166

CALL BASE POLICE LET THEM KNOW WE WOULD

1235 BE ON PERIMETER RD. & @ A86 TALKED WITH OFFICER KELLY (3777)

TO AREA A KS AT MW 47 FRANK AT 4MWIS

1640 COMPLETE SAMPLING AT BOTH WELLS TO BLD 166 UNLOAD SUVs, STORE SAMPLES & EQ. + PAPER WORK

1650 TO GOSS COVE ADDED SAND TO WELLS (IN BETWEEN 6" & 2" RISER) ~~KS~~ KS THAT HAD LOOSE RISERS. ALSO CHECKED & CLOSED ALL WELL NOW THAT SURVEYORS ARE DONE.

1815 TO HOTEL

1815



SIGNATURE KS SL

DATE 1.12.02

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

AREA A & GOSS COVE

1.13.02

DAILY SUMMARY

ON SITE, TETRA TECH; FRANK W.
KEITH S.

COMPLETE SAMPLING AT AREA A
AND GOSS COVE

START DEMOB., PACKING EQ.

— GOSS COVE —
LOW TIDE 3:42 PM + 10 MIN
LOW @ 3:52 PM
8MW1 LAG = 14 MIN
SAMPLE @ 4:06 PM
8MW8D LAG = 12 MIN
SAMPLE @ 4:04 PM
@ SITE 2:50 PM

SUNDAY 1.13.02

Work continued from Page WEATHER: RAIN 38-42°F TEMP. DROPPING TO 30°F
RAINING THIS AM + OVERNITE + SNOW HIGH WINDS
0650 KS & FW AT BLD 166 LOAD SUVs FOR GW SAMPLING
AT AREA A
0740 TO AREA A - RAIN TURNING TO SNOW
MW 2LMW20S DRY NO SAMPLE
COMPLETE SAMPLING 2WMW46DS
ALL AREA A SAMPLING COMPLETE
0935 TO BLD 166 WORKING ON INVENTORY & STORAGE
OF EQUIPMENT IN BASEMENT
1200 TO LUNCH
1300 TO GOSS COVE CLEAN-UP @ DRUM STORAGE AREA
6 FULL DRUMS @ SITE & 8 EMPTIES.
START PURGE @ 8MW1 & 8D
1635 COMPLETE SAMPLING, DUMP PURGE WATER TO
BLD 166 PACK EQ. FOR RETURN
COMPLETE PACKING & PAPER WORK
1825 DEPART SITE TO HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE [signature] DATE 1.13.02

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

1.14.02

DAILY SUMMARY

ON SITE, T + NUS; FRANK W.
KEITH S.

— DEMOB —

ROUND 1 GOSS COVE COMPLETE
ROUND 9 AREA A COMPLETE

MONDAY 1.14.02

Work continued from Page WEATHER: OVERCAST 30-35°F

0650 PICK-UP ICE RS & FW TO BLD 166
PACK SAMPLES FOR FEDEX
0930 TO FEDEX
11 RS COOLERS TO LAB 6 WITH SAMPLES, 5 EMPTY
8 PACKAGES TO US ENVIRONMENTAL
5 TO PGH OFFICE
RETURN TO BLD 166 CLEAN WORK ROOM
1100 RETURN NITROGEN CYL. TO HOTEL TO CHECK-OUT
CALLED US ENVIRONMENTAL & TALKED WITH COLIN
I LET HIM KNOW THAT THE PROBE END CAME OFF ONE OF THE WL METERS, BUT WE DID NOT BREAK IT. I WAS LOOSE WHEN WE RECEIVED IT. HE WILL CHECK IT & DON'T THINK THERE WILL BE A CHARGE.
1155 TO AIRPORT & HOME

END OF SHIFT

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE [signature] DATE 1.14.02

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

# APPENDIX B

# MONITORING WELL INSPECTION SHEETS

# MONITORING WELL INSPECTION SHEET

**Well ID:** HNU523

**Time:** 1455 **Date:** 12/17/01 **Inspector's Name:** J. Kosteinik

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | | ✓ | Not Labeled |
| Well security | Condition protective case, cap, lock | ✓ | | |
| Well pad | Concrete or gravel & condition | | | Grass Covered |
| Well seal | Condition of… | | ✓ | water in vault |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | GRASS Covered |
| Dedicated sampling equipment | Condition of… | NA | | |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Lawn Fertilizer Noted in AREA

Signature(s) Jaime Kosteinik

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW1

**Time:** 1114 **Date:** 12/17/01 **Inspector's Name:** J Kostelnik

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | ✓ | | |
| Well security | Condition protective case, cap, lock | ✓ | | |
| Well pad | Concrete or gravel & condition | ✓ | | Concrete |
| Well seal | Condition of… | ✓ | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of… | N/A | | |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature(s) Jaime Kostelnik

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW2S

**Time:** 1100 **Date:** 12/17/01 **Inspector's Name:** JKostelnik

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | ✓ | | |
| Well security | Condition protective case, cap, lock | | ✓ | NO LOCK |
| Well pad | Concrete or gravel & condition | ✓ | | Concrete |
| Well seal | Condition of… | ✓ | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of… | NA | | — |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature(s) [illegible]

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW2D

**Time:** 11:05 **Date:** 12/17/01 **Inspector's Name:** J. Kostelnik

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | ✓ | | |
| Well security | Condition protective case, cap, lock | | ✓ | No LOCK |
| Well pad | Concrete or gravel & condition | ✓ | | concrete |
| Well seal | Condition of… | ✓ | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of… | NA | | |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature(s) [illegible]

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW3

**Time:** 1052 **Date:** 12/17/01 **Inspector's Name:**

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | ✓ | | |
| Well security | Condition protective case, cap, lock | | ✓ | NO LOCK |
| Well pad | Concrete or gravel & condition | ✓ | | Concrete |
| Well seal | Condition of... | ✓ | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of... | NA | | |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**
NO LOCK

Signature(s) Jaime Kostelnik

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW55

**Time:** 1118 **Date:** 11/18/01 **Inspector's Name:** J.Kostelnik

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | | ✓ | UNlabeled |
| Well security | Condition protective case, cap, lock | | ✓ | No Lock |
| Well pad | Concrete or gravel & condition | ✓ | | Concrete |
| Well seal | Condition of… | ✓ | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of… | N/A | | — |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature(s) [signature]

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW6S

**Time:** 10:40 **Date:** 12/17/01 **Inspector's Name:** K/BB

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | ✓ | | |
| Well security | Condition protective case, cap, lock | ✓ | | |
| Well pad | Concrete or gravel & condition | ✓ | | concrete |
| Well seal | Condition of… | ✓ | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of… | NA | | — |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature(s) Jaime Kostelnik

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** SMW6D

**Time:** 10:33 **Date:** 12/17/01 **Inspector's Name:** JK Webb

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | ✓ | | |
| Well security | Condition protective case, cap, lock | ✓ | | |
| Well pad | Concrete or gravel & condition | ✓ | | concrete |
| Well seal | Condition of… | | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of… | NA | | — |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature: Jaime Kistelud

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** SMW95

**Time:** 1015 **Date:** 12/17/01 **Inspector's Name:** JK/BB

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | ✓ | | |
| Well security | Condition protective case, cap, lock | | ✓ | NO LOCK |
| Well pad | Concrete or gravel & condition | ✓ | | Concrete |
| Well seal | Condition of… | ✓ | | |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | ✓ | | |
| Dedicated sampling equipment | Condition of… | N/A | | |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

NO LOCK

Signature(s): Jaime Lostelat

Note: S= Satisfactory, U= Unsatisfactory
*Check one, if unsatisfactory explain*

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW8S

**Time:** 1015 **Date:** 12/17/01 **Inspector's Name:** J.Kostelnik

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | | ✓ | Well Not Labeled |
| Well security | Condition protective case, cap, lock | ✓ | | |
| Well pad | Concrete or gravel & condition | ✓ | | |
| Well seal | Condition of... | | ✓ | Water leaked in vault |
| Area Immediately around well pad | Record any evidence of/or standing water in area of well | | | |
| Dedicated sampling equipment | Condition of... | NA | — | — |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature(s) J.Kostelnik

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# MONITORING WELL INSPECTION SHEET

**Well ID:** 8MW8D

**Time:** 1130 **Date:** 12/17/01 **Inspector's Name:** _____

| Inspection Item | Types of Problems | Status | | Observation |
|---|---|---|---|---|
| | | S | U | |
| Well Tag | Is it in-place, legible | | ✓ | unidentified |
| Well security | Condition protective case, cap, lock | ✓ | | |
| Well pad | Concrete or gravel & condition | | ✓ | Buried |
| Well seal | Condition of... | ✓ | | |
| Area immediately around well pad | Record any evidence of/or standing water in area of well | | ✓ | Buried - Covered w/ Dirt |
| Dedicated sampling equipment | Condition of... | NA | | — |
| PVC Riser | Condition of riser & survey reference point | ✓ | | |

**Comments:**

Signature(s)_____

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

NSB-NLON
Field Form
Revision: 1
January: 1999

# APPENDIX C
# WATER LEVEL MEASUREMENT SHEETS
# AND SURVEY RESULTS

Tetra Tech NUS, Inc.

# GROUNDWATER LEVEL MEASUREMENT SHEET

**Project Name:** NSB NEW LONDON
**Project No.:** N2863 CTO 0816
**Location:** GROTON, CT
**Personnel:** BB & JK
**Weather Conditions:** CLOUDY, LT. RAIN
**Measuring Device:** M-Scope
**Tidally Influenced:** Yes ___ No ___
**Remarks:**

| Well or Piezometer Number | Date | Time | Elevation of Reference Point (feet)* | Total Well Depth From TOC (feet)* | Water Level Indicator Reading (feet)* | Groundwater Elevation (feet)* | Comments |
|---|---|---|---|---|---|---|---|
| 8MW1 | 12/17/01 | 1113 | | 18.10 | 10.80 | | PID=0.0 |
| 8MW2S | 12/17/01 | 1103 | | 17.73 | 9.42 | | PID=0.0 |
| 8MW2D | 12/17/01 | 1109 | | 62.70 | 8.55 | | PID=0.0 |
| 8MW3 | 12/17/01 | 1056 | | 21.76 | 8.12 | | PID=0.0 |
| 8MW5S | 12/17/01 | 1118 | | 13.83 | 10.56 | | PID=2.7 |
| 8MW6S | 12/17/01 | 1040 | | 13.81 | 8.31 | | PID=0.0 |
| 8MW6D | 12/17/01 | 1034 | | 67.32 | 5.73 | | PID=0.0 |
| 8MW7S | 12/17/01 | 1045 | * | 12.98 | * 6.98 | | PID=0.0 |
| 8MW8S | 12/17/01 | 1023 | | 15.90 | 15.33 | | PID=0.7 |
| 8MW8D | 12/17/01 | 1130 | | 77.51 | 15.90 | | PID=80.0 |
| HNUS23 | 12/17/01 | | | 15.93 | 9.20 | | PID=0.0 |
| 8SG01 | 12/17/01 | 1430 | | NA | 8.39 | | NA |
| | | | | | | | |
| | | | | | | | |
| | | | * FROM | 2" PVC | | | |

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc

# GROUNDWATER LEVEL MEASUREMENT SHEET

GOSS COVE

**Project Name:** NSB NEW LONDON
**Project No.:** N2863 CTO 0816
**Location:** GROTON, CT
**Personnel:** KEITH SIMPSON
**Weather Conditions:** LT RAIN AM 50°F
**Measuring Device:** M-Scope
**Tidally Influenced:** Yes ___ No ___
**Remarks:** TIDAL STUDY START @ 1700

| Well or Piezometer Number | Date | Time | Elevation of Reference Point (feet)* | Total Well Depth From TOC (feet)* | Water Level Indicator Reading (feet)* | Groundwater Elevation (feet)* | Comments |
|---|---|---|---|---|---|---|---|
| 8MW1 | 12.17.01 | 1707 | | | 11.90 | | |
| 8MW2S | | 1700 | | | 9.29 | | |
| 8MW2D | | 1701 | | | ~~4.29~~ KS | 10.38 | |
| 8MW3 | | 1658 | | | 8.15 | | |
| 8MW5S | | 1708 | | | 10.62 | | |
| 8MW6S | | 1655 | | | 8.17 | | |
| 8MW6D | | 1654 | | | 7.48 | | |
| 8MW7S | | 1650 | | | 8.80 | | TOP OF 6" PVC |
| 8MW8S | | 1645 | | | 15.13 | | |
| 8MW8D | | 1616 | | | 16.99 | | |
| HNUS23 | | 1728 | | | ~~9.59~~ | 9.18 | |
| 8SG01 | | 1719 | | | 9.59 | | |
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| | | | | | | | |
| | | | LOW TIDE @ 541 PM (1741) | | | | |
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* All measurements to the nearest 0.01 foot

GOSS COVE

Tetra Tech NUS, Inc

# GROUNDWATER LEVEL MEASUREMENT SHEET

**Project Name:** NSB NEW LONDON
**Project No.:** N2863 CTO 0816
**Location:** GROTON, CT
**Personnel:** KS - BB
**Weather Conditions:** Cloudy 40's
**Measuring Device:** M-Scope
**Tidally Influenced:** Yes ___ No ___
**Remarks:** LT RAIN

| Well or Piezometer Number | Date | Time | Elevation of Reference Point (feet)* | Total Well Depth From TOC (feet)* | Water Level Indicator Reading (feet)* | Groundwater Elevation (feet)* | Comments |
|---|---|---|---|---|---|---|---|
| 8MW1 | 12/17 | 1920 | | | 12.48 | | |
| 8MW2S | 12/17 | 1911 | | | 6.64 | | |
| 8MW2D | 12/17 | 1914 | | | 10.18 | | |
| 8MW3 | 12/17 | 1908 | | | 8.35 | | |
| 8MW5S | 12/17 | 1923 | | | DRY | | BELOW X DUCR. |
| 8MW6S | 12/17 | 1902 | | | 8.24 | | |
| 8MW6D | 12/17 | 1903 | | | 7.37 | | |
| 8MW7S | 12/17 | 1856 | | | *8.90 | | TOP OF 6" PVC |
| 8MW8S | 12/17 | 1847 | | | DRY | | BELOW X DUCR |
| 8MW8D | 12/17 | 1851 | | | 17.00 | | |
| HNUS23 | — | — | | | — | | |
| 8SG01 | 12/17 | 1928 | | | 3.65 | | |
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* All measurements to the nearest 0.01 foot

* MEASUREMENT TAKEN FROM 6" PROTECTIVE PVC CASING.
DIFF. B/T 3" + 6" PVC 1.30'

GOSS COVE

Tetra Tech NUS, Inc

# GROUNDWATER LEVEL MEASUREMENT SHEET

**Project Name:** NSB NEW LONDON
**Project No.:** N2863 CTO 0816
**Location:** GROTON, CT
**Personnel:** KEITH SIMPSON
**Weather Conditions:**
**Measuring Device:** M-Scope
**Tidally Influenced:** Yes ___ No ___
**Remarks:** RAIN

| Well or Piezometer Number | Date | Time | Elevation of Reference Point (feet)* | Total Well Depth From TOC (feet)* | Water Level Indicator Reading (feet)* | Groundwater Elevation (feet)* | Comments |
|---|---|---|---|---|---|---|---|
| 8MW1 | 12-18-01 | 1141 | | | 10.55 | | |
| 8MW2S | 1137 | ~~H23~~ KS | | | 8.97 | | |
| 8MW2D | | 1139 | | | 8.37 | | |
| 8MW3 | | 1143 | | | 7.67 | | |
| 8MW5S | | 1141 | | | 10.62 | | |
| 8MW6S | | 1131 | | | 7.97 | | |
| 8MW6D | | 1130 | | | 5.46 | | |
| 8MW7S | | 1127 | | | 8.89 | | |
| 8MW8S | | 1122 | | | DRY | DRY WATER IN VAULT TO TRANS. @ BTM | |
| 8MW8D | | 1126 | | | 15.62 | | |
| HNUS23 | | 1112 | | | 9.12 | | |
| 8SG01 | | 1135 ✓ | HIGH TIDE | | 6.50 | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| HNUS23 | 12-18-01 | 1330 | | | 9.15 | | |
| HNUS 23 | 12-18-01 | 1810 | | | 9.16 | | |
| HNUS 23 | 12-19-01 | 0718 | | | 9.16 | | |
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High tide

* All measurements to the nearest 0.01 foot

HIGH TIDE @ 1135

LOW TIDE 1245

Tetra Tech NUS, Inc.

# GROUNDWATER LEVEL MEASUREMENT SHEET

**Project Name:** NSB NEW LONDON
**Project No.:** N2863 CTO 0816
**Location:** GROTON, CT
**Personnel:** KEITH SIMPSON
**Weather Conditions:** LT SNOW, 30°F
**Measuring Device:** M-Scope
**Tidally Influenced:** Yes ✓ No ___
**Remarks:**

| Well or Piezometer Number | Date | Time | Elevation of Reference Point (feet)* | Total Well Depth From TOC (feet)* | Water Level Indicator Reading (feet)* | Groundwater Elevation (feet)* | Comments |
|---|---|---|---|---|---|---|---|
| 8MW1 | 1.9.02 | 1233 | 11.97 | | 13.30 | -1.33 | |
| 8MW2S | | 1236 | 9.63 | | 10.10 | -0.47 | |
| 8MW2D | | 1145 | 9.93 | | 10.88 | -0.95 AT START OF SAMPLING | |
| 8MW3 | | 1257 | 8.27 | | 8.61 | 0.34 | |
| 8MW5S | | 1236 | 12.32 | | 13.76 | -1.44 | |
| 8MW6S | | 1249 | 8.41 | | 8.49 | -0.08 | |
| 8MW6D | | 1247 | 7.45 | | 8.31 | -0.86 | |
| 8MW7S | | 1254 | 9.19 | | 9.14 | 0.05 | |
| 8MW8S | | — | | | — | | |
| 8MW8D | | 1258 | 17.20 | | 17.20 | 0.00 | |
| HNUS23 | | 1314 | 18.11 | | 9.02 | DEVELOPED THIS AM 9.09 | |
| 8SG01 | | 1245 | 8.37 | | 10.69 | -2.32 | |
| 8MW10S | | 1259 | 19.24 | | 16.59 | 2.65 | |

* All measurements to the nearest 0.01 foot

HIGH TIDE 1818

Tetra Tech NUS, Inc

# GROUNDWATER LEVEL MEASUREMENT SHEET

**Project Name:** NSB NEW LONDON
**Project No.:** N2863 CTO 0816
**Location:** GROTON, CT
**Personnel:** RS / FW
**Weather Conditions:** CLEAR 35°F
**Measuring Device:** M-Scope
**Tidally Influenced:** Yes ✓ No ___
**Remarks:**

| Well or Piezometer Number | Date | Time | Elevation of Reference Point (feet)* | Total Well Depth From TOC (feet)* | Water Level Indicator Reading (feet)* | Groundwater Elevation (feet)* | Comments |
|---|---|---|---|---|---|---|---|
| 8MW1 | 1.9.02 | 1828 | 11.97 | | 12.11 | -0.14 | |
| 8MW2S | | 1818 | 9.63 | | 10.08 | -0.45 | |
| 8MW2D | | 1816 | 9.93 | | 9.75 | 0.18 | |
| 8MW3 | | 1813 | 8.27 | | 8.73 | -0.46 | |
| 8MW5S | | 1830 | 12.32 | | 12.26 | 0.06 | |
| 8MW6S | | 1809 | 8.41 | | 8.54 | -0.13 | |
| 8MW6D | | 1811 | 7.45 | | 6.76 | 0.69 | |
| 8MW7S | | 1806 | 9.19 | | 9.20 | -0.01 | |
| 8MW8S | | | | | | | |
| 8MW8D | | 1802 | 17.20 | | 16.14 | 1.06 | SAMPLED PM |
| HNUS23 | | 1748 | 18.11 | | 8.98 | 9.13 | DEVELOPED THIS AM |
| 8SG01 | | 1833 | 9.37 | | 8.15 | 0.22 | |
| 8MW10S | ↓ | 1755 | 19.24 | | 16.58 | 2.66 | |

* All measurements to the nearest 0.01 foot

# MONITOR WELL SURVEY VALUES

| Well Id | Geodetic Coordinates | | State Plane Coordinates | | Elevations | | | |
|---|---|---|---|---|---|---|---|---|
| | Latitude | Longitude | Northing | Easting | Top of Frame | 2" PVC Rim | 6" PVC Rim | Ground (Approx.) |
| 8MW1 | N 41°23'19.00977" | W 72°05'16.11421" | 703019.076754 | 1181704.701936 | 12.58 | 11.97 | 11.97 | 12.6 |
| 8MW2D | N 41°23'17.39072" | W 72°05'15.77024" | 702855.412471 | 1181732.175685 | 10.55 | 9.93 | 10.14 | 10.5 |
| 8MW2S | N 41°23'17.32076" | W 72°05'15.62209" | 702848.418166 | 1181743.521881 | 10.58 | 9.63 | 9.98 | 10.6 |
| 8MW3 | N 41°23'16.50612" | W 72°05'14.96265" | 702766.352703 | 1181794.417266 | 8.79 | 8.27 | 8.25 | 8.8 |
| 8MW4 | N 41°23'16.65975" | W 72°05'13.73227" | 702782.620833 | 1181888.079162 | 9.60 | 8.88 | 9.05 | 9.6 |
| 8MW5S | N 41°23'20.25103" | W 72°05'16.97638" | 703144.201716 | 1181638.024589 | 12.73 | 12.32 | 12.30 | 12.7 |
| 8MW6D | N 41°23'15.90935" | W 72°05'14.70666" | 702706.103082 | 1181814.392297 | 7.70 | 7.45 | 6.82 | 7.7 |
| 8MW6S | N 41°23'15.70531" | W 72°05'14.65211" | 702685.484249 | 1181818.708467 | 8.63 | 8.41 | * | 8.6 |
| 8MW7S | N 41°23'15.54595" | W 72°05'12.17551" | 702670.803893 | 1182007.602824 | 9.71 | 9.19 | 9.17 | 9.7 |
| 8MW8D | N 41°23'17.31629" | W 72°05'11.18684" | 702850.558707 | 1182081.584986 | 17.61 | 17.20 | * | 17.6 |
| 8MW8S | N 41°23'17.21045" | W 72°05'11.17206" | 702839.855534 | 1182082.793861 | 16.87 | 16.47 | * | 16.9 |
| 8MW10S | N 41°23'17.18348" | W 72°05'10.33571" | 702837.615265 | 1182146.562348 | 19.75 | 19.24 | * | 19.8 |
| 8SG01 | N 41°23'13.04635" | W 72°05'16.46469" | 702415.310285 | 1181682.612448 | 8.37 | At Mark | 8.46 | Top of Wall Chamfer |
| HNUS-23 | N 41°23'18.05662" | W 72°05'07.88120" | 702927.424976 | 1182332.968259 | 18.56 | 18.11 | * | 18.6 |

* - No visible inner well casing

# SURVEY CONTROL MONUMENTATION

| | | | | | |
|---|---|---|---|---|---|
| N 41°23'18.16883" | W 72°05'12.43774" | 702936.113000 | 1181985.578000 | 72.74 | NGS Disk - "Crystal" |
| N 41°23'16.83160" | W 72°05'08.29182" | 702803.199000 | 1182302.624000 | 21.57 | Base Control - IR w/Cut Cross |

| Well Id | Check Values | |
|---|---|---|
| | 2" PVC | 6" PVC |
| 8MW1 | -0.61 | -0.61 |
| 8MW2D | -0.62 | -0.41 |
| 8MW2S | -0.95 | -0.60 |
| 8MW3 | -0.52 | -0.54 |
| 8MW4 | -0.72 | -0.55 |
| 8MW5S | -0.41 | -0.43 |
| 8MW6D | -0.25 | -0.88 |
| 8MW6S | -0.22 | |
| 8MW7S | -0.52 | -0.54 |
| 8MW8D | -0.41 | |
| 8MW8S | -0.40 | |
| 8MW10S | -0.51 | |
| 8SG01 | | 0.09 |
| HNUS-23 | -0.45 | |

**Notes:**

Survey coordinates were derived from the existing control monumentation within the Groton/New London Submarine Base as established by David Stein, LS. Control monumentation is using the Connecticut Department of Transportation SPCS 83/87 coordinate values.

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www.cmeengineering.com

**Architecture, Engineering, Environmental Science & Surveying**

# APPENDIX D

## MONITORING INSTRUMENT CALIBRATION LOGS

# EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : YSI 650MDS

PROJECT NAME : NSB-NLON AREA A & GOSS COVE

MANUFACTURER : YSI

PROJECT NUMBER : CTO 816 N2863

SER# 01C0844 AC SOND 97K1095

| CALIBRATION DATE | INITIAL SETTINGS | STANDARDS USED | PROCEDURE | ADJUSTMENTS MADE | FINAL SETTINGS | SIGNATURE | COMMENTS |
|---|---|---|---|---|---|---|---|
| 12.18.01 | | SEE R19FT | AS PER MANU. | YES | OK | RSP | PH 7.00 LOT 2675 EXP 6/2003 |
| 12.19.01 | | " | " | " | OK | RSP | PH 4.00 LOT 2000 EXP 3/2003 |
| 12.20.01 | | " | " | " | OK | RSP | ORP 100 MV LOT 2505 |
| 1.8.02 | | " | " | " | OK | RSP | EXP 2.1.2002 |
| 1.9.02 | | " | " | " | OK | RSP | |
| 1.10.02 | | " | " | " | OK | RSP | COND. 1000 µS/CM |
| 1.11.02 | | " | " | " | OK | RSP | LOT 2904 EXP 11/2002 |
| 1.12.02 | | " | " | " | OK | RSP | |
| 1.13.02 | | " | " | " | OK | RSP | |
| | | | | | | | SET-UP & CHECKED |
| | | | | | | | PARAMETERS & UNITS |

Instrument Rented From: US ENVIRONMENTAL

# EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : YSI 650 MDS

PROJECT NAME : NSB-NLON AREA A & GOSS COVE

MANUFACTURER : YSI

PROJECT NUMBER : CTO 816 N2863

SER# 01A0854 AA SOND 99F1380

| CALIBRATION DATE | INITIAL SETTINGS | STANDARDS USED | PROCEDURE | ADJUSTMENTS MADE | FINAL SETTINGS | SIGNATURE | COMMENTS |
|---|---|---|---|---|---|---|---|
| 12.18.01 | | SEE RIGHT | AS PER MANU. | YES | OK | RSP | PH 7.00 LOT 2675 EXP 6/2003 |
| 12.19.01 | | " | " | " | OK | RSP | PH 4.00 LOT 2600 EXP 3/2003 |
| 12.20.01 | | " | " | " | OK | RSP | ORP 100 MV LOT 2505 |
| 1.8.02 | | " | " | " | OK | RSP | EXP 2.1.2002 |
| 1.9.02 | | " | " | " | OK | RSP | |
| 1.10.02 | | " | " | " | OK | RSP | COND 1000 µS/CM |
| 1.11.02 | | " | " | " | OK | RSP | LOT 2904 EXP 11/2002 |
| 1.12.02 | | " | " | " | OK | RSP | |
| 1.13.02 | | " | " | " | OK | RSP | |
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Instrument Rented From: US ENVIRONMENTAL

# EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : TURB. METER 2020

PROJECT NAME : NSB-NLON AREA A & GOSS COVE

MANUFACTURER : LaMOTTE

PROJECT NUMBER : CTO 816 N2863

SER. # 1758 1800

| CALIBRATION DATE | INITIAL SETTINGS | STANDARDS USED | PROCEDURE | ADJUSTMENTS MADE | FINAL SETTINGS | SIGNATURE | COMMENTS |
|---|---|---|---|---|---|---|---|
| 12.18.01 | – | CHECK | – | Na | 0 | [illegible] | |
| 12-19-01 | – | CHECK | – | Na | 0 | [illegible] | STANDARDS 0 + 10 |
| 12-20-01 | – | CHECK | – | Na | 0 | [illegible] | |
| ~~12-20-01~~ 1-8-02 | – | CHECK | – | Na | 0 | [illegible] | |
| 1-9-02 | – | CHECK | – | Na | 0 | [illegible] | |
| 1-10-02 | – | CHECK | – | Na | 0 | [illegible] | |
| 1-11-02 | – | CHECK | – | No | 0 | [illegible] | |
| 1.12.02 | – | CHECK | – | NO | 0 & 10 | RSP | |
| 1.13.02 | – | CHECK | – | NO | 0 & 10 | RSP | |

Instrument Rented From: US ENVIRONMENTAL

# EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : TURB. METER 2020

PROJECT NAME : NSB-NLON AREA A & GOSS COVE

MANUFACTURER : LaMOTTE

PROJECT NUMBER : CTO 816 N2863

SER. # 1757-1800

| CALIBRATION DATE | INITIAL SETTINGS | STANDARDS USED | PROCEDURE | ADJUSTMENTS MADE | FINAL SETTINGS | SIGNATURE | COMMENTS |
|---|---|---|---|---|---|---|---|
| 12.18.01 | — | CHECK | — | No | 0 | FWL | |
| 12-19-01 | — | CHECK | — | No | 0 | FWL | STANDARDS 0 + 10 |
| 12-20-01 | — | CHECK | — | No | 0 | FWL | |
| 1-8-02 | — | CHECK | — | No | 0 | FWL | |
| 1-9-02 | — | CHECK | — | No | 0 | FWL | |
| 1-10-02 | — | CHECK | — | No | 0 | FWL | |
| 1-11-02 | — | CHECK | — | No | 0 | FWL | |
| 1.12.02 | — | CHECK | — | NO | 0 & 10 | RSP | |
| 1.13.02 | — | CHECK | — | NO | 0 & 10 | RSP | |

Instrument Rented From: US ENVIRONMENTAL

# EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : PID 2020

PROJECT NAME : NSB-NLON AREA A & GOSS COVE

MANUFACTURER : PHOTOVAC

PROJECT NUMBER : CTO 816 N2863

SER# ED KH 319

| CALIBRATION DATE | INITIAL SETTINGS | STANDARDS USED | PROCEDURE | ADJUSTMENTS MADE | FINAL SETTINGS | SIGNATURE | COMMENTS |
|---|---|---|---|---|---|---|---|
| 12.17.02 | 0 - 98 | ISO BUT. | AS PER. MAN. | NONE | 0 - 100 | RSP | 0 AIR |
| 12.19.02 | 0 - 100 | 100 PPM | " | " | 0 - 100 | RSP | 100 ISO BUTYLENE |

Instrument Rented From: US ENVIRONMENTAL

# EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : PID 2020

PROJECT NAME : NSB-NLON AREA A & GOSS COVE

MANUFACTURER : PHOTOVAC

PROJECT NUMBER : CTO 816 N2863

SER # ED RJ 335

| CALIBRATION DATE | INITIAL SETTINGS | STANDARDS USED | PROCEDURE | ADJUSTMENTS MADE | FINAL SETTINGS | SIGNATURE | COMMENTS |
|---|---|---|---|---|---|---|---|
| 12.17 | 0 - 98 | ISO BUT. | AS PER. MANG. | NONE | 0 - 100 | RSP | 0 AIR |
| 12.18 | | 100 PPM | | | | | 100 ISO BUTYLENE |
| 12.19 | | | | | | | |
| 12.20 | | | | | | | |
| 1.8 ~~12.8~~ | | | | | | | |
| 1.9.02 | | | | | | | |
| 1.10.02 | | | | | | | |
| 1.11.02 | | | | | | | |

Instrument Rented From: US ENVIRONMENTAL

# EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : HORIBA U-10

PROJECT NAME : NSB-NLON AREA A & GOSS COVE

MANUFACTURER : HORIBA

PROJECT NUMBER : CTO 816 N2863

SER. # 710025

| CALIBRATION DATE | INITIAL SETTINGS | STANDARDS USED | PROCEDURE | ADJUSTMENTS MADE | FINAL SETTINGS | SIGNATURE | COMMENTS |
|---|---|---|---|---|---|---|---|
| 12.18.01 | pH 4.00 | AUTO CAL | AUTO | — | 4.00 | RSL | USED FOR |
| 12.19.01 | pH 3.99 | " | " | — | 4.00 | RSL | DEVELOPMENT |
| 12.20.01 | pH 4.02 | " | " | — | 4.00 | RSL | AT GOSS COVE |
| 1-7-02 | Ph 3.99 | AUTO CAL | AUTO | — | 4.00 | GRW | |
| 1.8.02 | pH 3.99 | " | " | — | 4.00 | RSL | |
| 1.9.02 | pH 4.00 | " | " | — | 4.00 | RSL | |

Instrument Rented From: US ENVIRONMENTAL

# APPENDIX E

# MONITORING WELL DEVELOPMENT LOGS

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: HNUS 23
Site: GOSS COVE
Date Installed:
Date Developed: 1-9-02
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

Depth to Bottom (ft.): 15.9
Static Water Level Before (ft.): 8.9
Static Water Level After (ft.):
Screen Length (ft.): 10
One Well Volume (gal): 1.1
Casing ID (in.): 2 inch PVC

Responsible Personnel: WUDKWYCH
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole____ppm
PID Readings: Breathing Zone____ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 0743 | | | | | | START | SURGE FOR 5 MIN |
| 0745 | 2 | 12.6 | 11.9 | 5.62 | 0.247 | 999 | DARK BROWN |
| 0748 | | | | | | | DRY |
| 0800 | 6 | DRY | 10.5 | 5.64 | 0.265 | 999 | |
| 0813 | 9 | DRY | 11.8 | 5.58 | 0.296 | 999 | |
| 0827 | 10 | DRY | 11.9 | 5.62 | 0.311 | 999 | |
| 0842 | 13 | DRY | 11.7 | 5.59 | 0.302 | 999 | |
| 0855 | 15 | DRY | 12.3 | 5.62 | 0.307 | 999 | |
| 0910 | 17 | DRY | 12.0 | 5.65 | 0.302 | 999 | |
| 0922 | 19 | DRY | 12.2 | 5.70 | 0.311 | 999 | |
| 0936 | 22 | DRY | 12.3 | 5.73 | 0.307 | 999 | |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: GMW 1
Site: GOSS COVE
Date Installed: _____
Date Developed: 1.8.02
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

Depth to Bottom (ft.): 18.10
Static Water Level Before (ft.): 12.10
Static Water Level After (ft.): _____
Screen Length (ft.): 10
One Well Volume (gal): 0.8
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS / FW
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole____ppm
PID Readings: Breathing Zone____ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 1617 | 0 | 12.10 | 10.7 | 7.27 | 32.3 | 366 | START, BRN., NO ODOR |
| 1623 | 5 | ↓ | 11.0 | 7.33 | 32.6 | 608 | BRN/BLACK |
| 1629 | 8 | | 11.1 | 7.39 | 32.6 | 27 | CLEAR |
| 1632 | 14 | | 11.0 | 7.43 | 32.8 | 6 | ↓ |
| 1634 | 16 | ↓ | — | — | — | — | END |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW25
Site: GOSS COVE
Date Installed:
Date Developed: 1.7.02
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

Depth to Bottom (ft.): 17.7
Static Water Level Before (ft.): 9.77
Static Water Level After (ft.): 10.00
Screen Length (ft.): 10
One Well Volume (gal):
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS - FW
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole ____ ppm
PID Readings: Breathing Zone ____ ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 1534 | 0 | 9.77 | — | — | — | — | START PURGE, BLACK |
| 1536 | 2 | 10.00 | 15.1 | 7.25 | 3.74 | 557 | WITH FUEL ODOR |
| 1542 | 6 | 10.00 | 15.5 | 7.79 | 3.52 | 143 | CLEARING w/STRONG |
| 1545 | 14 | 10.00 | 15.7 | 7.92 | 3.98 | 28 | — FUEL ODOR — |
| 1549 | 18 | 10.00 | 15.6 | 7.92 | 4.56 | 25 | ↓ |
| 1551 | 24 | 10.00 | — | — | — | — | END DEVELOPMENT |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW2D
Site: GOSS COVE
Date Installed:
Date Developed: 1·8·02
Dev. Method: Surged & Pumped
Pump Type: ~~12 V Sub. Whale Pump~~ PERISTALTIC

Depth to Bottom (ft.): 62.7
Static Water Level Before (ft.): 10.27
Static Water Level After (ft.):
Screen Length (ft.): 10
One Well Volume (gal): 8.6
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS / FW
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole ____ ppm
PID Readings: Breathing Zone ____ ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 1442 | 0 | 10.27 | | | | | START, CLEAR, LT SULFUR ODOR |
| 1448 | | 11.55 | 12.6 | 7.14 | 31.9 | 170 | SAND IN WELL |
| 1458 | 2 | 15.73 | 13.0 | 7.66 | 20.2 | 45 | |
| 1508 | | 17.25 | 12.9 | 7.53 | 17.0 | 10 | |
| 1519 | 5 | 17.6 | 12.9 | 7.62 | 17.7 | 15 | |
| 1529 | | 17.6 | 13.4 | 7.63 | 31.6 | 255 | |
| 1539 | 8 | 17.3 | 13.4 | 7.41 | 18.3 | 10 | |
| 1549 | | 17.1 | 13.1 | 7.36 | 17.3 | 17 | Flow = 680 ml/min |
| 1600 | 9 | 17.2 | 13.2 | 7.41 | 24.0 | 51 | |
| 1610 | 11 | 16.8 | 13.2 | 7.37 | 18.0 | 5 | |
| 1617 | 14 | 16.65 | 13.2 | 7.40 | 17.8 | 4 | END |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW3
Site: GOSS COVE
Date Installed:
Date Developed: 1-8-02
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

Depth to Bottom (ft.): 21.8
Static Water Level Before (ft.): 8.31
Static Water Level After (ft.):
Screen Length (ft.): 10
One Well Volume (gal):
Casing ID (In.): 2 inch PVC

Responsible Personnel: KS / FW
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole____ppm
PID Readings: Breathing Zone____ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 0924 | 0 | 8.31 | | | | | START, BLACK, FUEL |
| 0926 | 5 | 8.53 | 14.0 | 7.58 | 6.94 | >999 | ODOR |
| 0930 | 10 | 8.35 | 13.6 | 8.12 | 5.49 | 902 | FUEL ODOR |
| 0936 | 15 | 8.35 | 15.2 | 8.14 | 5.44 | 484 | ↓ |
| 0940 | 20 | 8.35 | 14.1 | 8.17 | 5.36 | 414 | ↓ |
| 0942 | 22 | | | | | | END DEVELOPMENT |
| | | | | | | | |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: BMW5
Site: GOSS COVE
Date Installed:
Date Developed: 12-20-01
Dev. Method: Surged & Pumped
Pump Type: ~~12 V Sub. Whale Pump~~ PERISTALTIC

Depth to Bottom (ft.): 14.07 @ END
Static Water Level Before (ft.): 12.18
Static Water Level After (ft.): 11.90
Screen Length (ft.): 10
One Well Volume (gal):
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS - JK
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole ____ ppm
PID Readings: Breathing Zone ____ ppm

PUMP RATE 0.3 GPM

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | % SAL | Remarks (odor, color, etc.) START @ 1008 - READINGS @ 1015 |
|---|---|---|---|---|---|---|---|---|
| 1008 | 0 | 12.18 | 12.7 | 6.61 | 32.9 | 538 | 2.04 | SAND IN BTM. OF WELL |
| 1026 | 4 | 11.90 | 12.8 | 6.87 | 32.8 | 25 | 2.03 | CLEAR IF TUBING IS |
| 1035 | 6 | 11.90 | 13.0 | 6.87 | 33.2 | 5 | 2.06 | OFF BTM. |
| | | | | | | | | END DEVELOPMENT |
| | | | | | | | | CLEANED SAND OUT |
| | | | | | | | | OF BTM |
| | | | | | | | | |
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| | | | | | | | | "TAGGED" BTM WITH |
| | | | | | | | | TUBING TO REMOVE |
| | | | | | | | | SAND |
| | | | | | | | | |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW65
Site: GOSS COVE
Date Installed:
Date Developed: 12-19-01
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

@ END
Depth to Bottom (ft.): 13.19
Static Water Level Before (ft.): 8.17
Static Water Level After (ft.):
Screen Length (ft.): 10
One Well Volume (gal): 0.8
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS - JK
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole 0 ppm
PID Readings: Breathing Zone 0 ppm

START 1407

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | % SAL | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|---|
| 1411 | 0 | 8.63 | 15.3 | 7.35 | 2.55 | 15 | 0.12 | PUMP RATE = 1.7 GPM |
| 1416 | ↓ | ↓ | 15.0 | 7.36 | 2.55 | 10 | 0.12 | |
| 1420 | 13 | 8.20 | 15.0 | 7.33 | 2.55 | 10 | 0.12 | END DEVELOPMENT |
| | | | | | | | | |
| | | | | | | | | 13 GAL TOTAL |
| | | | | | | | | GOOD PRODUCER |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | BLACK @ START |
| | | | | | | | | THEN CLEARING |
| | | | | | | | | |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW6D
Site: GOSS COVE
Date Installed:
Date Developed: 12-19-01
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

@ END
Depth to Bottom (ft.): 67.32
Static Water Level Before (ft.): 6.52
Static Water Level After (ft.): 7.31
Screen Length (ft.): 10
One Well Volume (gal): 9.9
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS - JK
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole 0 ppm
PID Readings: Breathing Zone 0 ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | % SAL | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|---|
| 1523 | 0 | 6.52 | | | | | | START LT TAN |
| 1526 | ↓ | ↓ | 12.8 | 6.79 | 29.4 | 695 | 1.80 | PUMP RATE = 0.5 GPM |
| 1529 | 7 | 7.10 | 13.1 | 6.67 | 34.4 | >999 | 2.14 | |
| 1531 | 8 | ↓ | 13.0 | 6.64 | 35.9 | 70 | 2.24 | CLEARING |
| 1537 | 15 | 7.10 | 13.1 | 6.64 | 35.9 | 5 | 2.25 | |
| 1540 | 20 | 7.10 | 13.1 | 6.64 | 36.0 | 5 | 2.25 | STOPPED PUMP TO EMPTY WATER |
| 1600 | 20 | 7.21 | | | | | | RESTART: PUMP RATE = 1.2 GPM |
| 1602 | 23 | 7.23 | 12.9 | 6.65 | 35.9 | 7 | 2.24 | |
| 1607 | 36 | 7.30 | 12.6 | 6.71 | 36.0 | 5 | 2.25 | |
| 1614 | 40 | 7.31 | 12.9 | 6.69 | 35.9 | 5 | 2.24 | |
| 1616 | 42 | 7.30 | 13.0 | 6.69 | 36.0 | 5 | 2.25 | END DEVELOPMENT |
| | | | | | | | | |
| | | | | | | | | SAL. IN RIVER OFF |
| | | | | | | | | PEIR = 2.17 % |
| | | | | | | | | |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW75
Site: GOSS COVE
Date Installed:
Date Developed: 12-19-01
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

@ END
Depth to Bottom (ft.): 14.30
Static Water Level Before (ft.): 8.61
Static Water Level After (ft.): 9.10
Screen Length (ft.): 10
One Well Volume (gal): 0.9
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS - JK
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole 0 ppm
PID Readings: Breathing Zone 0 ppm

PUMP RATE = 1.3 GPM

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | % SAL | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|---|
| 1702 | 0 | 8.61 | | | | | | START |
| 1708 | ↓ | | 14.4 | 7.59 | 1.38 | >999 | 0.06 | BLACK HIGH TSS |
| 1716 | 7 | 9.10 | 14.8 | 7.67 | 0.97 | 232 | 0.04 | CLEARING |
| 1723 | 14 | 9.10 | 14.8 | 7.65 | 0.95 | 5 | 0.04 | PUMP QUIT! |
| | | | | | | | | |
| | ≈16 TOTAL | | | | | | | END DEVELOPMENT |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW85
Site: GOSS COVE
Date Installed:
Date Developed: 12/20/01
Dev. Method: Surged & Pumped
Pump Type: 12V ~~Sub. Whale Pump~~ PERISTALTIC

@ END
Depth to Bottom (ft.): 15.83
Static Water Level Before (ft.): 15.05
Static Water Level After (ft.):
Screen Length (ft.): 10 ft
One Well Volume (gal): 0.09
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS-JK
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole ____ ppm
PID Readings: Breathing Zone ____ ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 0820 | 0 | 15.05 | | | | | TAN, WITH SOLIDS |
| 0822 | 0.1 | 15.83 | | | | | DRY AFTER 0.1 GAL |
| 0900 | 0.1 | 15.83 | | | | | NO RECOVERY AFTER 38 MIN. |
| | | | | | | | END DEVELOPMENT |

Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW8D
Site: GOSS COVE
Date Installed:
Date Developed: 1.7.02
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

Depth to Bottom (ft.): 77.5
Static Water Level Before (ft.): 17.24
Static Water Level After (ft.):
Screen Length (ft.): 30
One Well Volume (gal):
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS / FW
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole ____ ppm
PID Readings: Breathing Zone ____ ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 1710 | 0 | 17.24 | | | | | START PURGE, CLOUDY |
| 1713 | 2 | 25.0 | 9.8 | 6.39 | 0.339 | 735 | NO ODOR |
| 1714 | 2.5 | 40.0 | | | | | DRY TO PUMP 40' ± |
| 1725 | 2.5 | 22.95 | 12.5 | 6.24 | 0.512 | >999 | RESTART PUMP |
| 1730 | 6.5 | 41.0 | 13.1 | 6.29 | 0.329 | 742 | |
| 1735 | 7.2 | 42.0 | STOP PUMP FOR RECHARGE | | | | |
| 1750 | 7.2 | 27.0 | START PUMP | | | | |
| 1753 | 8.0 | 31.0 | 12.9 | 6.30 | 0.378 | 25 | |
| 1757 | 9.0 | 39.0 | 13.0 | 6.28 | 0.312 | 37 | |
| 1802 | 11.5 | 41.0 | 12.9 | 6.11 | 0.378 | 23 | END DEVELOPMENT |
| | | | | | | | PUMP RATE WITH NO |
| | | | | | | | DRAWDOWN = 700 ML MIN |
| | | | | | | | |
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Note: Exisitng Monitoring Well; Re-Development

Tetra Tech NUS, Inc.

# MONITORING WELL DEVELOPMENT RECORD



Well: 8MW 10S
Site: GOSS COVE
Date Installed:
Date Developed: 1-8-02
Dev. Method: Surged & Pumped
Pump Type: 12 V Sub. Whale Pump

Depth to Bottom (ft.): 21.30
Static Water Level Before (ft.): 16.60
Static Water Level After (ft.):
Screen Length (ft.): 10
One Well Volume (gal): 0.8
Casing ID (in.): 2 inch PVC

Responsible Personnel: KS/FW
Drilling Company NA
Project Name: NSB NEW LONDON
Project Number: N2863 CTO 0816
PID Readings: Bore Hole ___ ppm
PID Readings: Breathing Zone ___ ppm

| Time | Cumulative Water Volume (Gal.) | Water Level Readings (Ft. below TOC) | Temperature (Degrees C) | pH | Specific Conductance (Units mS/cm) | Turbidity (NTU) | Remarks (odor, color, etc.) |
|---|---|---|---|---|---|---|---|
| 1708 | 0 | 16.60 | | | | | CLOUDY, NO ODOR |
| 1710 | 2 | ↓ | 11.0 | 6.89 | 0.586 | >999 | |
| 1713 | 5 | | 11.2 | 6.76 | 0.202 | 720 | |
| 1719 | 13 | | 11.3 | 5.95 | 0.193 | 193 | CLEARING |
| 1722 | 20 | | 11.2 | 5.86 | 0.190 | 42 | ↓ |
| 1724 | 23 | | 11.2 | 5.84 | 0.186 | 34 | ↓ |
| 1726 | 24 | ↓ | | | | | END |
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Note: Exisitng Monitoring Well; Re-Development

# APPENDIX F

# GROUNDWATER SAMPLE LOGSHEETS AND LOW-FLOW PURGE DATA SHEETS

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[x] Tidal (Y/N)
Low Tide at: 3:52 PM

SAMPLE @ 4:06 PM

Sample ID No.: BGW01 01
Sample Location: BMW1
Sampled By: FCW
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

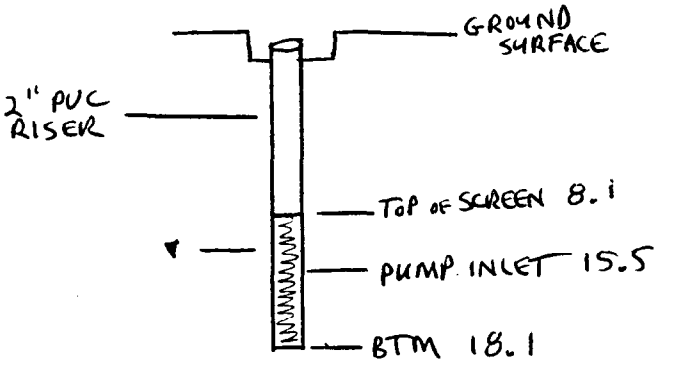
**SAMPLING DATA:**

| | Color Visual | pH Standard | S.C. mS/cm | Temp. Degrees C | Turbidity NTU | DO mg/l | Eh mV | Salinity ppt |
|---|---|---|---|---|---|---|---|---|
| Date: 1-13-02 | | | | | | | | |
| Time: ~~1552~~ 1606 | | | | | | | | |
| Method: Low Flow, BLADDER | CLEAR | 7.67 | 34.33 | 9.10 | 0 | 0.28 | -188.5 | 21.5 |

**PURGE DATA:**

Date: 1-13-02
Method: Low Flow, BLADDER
Monitor Reading (ppm):
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 18.1
Static Water Level (WL): 12.85
One Casing Volume(gal): 0.8
Start Purge (hrs): 1455
End Purge (hrs): 1552
Total Purge Time (min): 57
Total Vol. Purged (gal): 3

MEASUREMENTS FROM TOP OF 2" PVC




**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 | ✓ |
| ~~TOC & COD~~ (Fe) | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ | |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

Fe = 0.6 mg/L

**Circle if Applicable:**

MS/MSD

Duplicate ID No.:

Signature(s): [illegible]

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: BMW1
DATE: 4-13-02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1455 | 12.85 | | | | | | | | | START PURGING |
| 1515 | ~~13.96~~ 13.05 | 235 | 7.47 | 34.59 | 3 | 2.26 | 8.79 | -97.4 | 21.6 | HAD TO CHANGE |
| 1522 | 13.10 | 235 | 7.60 | 34.42 | 1 | 0.52 | 9.03 | -145.3 | 21.5 | BATTERIES ON |
| 1530 | 13.13 | 235 | 7.63 | 34.34 | 0 | 0.37 | 9.30 | -166.1 | 21.5 | CONTROL BOX |
| 1538 | 13.15 | 235 | 7.66 | 34.36 | 0 | 0.30 | 9.15 | -177.4 | 21.5 | |
| 1545 | 13.19 | 235 | 7.67 | 34.33 | 0 | 0.30 | 9.14 | -184.5 | 21.5 | |
| 1552 | 13.23 | 235 | 7.67 | 34.33 | 0 | 0.28 | 9.10 | -188.5 | 21.5 | SAMPLE |
| 1606 | | | | | | | | | | END |
| 1640 | | | | | | | | | | |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[X] Tidal (Y/N)
Low Tide at: 2:26 PM + LAG

SAMPLE AT 1528

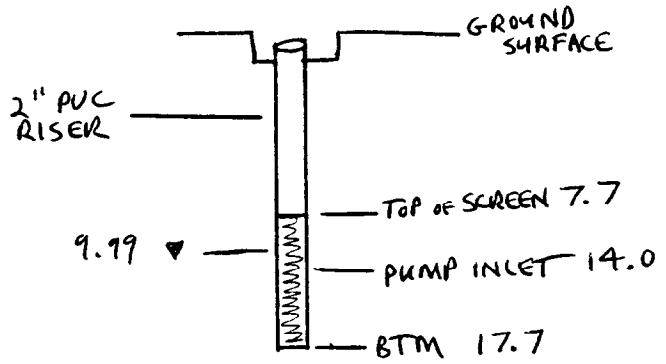
Sample ID No.: 8GW02S01
Sample Location: 8MW25
Sampled By: KS
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| | Color Visual | pH Standard | S.C. mS/cm | Temp. Degrees C | Turbidity NTU | DO mg/l | Eh mV | Salinity ppt |
|---|---|---|---|---|---|---|---|---|
| Date: 1.11.02 | | | | | | | | |
| Time: 1528 | | | | | | | | |
| Method: Low Flow, BLADDER | CLEAR | 8.41 | 2.628 | 15.2 | 0 | 0.86 | -307 | 1.37 |

**PURGE DATA:**

Date: 1.11.02
Method: Low Flow, BLADDER
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 17.7
Static Water Level (WL): 9.99
One Casing Volume(gal): 1.3
Start Purge (hrs): 1435
End Purge (hrs): 1528
Total Purge Time (min): 53
Total Vol. Purged (gal): 2.8




MEASUREMENTS FROM TOP OF 2" PVC

**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 | ✓ |
| ~~TOC & COD~~ | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ KS | — |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

$Fe^2 = 0.9$ mg/L

**Circle if Applicable:**

MS/MSD —
Duplicate ID No.: —

**Signature(s):**

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: 8MW2
DATE: 1·11·02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1435 | 9.99 | 355 | | | | | | | | START PURGE |
| 1440 | 10.02 | 180 | 7.30 | 2.648 | 5.9 | 4.72 | 15.0 | -44 | 1.37 | CLEAR |
| 1450 | 10.05 | 200 | 8.18 | 2.741 | 0.9 | 1.12 | 15.3 | -216 | 1.43 | FUEL ODOR |
| 1500 | 10.08 | ↓ | 8.28 | 2.704 | 0.6 | 1.01 | 15.2 | -256 | 1.41 | |
| 1510 | 10.12 | ↓ | 8.36 | 2.654 | 0 | 0.86 | 15.1 | -292 | 1.38 | |
| 1520 | 10.15 | ↓ | 8.40 | 2.632 | 0 | 0.93 | 15.2 | -305 | 1.37 | |
| 1525 | 10.15 | ↓ | 8.41 | 2.628 | 0 | 0.86 | 15.2 | -307 | 1.37 | END PURGE |

SIGNATURE(S): [illegible]

SAMPLED @ 1528

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[Y] Tidal (Y/N)
Low Tide at: 1245

Sample ID No.: 8GW020 01
Sample Location: 8MW20
Sampled By: KS / FW
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

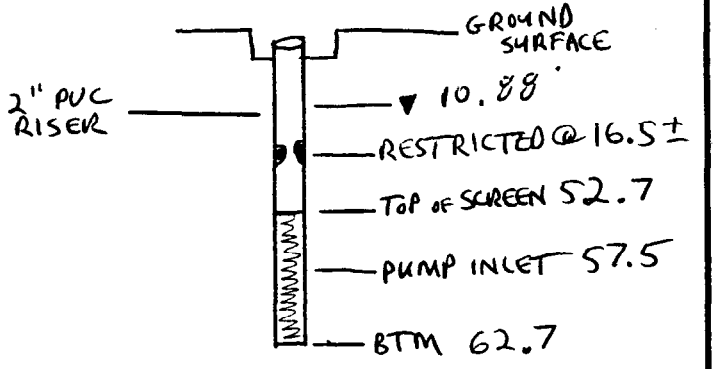
**SAMPLING DATA:**

| | Color Visual | pH Standard | S.C. mS/cm | Temp. Degrees C | Turbidity NTU | DO mg/l | Eh mV | Salinity ppt |
|---|---|---|---|---|---|---|---|---|
| Date: 1-9-02 | | | | | | | | |
| Time: 1245 | | | | | | | | |
| Method: Low Flow, PERISTALTIC | CLEAR | 8.10 | 19.45 | 12.7 | 3 | 0.59 | -308 | 11.61 |

**PURGE DATA:**

Date: 1-9-02
Method: Low Flow, PERISTALTIC
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 62.7
Static Water Level (WL): 10.80
One Casing Volume(gal): 8.4
Start Purge (hrs): 1145
End Purge (hrs): 1230
Total Purge Time (min): 45
Total Vol. Purged (gal): 2.5

MEASUREMENTS FROM TOP OF 2" PVC




**SAMPLE COLLECTION INFORMATION:** KS

| Analysis | Preservative | Container Requirements | | | Collected |
|---|---|---|---|---|---|
| TCL VOLATILES | HCL / 4° C | 12 | 12 | ~~15~~ 3 - 40 ml Vial | |
| TCL SEMIVOLATILES | 4° C | 8 | 8 | ~~10~~ 2 - Qt. Amber Glass | |
| TCL PEST/PCBs | 4° C | 8 | 8 | ~~10~~ 2 - Qt. Amber Glass | |
| TCL PAH | 4° C | 10 | ~~10~~ | ~~12~~ 2 - Qt. Amber Glass | |
| TAL METALS (TOTAL) + Hardness | $HNO_3$ / 4° C | 3 | 3 | ~~4~~ 1- L PE | |
| TAL METALS (DISSOLVED) | $HNO_3$ / 4° C | 3 | ~~3~~ | ~~4~~ 1 - L PE | |
| ~~TOC & COD~~ | ~~$H_2SO_4$ / 4° C~~ | | ~~1~~ | ~~125 ml Glass~~ KS | |
| Nitrate, Sulfate | 4° C | | 2 | 1 - L PE | |
| | | | | | |
| | | X | VOC | DUP + MS/MSD | |
| | | | | | |
| | | | | | |

**OBSERVATIONS / NOTES:**

Fe = 4 mg/L

**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| YES | FD 010902 01 |

Signature(s): [illegible]

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: 8MW2D
DATE: 1-9-02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1145 | 10.88 | | | | | | | | | START PURGING |
| 1153 | 12.10 | 210 | 7.79 | 25.46 | 18 | 5.58 | 13.1 | -300.1 | 13.7 | |
| 1201 | 12.80 | 210 | 8.05 | 20.54 | 18 | 1.58 | 12.9 | -311.6 | 12.4 | |
| 1207 | 13.05 | 210 | 8.12 | 20.23 | 11 | 0.88 | 12.9 | -312.8 | 12.1 | |
| 1214 | 13.16 | 210 | 8.15 | 19.65 | 8 | 0.75 | 12.8 | -311.9 | 11.73 | |
| 1222 | 13.24 | 210 | 8.13 | 19.50 | 6 | 0.67 | 12.7 | -307.0 | 11.64 | |
| 1230 | 13.30 | 210 | 8.10 | 19.45 | 3 | 0.59 | 12.7 | -308 | 11.61 | END PURGE |
| 1245 | | | | | | | | | | SAMPLE |
| 1520 | | | | | | | | | | END SAMPLE TIME |
| | | | | | | | | | | START SAMPLING @ 1230 |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[X] Tidal (Y/N)
Low Tide at: 1426 + LA9 SAMPLE @ 1530

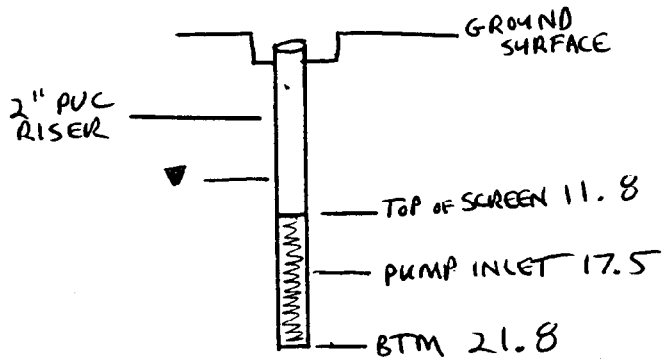
Sample ID No.: BGW03 01
Sample Location: BMW3
Sampled By: FCW
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| | Color Visual | pH Standard | S.C. mS/cm | Temp. Degrees C | Turbidity NTU | DO mg/l | Eh mV | Salinity ppt |
|---|---|---|---|---|---|---|---|---|
| Date: 1-11-02 Time: 1530 Method: Low Flow, BLADDER | CLEAR | 8.82 | 4.72 | 14.2 | 16 | 0.39 | -316.3 | 2.5 |

**PURGE DATA:**

Date: 1-11-02
Method: Low Flow, BLADDER
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 21.8
Static Water Level (WL): 8.55
One Casing Volume(gal): 2.1
Start Purge (hrs): 1440
End Purge (hrs): 1530
Total Purge Time (min): 50
Total Vol. Purged (gal): 2.2




MEASURMENTS FROM TOP OF 2" PVC

**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 | ✓ |
| ~~TOC~~ & COD | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ KS | ✓ |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

Fe = 0.8 mg/L

**Circle if Applicable:**

MS/MSD —

Duplicate ID No.: —

Signature(s): FCW

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: 8MW3
DATE: 4-11-02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1440 | 8.55 | | | | | | | | | START PURGING |
| 1450 | 8.58 | 160 | 8.66 | 4.99 | 169 | 0.60 | 13.8 | -270.1 | 2.7 | |
| 1500 | 8.60 | 170 | 8.78 | 4.84 | 63 | 0.46 | 14.1 | -303.2 | 2.6 | |
| 1508 | 8.62 | 170 | 8.80 | 4.82 | 44 | 0.43 | 14.0 | -309.8 | 2.6 | |
| 1516 | 8.63 | 170 | 8.77 | 4.83 | 28 | 0.42 | 14.1 | -304.5 | 2.6 | |
| 1523 | 8.63 | 170 | 8.79 | 4.79 | 24 | 0.39 | 14.2 | -304.2 | 2.6 | |
| 1530 | 8.63 | 170 | 8.82 | 4.72 | 16 | 0.39 | 14.2 | -316.3 | 2.5 | SAMPLE |
| 1615 | | | | | | | | | | END |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[X] Tidal (Y/N)
Low Tide at: 1147

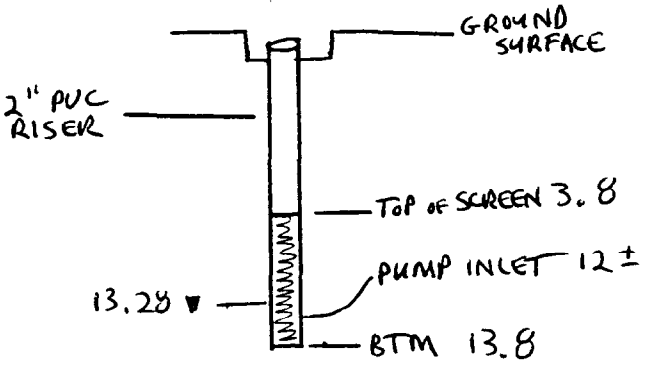
Sample ID No.: 8GW05S 01
Sample Location: 8MW5S
Sampled By: FRANK W
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| Date: 1·8·02 | Color | pH | S.C. | Temp. | Turbidity | DO | Eh | Salinity |
|---|---|---|---|---|---|---|---|---|
| Time: 1147 | Visual | Standard | mS/cm | Degrees C | NTU | mg/l | mV | ppt |
| Method:Low Flow, PERISTALTIC | CLEAR | 7.25 | 37.36 | 10.33 | 0 | 2.50 | -203 | 23.5 |

**PURGE DATA:**

Date: 01·8·02
Method:Low Flow, PERISTALTIC
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 13.8
Static Water Level (WL): 13.28
One Casing Volume(gal): 0.08
Start Purge (hrs): 1057
End Purge (hrs): 1147
Total Purge Time (min): 50
Total Vol. Purged (gal): 2.9




MEASURMENTS FROM TOP OF 2" PVC

**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 | ✓ |
| ~~TOC & COD~~ | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ RS | ✓ |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

LOW TIDE @ 1147

FE = 1.4 mg/L

**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| | |

Signature(s): FRANK W

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: 8MW55
DATE: 1.8.02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1057 | 13.28 | | | | | | | | | START PURGING |
| 1102 | 13.39 | 350 | 7.43 | 37.47 | 9 | 2.37 | 10.24 | -168 | 23.7 | |
| 1110 | 13.43 | 240 | 7.37 | 37.43 | 0 | 2.56 | 10.21 | -206 | 23.6 | |
| 1118 | 13.45 | 240 | 7.32 | 37.43 | 0 | 2.43 | 10.00 | -206 | 23.6 | |
| 1126 | 13.50 | 200 | 7.29 | 37.46 | 0 | 2.39 | 10.21 | -207 | 23.6 | |
| 1135 | 13.55 | 200 | 7.28 | 37.44 | 0 | 2.42 | 10.28 | -206 | 23.6 | |
| 1146 | 11.61 | 200 | 7.25 | 37.36 | 0 | 2.50 | 10.33 | -203 | 23.5 | SAMPLE |
| 1240 | | | | | | | | | | END |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[Y] Tidal (Y/N)
Low Tide at: 1338

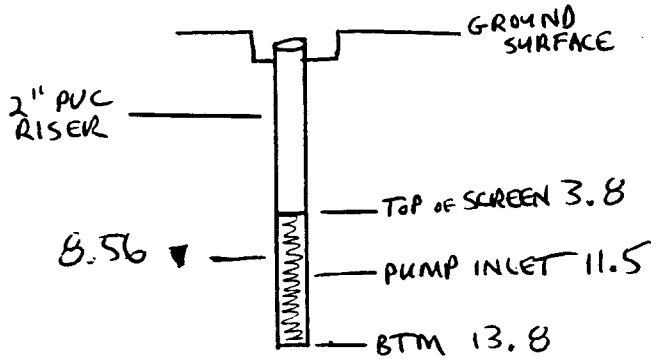
Sample ID No.: 8GW06S 01
Sample Location: 8MW6S
Sampled By: FW
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| | Color | pH | S.C. | Temp. | Turbidity | DO | Eh | Salinity |
|---|---|---|---|---|---|---|---|---|
| Date: 1-10-02 | Visual | Standard | mS/cm | Degrees C | NTU | mg/l | mV | ppt |
| Time: 1338 | | | | | | | | |
| Method: Low Flow, BLADDER | CLEAR | 8.01 | 1.70 | 12.98 | 0 | 0.36 | -309.0 | 0.87 |

**PURGE DATA:**

Date: 1-10-02
Method: Low Flow, BLADDER
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 13.8
Static Water Level (WL): 8.56
One Casing Volume(gal): 0.85
Start Purge (hrs): 1230
End Purge (hrs): 1330
Total Purge Time (min): 60
Total Vol. Purged (gal): 3.8




MEASUREMENTS FROM TOP OF 2" PVC

**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 | ✓ |
| TOC & COD (Fe) | ~~$H_2SO_4$ / 4° C~~ (FCL) | ~~125 ml Glass~~ (FCL) | — |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

Fe = 3 mg/L

**Circle if Applicable:**

MS/MSD: —
Duplicate ID No.: —

**Signature(s):** FW

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: 8MW6S
DATE: 1-10-02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1230 | 8.56 | | | | | | | | | START PURGING |
| 1238 | 8.56 | 240 | 7.92 | 1.68 | 12 | 1.13 | 13.15 | -299.7 | 0.85 | |
| 1248 | 8.57 | 240 | 7.97 | 1.68 | 3 | 0.46 | 13.06 | -304.6 | 0.85 | |
| 1257 | 8.63 | 240 | 7.99 | 1.68 | 1 | 0.36 | 13.01 | -306.1 | 0.86 | |
| 1307 | 8.60 | 240 | 8.00 | 1.69 | 1 | 0.31 | 12.96 | -308.1 | 0.86 | |
| 1315 | 8.64 | 240 | 8.00 | 1.69 | 1 | 0.27 | 12.94 | -308.8 | 0.86 | |
| 1323 | 8.61 | 240 | 8.00 | 1.70 | 1 | 0.40 | 12.98 | -309.0 | 0.87 | |
| 1330 | 8.61 | 240 | 8.01 | 1.70 | 0 | 0.36 | 12.98 | -309.8 | 0.87 | END PURGING |
| 1338 | | | | | | | | | | SAMPLE |
| 1415 | | | | | | | | | | END SAMPLING |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data 1338
[X] Tidal (Y/N)
Low Tide at: 1342 WITH WELL LAG

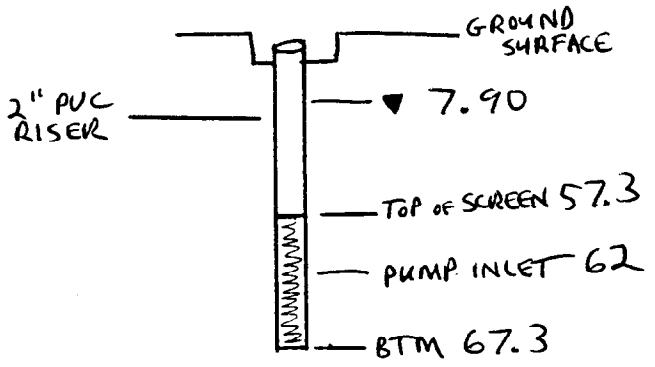
Sample ID No.: 8GW06D 01
Sample Location: 8MW6D
Sampled By: RS
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| Date: 1.10.02 | Color | pH | S.C. | Temp. | Turbidity | DO | Eh | Salinity |
|---|---|---|---|---|---|---|---|---|
| Time: 1342 | Visual | Standard | mS/cm | Degrees C | NTU | mg/l | mV | ppt |
| Method: Low Flow BLADDER | CLEAR | 7.08 | 42.40 | 13.9 | 32 | 2.87 | -203 | 27.2 |

**PURGE DATA:**

Date: 1.10.02
Method: Low Flow, BLADDER
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 67.3
Static Water Level (WL): 7.90
One Casing Volume(gal): 9.7
Start Purge (hrs): 1235
End Purge (hrs): 1340
Total Purge Time (min): 65
Total Vol. Purged (gal): 3.3




MEASUREMENTS FROM TOP OF 2" PVC

**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 | ✓ |
| ~~TOC & COD~~ | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ | — |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

$Fe^{+2}$ = 2.1 mg/L

**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| — | — |

Signature(s): [illegible]

LOW TIDE @ 1342 (WITH LAG TIME)

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: 8MW6D
DATE: 1.10.02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1235 | 7.90 | 200 | | | | | | | | START PURGE |
| 1240 | 8.06 | | 7.13 | 39.80 | 18 | 2.16 | 13.7 | -187 | 25.4 | |
| 1250 | 8.18 | | 7.11 | 40.90 | 16 | 1.43 | 14.0 | -199 | 26.2 | |
| 1300 | 8.22 | | 7.10 | 41.56 | 15 | 1.39 | 13.9 | -200 | 26.7 | |
| 1310 | 8.27 | | 7.09 | 42.05 | 16 | 1.06 | 14.0 | -200 | 27.0 | |
| 1320 | 8.33 | | 7.09 | 42.26 | 25 | 1.31 | 13.9 | -202 | 27.2 | |
| 1330 | 8.33 | | 7.08 | 42.33 | 32 | 1.88 | 14.0 | -202 | 27.2 | |
| 1340 | 8.35 | | 7.08 | 42.40 | 32 | 2.87 | 13.9 | -203 | 27.2 | END PURGE |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[Y] Tidal (Y/N) ?
Low Tide at: 1147

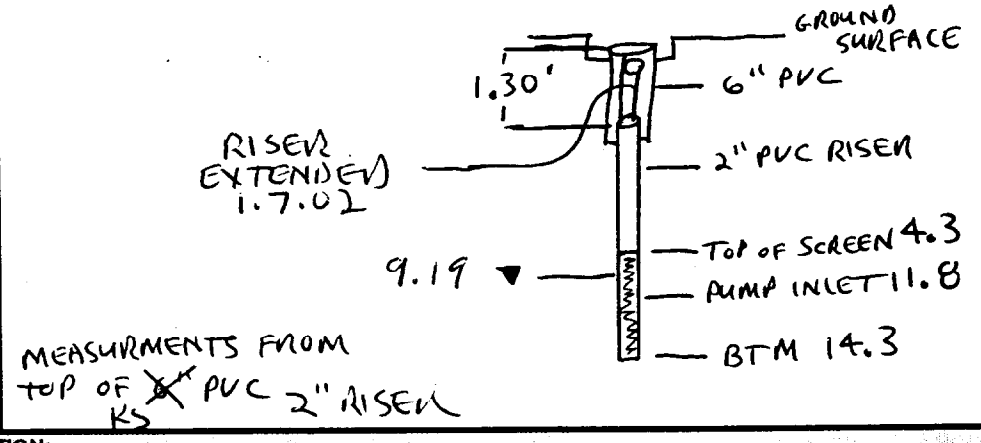
Sample ID No.: 8GW07S 01
Sample Location: 8MW7S
Sampled By: KEITH S
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| | Color Visual | pH Standard | S.C. mS/cm | Temp. Degrees C | Turbidity NTU | DO mg/l | Eh mV | Salinity ppt |
|---|---|---|---|---|---|---|---|---|
| Date: 1·8·02 | | | | | | | | |
| Time: 1140 | | | | | | | | |
| Method: Low Flow, BLADDER | CLEAR | 7.85 | 0.856 | 11.2 | 12 | 1.02 | -263 | 0.42 |

**PURGE DATA:**

Date: 1·8·02
Method: Low Flow, BLADDER
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 14.3
Static Water Level (WL): 9.19
One Casing Volume(gal): 0.8
Start Purge (hrs): 1050
End Purge (hrs): 1140
Total Purge Time (min): 50
Total Vol. Purged (gal): 2.3




**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 | ✓ |
| ~~TOC & COD~~ | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ KS | ✓ |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

LOW TIDE @ 1147

IRON$^{2}$ @ = 3.8 mg/L $Fe^{2}$

**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| — | — |

**Signature(s):** [illegible]

LOW TIDE @ 1147

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: 8MW7S
DATE: 1.8.02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1050 | 9.19 | 175 | | | | | | | | START |
| 1100 | ↓ | ↓ | 7.63 | 0.952 | 36 | 1.51 | 10.7 | -221 | 0.42 | SOME BLACK FINES |
| 1110 | ↓ | ↓ | 7.70 | 0.846 | 30 | 1.13 | 11.0 | -233 | ↓ | NO ODOR |
| 1120 | ↓ | ↓ | 7.73 | 0.854 | 21 | 1.12 | 11.1 | -247 | ↓ | |
| 1130 | ↓ | ↓ | 7.81 | 0.855 | 13 | 1.10 | 11.2 | -255 | ↓ | |
| 1140 | ↓ | ↓ | 7.95 | 0.856 | 12 | 1.02 | 11.2 | -263 | ↓ | END PURGE |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[Y] Tidal (Y/N)
Low Tide at: 3:52 PM

SAMPLE @ 4:04 PM

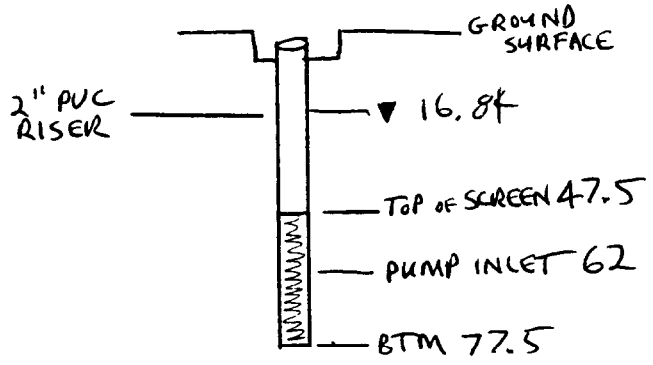
Sample ID No.: 8GW08D 01
Sample Location: 8MW8D
Sampled By: KS
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| | Color | pH | S.C. | Temp. | Turbidity | DO | Eh | Salinity |
|---|---|---|---|---|---|---|---|---|
| Date: 1.13.02 | Visual | Standard | mS/cm | Degrees C | NTU | mg/l | mV | ppt |
| Time: 1604 | | | | | | | | |
| Method:Low Flow, BLADDER | CLEAR | | | | | | | |

**PURGE DATA:**

Date: 1.13.02
Method:Low Flow, BLADDER
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 77.5
Static Water Level (WL): 16.84
One Casing Volume(gal): 9.9
Start Purge (hrs): 1410
End Purge (hrs): 1600
Total Purge Time (min): 110
Total Vol. Purged (gal): 8.7




MEASUREMENTS FROM TOP OF 2" PVC

**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 | ✓ |
| ~~TOC & COD~~ | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ KS | — |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

$Fe^2 = 0$ mg/l

**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| — | — |

Signature(s):

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 Job#2863

WELL ID.: 8MW8D
DATE: 1.13.02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1410 | 16.84 | 300 | | | | | | | | START PURGE |
| 1420 | 18.40 | ↓ | 6.73 | 1.714 | 32 | 6.18 | 13.0 | 53 | 0.84 | CLEAR, NO ODOR |
| 1430 | 19.15 | ↓ | 6.68 | 0.513 | 18 | 4.54 | 13.2 | +13 | 0.25 | |
| 1440 | 19.33 | 150 | 6.51 | 0.477 | 14 | 5.33 | 13.0 | 14 | 0.23 | |
| 1500 | 19.47 | ~~150~~ 300 | 6.44 | 0.435 | 8.7 | 5.95 | 12.8 | 34 | 0.21 | |
| 1510 | 19.60 | 300 | 6.43 | 0.434 | 5.5 | 5.91 | 12.8 | 42 | 0.21 | |
| 1520 | 19.55 | 300 | 6.43 | 0.427 | 2.3 | 5.38 | 12.8 | 45 | 0.21 | |
| 1530 | 19.00 | 300 | 6.41 | 0.414 | 1.3 | 5.86 | 12.8 | 48 | 0.20 | |
| 1540 | 18.37 | ↓ | 6.41 | 0.415 | 0.5 | 6.06 | 12.7 | 54 | 0.20 | PUMP STOP BREIFLY |
| 1550 | 18.53 | ↓ | 6.40 | 0.411 | 0.5 | 5.78 | 12.9 | 56 | 0.20 | CHANGED BAT. |
| 1600 | 18.81 | ↓ | 6.41 | 0.414 | 0.5 | 5.63 | 12.7 | 57 | 0.21 | |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[N] Tidal (Y/N) NON-TIDAL
Low Tide at:

Sample ID No.: GW 105 01
Sample Location: GMW10
Sampled By: KS
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

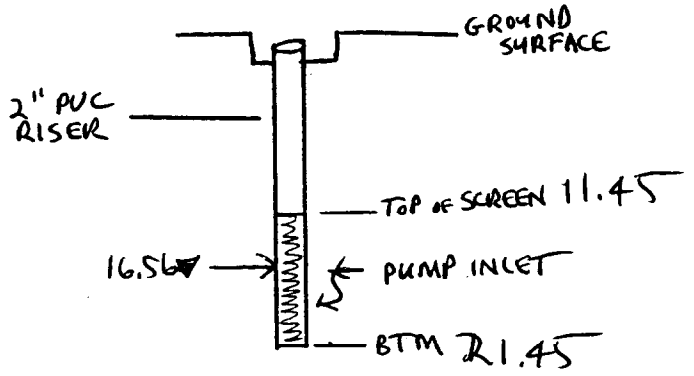
**SAMPLING DATA:**

| | Color Visual | pH Standard | S.C. mS/cm | Temp. Degrees C | Turbidity NTU | DO mg/l | Eh mV | Salinity ppt |
|---|---|---|---|---|---|---|---|---|
| Date: 1.10.02 | | | | | | | | |
| Time: 1800 | | | | | | | | |
| Method:Low Flow, PERISTALTIC | CLEAR | 6.32 | 0.234 | 11.3 | 0 | 7.73 | -38 | 0.11 |

**PURGE DATA:**

Date: 1.10.02
Method:Low Flow, PERISTALTIC
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): ~~16.56~~ 21.45
Static Water Level (WL): 16.56
One Casing Volume(gal): 0.8
Start Purge (hrs): 17:11
End Purge (hrs): 1758
Total Purge Time (min): 47
Total Vol. Purged (gal): 2.5

MEASUREMENTS FROM TOP OF 2" PVC




**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 | ✓ |
| ~~TOC & COD~~ | ~~$H_2SO_4$ / 4° C~~ | ~~125 ml Glass~~ KS | — |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

$Fe^2 = 0$ mg/L

**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| | |

Signature(s): KS

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: GMW10S
DATE: 1.10.02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1711 | 16.56 | 200 | | | | | | | | START PURGE, |
| 1718 | 16.57 | | 7.26 | 0.348 | 0.5 | 8.08 | 11.4 | +114 | 0.17 | CLEAR, NO ODOR |
| 1728 | 16.57 | | 6.69 | 0.283 | 0.3 | 8.28 | 11.3 | -76 | 0.14 | |
| 1738 | | | 6.44 | 0.254 | 0 | 7.97 | 11.3 | -55 | 0.12 | |
| 1748 | | | 6.34 | 0.238 | 0 | 7.77 | 11.3 | -44 | 0.11 | |
| 1753 | | | 6.33 | 0.235 | 0 | 7.74 | 11.2 | -40 | 0.11 | |
| 1758 | | | 6.32 | 0.234 | 0 | 7.73 | 11.3 | -38 | 0.11 | END PURGE |

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

# GROUNDWATER SAMPLE LOG SHEET



Project Site Name: NSB-NLON / GOSS COVE
Project No.: CTO 816 2863.0520

[ ] Domestic Well Data
[x] Monitoring Well Data
[N] Tidal (Y/N)
Low Tide at: _____

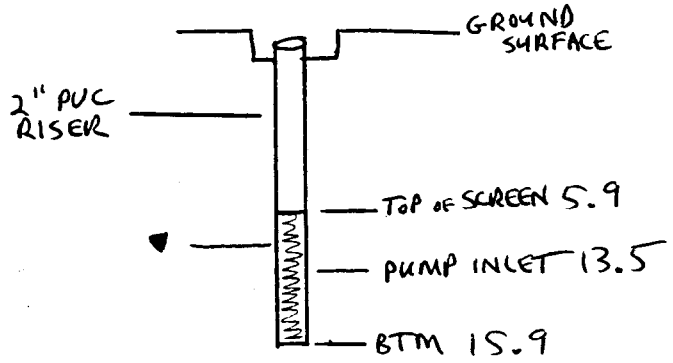
Sample ID No.: HNUS23 01
Sample Location: HNUS23
Sampled By: FCW
C.O.C. No.: _____
Type of Sample:
[X] Low Concentration
[ ] High Concentration

**SAMPLING DATA:**

| Date: 1-10-02 | Color | pH | S.C. | Temp. | Turbidity | DO | Eh | Salinity |
|---|---|---|---|---|---|---|---|---|
| Time: 1630 | Visual | Standard | mS/cm | Degrees C | NTU | mg/l | mV | ppt |
| Method:Low Flow, BLADDER | CLEAR | 6.00 | 0.355 | 11.6 | 9 | 1.15 | 0.9 | 0.17 |

**PURGE DATA:**

Date: 1-10-02
Method:Low Flow, BLADDER
Monitor Reading (ppm): —
Well Casing Diameter & Material
Type: 2" PVC
Total Well Depth (TD): 15.9
Static Water Level (WL): 9.0
One Casing Volume(gal): 1.1
Start Purge (hrs): 1500
End Purge (hrs): 1630
Total Purge Time (min): 90
Total Vol. Purged (gal): 3




MEASUREMENTS FROM TOP OF 2" PVC

**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 | ✓ |
| ~~TOC & COD~~ (Fe) | ~~$H_2SO_4$ / 4° C~~ | (Fe) ~~125 ml Glass~~ (Fe) | |
| Nitrate, Sulfate | 4° C | 1 - L PE | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

**OBSERVATIONS / NOTES:**

Fe = <0.2 mg/L

**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| — | — |

Signature(s): [signature]

# LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSB-NLON / Goss Cove
PROJECT NUMBER: CTO 816 job#2863

WELL ID.: HNUS 23
DATE: 1-10-02

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1500 | 9.0 | | | | | | | | | START PURGING |
| 1510 | 9.12 | 200 | 6.23 | 0.343 | 30 | 5.08 | 10.9 | -44.9 | 0.16 | |
| 1520 | 9.46 | | 6.06 | 0.343 | 92 | 1.59 | 12.3 | -23.9 | 0.17 | |
| 1530 | 9.55 | 200 | 6.03 | 0.346 | 60 | 1.23 | 11.9 | -18.3 | 0.17 | |
| 1540 | 9.49 | 110 | 6.03 | 0.351 | 36 | 1.48 | 11.9 | -13.5 | 0.17 | |
| 1550 | 9.49 | 110 | 6.01 | 0.352 | 27 | 1.24 | 12.0 | -9.3 | 0.17 | |
| 1600 | 9.46 | 110 | 6.00 | 0.351 | 25 | 1.06 | 11.94 | -5.7 | 0.17 | |
| 1610 | 9.46 | 110 | 6.00 | 0.352 | 14 | 1.07 | 11.8 | -3.0 | 0.17 | |
| 1620 | 9.49 | 110 | 6.00 | 0.353 | 10 | 1.04 | 11.7 | -0.4 | 0.17 | |
| 1630 | 9.46 | 110 | 6.00 | 0.355 | 9 | 1.15 | 11.6 | 0.9 | 0.17 | SAMPLE |
| 1800 | | | | | | | | | | END SAMPLING |

SIGNATURE(S): [illegible]

# APPENDIX G

# CHAIN OF CUSTODY RECORDS

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

| | | | |
|---|---|---|---|
| PROJECT NO: CT0816N2963 | SITE NAME: NSB-NLON | PROJECT MANAGER AND PHONE NUMBER: COREY RICH 412 921 8994 | LABORATORY NAME AND CONTACT: KATAHDIN |
| SAMPLERS (SIGNATURE): [signature] | | FIELD OPERATIONS LEADER AND PHONE NUMBER: KEITH SIMPSON 412 921 8131 | ADDRESS |
| | | CARRIER/WAYBILL NUMBER: FEDEX ~~RSGD~~ 821650435154 | CITY, STATE: ME |

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

| DATE YEAR 2002 | TIME | SAMPLE ID | MATRIX | GRAB (G) COMP (C) | No. OF CONTAINERS | TCL VOC | TCL SVOC | TCL PEST/PCB | TCL PAH | TAL METALS + HARDNESS | TAL DISS. METALS | NITRATE HNO3 | SULFATE 4°C | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | GOSS COVE | | | | | | | | | | | | |
| | | | | | CONTAINER TYPE PLASTIC (P) or GLASS (G) | G | G | G | G | P | P | P | | |
| | | | | | PRESERVATIVE USED | HCL | 4°C | 4°C | 4°C | HNO3 | HNO3 | 4°C | | |
| 1/3 | 1606 | 8GW01 01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | | |
| ↓ | 1604 | 8GW8D 01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | | |

| | | | | | |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY [signature] | DATE 1.14.02 | TIME 1000 | 1. RECEIVED BY FEDEX | DATE 1.14.02 | TIME 1000 |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY | DATE | TIME |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS NOTE: DISSOLVED SAMPLE IDs END IN "F" (FILTERED)

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

3/99
FORM NO. TINUS 001

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

| | | | |
|---|---|---|---|
| PROJECT NO: CTO 816 N2863 | SITE NAME: NSB-NLON | PROJECT MANAGER AND PHONE NUMBER: COREY RICH 412 921 8984 | LABORATORY NAME AND CONTACT: RATAHDIN |
| SAMPLERS (SIGNATURE): [signature] | | FIELD OPERATIONS LEADER AND PHONE NUMBER: KEITH SIMPSON 412 921 8131 | ADDRESS |
| | | CARRIER/WAYBILL NUMBER: CD & L | CITY, STATE: ME |

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

| DATE YEAR 2002 | TIME | SAMPLE ID | MATRIX | GRAB (G) COMP (C) | No. OF CONTAINERS | TCL VOC | TCL SVOC | TCL PEST/PCB | TCL PAH | TAL METALS + HARDNESS | TAL DISS. METALS | NITRATE & SULFATE | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONTAINER TYPE PLASTIC (P) or GLASS (G) | | | | | | G | G | G | G | P | P | P | | |
| PRESERVATIVE USED | | | | | | HCL | 4°C | 4°C | 4°C | HNO3 | HNO3 | 4°C | | |
| 1/11 | 0705 | TB 01110201 | AQ | G | 2 | 2 | | | | | | | | |
| ↓ | 1525 | SGW2S 01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | | |
| ↓ | 1530 | SGW3 01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | | |

GOSS COVE

JAN. 2002

| | | | | | |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY [signature] | DATE 1.11.02 | TIME 1900 | 1. RECEIVED BY CD & L | DATE 1.11.02 | TIME 1900 |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY | DATE | TIME |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS NOTE: DISSOLVED SAMPLE IDs END IN "F" (FILTERED)

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

FORM NO TtNUS-001

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

| | | | |
|---|---|---|---|
| PROJECT NO: CT0816N2863 | SITE NAME: NGS NION | PROJECT MANAGER AND PHONE NUMBER: COREY RICH 412 921 8984 | LABORATORY NAME AND CONTACT: KATAHDIN |
| SAMPLERS (SIGNATURE): [signature] | | FIELD OPERATIONS LEADER AND PHONE NUMBER: KEITH SIMPSON 412 921 8131 | ADDRESS |
| | | CARRIER/WAYBILL NUMBER: CD & L | CITY, STATE: ME |

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

| DATE YEAR 2002 | TIME | SAMPLE ID | MATRIX | GRAB (G) COMP (C) | No. OF CONTAINERS | TCL VOC | TCL SVOC | TCL PEST/PCB | TCL PAH | TAL METALS + HARDNESS | TAL DISS METALS | ~~TRC + COD~~ | NITRATE & SULFATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | GOSS COVE | | | | | | | | | | | | |
| | | | | | | PLASTIC (P) or GLASS (G) | G | G | G | G | P | P | ~~G~~ P | |
| | | | | | | PRESERVATIVE USED | HCL | 4°C | 4°C | 4°C | HNO3 | HNO3 | ~~H2SO4~~ 4°C | |
| 1/10 | 0710 | TB01100201 | AQ | G | 2 | 2 | | | | | | | | |
| | 1338 | BGW6S01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | — | 1 | |
| | 1342 | BGW6D01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | — | 1 | |
| | 1630 | HNUS23 01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | — | 1 | (HNUS23) |
| | 1800 | BGW10S01 | AQ | G | 12 | 3 | 2 | 2 | 2 | 1 | 1 | — | 1 | |

| | | | | | |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY [signature] | DATE 1.10.02 | TIME 1900 | 1. RECEIVED BY CD & L | DATE 1.10.02 | TIME 1900 |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY | DATE | TIME |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS NOTE: DISSOLVED SAMPLE IDs END IN "F" (FILTERED)

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

3/99
FORM NO. TtNUS-001

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

PROJECT NO: CTO 816 N2963
SITE NAME: NSB-NLON
PROJECT MANAGER AND PHONE NUMBER: COREY RICH 412 921 8984
LABORATORY NAME AND CONTACT: KATAHDIN
SAMPLERS (SIGNATURE): [signature]
FIELD OPERATIONS LEADER AND PHONE NUMBER: KEITH SIMPSON 412 921 8131
ADDRESS:
CARRIER/WAYBILL NUMBER: CD & L
CITY, STATE: ME

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

| DATE YEAR 2002 | TIME | SAMPLE ID | MATRIX | GRAB (G) COMP (C) | No. OF CONTAINERS | TCL VOC | TCL SVOC | TCL PEST/PCB | TCL PAH | TAL METALS + HARDNESS | TAL DISS. METALS | TOC + COD | NITRATE + SULFATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | GOSS COVE | | | | | | | | | | | | |
| | | CONTAINER TYPE PLASTIC (P) or GLASS (G) | | | | G | G | G | G | P | P | G | P | |
| | | PRESERVATIVE USED | | | | HCL | 4°C | 4°C | 4°C | HNO3 | HNO3 | H2SO4 | 4°C | |
| 1/9 | 0710 | TB010902 01 | AQ | G | 2 | 2 | | | | | | | | |
| | 0000 | FD 010902 01 | AQ | G | 13 | 3 | 2 | 2 | 2 | 1 | 1 | + | 1 | DUP OF 8GW2D01 |
| ↓ | 1245 | 8GW2D01 | AQ | G | 37 | 9 | 6 | 6 | 8 | 2 | 2 | ~~3~~ | 1 | RUN ALSO MS/MSD |
| ↓ | 1450 | RB010902 01 | AQ | G | 13 | 3 | 2 | 2 | 2 | 1 | 1 | + KS | 1 | |

| | DATE | TIME | | DATE | TIME |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY [signature] | 1.9.02 | 1900 | 1. RECEIVED BY CD & L | 1.9.02 | 1900 |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY | DATE | TIME |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS: NOTE: DISSOLVED SAMPLE IDs END IN "F" (FILTERED)

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

FORM NO. TTNUS-001

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

| PROJECT NO: | SITE NAME: | PROJECT MANAGER AND PHONE NUMBER: | LABORATORY NAME AND CONTACT: |
|---|---|---|---|
| CTO 816 N2563 | NSB-NLON | COREY RICH 412 921 8984 | RATAHDIN |
| SAMPLERS (SIGNATURE): [signature] | | FIELD OPERATIONS LEADER AND PHONE NUMBER: KEITH SIMPSON 412 921 8131 | ADDRESS: |
| | | CARRIER/WAYBILL NUMBER: CD & L | CITY, STATE: ME |

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

| DATE YEAR 2002 | TIME | SAMPLE ID | MATRIX | GRAB (G) COMP (C) | No. OF CONTAINERS | TCL VOC | TCL SVOC | TCL PEST/PCB | TCL PAH | TAL METALS + HARDNESS | TAL DISS. METALS | ~~TOC~~ ~~COD~~ | NITRATE + SULFATE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONTAINER TYPE PLASTIC (P) or GLASS (G) | | | | | | G | G | G | G | P | P | ~~G~~ | P | |
| PRESERVATIVE USED | | | | | | HCL | 4°C | 4°C | 4°C | $HNO_3$ | $HNO_3$ | ~~$H_2SO_4$~~ | 4°C | |
| 1/8 | 0730 | TB 010802 01 | AQ | G | 2 | 2 | — | — | — | — | — | — | — | |
| ↓ | 1140 | 08 ~~MW~~ GW07S 01 | AQ | G | 13 | 3 | 2 | 2 | 2 | 1 | 1 | + | 1 | |
| ↓ | 1147 | 08 GW05S 01 | AQ | G | 13 | 3 | 2 | 2 | 2 | 1 | 1 | + | 1 | |
| | | | | | | | | | | | | KS | | |

| 1. RELINQUISHED BY | DATE | TIME | 1. RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|
| [signature] | 1.8.02 | 1900 | CD & L | 1.8.02 | 1900 |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY | DATE | TIME |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS NOTE: DISSOLVED SAMPLE IDs END IN "F" FILTERED

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

3/99
FORM NO. TtNUS-001

# APPENDIX H

# DATA VALIDATION LETTERS AND LABORATORY DATA SHEETS

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

**TO:** **C. RICH** **DATE: MARCH 14, 2002**

**FROM:** **SETH C. STAFFEN** **COPIES: DV FILE**

**SUBJECT:** **ORGANIC DATA VALIDATION: VOA/SVOA/PAH/PEST/PCB**
**CTO 816, NSB NEW LONDON**
**SDG: 816-2**

**SAMPLES:** 17 / Aqueous / VOA/SVOA/PEST/PCB

| | | | |
|---|---|---|---|
| 08GW05S01 | 08GW07S01 | 8GW0101 | 8GW10S01 |
| 8GW2D01 | 8GW2S01 | 8GW301 | 8GW6D01 |
| 8GW6S01 | 8GW8D01 | FD01090201 | HNUS2301 |
| RB01090201 | TB01110201* | TB01080201* | TB01090201* |
| TB01100201* | | | |

Overview

The sample set for the CTO 816, NSB New London, SDG 816-2 consists of twelve (12) aqueous environmental samples, four (4) trip blanks, and one (1) rinsate blank. The trip banks were analyzed for TCL volatile organic compounds (VOC) only. All environmental samples and sample RB121801-01 were analyzed for TCL volatile, semivolatile (SVOC), polynuclear aromatic hydrocarbons (PAHs), pesticides (PEST), and polychlorinated biphenyl (PCB) organic compounds. One field duplicate pair was included in this SDG: 8GW2D01 / FD01090201.

The samples were collected by Tetra Tech NUS, Inc. on January 8-11, 2002 and were analyzed by Katahdin Analytical Services. Analyses were conducted using the Contract Laboratory Program (CLP) Statement of Work (SOW) OLC02.1 (volatile, pesticide and PCB), and the U.S. EPA Test Methods for Evaluating Solid Wastes (SW-846) Methods 8270C and 8270-SIM 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
- Blank Spike Recoveries
- Matrix Spike/Matrix Spike Duplicate Recoveries
- Internal Standards Performance
- * Instrument Performance
- Field Duplicate Precision
- * 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. The attached Table I summarizes the validation qualifications which were based on the following information:

## HOLDING TIMES

All quality control parameters for holding times were met.

## CALIBRATIONS

The following tables (by analytical fraction) summarize calibration non-compliances and corresponding actions:

| Compound | IC 01/05/02 | IC 01/11/02 | CC 01/10/02;0909 | CC 01/18/02;1105 |
|---|---|---|---|---|
| Carbon Disulfide | D | D | X | |
| Methylene chloride | D | | X | X |
| Acetone | | | R | R |
| 2-Butanone | | | R | R |
| 1,2-Dibromo-3-chloropropane | | | X | X |
| Bromomethane | | | | X |
| trans-1,3,-dichloropropene | | | | X |
| 1,1,2-trichloroethane | | | | X |
| Associated Samples: | All | All | TB01080201<br>08GW07S01<br>08GW05S01<br>TB01090201<br>FD01090201<br>8GW2D01 | 8GW0101<br>8GW8D01 |

| Compound | IC 01/21/02 | CC 01/24/02;09:40 |
|---|---|---|
| Benzoic acid | D | X |
| 2,4-dinitrophenol | D | |
| 4,6-dinitro-2-methylphenol | D | |
| Carbazole | D | |
| Samples: ALL | | 8GW0101<br>8GW8D01 |

| Compound | CC 01/17/02;0951 | CC 01/18/02;1054 | CC 01/24/02;1516 |
|---|---|---|---|
| Phenanthrene | X | X | |
| Anthracene | X | X | |
| Benzo(g,h,i)perylene | | | X |
| Associated Samples: | HNUS2301 | 8GW2S01<br>8GW301 | 8GW2S01 |

Calibration Actions:

D - Percent Relative Standard Deviation (%RSD) > 30%, Estimate positive and nondetected results (J) and (UJ), respectively.

X - Percent Difference (%D) > 25%; Estimate positive and nondetected results (J) and (UJ), respectively.

R - Relative Response Factors (RRF) < 0.05; Reject nondetected results (UR) and estimate positive results (J).

**BLANKS**

The following compounds were detected in the method blanks as indicated below:

| Compound | Maximum Concentration | Action Level |
|---|---|---|
| Methylene chloride | 4 µg/L | 40 µg/L |
| Acetone | 8 µg/L | 80 µg/L |
| Tetrachloroethene | 0.4 µg/L | 2.0 µg/L |
| Trichloroethene | 0.3 µg/L | 1.5 µg/L |
| 1,4-Dichlorobenzene | 0.7 µg/L | 3.5 µg/L |

Samples Affected: All
Blank Actions:

- Value < Reportng Limit (RL); report RL followed by a U.
- Value > RL and < action level; report value followed by a U.
- Value > RL and > action level; report value unqualified.

An action level of 10X (common laboratory contaminants) and 5X (other contaminants) the blank concentration was used to evaluate contamination for the aforementioned compounds. Dilution factors and sample aliquots were taken into consideration prior to the application of all action levels. Field quality control blanks were not qualified due to method blank contamination or contamination in other field quality control blanks.

## SURROGATE RECOVERY

Recovery of the volatile surrogate bromofluorobenzene was greater than the upper quality control limit for the analysis of sample 08GW07S01. The re-analysis yielded similar results. Therefore, the original sample was used for data validation purposes. Positive results were qualified as estimated, J, for surrogate noncompliance.

Recovery of the volatile surrogate bromofluorobenzene was greater than the upper quality control limit for the analysis of sample 08GWD01. The re-analysis yielded a compliant surrogate recovery, but several target compounds were not detected in the re-analysis. Therefore, the original sample was used for data validation purposes. Positive results were qualified as estimated, J, for surrogate noncompliance.

Recovery of the volatile surrogate bromofluorobenzene was greater than the upper quality control limit for the analysis of sample 8GW301. The re-analysis yielded a compliant surrogate recovery, but several target compounds were not detected in the re-analysis. Therefore, the original sample was used for data validation purposes. Positive results were qualified as estimated, J, for surrogate noncompliance.

Recovery of surrogate nitrobenzene-d5 was less than the lower quality control limit for the analysis of sample 08GW05S01. The re-analysis yielded compliant results. Therefore, the re-analysis was used for data validation in the PAH fraction.

The surrogates were diluted out of samples 8GW2S01 and 8GW301. Therefore extraction efficiency could not be determined in the PAH fraction.

Recovery of the pesticide surrogate Decachlorobiphenyl (DCB) exceeded the 30%-150% quality control limit on both analytical columns for the analysis of sample 8GW301. No qualification action was taken based on this noncompliance because the reported results were nondetected.

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE

The matrix spike and matrix spike duplicate percent recoveries were greater than the upper quality control limit for tetrachloroethene and trichloroethene. Positive results were qualified as estimated, J, in the unspiked samples 8GW2D01 and 8GW10S01.

Several (20 compounds) MS and/or MSD percent recoveries in the semivolatile fraction were less than the lower quality control limit. Positive and nondetected compounds were qualified as estimated, J, and, UJ, respectively, in the unspiked sample, 8GW2D01.

The MS/MSD RPD exceeded the quality control limit for bis(2-ethylhexyl)phthalate. The compound was qualified as estimated, UJ, in the unspiked sample, 8GW2D01.

Several MS/MSD percent recoveries in the PAH fraction were less than the lower quality control limit. Positive and nondetected compounds were qualified as estimated, J, and, UJ, respectively, in the unspiked sample, 8GW2D01.

The MS and/or MSD percent recoveries in the PAH fraction were less than 10% for dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene. Only nondetected results were reported for the aforementioned compounds; therefore, the reported results were qualified as rejected, UR, in the unspiked sample, 8GW2D01.

## LABORATORY CONTROL SAMPLES

The LCS/LCSD prepared on 01/16/02 contained percent recoveries for the semivolatile fraction that were less than the lower quality control limit for benzoic acid, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, hexachlorocyclopentadiene, and hexachloroethane. Nondetected results were qualified as estimated, UJ, in the following samples: 8GW0101, 8GW2S01, 8GW301, and 8GW8D01.

The LCS and/or LCSD prepared on 01/16/02 contained percent recoveries that were greater than the upper quality control limit for carbazole and 3,3'-dichlorobenzidine. No qualification action was taken.

The LCS prepared on 01/14/02 contained percent recoveries for the PAH fraction that were less than the lower quality control limit for several (6) compounds. Nondetected results were qualified as estimated, UJ, in the associated samples.

The LCS prepared on 01/17/02 contained percent recoveries for the PAH fraction that were greater than the upper quality control limit for fluoranthene and phenanthrene. No qualification action was taken because the reported results were nondetected.

The LCS/LCSD prepared on 01/17/02 contained percent recoveries for the PAH fraction that were less than the lower quality control limit for all compounds except benzo(k)fluoranthene. Nondetected results were qualified as estimated, UJ, in the associated samples.

## INTERNAL STANDARDS PERFORMANCE

The PAH fraction internal standard, perylene-d12 was less than the lower quality control limit for sample 08GW05S01. The re-analysis yielded an internal standard area for phenanthrene-d10 was greater than the upper quality control limit. The re-analysis was used for data validation because of the improved internal standard response.

The PAH fraction internal standards chyrsene-d12 and perylene-d12 were greater than the upper quality control limit for sample 8GW6S01. The re-analysis of the sample yielded an internal standard area for perylene-d12 that was greater than the upper quality control limit. Therefore the re-analysis was used for data validation purposes. No qualification action was taken based on high internal standard recoveries.

The internal standards naphthalene-d8 and acenaphthene were less than the lower quality control limit for sample 8GW2S01. The re-analysis of the sample yielded internal standard areas that were compliant. Therefore, the re-analysis was used for data validation purposes. No qualification action was taken because the internal standards for the re-analysis were compliant.

## FIELD DUPLICATE PRECISION

Field duplicate imprecision occurred between sample 8GW2D01 and its duplicate FD01090201 for vinyl chloride. Positive results were qualified as estimated, J, in the field pair.

## COMPOUND QUANTITATION

Due to the presence of cis-1,2-dichloroethene and tetrachloroethene at concentrations that exceeded the linear range of the instrument calibration, sample 8GW2D01 was re-analyzed at a 5X dilution. Positive results for the aforementioned compounds were transposed onto the Electronic Data Deliverable (EDD) from the 5X dilution and the remaining compounds were reported from the original sample analysis.

Due to the presence of ethylbenzene and total xylenes at concentrations that exceeded the linear range of the instrument calibration, samples 8GW301 and 8GW2S01 were re-analyzed at 5X dilutions. Positive results for the aforementioned compounds were transposed onto the Electronic Data Deliverable (EDD) from the 5X dilutions and the remaining compounds were reported from the original sample analysis.

Due to the presence of tetrachloroethene at concentrations that exceeded the linear range of the instrument calibration, sample 8GW8D01 was re-analyzed at a 200X dilution and sample FD014090201 was re-analyzed at a 5X dilution. Positive results for the aforementioned compounds were transposed onto the Electronic Data Deliverable (EDD) from the 200X and 5X dilutions and the remaining compounds were reported from the original sample analysis.

Sample 8GW301 was analyzed at a 5X dilution in the semivolatile fraction. Thus causing elevated reporting limits.

Due to the presence of acenaphthene and naphthalene at a concentration that exceeded the linear range of the instrument calibration, sample 08GW05S01 was re-analyzed at a 2X dilution. Positive results for the aforementioned compounds were transposed onto the Electronic Data Deliverable (EDD) from the 2X dilution and the remaining compounds were reported from the original sample analysis.

Due to the presence of 1-methylnaphthalene, 2-methylenaphthalene, acenaphthene, fluoranthene, fluorene, naphthalene, and phenanthrene at a concentration that exceeded the linear range of the instrument calibration, sample 8GW2S01 was re-analyzed at a 10X dilution. Positive results for the aforementioned compounds were transposed onto the Electronic Data Deliverable (EDD) from the 10X dilution and the remaining compounds were reported from the original sample analysis. Naphthalene exceeded the linear range of the instrument in the 10X dilution. The sample was re-analyzed at a 20X dilution. Naphthalene was transposed onto the Electronic Data Deliverable (EDD) from the 20X dilution.

Due to the presence of 1-methylnaphthalene, 2-methylenaphthalene, acenaphthene, anthracene, fluoranthene, fluorene, naphthalene, and phenanthrene at a concentration that exceeded the linear range of the instrument calibration, sample 8GW301 was re-analyzed at a 20X dilution. Positive results for the aforementioned compounds were transposed onto the Electronic Data Deliverable (EDD) from the 20X dilution and the remaining compounds were reported from the original sample analysis.

## TENTATIVELY INDENTIFIED COMPOUNDS

Numerous TICs were identified in the volatile fraction of all samples (see Table 1).

## ADDITIONAL COMMENTS

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

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

Despite the absence of bis(2-ethylhexyl)phthalate and di-n-butyl phthalate in the laboratory method blank, phthalates are common laboratory contaminants. Therefore, the presence of bis(2-ethylhexyl)phthalate and di-n-butyl phthalate in environmental samples are suspected laboratory contaminants. Positive results were qualified as estimated, J.

The OLC02.1 volatile compounds 1,2-dichlorobenzene, 1,3-dichlorobenzene and 1,4-dichlorobenzene were reported in the semivolatile fraction of this SDG. Since these compounds are on the CLP OLC02.1 volatile target compound list, they were removed from the semivolatile database.

Compound 1,2,4-trichlorobenzene was not reported on the EDD but was reported on the Form Is in the semivolatile fraction. The EDD was changed to include the reported results for 1,2,4-trichlorobenzene.

## OVERALL ASSESSMENT

**Laboratory Performance:** Initial and continuing calibration of several volatile, semivolatile and PAH compounds failed to meet quality control criteria, resulting in the qualification of analytical data. Transcription errors were observed for sample identifications between EDDs and Form Is.

**Other Factors Affecting Data Quality:** Noncompliances (% recoveries and %RPDs) were observed for several MS/MSD analyses of sample, resulting in the qualification of analytical data.

The data for these analyses were reviewed with reference to the Region I EPA "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

Seth C. Staffen
Environmental Scientist/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

# APPENDIX A

## QUALIFIED LABORATORY 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
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 08GW05S01 | | | 08GW07S01 | | | 8GW0101 | | | 8GW10S01 | | |
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0046-3 | | | WS0046-2 | | | WS0087-1 | | | WS0066-5 | | |
| 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 | | 50 | U | |
| 1,1,2,2-TETRACHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,1,2-TRICHLOROETHANE | 1 | U | | 1 | U | | 1 | UJ | C | 50 | U | |
| 1,1-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,1-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 | UJ | C | 1 | UJ | C | 1 | U | | 50 | U | |
| 1,2-DIBROMOETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,2-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,2-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,2-DICHLOROPROPANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,3-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 1,4-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| 2-BUTANONE | 5 | UR | C | 5 | UR | C | 5 | UR | C | 250 | U | |
| 2-HEXANONE | 5 | U | | 5 | U | | 5 | U | | 250 | U | |
| 4-METHYL-2-PENTANONE | 5 | U | | 5 | U | | 5 | U | | 250 | U | |
| ACETONE | 5 | U | A | 5 | U | A | 5 | U | A | 250 | U | A |
| BENZENE | 1 | U | | 1 | J | R | 1 | U | | 50 | U | |
| BROMOCHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| BROMODICHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| BROMOFORM | 1 | U | | 1 | U | | 1 | UJ | C | 50 | U | |
| BROMOMETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| CARBON DISULFIDE | 1 | UJ | C | 1 | J | CR | 2 | | | 50 | U | |
| CARBON TETRACHLORIDE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| CHLOROBENZENE | 1 | U | | 0.6 | J | PR | 1 | U | | 50 | U | |
| CHLORODIBROMOMETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| CHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| CHLOROFORM | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| CHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| CIS-1,2-DICHLOROETHENE | 1 | U | | 0.2 | J | PR | 1 | U | | 50 | U | |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| ETHYLBENZENE | 1 | U | | 6 | J | R | 1 | U | | 50 | U | |
| METHYLENE CHLORIDE | 1 | U | A | 1 | U | A | 1 | U | A | 51 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| SAMPLE NUMBER: | 08GW05S01 | | | 08GW07S01 | | | 8GW0101 | | | 8GW10S01 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0046-3 | | | WS0046-2 | | | WS0087-1 | | | WS0066-5 | | |
| 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** | | | | | | | | | | | | |
| STYRENE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| TETRACHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1200 | J | D |
| TOLUENE | 1 | U | | 0.2 | J | PR | 1 | U | | 50 | U | |
| TOTAL XYLENES | 0.3 | J | P | 14 | J | R | 1 | U | | 50 | U | |
| TRANS-1,2-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | UJ | C | 50 | U | |
| TRICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 18 | J | DP |
| VINYL CHLORIDE | 1 | U | | 1 | U | | 1 | U | | 50 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW2D01 | | | 8GW2S01 | | | 8GW301 | | | 8GW6D01 | | |
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0047-3 | | | WS0077-2 | | | WS0077-3 | | | WS0066-3 | | |
| 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 |
| **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 | UJ | C | 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 | | 0.2 | J | PR | 1 | U | |
| 1,2-DICHLOROPROPANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,3-DICHLOROBENZENE | 1 | U | | 1 | | | 1 | U | | 1 | U | |
| 1,4-DICHLOROBENZENE | 1 | U | | 1 | U | A | 1 | U | A | 1 | U | |
| 2-BUTANONE | 5 | UR | C | 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 | A | 5 | U | A | 5 | U | A |
| BENZENE | 1 | U | | 3 | | | 2 | J | R | 0.3 | J | PR |
| BROMOCHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMODICHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOFORM | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON DISULFIDE | 0.3 | J | CP | 1 | U | | 0.3 | J | PR | 1 | U | |
| CARBON TETRACHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLORODIBROMOMETHANE | 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 | 0.4 | J | P | 1 | U | | 1 | U | | 1 | U | |
| CIS-1,2-DICHLOROETHENE | 37 | | | 0.8 | J | P | 7 | J | R | 0.3 | J | PR |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| ETHYLBENZENE | 1 | U | | 80 | | | 100 | J | R | 4 | J | R |
| METHYLENE CHLORIDE | 1 | U | A | 1 | U | A | 1 | U | A | 1 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW2D01 | | | 8GW2S01 | | | 8GW301 | | | 8GW6D01 | | |
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0047-3 | | | WS0077-2 | | | WS0077-3 | | | WS0066-3 | | |
| 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 |
| **VOLATILES** | | | | | | | | | | | | |
| STYRENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TETRACHLOROETHENE | 50 | J | D | 1 | U | | 1 | U | | 1 | U | A |
| TOLUENE | 1 | U | | 5 | | | 4 | | | 1 | U | |
| TOTAL XYLENES | 1 | U | | 160 | | | 200 | | | 4 | J | R |
| TRANS-1,2-DICHLOROETHENE | 3 | | | 1 | U | | 0.4 | J | P | 1 | U | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRICHLOROETHENE | 22 | J | D | 1 | U | | 2 | U | A | 1 | U | A |
| VINYL CHLORIDE | 6 | J | G | 0.9 | J | P | 4 | | | 1 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6S01 | | | 8GW8D01 | | | FD01090201 | | | HNUS2301 | | |
| SAMPLE DATE: | 01/10/02 | | | 01/13/02 | | | 01/09/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0066-2 | | | WS0087-2 | | | WS0047-2 | | | WS0066-4 | | |
| 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: | | | | | | | 8GW2D01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **VOLATILES** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 0.2 | J | P |
| 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 | | 0.8 | J | P |
| 1,1-DICHLOROETHENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 | U | | 1 | U | | 1 | UJ | C | 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 | 0.3 | J | P | 1 | U | | 1 | U | | 1 | U | |
| 1,4-DICHLOROBENZENE | 1 | U | A | 1 | U | | 1 | U | | 1 | U | |
| 2-BUTANONE | 5 | U | | 5 | U | | 5 | UR | C | 5 | U | |
| 2-HEXANONE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-METHYL-2-PENTANONE | 2 | J | P | 5 | U | | 5 | U | | 5 | U | |
| ACETONE | 5 | U | A | 5 | U | A | 5 | U | | 5 | U | |
| BENZENE | 0.6 | J | P | 1 | U | | 1 | U | | 1 | U | |
| BROMOCHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMODICHLOROMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOFORM | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| BROMOMETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CARBON DISULFIDE | 1 | U | | 1 | J | P | 1 | UJ | C | 1 | U | |
| CARBON TETRACHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROBENZENE | 0.3 | J | P | 1 | U | | 1 | U | | 1 | U | |
| CHLORODIBROMOMETHANE | 1 | U | | 0.2 | J | P | 1 | J | P | 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 | | 0.7 | J | P | 33 | | | 0.3 | J | P |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| ETHYLBENZENE | 5 | | | 1 | U | | 1 | U | | 1 | U | |
| METHYLENE CHLORIDE | 2 | U | A | 1 | U | A | 1 | U | A | 1 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6S01 | | | 8GW8D01 | | | FD01090201 | | | HNUS2301 | | |
| SAMPLE DATE: | 01/10/02 | | | 01/13/02 | | | 01/09/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0066-2 | | | WS0087-2 | | | WS0047-2 | | | WS0066-4 | | |
| 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: | | | | | | | 8GW2D01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **VOLATILES** | | | | | | | | | | | | |
| STYRENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TETRACHLOROETHENE | 1 | U | | 3000 | | | 54 | | | 1 | U | A |
| TOLUENE | 0.3 | J | P | 1 | U | | 1 | U | | 0.2 | J | P |
| TOTAL XYLENES | 7 | | | 1 | U | | 1 | U | | 1 | U | |
| TRANS-1,2-DICHLOROETHENE | 1 | U | | 1 | U | | 3 | | | 1 | U | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TRICHLOROETHENE | 1 | U | | 2 | | | 25 | | | 1 | U | A |
| VINYL CHLORIDE | 1 | U | | 1 | U | | 4 | J | G | 1 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | RB01090201 | | | TB 01110201 | | | TB01080201 | | | TB01090201 | | |
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/08/02 | | | 01/09/02 | | |
| LABORATORY ID: | WS0047-4 | | | WS0077-1 | | | WS0046-1 | | | WS0047-1 | | |
| 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 | UJ | C | 1 | UJ | C |
| 1,2-DIBROMOETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROETHANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,2-DICHLOROPROPANE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,3-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 1,4-DICHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| 2-BUTANONE | 8 | | | 5 | U | | 5 | UR | C | 5 | UR | C |
| 2-HEXANONE | 2 | J | P | 5 | U | | 5 | U | | 5 | U | |
| 4-METHYL-2-PENTANONE | 2 | J | P | 5 | U | | 5 | U | | 5 | U | |
| ACETONE | 13 | | | 2 | J | P | 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 | | 0.4 | J | P | 1 | U | | 1 | U | |
| CARBON DISULFIDE | 1 | U | | 1 | U | | 1 | UJ | C | 1 | UJ | C |
| CARBON TETRACHLORIDE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLOROBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| CHLORODIBROMOMETHANE | 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 | |
| ETHYLBENZENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| METHYLENE CHLORIDE | 0.8 | J | CP | 1 | J | CP | 4 | J | C | 1 | J | CP |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| SAMPLE NUMBER: | RB01090201 | | | TB 01110201 | | | TB01080201 | | | TB01090201 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/08/02 | | | 01/09/02 | | |
| LABORATORY ID: | WS0047-4 | | | WS0077-1 | | | WS0046-1 | | | WS0047-1 | | |
| 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** | | | | | | | | | | | | |
| STYRENE | 1 | U | | 1 | U | | 1 | U | | 1 | U | |
| TETRACHLOROETHENE | 1 | U | | 0.3 | J | P | 1 | U | | 1 | U | |
| TOLUENE | 0.4 | J | P | 1 | U | | 1 | U | | 1 | U | |
| TOTAL XYLENES | 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 | |

# CTQ816-NLB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | TB01100201 | | | | | | | | | | |
| SAMPLE DATE: | 01/10/02 | | | / / | | | / / | | | / / | |
| LABORATORY ID: | WS0066-1 | | | | | | | | | | |
| QC_TYPE: | NORMAL | | | | | | | | | | |
| % SOLIDS: | 0.0 % | | | 100.0 % | | | 100.0 % | | | 100.0 % | |
| UNITS: | UG/L | | | | | | | | | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **VOLATILES** | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 1 | U | | | | | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | 1 | U | | | | | | | | | |
| 1,1,2-TRICHLOROETHANE | 1 | U | | | | | | | | | |
| 1,1-DICHLOROETHANE | 1 | U | | | | | | | | | |
| 1,1-DICHLOROETHENE | 1 | U | | | | | | | | | |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 | U | | | | | | | | | |
| 1,2-DIBROMOETHANE | 1 | U | | | | | | | | | |
| 1,2-DICHLOROBENZENE | 1 | U | | | | | | | | | |
| 1,2-DICHLOROETHANE | 1 | U | | | | | | | | | |
| 1,2-DICHLOROPROPANE | 1 | U | | | | | | | | | |
| 1,3-DICHLOROBENZENE | 1 | U | | | | | | | | | |
| 1,4-DICHLOROBENZENE | 1 | U | | | | | | | | | |
| 2-BUTANONE | 5 | U | | | | | | | | | |
| 2-HEXANONE | 5 | U | | | | | | | | | |
| 4-METHYL-2-PENTANONE | 5 | U | | | | | | | | | |
| ACETONE | 5 | U | | | | | | | | | |
| BENZENE | 1 | U | | | | | | | | | |
| BROMOCHLOROMETHANE | 1 | U | | | | | | | | | |
| BROMODICHLOROMETHANE | 1 | U | | | | | | | | | |
| BROMOFORM | 1 | U | | | | | | | | | |
| BROMOMETHANE | 1 | U | | | | | | | | | |
| CARBON DISULFIDE | 1 | U | | | | | | | | | |
| CARBON TETRACHLORIDE | 1 | U | | | | | | | | | |
| CHLOROBENZENE | 1 | U | | | | | | | | | |
| CHLORODIBROMOMETHANE | 1 | U | | | | | | | | | |
| CHLOROETHANE | 1 | U | | | | | | | | | |
| CHLOROFORM | 1 | U | | | | | | | | | |
| CHLOROMETHANE | 1 | U | | | | | | | | | |
| CIS-1,2-DICHLOROETHENE | 1 | U | | | | | | | | | |
| CIS-1,3-DICHLOROPROPENE | 1 | U | | | | | | | | | |
| ETHYLBENZENE | 1 | U | | | | | | | | | |
| METHYLENE CHLORIDE | 1 | J | CP | | | | | | | | |

# :TO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2

| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | TB01100201 | | | |
| SAMPLE DATE: | 01/10/02 | / / | / / | / / |
| LABORATORY ID: | WS0066-1 | | | |
| QC_TYPE: | NORMAL | | | |
| % SOLIDS: | 0.0 % | 100.0 % | 100.0 % | 100.0 % |
| UNITS: | UG/L | | | |
| FIELD DUPLICATE OF: | | | | |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOLATILES** | | | | | | | | | | | | |
| STYRENE | 1 | U | | | | | | | | | | |
| TETRACHLOROETHENE | 1 | U | | | | | | | | | | |
| TOLUENE | 1 | U | | | | | | | | | | |
| TOTAL XYLENES | 1 | U | | | | | | | | | | |
| TRANS-1,2-DICHLOROETHENE | 1 | U | | | | | | | | | | |
| TRANS-1,3-DICHLOROPROPENE | 1 | U | | | | | | | | | | |
| TRICHLOROETHENE | 1 | U | | | | | | | | | | |
| VINYL CHLORIDE | 1 | U | | | | | | | | | | |

# CTO816-NSR NFW I [illegible]

**WATER DATA**
**KAS**
**SDG: 816-2**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 08GW05S01 | | | 08GW07S01 | | | 8GW0101 | | | 8GW10S01 | | |
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0046-3 | | | WS0046-2 | | | WS0087-1 | | | WS0066-5 | | |
| 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 | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2,4,5-TRICHLOROPHENOL | 20 | U | | 22 | U | | 20 | U | | 20 | U | |
| 2,4,6-TRICHLOROPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2,4-DICHLOROPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2,4-DIMETHYLPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2,4-DINITROPHENOL | 20 | UJ | C | 22 | UJ | C | 20 | UJ | CE | 20 | UJ | C |
| 2,4-DINITROTOLUENE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2,6-DINITROTOLUENE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2-CHLORONAPHTHALENE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2-CHLOROPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2-METHYLPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 2-NITROANILINE | 20 | U | | 22 | U | | 20 | U | | 20 | U | |
| 2-NITROPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 3,3'-DICHLOROBENZIDINE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 3-NITROANILINE | 20 | U | | 22 | U | | 20 | U | | 20 | U | |
| 4,6-DINITRO-2-METHYLPHENOL | 20 | UJ | C | 22 | UJ | C | 20 | UJ | CE | 20 | UJ | C |
| 4-BROMOPHENYL PHENYL ETHER | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 4-CHLORO-3-METHYLPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 4-CHLOROANILINE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 4-CHLOROPHENYL PHENYL ETHER | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 4-METHYLPHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| 4-NITROANILINE | 20 | U | | 22 | U | | 20 | U | | 20 | U | |
| 4-NITROPHENOL | 20 | U | | 22 | U | | 20 | U | | 20 | U | |
| BENZOIC ACID | 20 | UJ | C | 22 | UJ | C | 20 | UJ | CE | 20 | UJ | C |
| BIS(2-CHLOROETHOXY)METHANE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| BIS(2-CHLOROETHYL)ETHER | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| BUTYL BENZYL PHTHALATE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| CARBAZOLE | 5 | UJ | C | 0.9 | J | CEP | 5 | UJ | C | 5 | UJ | C |
| DI-N-BUTYL PHTHALATE | 5 | U | | 1 | J | AP | 5 | U | | 1 | J | AP |
| DI-N-OCTYL PHTHALATE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |

CTO816-NAS NEW LONDON
WATER DATA
KAS
SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 08GW05S01 | | | 08GW07S01 | | | 8GW0101 | | | 8GW10S01 | | |
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0046-3 | | | WS0046-2 | | | WS0087-1 | | | WS0066-5 | | |
| 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** | | | | | | | | | | | | |
| DIBENZOFURAN | 5 | U | | 0.7 | J | P | 5 | U | | 5 | U | |
| DIETHYL PHTHALATE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| DIMETHYL PHTHALATE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBENZENE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBUTADIENE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| HEXACHLOROCYCLOPENTADIENE | 5 | U | | 6 | U | | 5 | UJ | E | 5 | U | |
| HEXACHLOROETHANE | 5 | U | | 6 | U | | 5 | UJ | E | 5 | U | |
| ISOPHORONE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| N-NITROSO-DI-N-PROPYLAMINE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| N-NITROSODIPHENYLAMINE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| NITROBENZENE | 5 | U | | 6 | U | | 5 | U | | 5 | U | |
| PENTACHLOROPHENOL | 20 | U | | 22 | U | | 20 | U | | 20 | U | |
| PHENOL | 5 | U | | 6 | U | | 5 | U | | 5 | U | |

NEW LONDON
WATER DATA
KAS
SDG: 816-2

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW2D01 | | | 8GW2S01 | | | 8GW301 | | | 8GW6D01 | | |
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0047-3 | | | WS0077-2 | | | WS0077-3 | | | WS0066-3 | | |
| 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 |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| 2,4,5-TRICHLOROPHENOL | 20 | U | | 20 | U | | 100 | U | | 20 | U | |
| 2,4,6-TRICHLOROPHENOL | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| 2,4-DICHLOROPHENOL | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| 2,4-DIMETHYLPHENOL | 5 | UJ | D | 44 | | | 69 | | | 5 | U | |
| 2,4-DINITROPHENOL | 20 | UJ | C | 20 | UJ | CE | 100 | UJ | CE | 20 | UJ | C |
| 2,4-DINITROTOLUENE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| 2,6-DINITROTOLUENE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| 2-CHLORONAPHTHALENE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| 2-CHLOROPHENOL | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| 2-METHYLPHENOL | 5 | UJ | D | 7 | | | 11 | J | P | 5 | U | |
| 2-NITROANILINE | 20 | U | | 20 | U | | 100 | U | | 20 | U | |
| 2-NITROPHENOL | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| 3,3'-DICHLOROBENZIDINE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| 3-NITROANILINE | 20 | U | | 20 | U | | 100 | U | | 20 | U | |
| 4,6-DINITRO-2-METHYLPHENOL | 20 | UJ | C | 20 | UJ | CE | 100 | UJ | CE | 20 | UJ | C |
| 4-BROMOPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| 4-CHLORO-3-METHYLPHENOL | 5 | U | | 2 | J | P | 25 | U | | 5 | U | |
| 4-CHLOROANILINE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| 4-CHLOROPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| 4-METHYLPHENOL | 5 | UJ | D | 4 | J | P | 25 | U | | 5 | U | |
| 4-NITROANILINE | 20 | U | | 20 | U | | 100 | U | | 20 | U | |
| 4-NITROPHENOL | 20 | U | | 20 | U | | 100 | U | | 20 | U | |
| BENZOIC ACID | 20 | UJ | CD | 20 | UJ | CE | 100 | UJ | CE | 20 | UJ | C |
| BIS(2-CHLOROETHOXY)METHANE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| BIS(2-CHLOROETHYL)ETHER | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| BUTYL BENZYL PHTHALATE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| CARBAZOLE | 5 | UJ | C | 16 | J | CE | 14 | J | CEP | 5 | UJ | C |
| DI-N-BUTYL PHTHALATE | 5 | U | | 2 | J | AP | 25 | U | | 1 | J | AP |
| DI-N-OCTYL PHTHALATE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW2D01 | | | 8GW2S01 | | | 8GW301 | | | 8GW6D01 | | |
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0047-3 | | | WS0077-2 | | | WS0077-3 | | | WS0066-3 | | |
| 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 |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| DIBENZOFURAN | 5 | U | | 2 | J | P | 4 | J | P | 5 | U | |
| DIETHYL PHTHALATE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| DIMETHYL PHTHALATE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| HEXACHLOROBENZENE | 5 | U | | 5 | U | | 25 | U | | 5 | U | |
| HEXACHLOROBUTADIENE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| HEXACHLOROCYCLOPENTADIENE | 5 | UJ | D | 5 | UJ | E | 25 | UJ | E | 5 | U | |
| HEXACHLOROETHANE | 5 | UJ | D | 5 | UJ | E | 25 | UJ | E | 5 | U | |
| ISOPHORONE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| N-NITROSO-DI-N-PROPYLAMINE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| N-NITROSODIPHENYLAMINE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| NITROBENZENE | 5 | UJ | D | 5 | U | | 25 | U | | 5 | U | |
| PENTACHLOROPHENOL | 20 | U | | 20 | U | | 100 | U | | 20 | U | |
| PHENOL | 5 | UJ | D | 6 | | | 25 | U | | 5 | U | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6S01 | | | 8GW8D01 | | | FD01090201 | | | HNUS2301 | | |
| SAMPLE DATE: | 01/10/02 | | | 01/13/02 | | | 01/09/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0066-2 | | | WS0087-2 | | | WS0047-2 | | | WS0066-4 | | |
| 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: | | | | | | | 8GW2D01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4,5-TRICHLOROPHENOL | 20 | U | | 20 | U | | 20 | U | | 20 | U | |
| 2,4,6-TRICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DICHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DIMETHYLPHENOL | 3 | J | P | 5 | U | | 5 | U | | 5 | U | |
| 2,4-DINITROPHENOL | 20 | UJ | C | 20 | UJ | CE | 20 | UJ | C | 20 | UJ | C |
| 2,4-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2,6-DINITROTOLUENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-CHLORONAPHTHALENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-CHLOROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 2-NITROANILINE | 20 | U | | 20 | U | | 20 | U | | 20 | U | |
| 2-NITROPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 3,3'-DICHLOROBENZIDINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 3-NITROANILINE | 20 | U | | 20 | U | | 20 | U | | 20 | U | |
| 4,6-DINITRO-2-METHYLPHENOL | 20 | UJ | C | 20 | UJ | CE | 20 | UJ | C | 20 | UJ | C |
| 4-BROMOPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLORO-3-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLOROANILINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-CHLOROPHENYL PHENYL ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-METHYLPHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| 4-NITROANILINE | 20 | U | | 20 | U | | 20 | U | | 20 | U | |
| 4-NITROPHENOL | 20 | U | | 20 | U | | 20 | U | | 20 | U | |
| BENZOIC ACID | 20 | UJ | C | 20 | UJ | CE | 20 | UJ | C | 20 | UJ | C |
| BIS(2-CHLOROETHOXY)METHANE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| BIS(2-CHLOROETHYL)ETHER | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 3 | J | AP |
| BUTYL BENZYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| CARBAZOLE | 5 | UJ | C | 5 | UJ | C | 5 | UJ | C | 5 | UJ | C |
| DI-N-BUTYL PHTHALATE | 0.9 | J | AP | 5 | U | | 2 | J | AP | 5 | U | |
| DI-N-OCTYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6S01 | | | 8GW8D01 | | | FD01090201 | | | HNUS2301 | | |
| SAMPLE DATE: | 01/10/02 | | | 01/13/02 | | | 01/09/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0066-2 | | | WS0087-2 | | | WS0047-2 | | | WS0066-4 | | |
| 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: | | | | | | | 8GW2D01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| DIBENZOFURAN | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DIETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| DIMETHYL PHTHALATE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROBUTADIENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| HEXACHLOROCYCLOPENTADIENE | 5 | U | | 5 | UJ | E | 5 | U | | 5 | U | |
| HEXACHLOROETHANE | 5 | U | | 5 | UJ | E | 5 | U | | 5 | U | |
| ISOPHORONE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| N-NITROSO-DI-N-PROPYLAMINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| N-NITROSODIPHENYLAMINE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| NITROBENZENE | 5 | U | | 5 | U | | 5 | U | | 5 | U | |
| PENTACHLOROPHENOL | 20 | U | | 20 | U | | 20 | U | | 20 | U | |
| PHENOL | 5 | U | | 5 | U | | 5 | U | | 5 | U | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | RB01090201 | | | | | | | | | | | |
| SAMPLE DATE: | 01/09/02 | | | / / | | | / / | | | / / | | |
| LABORATORY ID: | WS0047-4 | | | | | | | | | | | |
| QC_TYPE: | NORMAL | | | | | | | | | | | |
| % SOLIDS: | 0.0 % | | | 100.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | | | | | | | | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | 5 | U | | | | | | | | | | |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 5 | U | | | | | | | | | | |
| 2,4,5-TRICHLOROPHENOL | 20 | U | | | | | | | | | | |
| 2,4,6-TRICHLOROPHENOL | 5 | U | | | | | | | | | | |
| 2,4-DICHLOROPHENOL | 5 | U | | | | | | | | | | |
| 2,4-DIMETHYLPHENOL | 5 | U | | | | | | | | | | |
| 2,4-DINITROPHENOL | 20 | UJ | C | | | | | | | | | |
| 2,4-DINITROTOLUENE | 5 | U | | | | | | | | | | |
| 2,6-DINITROTOLUENE | 5 | U | | | | | | | | | | |
| 2-CHLORONAPHTHALENE | 5 | U | | | | | | | | | | |
| 2-CHLOROPHENOL | 5 | U | | | | | | | | | | |
| 2-METHYLPHENOL | 5 | U | | | | | | | | | | |
| 2-NITROANILINE | 20 | U | | | | | | | | | | |
| 2-NITROPHENOL | 5 | U | | | | | | | | | | |
| 3,3'-DICHLOROBENZIDINE | 5 | U | | | | | | | | | | |
| 3-NITROANILINE | 20 | U | | | | | | | | | | |
| 4,6-DINITRO-2-METHYLPHENOL | 20 | UJ | C | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER | 5 | U | | | | | | | | | | |
| 4-CHLORO-3-METHYLPHENOL | 5 | U | | | | | | | | | | |
| 4-CHLOROANILINE | 5 | U | | | | | | | | | | |
| 4-CHLOROPHENYL PHENYL ETHER | 5 | U | | | | | | | | | | |
| 4-METHYLPHENOL | 5 | U | | | | | | | | | | |
| 4-NITROANILINE | 20 | U | | | | | | | | | | |
| 4-NITROPHENOL | 20 | U | | | | | | | | | | |
| BENZOIC ACID | 20 | UJ | C | | | | | | | | | |
| BIS(2-CHLOROETHOXY)METHANE | 5 | U | | | | | | | | | | |
| BIS(2-CHLOROETHYL)ETHER | 5 | U | | | | | | | | | | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 5 | U | | | | | | | | | | |
| BUTYL BENZYL PHTHALATE | 5 | U | | | | | | | | | | |
| CARBAZOLE | 5 | UJ | C | | | | | | | | | |
| DI-N-BUTYL PHTHALATE | 2 | J | P | | | | | | | | | |
| DI-N-OCTYL PHTHALATE | 5 | U | | | | | | | | | | |

CTX-16-NSB NEW LONDON
WATER DATA
KAS
SDG: 816-2

| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | RB01090201 | | | |
| SAMPLE DATE: | 01/09/02 | / / | / / | / / |
| LABORATORY ID: | WS0047-4 | | | |
| QC_TYPE: | NORMAL | | | |
| % SOLIDS: | 0.0 % | 100.0 % | 100.0 % | 100.0 % |
| UNITS: | UG/L | | | |
| FIELD DUPLICATE OF: | | | | |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SEMIVOLATILES** | | | | | | | | | | | | |
| DIBENZOFURAN | 5 | U | | | | | | | | | | |
| DIETHYL PHTHALATE | 5 | U | | | | | | | | | | |
| DIMETHYL PHTHALATE | 5 | U | | | | | | | | | | |
| HEXACHLOROBENZENE | 5 | U | | | | | | | | | | |
| HEXACHLOROBUTADIENE | 5 | U | | | | | | | | | | |
| HEXACHLOROCYCLOPENTADIENE | 5 | U | | | | | | | | | | |
| HEXACHLOROETHANE | 5 | U | | | | | | | | | | |
| ISOPHORONE | 5 | U | | | | | | | | | | |
| N-NITROSO-DI-N-PROPYLAMINE | 5 | U | | | | | | | | | | |
| N-NITROSODIPHENYLAMINE | 5 | U | | | | | | | | | | |
| NITROBENZENE | 5 | U | | | | | | | | | | |
| PENTACHLOROPHENOL | 20 | U | | | | | | | | | | |
| PHENOL | 5 | U | | | | | | | | | | |

CTO816-NSB NEW LONDON
WATER DATA
KAS
SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 08GW05S01 | | | 08GW07S01 | | | 8GW0101 | | | 8GW10S01 | | |
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0046-3 | | | WS0046-2 | | | WS0087-1 | | | WS0066-5 | | |
| 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** | | | | | | | | | | | | |
| 2,2',4,4',5,5'-HEXACHLOROBIPHENYL | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| 4,4'-DDD | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| 4,4'-DDE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| 4,4'-DDT | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ALDRIN | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| AROCLOR-1016 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1221 | 0.38 | U | | 0.38 | U | | 0.38 | U | | 0.38 | U | |
| AROCLOR-1232 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1242 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1248 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1254 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1260 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| BETA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| DELTA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| DIELDRIN | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDOSULFAN I | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| ENDOSULFAN II | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDOSULFAN SULFATE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDRIN | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDRIN ALDEHYDE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDRIN KETONE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| GAMMA-BHC (LINDANE) | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| GAMMA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR EPOXIDE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.010 | U | |
| METHOXYCHLOR | 0.096 | U | | 0.096 | U | | 0.095 | U | | 0.095 | U | |
| TOXAPHENE | 0.96 | U | | 0.96 | U | | 0.95 | U | | 0.95 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| SAMPLE NUMBER: | 8GW2D01 | | | 8GW2S01 | | | 8GW301 | | | 8GW6D01 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0047-3 | | | WS0077-2 | | | WS0077-3 | | | WS0066-3 | | |
| 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** | | | | | | | | | | | | |
| 2,2',4,4',5,5'-HEXACHLOROBIPHENYL | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| 4,4'-DDD | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| 4,4'-DDE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| 4,4'-DDT | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ALDRIN | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| ALPHA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| ALPHA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| AROCLOR-1016 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1221 | 0.38 | U | | 0.38 | U | | 0.39 | U | | 0.37 | U | |
| AROCLOR-1232 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1242 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1248 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1254 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| AROCLOR-1260 | 0.19 | U | | 0.19 | U | | 0.19 | U | | 0.19 | U | |
| BETA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| DELTA-BHC | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| DIELDRIN | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDOSULFAN I | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| ENDOSULFAN II | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDOSULFAN SULFATE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDRIN | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDRIN ALDEHYDE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| ENDRIN KETONE | 0.019 | U | | 0.019 | U | | 0.019 | U | | 0.019 | U | |
| GAMMA-BHC (LINDANE) | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| GAMMA-CHLORDANE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| HEPTACHLOR | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| HEPTACHLOR EPOXIDE | 0.010 | U | | 0.010 | U | | 0.010 | U | | 0.009 | U | |
| METHOXYCHLOR | 0.096 | U | | 0.096 | U | | 0.097 | U | | 0.093 | U | |
| TOXAPHENE | 0.96 | U | | 0.96 | U | | 0.97 | U | | 0.93 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6S01 | | | 8GW8D01 | | | FD01090201 | | | HNUS2301 | | |
| SAMPLE DATE: | 01/10/02 | | | 01/13/02 | | | 01/09/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0066-2 | | | WS0087-2 | | | WS0047-2 | | | WS0066-4 | | |
| 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: | | | | | | | 8GW2D01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **PESTICIDES/PCBs** | | | | | | | | | | | | |
| 2,2',4,4',5,5'-HEXACHLOROBIPHENYL | 0.19 | U | | 0.19 | U | | 0.20 | U | | 0.19 | U | |
| 4,4'-DDD | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| 4,4'-DDE | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| 4,4'-DDT | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| ALDRIN | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-BHC | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| ALPHA-CHLORDANE | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| AROCLOR-1016 | 0.19 | U | | 0.19 | U | | 0.20 | U | | 0.19 | U | |
| AROCLOR-1221 | 0.38 | U | | 0.37 | U | | 0.39 | U | | 0.38 | U | |
| AROCLOR-1232 | 0.19 | U | | 0.19 | U | | 0.20 | U | | 0.19 | U | |
| AROCLOR-1242 | 0.19 | U | | 0.19 | U | | 0.20 | U | | 0.19 | U | |
| AROCLOR-1248 | 0.19 | U | | 0.19 | U | | 0.20 | U | | 0.19 | U | |
| AROCLOR-1254 | 0.19 | U | | 0.19 | U | | 0.20 | U | | 0.19 | U | |
| AROCLOR-1260 | 0.19 | U | | 0.19 | U | | 0.20 | U | | 0.19 | U | |
| BETA-BHC | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| DELTA-BHC | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| DIELDRIN | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| ENDOSULFAN I | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| ENDOSULFAN II | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| ENDOSULFAN SULFATE | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| ENDRIN | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| ENDRIN ALDEHYDE | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| ENDRIN KETONE | 0.019 | U | | 0.019 | U | | 0.020 | U | | 0.019 | U | |
| GAMMA-BHC (LINDANE) | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| GAMMA-CHLORDANE | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| HEPTACHLOR EPOXIDE | 0.010 | U | | 0.009 | U | | 0.010 | U | | 0.010 | U | |
| METHOXYCHLOR | 0.096 | U | | 0.093 | U | | 0.098 | U | | 0.095 | U | |
| TOXAPHENE | 0.96 | U | | 0.93 | U | | 0.98 | U | | 0.95 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | RB01090201 | | | |
| SAMPLE DATE: | 01/09/02 | / / | / / | / / |
| LABORATORY ID: | WS0047-4 | | | |
| QC_TYPE: | NORMAL | | | |
| % SOLIDS: | 0.0 % | 100.0 % | 100.0 % | 100.0 % |
| UNITS: | UG/L | | | |
| FIELD DUPLICATE OF: | | | | |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PESTICIDES/PCBs** | | | | | | | | | | | | |
| 2,2',4,4',5,5'-HEXACHLOROBIPHENYL | 0.20 | U | | | | | | | | | | |
| 4,4'-DDD | 0.020 | U | | | | | | | | | | |
| 4,4'-DDE | 0.020 | U | | | | | | | | | | |
| 4,4'-DDT | 0.020 | U | | | | | | | | | | |
| ALDRIN | 0.010 | U | | | | | | | | | | |
| ALPHA-BHC | 0.010 | U | | | | | | | | | | |
| ALPHA-CHLORDANE | 0.010 | U | | | | | | | | | | |
| AROCLOR-1016 | 0.20 | U | | | | | | | | | | |
| AROCLOR-1221 | 0.39 | U | | | | | | | | | | |
| AROCLOR-1232 | 0.20 | U | | | | | | | | | | |
| AROCLOR-1242 | 0.20 | U | | | | | | | | | | |
| AROCLOR-1248 | 0.20 | U | | | | | | | | | | |
| AROCLOR-1254 | 0.20 | U | | | | | | | | | | |
| AROCLOR-1260 | 0.20 | U | | | | | | | | | | |
| BETA-BHC | 0.010 | U | | | | | | | | | | |
| DELTA-BHC | 0.010 | U | | | | | | | | | | |
| DIELDRIN | 0.020 | U | | | | | | | | | | |
| ENDOSULFAN I | 0.010 | U | | | | | | | | | | |
| ENDOSULFAN II | 0.020 | U | | | | | | | | | | |
| ENDOSULFAN SULFATE | 0.020 | U | | | | | | | | | | |
| ENDRIN | 0.020 | U | | | | | | | | | | |
| ENDRIN ALDEHYDE | 0.020 | U | | | | | | | | | | |
| ENDRIN KETONE | 0.020 | U | | | | | | | | | | |
| GAMMA-BHC (LINDANE) | 0.010 | U | | | | | | | | | | |
| GAMMA-CHLORDANE | 0.010 | U | | | | | | | | | | |
| HEPTACHLOR | 0.010 | U | | | | | | | | | | |
| HEPTACHLOR EPOXIDE | 0.010 | U | | | | | | | | | | |
| METHOXYCHLOR | 0.098 | U | | | | | | | | | | |
| TOXAPHENE | 0.98 | U | | | | | | | | | | |

# CT0816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 08GW05S01 | | | 08GW07S01 | | | 8GW0101 | | | 8GW10S01 | | |
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0046-3 | | | WS0046-2 | | | WS0087-1 | | | WS0066-5 | | |
| 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 | 0.1 | U | | 0.4 | | | 0.1 | UJ | E | 0.1 | U | |
| 2-METHYLNAPHTHALENE | 0.1 | UJ | E | 0.2 | J | E | 0.1 | UJ | E | 0.1 | UJ | E |
| ACENAPHTHENE | 0.1 | UJ | E | 3 | J | E | 0.1 | UJ | E | 0.1 | UJ | E |
| ACENAPHTHYLENE | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E |
| ANTHRACENE | 0.1 | U | | 0.3 | | | 0.1 | UJ | E | 0.1 | U | |
| BENZO(A)ANTHRACENE | 0.1 | U | | 0.06 | J | P | 0.1 | UJ | E | 0.1 | U | |
| BENZO(A)PYRENE | 0.1 | U | | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | |
| BENZO(B)FLUORANTHENE | 0.1 | U | | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | |
| BENZO(G,H,I)PERYLENE | 0.1 | U | | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | |
| BENZO(K)FLUORANTHENE | 0.1 | U | | 0.1 | U | | 0.1 | U | | 0.1 | U | |
| CHRYSENE | 0.1 | U | | 0.06 | J | P | 0.1 | UJ | J | 0.1 | U | |
| DIBENZO(A,H)ANTHRACENE | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E |
| FLUORANTHENE | 0.1 | U | | 1 | | | 0.1 | UJ | E | 0.1 | U | |
| FLUORENE | 0.1 | UJ | E | 1 | J | E | 0.1 | UJ | E | 0.1 | UJ | E |
| INDENO(1,2,3-CD)PYRENE | 0.1 | U | | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | |
| NAPHTHALENE | 0.1 | UJ | E | 2 | J | E | 0.1 | UJ | E | 0.1 | UJ | E |
| PHENANTHRENE | 0.1 | U | | 0.8 | | | 0.1 | UJ | E | 0.1 | U | |
| PYRENE | 0.1 | U | | 0.5 | | | 0.1 | UJ | E | 0.1 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| SAMPLE NUMBER: | 8GW2D01 | | | 8GW2S01 | | | 8GW301 | | | 8GW6D01 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0047-3 | | | WS0077-2 | | | WS0077-3 | | | WS0066-3 | | |
| 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 |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 0.1 | U | | 2 | J | E | 5 | J | E | 0.5 | U | |
| 2-METHYLNAPHTHALENE | 0.1 | UJ | DE | 2 | J | E | 4 | J | E | 0.5 | UJ | E |
| ACENAPHTHENE | 0.1 | UJ | DE | 4 | J | E | 4 | J | E | 0.5 | UJ | E |
| ACENAPHTHYLENE | 0.1 | UJ | DE | 1 | UJ | E | 0.2 | J | E | 0.5 | UJ | E |
| ANTHRACENE | 0.1 | U | | 1 | UJ | E | 2 | UJ | E | 0.2 | J | P |
| BENZO(A)ANTHRACENE | 0.1 | UJ | D | 1 | UJ | E | 0.4 | J | E | 0.6 | | |
| BENZO(A)PYRENE | 0.1 | UJ | D | 1 | UJ | E | 0.1 | J | E | 1 | | |
| BENZO(B)FLUORANTHENE | 0.1 | UJ | D | 1 | UJ | E | 0.1 | J | E | 1 | | |
| BENZO(G,H,I)PERYLENE | 0.1 | UR | D | 1 | UJ | CE | 0.1 | J | E | 1 | | |
| BENZO(K)FLUORANTHENE | 0.1 | UJ | D | 1 | U | | 0.2 | | | 1 | | |
| CHRYSENE | 0.1 | UJ | D | 1 | UJ | E | 0.3 | J | E | 1 | | |
| DIBENZO(A,H)ANTHRACENE | 0.1 | UR | D | 1 | UJ | E | 0.1 | U | | 0.2 | J | EP |
| FLUORANTHENE | 1 | | | 1 | J | E | 2 | J | EP | 5 | | |
| FLUORENE | 0.1 | UJ | DE | 2 | J | E | 4 | J | E | 0.5 | UJ | E |
| INDENO(1,2,3-CD)PYRENE | 0.1 | UR | D | 1 | UJ | E | 0.1 | J | E | 1 | | |
| NAPHTHALENE | 0.1 | UJ | DE | 13 | J | E | 26 | J | E | 0.5 | UJ | E |
| PHENANTHRENE | 0.2 | | | 4 | J | E | 5 | J | E | 0.7 | | |
| PYRENE | 0.5 | J | D | 2 | J | E | 0.9 | J | E | 4 | | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6S01 | | | 8GW8D01 | | | FD01090201 | | | HNUS2301 | | |
| SAMPLE DATE: | 01/10/02 | | | 01/13/02 | | | 01/09/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0066-2 | | | WS0087-2 | | | WS0047-2 | | | WS0066-4 | | |
| 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: | | | | | | | 8GW2D01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 0.09 | J | P | 0.1 | UJ | E | 0.1 | U | | 0.1 | U | |
| 2-METHYLNAPHTHALENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | UJ | E |
| ACENAPHTHENE | 0.3 | | | 0.1 | UJ | E | 0.1 | U | | 0.1 | UJ | E |
| ACENAPHTHYLENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | UJ | E |
| ANTHRACENE | 0.2 | | | 0.1 | UJ | E | 0.1 | U | | 0.1 | UJ | C |
| BENZO(A)ANTHRACENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | U | |
| BENZO(A)PYRENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | U | |
| BENZO(B)FLUORANTHENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | U | |
| BENZO(G,H,I)PERYLENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | U | |
| BENZO(K)FLUORANTHENE | 0.1 | U | | 0.1 | U | | 0.1 | U | | 0.1 | U | |
| CHRYSENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | U | |
| DIBENZO(A,H)ANTHRACENE | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E |
| FLUORANTHENE | 0.6 | | | 0.1 | UJ | E | 1 | | | 0.1 | U | |
| FLUORENE | 0.07 | J | EP | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E |
| INDENO(1,2,3-CD)PYRENE | 0.1 | U | | 0.1 | UJ | E | 0.1 | U | | 0.1 | U | |
| NAPHTHALENE | 0.7 | J | E | 0.1 | UJ | E | 0.1 | UJ | E | 0.1 | UJ | E |
| PHENANTHRENE | 0.4 | | | 0.1 | UJ | E | 0.4 | | | 0.1 | UJ | C |
| PYRENE | 0.2 | | | 0.1 | UJ | E | 0.6 | | | 0.1 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | RB01090201 | | | | | | | | | | | |
| SAMPLE DATE: | 01/09/02 | | | / / | | | / / | | | / / | | |
| LABORATORY ID: | WS0047-4 | | | | | | | | | | | |
| QC_TYPE: | NORMAL | | | | | | | | | | | |
| % SOLIDS: | 0.0 % | | | 100.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | | | | | | | | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 0.1 | U | | | | | | | | | | |
| 2-METHYLNAPHTHALENE | 0.1 | UJ | E | | | | | | | | | |
| ACENAPHTHENE | 0.1 | UJ | E | | | | | | | | | |
| ACENAPHTHYLENE | 0.1 | UJ | E | | | | | | | | | |
| ANTHRACENE | 0.1 | U | | | | | | | | | | |
| BENZO(A)ANTHRACENE | 0.1 | U | | | | | | | | | | |
| BENZO(A)PYRENE | 0.1 | U | | | | | | | | | | |
| BENZO(B)FLUORANTHENE | 0.1 | U | | | | | | | | | | |
| BENZO(G,H,I)PERYLENE | 0.1 | U | | | | | | | | | | |
| BENZO(K)FLUORANTHENE | 0.1 | U | | | | | | | | | | |
| CHRYSENE | 0.1 | U | | | | | | | | | | |
| DIBENZO(A,H)ANTHRACENE | 0.1 | UJ | E | | | | | | | | | |
| FLUORANTHENE | 0.1 | U | | | | | | | | | | |
| FLUORENE | 0.1 | UJ | E | | | | | | | | | |
| INDENO(1,2,3-CD)PYRENE | 0.1 | U | | | | | | | | | | |
| NAPHTHALENE | 0.1 | UJ | E | | | | | | | | | |
| PHENANTHRENE | 0.1 | U | | | | | | | | | | |
| PYRENE | 0.1 | U | | | | | | | | | | |

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

| | | | |
|---|---|---|---|
| **TO:** | **C. RICH** | **DATE:** | **MARCH 18, 2002** |
| **FROM:** | **REBEKAH A. HAYNIE** | **COPIES:** | **DV FILE** |

**SUBJECT:** **INORGANIC DATA VALIDATION – TAL METALS AND MISCELLANEOUS PARAMETERS**
**CTO-816 NSB NEW LONDON**
**SAMPLE DELIVERY GROUP (SDG) – 816-2**

**SAMPLES:** 13/Aqueous/

| | | |
|---|---|---|
| 08GW05S01 | 08GW07S01 | 8GW0101 |
| 8GW10S01 | 8GW2D01 | 8GW2S01 |
| 8GW301 | 8GW6D01 | 8GW6S01 |
| 8GW8D01 | FD01090201 | HNUS2301 |
| RB01090201 | | |

Overview

The sample set for CTO 816, NSB New London, SDG 816-2, consists of thirteen (13) aqueous environmental samples. Two (2) field duplicate pairs FD01090201 / 8GW2D01 and FD01090201-F / 8GW2D01-F are included within this SDG.

All samples were analyzed for hardness, nitrate, sulfate, and total and dissolved target analyte list (TAL) metals. Samples designated "–F" were analyzed for dissolved metals. The samples were collected by TetraTech NUS on January 8, 9, 10, 11, and 13, 2002 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of thallium, were conducted using SW 846 method 6010B. Thallium analyses were conducted using SW 846 method 6020. Results for hardness were calculated using Standard Methods 18th ed. Method 2340B. Analyses for nitrate and sulfate were conducted using EPA methods 353.2 and E300, respectively.

Metals analyses, with the exception of mercury and thallium, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA). Thallium analyses were conducted using Inductively Coupled Plasma Mass Spectrometric (ICP-MS) methodologies.

These data were evaluated based on the following parameters:

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

* • Field Duplicate Results
• Sample Quantitation
* • Detection Limits

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

Calibration Recoveries

Contract Required Detection Limits (CRDL) noncompliance (recoveries outside of +/-20% quality control limits) were noted for cadmium, chromium, lead, and selenium, affecting the total metals and dissolved metals matrices. Positive results less than 3X CRDL reported for these analytes were qualified as estimated, "J", while nondetected results were qualified as estimated, "UJ".

Laboratory Blank Analyses

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

| Analyte | Maximum Concentration | Action Level |
|---|---|---|
| Aluminum | 315.87 µg/L | 1579.35 µg/L |
| Barium | 0.60 µg/L | 3.0 µg/L |
| Beryllium | 0.44 µg/L | 2.20 µg/L |
| Chromium[5] | 10.38 µg/L | 51.90 µg/L |
| Chromium[6] | 1.69 µg/L | 8.45 µg/L |
| Iron | 40.72 µg/L | 203.6 µg/L |
| Lead | 1.60 µg/L | 8.0 µg/L |
| Lead[2] | 1.98 µg/L | 9.90 µg/L |
| Lead[3] | 1.81 µg/L | 9.05 µg/L |
| Magnesium | 57.04 µg/L | 285.20 µg/L |
| Manganese | 1.03 µg/L | 5.15 µg/L |
| Nickel | 6.72 µg/L | 33.60 µg/L |
| Nickel[3] | 6.75 µg/L | 33.75 µg/L |
| Potassium[4] | 55.40 µg/L | 277.0 µg/L |
| Sodium | 111.42 µg/L | 557.10 µg/L |
| Thallium | 0.21 µg/L | 1.05 µg/L |
| Thallium[1] | 0.542 µg/L | 2.71 µg/L |
| Thallium[2] | 0.218 µg/L | 1.09 µg/L |
| Zinc | 22.41 µg/L | 112.05 µg/L |

[1] Maximum concentration present in a laboratory preparation blank from preparation batch SA10ICW0.
[2] Maximum concentration present in a laboratory preparation blank from preparation batch SA15ICW0.
[3] Maximum concentration present in a laboratory preparation blank from preparation batch SA16ICW0, affecting sample 8GW0101, total metals sample matrix only.
[4] Maximum concentration present in a laboratory preparation blank from preparation batch SA16ICW1.
[5] Maximum blank concentration applicable to samples analyzed on January 14 – 16, 2002 on instrument TJA Trace ICP.
[6] Maximum blank concentration applicable to samples analyzed on January 14 – 17, 2002 on instrument TJA 61 ICP.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Because different analytes were analyzed on different instruments (resulting in different Instrument Detection Limits (IDLs)), maximum contaminant concentrations were evaluated relative to the instrument in which they were run. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. Positive results for all analytes listed above that were less than the associated action level were qualified "U" as a result of laboratory blank contamination.

ICP Interference Check Sample Results

The interfering analytes calcium and magnesium were present in sample 08GW05S01 at concentrations comparable to the levels of calcium and magnesium in the Interference Check Sample (ICS) solution. Several analytes namely barium, beryllium, cadmium, copper, manganese, nickel, silver, and zinc were present in the ICS solution at concentrations that exceeded 2X the absolute value of the Instrument Detection Limit (IDL). Interference affects exist for barium, copper, manganese, and silver. The positive results reported for these analytes were qualified as estimated, "J".

The interfering analytes calcium and magnesium were present in sample 08GW05S01-F at concentrations comparable to the levels of calcium and magnesium in the ICS solution. Several analytes namely barium, beryllium, cadmium, copper, manganese, nickel, silver, and zinc were present in the ICS solution at concentrations that exceeded 2X the absolute value of the IDL. Interference affects exist for barium, copper, manganese, and nickel. The positive results reported for barium, copper, and manganese were reported as estimated, "J". The nondetected result reported for nickel was qualified as estimated, "UJ".

The interfering analytes calcium and magnesium were present in samples 8GW0101 and 8GW0101-F at concentrations comparable to the levels of calcium and magnesium in the ICS solution. Several analytes namely barium, beryllium, cadmium, copper, manganese, nickel, silver, and zinc were present in the ICS solution at concentrations that exceeded 2X the absolute value of the IDL. Interference affects exist for copper, manganese, and nickel. The positive results reported for copper, manganese, and nickel were qualified as estimated, "J". The nondetected result reported for nickel in sample 8GW0101 was qualified as estimated, "UJ".

The interfering analytes calcium and magnesium were present in sample 8GW6D01 at concentrations comparable to the levels of calcium and magnesium in the ICS solution. Several analytes namely barium, beryllium, cadmium, copper, manganese, nickel, silver, and zinc were present in the ICS solution at concentrations that exceeded the 2X absolute value of the IDL. Interference affects exist for barium and copper. The positive results reported for barium and copper were qualified as estimated, "J".

The interfering analytes calcium and magnesium were present in sample 8GW6D01-F at concentrations comparable to the levels of calcium and magnesium in the ICS solution. Several analytes namely barium, beryllium, cadmium, copper, manganese, nickel, silver, and zinc were present in the ICS solution at concentrations that exceeded 2X the absolute value of the IDL. Interference affects exist for barium. The positive result reported for barium was qualified as estimated, "J".

The interfering analyte magnesium was present in samples 8GW2D01 and FD01090201 at a concentration comparable to the level of magnesium in the ICS solution. Several analytes namely barium, beryllium, cadmium, copper, manganese, nickel, silver, and zinc were present in the ICS solution at concentrations that exceeded 2X the absolute value of the IDL. Interference affects exist for barium and nickel. Positive results reported for barium in these samples were qualified as estimated, "J". The nondetected results reported for nickel were qualified as estimated, "UJ".

The interfering analyte magnesium was present in samples 8GW2D01-F and FD01090201-F at a concentration comparable to the level of magnesium in the ICS solution. Several analytes namely barium, beryllium, cadmium, copper, manganese, nickel, silver, and zinc were present in the ICS solution at concentrations that exceeded 2X the absolute value of the IDL. Interference affects exist for barium. The positive results reported for barium in these samples were qualified as estimated, "J".

ICP Serial Dilution Results

ICP serial dilution noncompliance (percent difference > 15% quality control limit) for manganese was noted, affecting the total metals matrix of sample HNUS2301. The positive result for manganese in this sample was qualified as estimated, "J". Manganese was qualified in this sample only because %D quality control criteria were met in other serial dilution runs.

Sample Quantitation

Due to uncertainty near the IDL, positive results < 2X the IDL reported for antimony, arsenic, cadmium, iron, selenium, and vanadium were qualified as estimated, "J".

Notes

Continuing calibration verification standards noncompliance (percent recovery >110 quality control limit) was noted for silver, affecting sample RB01090201, dissolved metals matrix. No validation action was necessary as the sample result for silver was reported as nondetected by the laboratory.

Interference Check Sample noncompliance (percent recovery >120 quality control limit) was noted for arsenic, barium, cadmium, calcium, and lead in the ICSAB solution and calcium in the ICSA solution. No validation action was necessary because all affected samples were reported as nondetected by the laboratory.

The rinsate blank sample, RB01090201, was not used in establishing blank action levels and was therefore not qualified based on laboratory blank action levels.

Executive Summary

**Laboratory Performance:** Several analytes were present in the laboratory method / preparation blanks. CRDL calibration noncompliance was noted for cadmium, chromium, lead, and selenium.

**Other Factors Affecting Data Quality:** Manganese in sample HNUS2301 was qualified due to ICP serial dilution noncompliance. Antimony, arsenic, cadmium, iron, selenium, and vanadium were qualified due to uncertainty near the IDL. The interfering analytes calcium and magnesium were present in several samples.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1989, "Region 1 Laboratory Data Validation Function Guidelines for Evaluating Inorganics Analyses", June 1988, and the NFESC document entitled "Navy IRCDQM" (September 1999).

**TO:** **C. RICH – PAGE 5**
**DATE:** **March 18, 2002**

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

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

Tetra Tech NUS
Rebekah A. Haynie
Environmental Scientist

TetraTech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - 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 |
| N01 | = | Internal Standard Noncompliance Dioxins |
| N02 | = | Recovery Standard Noncompliance Dioxins |
| N03 | = | Clean-up Standard Noncompliance Dioxins |
| O | = | Poor Instrument Performance (i.e., base-time drifting) |
| P | = | Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics) |
| Q | = | Other problems (can encompass a number of issues) |
| R | = | Surrogates Recovery Noncompliance |
| S | = | Pesticide/PCB Resolution |
| T | = | % Breakdown Noncompliance for DDT and Endrin |
| U | = | Pest/PCD% between columns for positive results |
| V | = | Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient) |
| W | = | EMPC result |
| X | = | Signal to noise response drop |
| Y | = | Percent solids <30% |
| Z | = | Uncertainty at 2 sigma deviation is less than sample activity |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 08GW05S01 | | | 08GW05S01-F | | | 08GW07S01 | | | 08GW07S01-F | | |
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/08/02 | | | 01/08/02 | | |
| LABORATORY ID: | WS0046-003 | | | WS0046-005 | | | WS0046-002 | | | WS0046-004 | | |
| 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 | 124 | U | A | 33.9 | U | A | 300 | U | A | 21.39 | U | |
| ANTIMONY | 10.95 | U | | 10.95 | U | | 3.65 | U | | 3.65 | U | |
| ARSENIC | 7.59 | U | | 7.59 | U | | 2.53 | U | | 2.53 | U | |
| BARIUM | 31.9 | J | K | 32.1 | J | K | 484 | | | 465 | | |
| BERYLLIUM | 0.54 | U | | 0.48 | U | A | 0.41 | U | | 0.41 | U | |
| CADMIUM | 0.72 | U | | 2.84 | U | | 2.84 | U | | 2.84 | U | |
| CALCIUM | 302000 | | | 324000 | | | 63500 | | | 61900 | | |
| CHROMIUM | 2.9 | U | A | 3.0 | U | A | 9.8 | | | 0.57 | U | |
| COBALT | 5.1 | | | 3.89 | U | | 3.89 | U | | 3.89 | U | |
| COPPER | 5.0 | J | K | 2.1 | J | K | 12.2 | | | 1.66 | U | |
| IRON | 912 | | | 814 | | | 6590 | | | 5350 | | |
| LEAD | 4.44 | U | | 4.44 | U | | 9.5 | | | 1.48 | U | |
| MAGNESIUM | 988000 | | | 970000 | | | 22100 | | | 21700 | | |
| MANGANESE | 36.1 | J | K | 34.0 | J | K | 495 | | | 516 | | |
| MERCURY | 0.05 | | | 0.05 | | | 0.08 | | | 0.03 | | |
| NICKEL | 10.5 | U | A | 5.89 | UJ | K | 10.0 | U | A | 6.0 | U | A |
| POTASSIUM | 262000 | | | 247000 | | | 19800 | | | 18800 | | |
| SELENIUM | 9.12 | UJ | C | 9.12 | UJ | C | 3.04 | UJ | C | 3.04 | UJ | C |
| SILVER | 4.6 | J | K | 4.15 | U | | 4.15 | U | | 4.15 | U | |
| SODIUM | 7190000 | | | 6820000 | | | 70800 | | | 66800 | | |
| THALLIUM | 0.96 | U | A | 1.0 | U | A | 0.40 | U | A | 0.50 | U | A |
| VANADIUM | 1.56 | U | | 10.9 | | | 4.66 | U | | 4.66 | U | |
| ZINC | 36.0 | U | A | 14.3 | U | A | 19.0 | U | A | 1.8 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW0101 | | | 8GW0101-F | | | 8GW10S01 | | | 8GW10S01-F | | |
| SAMPLE DATE: | 01/13/02 | | | 01/12/02 | | | 01/10/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0087-001 | | | WS0087-003 | | | WS0066-005 | | | WS0066-009 | | |
| 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 | 53.2 | U | A | 83.5 | U | A | 21.39 | U | | 21.39 | U | |
| ANTIMONY | 7.86 | U | | 7.86 | U | | 3.65 | U | | 3.65 | U | |
| ARSENIC | 9.3 | | | 6.45 | U | | 2.53 | U | | 2.53 | U | |
| BARIUM | 51.4 | | | 54.2 | | | 19.4 | | | 19.1 | | |
| BERYLLIUM | 1.1 | U | A | 1.1 | U | A | 0.41 | U | | 0.41 | U | |
| CADMIUM | 8.94 | U | | 8.94 | U | | 2.84 | U | | 2.84 | U | |
| CALCIUM | 270000 | | | 266000 | | | 10200 | | | 9930 | | |
| CHROMIUM | 2.52 | U | | 2.52 | U | | 10.3 | U | A | 4.81 | U | |
| COBALT | 8.79 | U | | 8.79 | U | | 3.89 | U | | 3.89 | U | |
| COPPER | 11.0 | J | K | 12.6 | J | K | 1.66 | U | | 1.66 | U | |
| IRON | 418 | | | 368 | | | 12.3 | U | A | 2.82 | U | |
| LEAD | 4.11 | UJ | C | 4.11 | U | | 1.48 | U | | 1.48 | U | |
| MAGNESIUM | 801000 | | | 784000 | | | 2210 | | | 2190 | | |
| MANGANESE | 76.2 | J | K | 84.6 | J | K | 0.84 | U | | 0.84 | U | |
| MERCURY | 0.03 | U | | 0.03 | U | | 0.03 | U | | 0.03 | U | |
| NICKEL | 27.75 | UJ | K | 34.2 | J | K | 5.89 | U | | 5.89 | U | |
| POTASSIUM | 233000 | | | 261000 | | | 2830 | | | 2730 | | |
| SELENIUM | 10.26 | UJ | C | 10.26 | UJ | C | 3.04 | UJ | C | 3.04 | UJ | C |
| SILVER | 11.67 | U | | 11.67 | U | | 4.15 | U | | 4.15 | U | |
| SODIUM | 6180000 | | | 6740000 | | | 26400 | | | 26700 | | |
| THALLIUM | 0.54 | U | A | 0.40 | U | | 0.67 | U | A | 0.19 | U | A |
| VANADIUM | 11.52 | U | | 11.52 | U | | 4.66 | U | | 4.66 | U | |
| ZINC | 108 | U | A | 139 | J | K | 20.8 | U | A | 22.7 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW2D01 | | | 8GW2D01-F | | | 8GW2S01 | | | 8GW2S01-F | | |
| SAMPLE DATE: | 01/09/02 | | | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | |
| LABORATORY ID: | WS0047-003 | | | WS0047-006 | | | WS0077-002 | | | WS0077-004 | | |
| 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 | 45.7 | U | A | 21.9 | U | A | 29.54 | U | | 29.54 | U | |
| ANTIMONY | 10.95 | U | | 10.95 | U | | 3.65 | U | | 3.65 | U | |
| ARSENIC | 22.4 | | | 21.4 | | | 2.53 | U | | 2.53 | U | |
| BARIUM | 23.9 | J | K | 22.9 | J | K | 622 | | | 641 | | |
| BERYLLIUM | 0.41 | U | | 0.41 | U | | 0.45 | U | A | 0.42 | U | A |
| CADMIUM | 2.84 | U | | 2.84 | U | | 0.24 | U | | 0.24 | U | |
| CALCIUM | 120000 | | | 114000 | | | 46200 | | | 45200 | | |
| CHROMIUM | 1.9 | U | A | 2.6 | U | A | 1.9 | U | A | 0.57 | U | |
| COBALT | 3.89 | U | | 3.89 | U | | 0.92 | U | | 0.92 | U | |
| COPPER | 1.66 | U | | 1.66 | U | | 0.84 | U | | 0.84 | U | |
| IRON | 8710 | | | 7420 | | | 798 | | | 640 | | |
| LEAD | 4.44 | U | | 4.44 | U | | 2.2 | U | A | 1.48 | U | |
| MAGNESIUM | 424000 | | | 390000 | | | 40100 | | | 41000 | | |
| MANGANESE | 1250 | | | 1250 | | | 162 | | | 161 | | |
| MERCURY | 0.03 | U | | 0.03 | U | | 0.03 | U | | 0.03 | U | |
| NICKEL | 5.89 | UJ | K | 10.5 | U | A | 0.72 | U | | 1.3 | J | P |
| POTASSIUM | 138000 | | | 158000 | | | 31400 | | | 31800 | | |
| SELENIUM | 9.12 | U | | 9.12 | U | | 3.04 | UJ | C | 3.04 | UJ | C |
| SILVER | 4.15 | U | | 4.15 | U | | 1.03 | U | | 1.03 | U | |
| SODIUM | 3500000 | | | 3820000 | | | 366000 | | | 372000 | | |
| THALLIUM | 0.77 | U | A | 0.60 | U | A | 0.27 | U | A | 0.10 | U | |
| VANADIUM | 4.8 | | | 4.66 | U | | 0.52 | U | | 0.52 | U | |
| ZINC | 1.49 | U | | 1.49 | U | | 5.2 | U | A | 0.47 | U | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW301 | | | 8GW301-F | | | 8GW6D01 | | | 8GW6D01-F | | |
| SAMPLE DATE: | 01/11/02 | | | 01/11/02 | | | 01/10/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0077-003 | | | WS0077-005 | | | WS0066-003 | | | WS0066-007 | | |
| 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 | 685 | U | A | 29.54 | U | | 1340 | U | A | 88.62 | U | |
| ANTIMONY | 4.1 | J | P | 3.65 | U | | 10.95 | U | | 10.95 | U | |
| ARSENIC | 2.53 | U | | 2.53 | U | | 14.2 | | | 11.2 | | |
| BARIUM | 840 | | | 789 | | | 50.7 | J | K | 47.2 | J | K |
| BERYLLIUM | 0.32 | U | A | 0.29 | U | A | 0.54 | U | | 0.54 | U | |
| CADMIUM | 0.24 | U | | 0.24 | U | | 0.72 | U | | 0.72 | U | |
| CALCIUM | 45600 | | | 44200 | | | 324000 | | | 331000 | | |
| CHROMIUM | 7.0 | U | A | 0.57 | U | | 7.0 | U | A | 3.3 | U | A |
| COBALT | 0.92 | U | | 0.92 | U | | 12.6 | | | 12.3 | | |
| COPPER | 83.4 | | | 0.84 | U | | 28.1 | J | K | 2.52 | U | |
| IRON | 4960 | | | 552 | | | 4050 | | | 2270 | | |
| LEAD | 85.6 | | | 1.48 | U | | 15.8 | | | 4.44 | U | |
| MAGNESIUM | 72300 | | | 71600 | | | 1050000 | | | 1080000 | | |
| MANGANESE | 141 | | | 93.5 | | | 4980 | | | 5110 | | |
| MERCURY | 0.32 | | | 0.03 | U | | 0.06 | | | 0.03 | | |
| NICKEL | 4.1 | | | 0.72 | U | | 6.6 | | | 4.0 | | |
| POTASSIUM | 38400 | | | 37900 | | | 320000 | | | 335000 | | |
| SELENIUM | 3.04 | UJ | C | 3.3 | J | C | 9.12 | UJ | C | 9.12 | UJ | C |
| SILVER | 1.03 | U | | 1.03 | U | | 3.09 | U | | 3.09 | U | |
| SODIUM | 788000 | | | 775000 | | | 7700000 | | | 7890000 | | |
| THALLIUM | 0.40 | U | | 0.10 | U | | 2.4 | | | 1.4 | | |
| VANADIUM | 7.1 | | | 0.58 | J | P | 2.2 | | | 1.56 | U | |
| ZINC | 110 | U | A | 0.57 | U | A | 43.0 | U | A | 9.5 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6S01 | | | 8GW6S01-F | | | 8GW8D01 | | | 8GW8D01-F | | |
| SAMPLE DATE: | 01/10/02 | | | 01/10/02 | | | 01/13/02 | | | 01/12/02 | | |
| LABORATORY ID: | WS0066-002 | | | WS0066-006 | | | WS0087-002 | | | WS0087-004 | | |
| 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 | 29.54 | U | | 21.39 | U | | 65.7 | U | A | 21.39 | U | |
| ANTIMONY | 3.65 | U | | 3.65 | U | | 2.62 | U | | 2.62 | U | |
| ARSENIC | 5.0 | J | P | 5.2 | | | 2.15 | U | | 2.15 | U | |
| BARIUM | 457 | | | 492 | | | 24.4 | | | 23.6 | | |
| BERYLLIUM | 0.51 | U | A | 0.41 | U | | 0.41 | U | | 0.41 | U | |
| CADMIUM | 0.29 | J | P | 2.84 | U | | 2.84 | U | | 2.84 | U | |
| CALCIUM | 37700 | | | 36600 | | | 22400 | | | 23100 | | |
| CHROMIUM | 0.57 | U | | 5.2 | U | A | 4.81 | UJ | C | 4.81 | UJ | C |
| COBALT | 0.92 | U | | 3.89 | U | | 3.89 | U | | 3.89 | U | |
| COPPER | 0.84 | U | | 1.66 | U | | 1.66 | U | | 1.66 | U | |
| IRON | 3900 | | | 3590 | | | 86.8 | U | A | 9.7 | U | A |
| LEAD | 2.0 | U | A | 1.48 | U | | 1.37 | UJ | C | 1.37 | UJ | C |
| MAGNESIUM | 27300 | | | 27000 | | | 3980 | | | 3980 | | |
| MANGANESE | 152 | | | 145 | | | 99.1 | | | 102 | | |
| MERCURY | 0.04 | | | 0.04 | | | 0.03 | U | | 0.03 | U | |
| NICKEL | 1.8 | | | 5.89 | U | | 5.89 | U | | 5.89 | U | |
| POTASSIUM | 23800 | | | 22600 | | | 4140 | | | 4160 | | |
| SELENIUM | 3.04 | UJ | C | 3.4 | J | C | 3.42 | UJ | C | 3.42 | UJ | C |
| SILVER | 1.03 | U | | 4.15 | U | | 4.15 | U | | 4.15 | U | |
| SODIUM | 240000 | | | 253000 | | | 46200 | | | 45600 | | |
| THALLIUM | 0.42 | U | A | 0.50 | U | A | 0.10 | U | | 0.10 | U | |
| VANADIUM | 0.52 | U | | 4.66 | U | | 4.66 | U | | 4.66 | U | |
| ZINC | 2.4 | U | A | 1.6 | U | A | 1.7 | U | A | 2.5 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | FD01090201 | | | FD01090201-F | | | HNUS2301 | | | HNUS2301-F | | |
| SAMPLE DATE: | 01/09/02 | | | 01/09/02 | | | 01/10/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0047-002 | | | WS0047-005 | | | WS0066-004 | | | WS0066-008 | | |
| 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: | 8GW2D01 | | | 8GW2D01-F | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 35.3 | U | A | 21.39 | U | | 771 | U | A | 29.1 | U | A |
| ANTIMONY | 10.95 | U | | 10.95 | U | | 3.65 | U | | 3.65 | U | |
| ARSENIC | 21.2 | | | 17.7 | | | 2.53 | U | | 2.53 | U | |
| BARIUM | 21.9 | J | K | 23.5 | J | K | 50.9 | | | 47.5 | | |
| BERYLLIUM | 0.41 | U | | 0.41 | U | | 0.41 | U | | 0.41 | U | |
| CADMIUM | 2.84 | U | | 2.84 | U | | 2.84 | U | | 2.84 | U | |
| CALCIUM | 114000 | | | 116000 | | | 27200 | | | 27400 | | |
| CHROMIUM | 1.71 | U | | 1.8 | U | A | 10.4 | U | A | 4.81 | U | |
| COBALT | 3.89 | U | | 3.89 | U | | 3.89 | U | | 3.89 | U | |
| COPPER | 1.66 | U | | 1.66 | U | | 1.66 | U | | 1.66 | U | |
| IRON | 8070 | | | 7500 | | | 896 | | | 10.0 | U | A |
| LEAD | 4.44 | U | | 4.44 | U | | 1.48 | U | | 1.48 | U | |
| MAGNESIUM | 404000 | | | 390000 | | | 7120 | | | 6950 | | |
| MANGANESE | 1200 | | | 1240 | | | 80.5 | J | I | 92.2 | | |
| MERCURY | 0.03 | U | | 0.03 | U | | 0.03 | U | | 0.04 | | |
| NICKEL | 5.89 | UJ | K | 6.0 | U | A | 5.89 | U | | 5.89 | U | |
| POTASSIUM | 135000 | | | 160000 | | | 3350 | | | 3410 | | |
| SELENIUM | 9.12 | U | | 9.12 | U | | 3.04 | UJ | C | 4.1 | J | CP |
| SILVER | 4.15 | U | | 4.15 | U | | 4.15 | U | | 4.15 | U | |
| SODIUM | 3390000 | | | 3900000 | | | 26500 | | | 30600 | | |
| THALLIUM | 0.93 | U | A | 0.87 | U | A | 0.27 | U | A | 0.24 | U | A |
| VANADIUM | 6.0 | | | 4.66 | U | | 4.66 | U | | 4.66 | U | |
| ZINC | 2.5 | U | A | 1.49 | U | | 3.5 | U | A | 2.0 | U | A |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | RB01090201 | | | RB01090201-F | | | | | | | | |
| SAMPLE DATE: | 01/09/02 | | | 01/09/02 | | | / / | | | / / | | |
| LABORATORY ID: | WS0047-004 | | | WS0047-007 | | | | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | | | | | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | UG/L | | | UG/L | | | | | | | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| ALUMINUM | 21.39 | U | | 21.39 | U | | | | | | | |
| ANTIMONY | 3.65 | U | | 3.65 | U | | | | | | | |
| ARSENIC | 2.53 | U | | 2.53 | U | | | | | | | |
| BARIUM | 1.15 | U | | 1.15 | U | | | | | | | |
| BERYLLIUM | 0.41 | U | | 0.41 | U | | | | | | | |
| CADMIUM | 2.84 | U | | 2.84 | UJ | C | | | | | | |
| CALCIUM | 13.7 | U | | 13.7 | U | | | | | | | |
| CHROMIUM | 0.57 | U | | 0.57 | U | | | | | | | |
| COBALT | 3.89 | U | | 3.89 | U | | | | | | | |
| COPPER | 1.66 | U | | 1.66 | U | | | | | | | |
| IRON | 15.2 | J | P | 9.5 | J | P | | | | | | |
| LEAD | 1.48 | U | | 1.48 | U | | | | | | | |
| MAGNESIUM | 25.26 | U | | 25.26 | U | | | | | | | |
| MANGANESE | 0.24 | | | 0.20 | | | | | | | | |
| MERCURY | 0.03 | U | | 0.03 | U | | | | | | | |
| NICKEL | 5.89 | U | | 5.89 | U | | | | | | | |
| POTASSIUM | 305.21 | U | | 305.21 | U | | | | | | | |
| SELENIUM | 3.04 | U | | 3.04 | UJ | C | | | | | | |
| SILVER | 4.15 | U | | 4.15 | U | | | | | | | |
| SODIUM | 154 | | | 164 | | | | | | | | |
| THALLIUM | 0.31 | | | 0.30 | | | | | | | | |
| VANADIUM | 4.66 | U | | 4.66 | U | | | | | | | |
| ZINC | 1.49 | U | | 1.49 | U | | | | | | | |

CT 3816-NSB NEW LONDON
WATER DATA
KAS
SDG: 816-2



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 08GW05S01 | | | 08GW07S01 | | | 8GW0101 | | | 8GW10S01 | | |
| SAMPLE DATE: | 01/08/02 | | | 01/08/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0046-003 | | | WS0046-002 | | | WS0087-001 | | | WS0066-005 | | |
| 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** | | | | | | | | | | | | |
| HARDNESS(UG/L) | 4820000 | | | 250000 | | | 3970000 | | | 34600 | | |
| NITRATE(MG/L) | 0.2 | | | 0.050 | U | | 0.050 | U | | 0.64 | | |
| SULFATE(MG/L) | 1600 | | | 1.0 | U | | 1000 | | | 12.0 | | |

# CTO816-NSB NEW LONDON
## WATER DATA
## KAS
## SDG: 816-2

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW2D01 | | | FD01090201 | | | 8GW2S01 | | | 8GW301 | | |
| SAMPLE DATE: | 01/09/02 | | | 01/09/02 | | | 01/11/02 | | | 01/11/02 | | |
| LABORATORY ID: | WS0047-003 | | | WS0047-002 | | | WS0077-002R | | | WS0077-003 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 0.0 % | | | 0.0 % | | | 0.0 % | | | 0.0 % | | |
| FIELD DUPLICATE OF: | | | | 8GW2D01 | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **MISCELLANEOUS PARAMETERS** | | | | | | | | | | | | |
| HARDNESS(UG/L) | 2040000 | | | 1950000 | | | 280000 | | | 412000 | | |
| NITRATE(MG/L) | 0.050 | U | | 0.050 | U | | 0.050 | U | | 0.89 | | |
| SULFATE(MG/L) | 380 | | | 380 | | | 4.0 | | | 26.0 | | |

**CTO816-NSB NEW LONDON**
**WATER DATA**
**KAS**
**SDG: 816-2**



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | 8GW6D01 | | | 8GW6S01 | | | 8GW8D01 | | | HNUS2301 | | |
| SAMPLE DATE: | 01/10/02 | | | 01/10/02 | | | 01/13/02 | | | 01/10/02 | | |
| LABORATORY ID: | WS0066-003 | | | WS0066-002R | | | WS0087-002 | | | WS0066-004 | | |
| 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** | | | | | | | | | | | | |
| HARDNESS(UG/L) | 5130000 | | | 207000 | | | 72500 | | | 97300 | | |
| NITRATE(MG/L) | 0.050 | U | | 0.050 | U | | 0.92 | | | 2.6 | | |
| SULFATE(MG/L) | 1300 | | | 2.0 | | | 18.0 | | | 12.0 | | |

# CTCRTS-NSB NEW LONDON
WATER DATA
KAS
SDG: 816-2

| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | RB01090201 | | | |
| SAMPLE DATE: | 01/09/02 | / / | / / | / / |
| LABORATORY ID: | WS0047-004 | | | |
| QC_TYPE: | NORMAL | | | |
| % SOLIDS: | 0.0 % | 100.0 % | 100.0 % | 100.0 % |
| FIELD DUPLICATE OF: | | | | |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MISCELLANEOUS PARAMETERS** | | | | | | | | | | | | |
| HARDNESS(UG/L) | 138.23 | U | | | | | | | | | | |
| NITRATE(MG/L) | 0.050 | U | | | | | | | | | | |
| SULFATE(MG/L) | 1.0 | U | | | | | | | | | | |

# APPENDIX I

## WASTE CHARACTERIZATION AND WASTE MANIFEST

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

43-30-35
GCC FILE # 88798

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

| UNIFORM HAZARDOUS WASTE MANIFEST | 1. Generator's US EPA ID No. CT4170022020 | Manifest Document No. 020143 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law. |
|---|---|---|---|---|

3. Generator's Name and Mailing Address
US NAVAL SUBMARINE BASE Rte 12/crystal lake Rd.
ENV. DEPT. PO BOX 39 GROTON CT. 06349
4. Generator's Phone ( ) 860-694-4298

A. State Manifest Document Number: MA Q 056001
B. State Gen. ID: RTE 12/CRYSTAL LAKE RD GROTON ,CT

5. Transporter 1 Company Name: CLEAN VENTURE INC.
6. US EPA ID Number: NJ0000027193
C. State Trans. ID: MA 46512
D. Transporter's Phone: (617) 355 5800

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Trans. ID: ~~(617) 355-5800~~

9. Designated Facility Name and Site Address
GENERAL CHEMICAL CORPORATION
133 LELAND STREET
FRAMINGHAM MA 01702
10. US EPA ID Number: MAD019371079
F. Transporter's Phone ( )
G. State Facility's ID: NOT REQUIRED
H. Facility's Phone ( ) 508-872-5000

| 11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number) | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt/Vol | I. WASTE NO. |
|---|---|---|---|---|---|
| a. NON RCRA NON DOT REGULATED LIQUIDS (PER 40 CFR PER 49 CFR) | 006 | DM | 00330 | G | MA99 |
| b. | | | | | |
| c. | | | | | |
| d. | | | | | |

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a. IDW LIQUIDS (0001)
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a. S02
b.
c.
d.

15. Special Handling Instructions and Additional Information
ER # (508)872-5000

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: CARL S. DI MARIO
Signature:
Date: Month 02 Day 21 Year 02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Jeff Plotts
Signature:
Date: Month 02 Day 21 Year 02

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item19
Printed/Typed Name: R Swartz
Signature:
Date: Month 02 Day 21 Year 02

GENERATOR

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

MA Q 056001

COPY>1: FACILITY MAILS TO DESTINATION STATE

Form Approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-96) Previous editions are obsolete.

COPY>1: FACILITY MAILS TO DESTINATION STATE

# GENERAL CHEMICAL CORPORATION

138 LELAND STREET
FRAMINGHAM, MA 01702

PHONE: 508-782-4152
FAX: 508-875-5271
WWW.GENERALCHEMICAL.COM

BROKER NO. _____
Class In MA99
Facility _____
ESM APPROVAL _____

## GENERATOR INFORMATION

GENERATOR USEPA ID NO. CT4170022020

| | | | |
|---|---|---|---|
| Generator Name | US Naval Submarine Base New London | Billing Address | Tetra Tech Nus Inc. |
| Mailing Address | P.O. Box 39 Environmental Dept. | | Foster Plaza 7 / 661 Anderson Plaza |
| | Groton CT 06349-5039 | | Pittsburgh PA 15220 – 2745 |
| Generator Contact | Carl DiMario | Contact | Meg Price |
| Generator Phone | (860) 694 – 4298 | Phone | (610) 491 – 9688 Fax (610) 491 - 9645 |
| Site Address | Route 12/Crystal Lake Road, Groton CT | Process Generating Waste | SITE INVESTIGATION |

**Name of Waste:** IDW LIQUIDS

### B. PHYSICAL CHARACTERISTICS OF WASTE

Color/Physical Description: CLEAR / GREY WATER

STRONG INCIDENTAL ODOR PRESENT
__ YES X No

__ WASTEWATER
X NONWASTEWATER

S.G 1.0

PHYSICAL STATE @ 70°F
__ SOLID X SINGLE PHASE
X LIQUID __ BI-LAYERED
__ POWDER __ MULTI-LAYERED
__ SEMI SOLID __ SLUDGE

FLASHPOINT
__ < 70°F
__ 70°F – 100°F
__ 101°F – 141°F
__ 142°F – 200°F
X >200°F
__ NO FLASH
__ EXACT
Ignitable (if solid)
__ Yes __ No
__ Closed Cup
__ Open Cup

LIQUID/SOLID/SLUDGE
Sludge _____
SuspendedSolids _____
Solid/Debris _____
Free Liquids 100%

pH
__ < 2.0
__ 2.1 – 5.0
__ 5.1 – 9.0
__ 9.1 – 12.4
__ > 12.5
8 EXACT
__ NA/A

Dumpable? X Yes ____ No
Pumpable? X Yes ____ No
Pourable? X Yes ____ No

### C. CHEMICAL COMPOSITION

Is MSDS Attached? __ Yes X No Analysis Attached? X Yes __ No

| | MINIMUM | MAXIMUM |
|---|---|---|
| | | |
| | | |
| INVESTIGATIVE DERIVED WELL WATER | | 100% |
| With Trace Tetrachloroethane (PCE) | | |
| See attached analysis | | |
| | | |
| | | |
| | | |

### D. REGULATORY INFORMATION

USEPA HAZARDOUS WASTE?: ____ YES X NO

USEPA CODE(S): _____

APPLICABLE SUBCATEGORIES: L

STATE HAZARDOUS WASTE?: ____ YES X NO

STATE CODE(S): MA99

D.O.T. HAZARDOUS WASTE ____ YES X NO

PROPER SHIPPING NAME: Non RCRA Non DOT Regulated Liquids (Per 40 CFR, Per 49 CFR)

CLASS: NONE I.D. NO: NONE P.G.: NONE R. Q.: NONE

### E. SHIPPING INFORMATION/SHIPMENT METHOD:

__ BULK LIQUID
__ BULK SOLID
__ DUMP TRAILER
__ ROLL-OFF
X DRUMS/ PAILS
__ PALLETS / CY
__ CYLINDERS

BULK VOLUME _____ GAL/YDS
UNIT # / SIZE 6 x 55 Drum
PRICE _____
FREQUENCY _____

### F. SPECIAL HANDLING CONSIDERATIONS

CERCLA FACILITIES ____ INCINERATE ONLY ____
NO LANDFILL ____ GCC SALES CODE SAV
PROJECT CODE ____
OTHER Project Manager: Corey Rich (412) 921-8984
Pittsburgh PA office

### G. TRANSPORTATION

____ CUSTOMER WILL DELIVER TO GCC X GCC TO PROVIDE TRANSPORTATION

### H. OTHER HAZARDOUS CHARACTERSTICS

Indicate If The Waste Is:

__ RCRA REACTIVE
__ WATER REACTIVE
__ RADIOACTIVE
__ SUBJECT TO SUBPART FF BENZENE REGULATIONS
__ ETIOLOGICAL
__ TSCA REGULATED
__ OXIDIZING MATERIAL
__ PYROPHORIC
__ EXPLOSIVE/SHOC SENSITIVE
X NONE OF THE ABOVE

Indicate If The Waste Contains Any of the Following

| | None | or Less Than | or Actual |
|---|---|---|---|
| PCB's | X | __ < 50 PPM | ____ PPM |
| Cyanides | X | __ < 250 PPM | ____ PPM |
| Phenolics | X | __ < 50 PPM | ____ PPM |
| Sulfides | X | __ < 500 PPM | ____ PPM |
| VOC's | ____ | X < 500 PPM | ____ PPM |

Is this waste characterstically hazardous for metals or organics (EPA Waste Codes D004-D043)? __ YES X NO . If yes, please list the constituents and concentrations in Section D.

Does this waste contain underlying hazardous constituents as defined in 40 CFR 268 (2)(I) at concentrations exceeding the UTS treatment standards? __ YES X NO. If yes, please list constituents and concentrations in Section D.

GENERATOR CERTIFICATION: I hereby certify that all information submitted in this and all attached documents is complete, contains true and accurate descriptions and is representative of the waste material, and that all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. If GCC discovers, after having taken delivery of the waste, that any waste does not conform to the identification and description on this MPS then GCC shall provide notice of such condition to the Generator and coordinate the return of the nonconforming waste to the point of origin as set forth on the manifest or to such other locations designated in writing by the Generator. Generator agrees to reimburse GCC for all handling, packaging, clean-up and transportation costs or charges, damage to equipment, and costs associated with lost time incurred by GCC during the receipt, handling, temporary storage and return of such nonconforming waste to point of origin or to such other location designated by Generator. I hereby authorize GCC to amend and/or correct any information on the MPS with the full understanding that if any amendment or correction is performed, I will be contacted as such to issue any approval.

AUTHORIZED SIGNATURE: _____ TITLE: _____ DATE _____

SPECTRUM ANALYTICAL, INC.

*Featuring*

HANIBAL TECHNOLOGY

Massachusetts Certification # M-MA138
Rhode Island # 98 Maine # MA138
Florida # E87600 / 87562
New Hampshire # 2538
Connecticut # PH-0777
New York # 11393

ACCREDITED IN ACCORDANCE WITH nelac

General Chemical Corp
133 Leland Street
Framingham, MA 01702

Attn: Scott Savioli

**Client Project Number:**

Friday, January 25, 2002

Report Status:
- ☑ Final Report
- ☐ Re-issued Report
- ☐ Revised Report

**Location:** Naval Sub Base - Groton, CT

| Laboratory ID | Client Sample ID | Analyses Requested |
|---|---|---|
| AC92658 | A | TCLP Zero Headspace Extraction<br>TCLP VOCs by GC/MS<br>TCLP Extraction for SVOCs<br>TCLP Pesticides<br>TCLP Semivolatiles<br>TCLP Extraction for Metals<br>Metals Digestion on Leachate<br>Mercury Digestion on Leachate<br>TCLP RCRA8 Metals<br>TCLP Mercury<br>TCLP Herbicides<br>Separatory Funnel Extraction on |
| AC92659 | B | TCLP Zero Headspace Extraction<br>TCLP VOCs by GC/MS<br>TCLP Extraction for SVOCs<br>TCLP Pesticides<br>TCLP Semivolatiles<br>TCLP Extraction for Metals<br>Metals Digestion on Leachate<br>Mercury Digestion on Leachate<br>TCLP RCRA8 Metals<br>TCLP Mercury<br>TCLP Herbicides<br>Separatory Funnel Extraction on |



*ENVIRONMENTAL ANALYSES*

11 Almgren Drive • Agawam, Massachusetts 01001 • 1-800-789-9115 • 413-789-9018 • Fax 413-789-4076

SPECTRUM ANALYTICAL, INC.
*Featuring*
HANIBAL TECHNOLOGY

**Client Project Number:** **Location:** Naval Sub Base - Groton, CT

| Laboratory ID | Client Sample ID | Analyses Requested |
|---|---|---|

I attest that all information contained within this report has been reviewed for accuracy and checked against all quality control requirements outlined in each applicable method and meet the requirements of NELAC including any data obtained from a subcontract laboratory. Please note that all solid matrix sample results are calculated on a dry weight basis unless otherwise specified.

This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director



*ENVIRONMENTAL ANALYSES*
11 Almgren Drive • Agawam, Massachusetts 01001 • 1-800-789-9115 • 413-789-9018 • Fax 413-789-4076

# SPECTRUM ANALYTICAL, INC.

Laboratory Report

**Location:** Naval Sub Base - Groton, CT
**Client:** GENCHEM
**Lab ID No:** AC92658
**Client Id:** A

**Client Project No:**
**Submittal Date:** 1/14/02
**Collection Date:** 1/11/02
**Matrix:** Ground Water

| arameter | Results | Units | PQL | Start Date | Analyst | Method |
|---|---|---|---|---|---|---|
| **olatile Organic Compounds** | | | | | | |
| ***CLP VOCs by GC/MS*** | | | | | | |
| Benzene | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Butanone (MEK) | Below det lim | ug/L | 10.0 | 1/22/02 | GW | 1311/8260B |
| arbon tetrachloride | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Chlorobenzene | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| hloroform | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| ,2-Dichloroethane | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| 1,1-Dichloroethene | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| etrachloroethene (PCE) | 15 | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Trichloroethene (TCE) | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| inyl chloride | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Bromofluorobenzene (%SR) | 101 | ug/L | | 1/22/02 | GW | 1311/8260B |
| 1,4-Difluorobenzene (%SR) | 103 | ug/L | | 1/22/02 | GW | 1311/8260B |
| hlorobenzene-d5 (%SR) | 97 | ug/L | | 1/22/02 | GW | 1311/8260B |
| **SVOC Preparation** | | | | | | |
| eparatory Funnel Extraction on Leachate | Completed | | | 1/22/02 | WB | SW846 3510C |
| **Semivolatile Organic Compounds** | | | | | | |
| ***CLP Semivolatiles*** | | | | | | |
| yridine | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 1,4-Dichlorobenzene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| -Methylphenol (o-cresol) | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Hexachloroethane | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 3-Methylphenol (m-cresol) | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Nitrobenzene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Hexachlorobutadiene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2,4,6-Trichlorophenol | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2,4,5-Trichlorophenol | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2,4-Dinitrotoluene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Hexachlorobenzene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Pentachlorophenol | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2-Fluorobiphenyl (%SR) | 61 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| 2-Fluorophenol (%SR) | 59 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| Nitrobenzene-d5 (%SR) | 54 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| Terphenyl-d14 (%SR) | 60 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| **Semivolatile Organic Compounds** | | | | | | |

**Lab ID No:** AC92658
**Client Id:** A

**Collection Date:** 1/11/02
**Matrix:** Ground Water

| Parameter | Results | Units | PQL | Start Date | Analyst | Method |
|---|---|---|---|---|---|---|
| ***TCLP Pesticides*** | | | | | | |
| Chlordane | Below det lim | ug/L | 0.50 | 1/23/02 | MP | 1311/8081A |
| Endrin | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| Heptachlor | Below det lim | ug/L | 0.05 | 1/23/02 | MP | 1311/8081A |
| Heptachlor epoxide | Below det lim | ug/L | 0.05 | 1/23/02 | MP | 1311/8081A |
| gamma-BHC (Lindane) | Below det lim | ug/L | 0.05 | 1/23/02 | MP | 1311/8081A |
| Methoxychlor | Below det lim | ug/L | 0.50 | 1/23/02 | MP | 1311/8081A |
| Toxaphene | Below det lim | ug/L | 1.0 | 1/23/02 | MP | 1311/8081A |
| 4,4'-DDD | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| 4,4'-DDE | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| 4,4'-DDT | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| Dieldrin | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| Decachlorobiphenyl (%SR) | 84 | ug/L | | 1/23/02 | MP | 1311/8081A |
| **Metals Preparation** | | | | | | |
| Mercury Digestion on Leachate | Completed | | | 1/22/02 | EP | EPA 245.1 |
| Metals Digestion on Leachate | Completed | | | 1/22/02 | EP | EPA 200.7 |
| **Metals Analysis** | | | | | | |
| TCLP Mercury | Below det lim | mg/L | 0.0004 | 1/23/02 | EPR | 1311/245.1 |
| ***TCLP RCRA8 Metals*** | | | | | | |
| TCLP Arsenic | Below det lim | mg/L | 0.015 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Barium | Below det lim | mg/L | 0.265 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Cadmium | Below det lim | mg/L | 0.0025 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Chromium | Below det lim | mg/L | 0.005 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Lead | Below det lim | mg/L | 0.0075 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Selenium | Below det lim | mg/L | 0.015 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Silver | Below det lim | mg/L | 0.010 | 1/25/02 | KSR | 1311/200.7 |
| **TCLP/SPLP Preparation** | | | | | | |
| TCLP Extraction for Metals | Completed | | | 1/21/02 | HB | SW846 1311 |
| TCLP Extraction for SVOCs | Completed | | | 1/21/02 | HB | SW846 1311 |
| TCLP Zero Headspace Extraction | Completed | | | 1/21/02 | HB | SW846 1311 |
| **Subcontracted Analyses** | | | | | | |
| ***TCLP Herbicides*** | | | | | | |
| 2,4-D | Below det lim | ug/L | 5.0 | 1/21/02 | PX | 1311/8151A |
| 2,4,5-TP (Silvex) | Below det lim | ug/L | 1.0 | 1/21/02 | PX | 1311/8151A |

**Lab ID No:** AC92659
**Client Id:** B

**Collection Date:** 1/11/02
**Matrix:** Ground Water

| Parameter | Results | Units | PQL | Start Date | Analyst | Method |
|---|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | | |
| ***TCLP VOCs by GC/MS*** | | | | | | |
| Benzene | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| 2-Butanone (MEK) | Below det lim | ug/L | 10.0 | 1/22/02 | GW | 1311/8260B |
| Carbon tetrachloride | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Chlorobenzene | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Chloroform | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| 1,2-Dichloroethane | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| 1,1-Dichloroethene | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Tetrachloroethene (PCE) | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Trichloroethene (TCE) | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| Vinyl chloride | Below det lim | ug/L | 5.0 | 1/22/02 | GW | 1311/8260B |
| 4-Bromofluorobenzene (%SR) | 103 | ug/L | | 1/22/02 | GW | 1311/8260B |
| 1,4-Difluorobenzene (%SR) | 99 | ug/L | | 1/22/02 | GW | 1311/8260B |
| Chlorobenzene-d5 (%SR) | 100 | ug/L | | 1/22/02 | GW | 1311/8260B |
| **SVOC Preparation** | | | | | | |
| Separatory Funnel Extraction on Leachate | Completed | | | 1/22/02 | WB | SW846 3510C |
| **Semivolatile Organic Compounds** | | | | | | |
| ***TCLP Semivolatiles*** | | | | | | |
| Pyridine | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 1,4-Dichlorobenzene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2-Methylphenol (o-cresol) | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Hexachloroethane | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 3-Methylphenol (m-cresol) | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Nitrobenzene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Hexachlorobutadiene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2,4,6-Trichlorophenol | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2,4,5-Trichlorophenol | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2,4-Dinitrotoluene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Hexachlorobenzene | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| Pentachlorophenol | Below det lim | ug/L | 5.0 | 1/24/02 | MSL | 1311/8270C |
| 2-Fluorobiphenyl (%SR) | 74 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| 2-Fluorophenol (%SR) | 70 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| Nitrobenzene-d5 (%SR) | 64 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| Terphenyl-d14 (%SR) | 64 | ug/L | 0. | 1/24/02 | MSL | 1311/8270C |
| **Semivolatile Organic Compounds** | | | | | | |
| ***TCLP Pesticides*** | | | | | | |
| Chlordane | Below det lim | ug/L | 0.50 | 1/23/02 | MP | 1311/8081A |
| Endrin | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| Heptachlor | Below det lim | ug/L | 0.05 | 1/23/02 | MP | 1311/8081A |
| Heptachlor epoxide | Below det lim | ug/L | 0.05 | 1/23/02 | MP | 1311/8081A |

**Lab ID No:** AC92659 **Collection Date:** 1/11/02
**Client Id:** B **Matrix:** Ground Water

| Parameter | Results | Units | PQL | Start Date | Analyst | Method |
|---|---|---|---|---|---|---|
| gamma-BHC (Lindane) | Below det lim | ug/L | 0.05 | 1/23/02 | MP | 1311/8081A |
| Methoxychlor | Below det lim | ug/L | 0.50 | 1/23/02 | MP | 1311/8081A |
| Toxaphene | Below det lim | ug/L | 1.0 | 1/23/02 | MP | 1311/8081A |
| 4,4'-DDD | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| 4,4'-DDE | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| 4,4'-DDT | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| Dieldrin | Below det lim | ug/L | 0.10 | 1/23/02 | MP | 1311/8081A |
| Decachlorobiphenyl (%SR) | 82 | ug/L | | 1/23/02 | MP | 1311/8081A |
| **Metals Preparation** | | | | | | |
| Mercury Digestion on Leachate | Completed | | | 1/22/02 | EP | EPA 245.1 |
| Metals Digestion on Leachate | Completed | | | 1/22/02 | EP | EPA 200.7 |
| **Metals Analysis** | | | | | | |
| TCLP Mercury | Below det lim | mg/L | 0.0004 | 1/23/02 | EPR | 1311/245.1 |
| ***TCLP RCRA8 Metals*** | | | | | | |
| TCLP Arsenic | Below det lim | mg/L | 0.015 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Barium | Below det lim | mg/L | 0.265 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Cadmium | Below det lim | mg/L | 0.0025 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Chromium | Below det lim | mg/L | 0.005 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Lead | Below det lim | mg/L | 0.0075 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Selenium | Below det lim | mg/L | 0.015 | 1/25/02 | KSR | 1311/200.7 |
| TCLP Silver | Below det lim | mg/L | 0.010 | 1/25/02 | KSR | 1311/200.7 |
| **TCLP/SPLP Preparation** | | | | | | |
| TCLP Extraction for Metals | Completed | | | 1/21/02 | HB | SW846 1311 |
| TCLP Extraction for SVOCs | Completed | | | 1/21/02 | HB | SW846 1311 |
| TCLP Zero Headspace Extraction | Completed | | | 1/21/02 | HB | SW846 1311 |
| **Subcontracted Analyses** | | | | | | |
| ***TCLP Herbicides*** | | | | | | |
| 2,4-D | Below det lim | ug/L | 5.0 | 1/21/02 | PX | 1311/8151A |
| 2,4,5-TP (Silvex) | Below det lim | ug/L | 1.0 | 1/21/02 | PX | 1311/8151A |

Reviewed by:

Quality Service/Quality Assurance Depts.

Validated by:

President/Laboratory Director

1/25/02

0116 1108 KG

SPECTRUM ANALYTICAL, INC.
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HANIBAL TECHNOLOGY

# CHAIN OF CUSTODY RECORD

Page 1 of 1

**Special Handling:**
- ☑ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- All samples are disposed of after 60 days unless otherwise instructed.

Report To: General Chemical Corp.
133-138 Leland Street
Framingham, MA 01702

Project Mgr.: S. Savioli

Invoice To: Same

P.O. No.: 0973 RQN:

Project No.:
Site Name: Naval Sub Base
Location: Groton State: CT
Sampler(s): Scott Savioli

1=$Na_2S_2O_3$ 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=Ascorbic Acid
7=$CH_3OH$ 8= $NaHSO_4$ 9=_____ 10=_____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1=_____ X2=_____ X3=_____

G=Grab C=Composite

| Lab Id: | Sample Id: | Date: | Time: | Type | Matrix | Preservative | # of VOA Vials | # of Amber Glass | # of Clear Glass | # of Plastic | | Full TCLP | | | | | | | | Notes: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC 92658 | A | 1/11/02 | 1000 | C | GW | - | 2 | 3 | | 1 | | ✓ | | | | | | | | |
| AC 92659 | B | 1/11/02 | 1000 | C | GW | - | 2 | 3 | | 1 | | ✓ | | | | | | | | |
| AC | | | | | | | | | | | | | | | | | | | | |
| AC | | | | | | | | | | | | | | | | | | | | |
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| AC | | | | | | | | | | | | | | | | | | | | |

| Relinquished by: | Received by: | Date: | Time: |
|---|---|---|---|
| | | | |
| | [signature] | 1/14/02 | 1515 |
| | via courier | | |
| | (see attached COCs) | | |

☐ Fax results when available to (508) 875-5271
☐ E-mail results when available to _____
Condition upon Receipt: ☐ Iced ☐ Ambient ☐ ____°C

SPECTRUM ANALYTICAL, INC.
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HANIBAL TECHNOLOGY

**Laboratory Report Supplement**
***References***

| | |
|---|---|
| SW 846 | Test Methods for Evaluating Solid Waste. Third edition, 1998 |
| 40 CFR 136 | Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water . :t |
| 40 CFR 141 | National Primary Drinking Water Regulations |
| 40 CFR 143 | National Secondary Drinking Water Regulations |
| 40 CFR 160 | Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Good Laboratory Practice Standa ls |
| APHA-AWWA-WPCF | Standard Methods for the Examination of Water and Wastewater. 19th edition, 1995 |
| ASTM D 3328 | Standard Methods for the Comparison of Waterborne Petroleum Oils by Gas Chromatography |
| EPA 540/G-87/003 | Data Quality Objectives for Remediation Response Activities, Development Process |
| EPA 600/4-79-012 | Quality Assurance Handbook for Analytical Quality Control in Water and Wastewater Laboratories |
| EPA 600/4-79-019 | Handbook for Analytical Quality Control in Water and Wastewater Laboratories |
| EPA 600/4-79-020 | Method for the Chemical Analysis of Water and Wastes |
| EPA 600/4-82-057 | Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater |
| EPA 600/4-85/056 | Choosing Cost-Effective QA/QC Programs for Chemical Analysis |
| EPA 600/4-88/039 | Method for the Determination of Organic Compounds in Drinking Water |
| CT ETPH | Analysis of Extractable Total Petroleum Hydrocarbons (ETPH) |
| MADEP EPH | Method for the Determination of Extractable Petroleum Hydrocarbons (EPH) |
| MADEP VPH | Method for the Determination of Volatile Petroleum Hydrocarbons (VPH) |
| QAMS 004/80 | Guidelines and Specifications for Preparing Quality Assurance Program Plans, USEPA Offic of Monitoring System and Quality Assurance |
| GC-D-52-77 | Oil Spill Identification System |

***Acronyms & Abbreviations***

| | | | |
|---|---|---|---|
| AA | Atomic Absorption | MS | Matrix Spike |
| ASTM | American Society for Testing and Materials | MSD | Matrix Spike Duplicate |
| BOD | Biological Oxygen Demand | NTU | Nephelometric Turbidity Units |
| °C | degree(s) Celsius | PAHs | Polynuclear Aromatic Hydrocarbons |
| COD | Chemical Oxygen Demand | PCBs | Polychlorinated Biphenyls |
| CMR | Code of Massachusetts Regulations | PID | Photo Ionization Detector |
| DEP | Department of Environmental Protection | PQL | Practical Quantitation Limit |
| DI | De-ionized | R | Recovery (%R: Percent Recovery) |
| DO | Dissolved Oxygen | RSD | Relative Standard Deviation |
| EPA | Environmental Protection Agency | SM | Standard Method |
| EPH | Extractable Petroleum Hydrocarbons | SR | Surrogate Recovery (%SR) |
| FID | Flame Ionization Detector | SW | Solid Waste |
| GC | Gas Chromatograph | THM | Trihalomethane(s) |
| GC / MS | Gas Chromatograph / Mass Spectrometer | TOC | Total Organic Carbon |
| ICP | Inductively Coupled Plasma | TOX | Total Organic Halogen |
| Id | Identification | TPH | Total Petroleum Hydrocarbons |
| MCL | Maximum Contaminant Level | VOC | Volatile Organic Compound |
| MDL | Minimum Detection Limit | VPH | Volatile Petroleum Hydrocarbons |

## *Definitions*

Equipment Blank: A sample of analyte-free media, which has been used to rinse the sampling equipment. It is collected after completion of decontamination and prior to sampling. This blank is useful in documenting adequate decontamination of sampling equipment.

Field Duplicate: Independent samples, which are collected as close as possible to the same point in space and time. They are two separate samples taken from the same source, stored in separate containers, and analyzed independently. These duplicates are useful in documenting the precision of the sampling process.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Matrix Spike Duplicates: Intra-laboratory split of samples spiked with identical concentrations of target analyte(s). The spiking occurs prior to sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Practical Quantitation Limit (PQL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The PQL is generally 5 to 10 times the MDL. However, it may be nominally chosen within these guidelines to simplify data reporting. For many analytes the PQL analyte concentration is selected as the lowest non-zero standard in the calibration curve. Sample PQLs are highly matrix-dependent.

Precision: The agreement among a set of replicate measurements without assumption of knowledge of the true value. Precision is estimated by means of duplicate/replicate analyses. These samples should contain concentrations of analyte above the MDL, and may involve the use of matrix spikes. The Relative Percent Difference (%RPD) is used to estimate the precision between two samples.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Trip Blank: A sample of analyte-free media taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document contamination attributable to shipping and field handling procedures. This type of blank is useful in documenting contamination of volatile organic samples.

# APPENDIX J

# TIDAL STUDY RESULTS

| | | | |
|---|---|---|---|
| CLIENT: Naval Submarine Base - New London | | JOB NUMBER: 2863-3520 | |
| SUBJECT: GOSS COVE LANDFILL MONITORING WELL LAG TIMES | | | |
| BASED ON: RESULTS OF TIDAL STUDY | | DRAWING NUMBER: 1 AND 2 | |
| BY: JLM<br>Date: 2-6-02 | CHECKED BY: CAR<br>Date: 3-13-02 | APPROVED BY: CAR | DATE: 4/5/02 |

**OBJECTIVE:**

The objective for this calculation is to determine the magnitude of tidal effects, response times, and proper sampling times for the tidally influenced monitoring wells at the Goss Cove Landfill site. This will be done by the following:

1) Determine high and low tide information for two stations on the Thames River and compare the information to the high and low tide information measured at the Goss Cove staff gauge in the Thames River;
2) Determine the lag time between the monitoring wells at the Goss Cove Landfill site at the Naval Submarine Base - New London (NSB-NLON) and the Goss Cove staff gauge in the Thames River;
3) Determine the water level elevations in the monitoring wells at the Goss Cove Landfill site at the NSB-NLON and graphically compare them to the water level elevations from the staff gauge and at the Smith Cove station.

**REFERENCES:**

1) National Oceanic and Atmospheric Administration (NOAA) website (http://www.noaa.gov).
2) National Geodetic Survey (NGS) website (linked to Reference 1).
3) Center for Operational and Oceanographic Products and Services (CO-OPS) website (linked to Reference 1).

**APPROACH:**

1) A tidal study was conducted at Goss Cove Landfill monitoring wells and a staff gauge in the Thames River on December 17, 2001 to December 19, 2001. Figure 1 (Page 7 of 8) shows the locations of the wells and staff gauge included in the study.

2) Obtain high/low tide information for State Pier (Station 8461490) tidal station on the Thames River from Reference 1. Apply a time adjustment factor according to Reference 3 to find the high/low tide information for the Smith Cove station on the Thames River. Finally, compare the State Pier (Station 8461490) and Smith Cove tide information to that observed at the Goss Cove Landfill site staff gauge to determine the lag time in low and high tides between Smith Cove and Goss Cove.

3) Using transducer information collected from the monitoring wells located at Goss Cove during a field investigation, determine the lag times between the Staff Gauge and the monitoring wells.

4) Using survey information, determine the water level elevations in the monitoring wells.

**CALCULATION CONTENTS:**


| | |
|---|---|
| Calculations | pp. 1 - 6 |
| Figures | pp. 7 - 8 |
| Appendix A | State Pier (Station 8461490) Water Level Data |
| Appendix B | Smith Cove Information |
| Appendix C | Transducer Data |
| Appendix D | Surveyor and Rainfall Information |
| Appendix E | Graphs |

| | | | |
|---|---|---|---|
| CLIENT: Naval Submarine Base - New London | | JOB NUMBER: 2863-3520 | |
| SUBJECT: GOSS COVE LANDFILL MONITORING WELL LAG TIMES | | | |
| BASED ON: RESULTS OF TIDAL STUDY | | DRAWING NUMBER: 1 AND 2 | |
| BY: JLM<br>Date: 2-6-02 | CHECKED BY: CAR<br>Date: 3-13-02 | APPROVED BY: CAR | DATE: 4/5/02 |

**CALCULATIONS:**

**1. High/Low Tides**

Refer to Figure 2 (Page 8 of 8) for the location of the State Pier station, Smith Cove, and Goss Cove Landfill site.

The high and low tides for the State Pier (Station 8461490) were determined from water level data obtained through Reference 1 (Appendix A). From Reference 3, high and low tide time adjustment factors of 0 00 and +0 10 min, respectively, were applied to the times of high and low tides at State Pier to obtain the times of high and low tides at Smith Cove (Appendix B.1). Using water level data recorded by a transducer during the tidal study (Appendix C), high and low tides for the staff gauge at Goss Cove were obtained. The following table summarizes and compares the results:

| State Pier (Actual) | | Smith Cove (Predicted) | |
|---|---|---|---|
| High | Low | High | Low |
| 12/17/2001 10:36 | 12/17/2001 5:06 | 12/17/2001 10:36 | 12/17/2001 5:16 |
| 12/17/2001 23:42 | 12/17/2001 17:18 | 12/17/2001 23:42 | 12/17/2001 17:28 |
| 12/18/2001 10:42 | 12/18/2001 5:48 | 12/18/2001 10:42 | 12/18/2001 5:58 |
| 12/19/2001 0:30 | 12/18/2001 18:30 | 12/19/2001 0:30 | 12/18/2001 18:40 |
| 12/19/2001 12:36 | 12/19/2001 7:06 | 12/19/2001 12:36 | 12/19/2001 7:16 |
| | 12/19/2001 19:36 | | 12/19/2001 19:46 |

| Staff Gauge (Actual) | | Lag Time (min)(1) | | Average (min) | |
|---|---|---|---|---|---|
| High | Low | High | Low | High | Low |
| | | | | | |
| 12/17/2001 23:42 | 12/17/2001 17:48 | 0 | 20 | | |
| 12/18/2001 10:48 | 12/18/2001 5:54 | 6 | -4 | 4 | 0.5 |
| 12/19/2001 0:36 | 12/18/2001 18:36 | 6 | -4 | | |
| | 12/19/2001 7:06 | | -10 | | |
| | | | | | |

(1) Lag times were determined by taking the difference between the times of high and low tides at the Smith Cove station and the Goss Cove staff gauge.

**2. Lag Times**

All water level data recorded by transducers for the Goss Cove monitoring wells and staff gauge can be found in Appendix C. Using this information, the following summary table of the lag times between the monitoring wells and the staff gauge was developed.

| Well | High Tide | Lag Time (min) | Average Lag Time(1) (min) | Low Tide | Lag Time (min) | Average Lag Time(1) (min) |
|---|---|---|---|---|---|---|
| Staff Gauge | 12-17-01 23:42 | -- | -- | 12-17-01 17:48 | -- | -- |
| | 12-18-01 10:48 | -- | | 12-18-01 5:54 | -- | |
| | 12-19-01 0:36 | -- | | 12-18-01 18:36 | -- | |
| | -- | -- | | 12-19-01 7:06 | -- | |

| | |
|---|---|
| CLIENT: Naval Submarine Base - New London | JOB NUMBER: 2863-3520 |
| SUBJECT: GOSS COVE LANDFILL MONITORING WELL LAG TIMES | |
| BASED ON: RESULTS OF TIDAL STUDY | DRAWING NUMBER: 1 AND 2 |
| BY: JLM Date: 2-6-02 CHECKED BY: CAR Date: 3-13-02 | APPROVED BY: CAR DATE: 4/5/02 |

| Well | High Tide | Lag Time (min) | Average Lag Time[1] (min) | Low Tide | Lag Time (min) | Average Lag Time[1] (min) |
|---|---|---|---|---|---|---|
| 8MW1 | 12-18-01 0:00 | 18 | 12 | 12-17-01 18:06 | 18 | 14 |
| | 12-18-01 11:18 | 30 | | 12-18-01 6:00 | 6 | |
| | 12-19-01 0:42 | 6 | | 12-18-01 19:54 | 78 | |
| | -- | -- | | 12-19-01 7:24 | 18 | |
| 8MW2D | 12-18-01 0:00 | 18 | 15 | 12-17-01 17:36 | -12 | 0 |
| | 12-18-01 11:36 | 48 | | 12-18-01 6:00 | 6 | |
| | 12-19-01 0:48 | 12 | | 12-18-01 19:36 | 60 | |
| | -- | -- | | 12-19-01 7:12 | 6 | |
| 8MW2S | 12-18-01 1:30 | 108 | 93 | 12-17-01 18:48 | 60 | 62 |
| | 12-18-01 12:42 | 114 | | 12-18-01 6:54 | 60 | |
| | 12-19-01 1:54 | 78 | | 12-18-01 20:36 | 120 | |
| | -- | -- | | 12-19-01 8:12 | 66 | |
| 8MW3 | 12-18-01 2:00 | 138 | 111 | 12-17-01 18:48 | 60 | 64 |
| | 12-18-01 13:00 | 132 | | 12-18-01 7:12 | 78 | |
| | 12-19-01 2:06 | 90 | | 12-18-01 20:36 | 120 | |
| | -- | -- | | 12-19-01 8:00 | 54 | |
| 8MW5S[2] | 12-17-01 23:24 | -18 | 3 | -- | -- | -- |
| | 12-18-01 10:48 | 0 | | -- | -- | |
| | 12-19-01 0:42 | 6 | | -- | -- | |
| | -- | -- | | -- | -- | |
| 8MW6D | 12-18-01 0:00 | 18 | 12 | 12-17-01 17:36 | -12 | 4 |
| | 12-18-01 11:12 | 24 | | 12-18-01 5:54 | 0 | |
| | 12-19-01 0:42 | 6 | | 12-18-01 19:12 | 36 | |
| | -- | -- | | 12-19-01 7:30 | 24 | |
| 8MW6S[3] | -- | -- | -- | -- | -- | -- |
| | -- | -- | | -- | -- | |
| | -- | -- | | -- | -- | |
| | -- | -- | | -- | -- | |
| 8MW7S[3] | -- | -- | -- | -- | -- | -- |
| | -- | -- | | -- | -- | |
| | -- | -- | | -- | -- | |
| | -- | -- | | -- | -- | |
| 8MW8D | 12-18-01 0:06 | 24 | 24 | 12-17-01 18:00 | 12 | 12 |
| | 12-18-01 11:36 | 48 | | 12-18-01 6:06 | 12 | |
| | 12-19-01 1:00 | 24 | | 12-18-01 19:18 | 42 | |
| | -- | -- | | 12-19-01 7:18 | 12 | |
| 8MW8S[3] | -- | -- | -- | -- | -- | -- |
| | -- | -- | | -- | -- | |
| | -- | -- | | -- | -- | |
| | -- | -- | | -- | -- | |

(1) Average lag time computed as follows: for high tide, remove the max lag time and take the average of the remaining two lag times; for low tide, remove the max and take the average of the remaining three lag times.

(2) Unable to compute low tide lag time for 8MW5S because well was dry during low tide.

(3) Well is not tidally influenced.

| | | | |
|---|---|---|---|
| CLIENT: Naval Submarine Base - New London | | JOB NUMBER: 2863-3520 | |
| SUBJECT: GOSS COVE LANDFILL MONITORING WELL LAG TIMES | | | |
| BASED ON: RESULTS OF TIDAL STUDY | | DRAWING NUMBER: 1 AND 2 | |
| BY: JLM<br>Date: 2-6-02 | CHECKED BY: CAR<br>Date: 3-13-02 | APPROVED BY: CAR | DATE: 4/5/02 |

**3. Water Level Elevations**

A) Determine Water Level Elevations at Smith Cove Station

Water level data from State Pier was obtained from Reference 1 (Appendix A). Since State Pier is approximately 2 miles upstream from Smith Cove, an adjustment factor was applied to the State Pier data to better represent the Smith Cove area. This adjustment factor, 0.96, was obtained from Reference 3 (Appendix B.1). After the adjustment factor was applied, the Smith Cove data was converted from feet above Mean Lower Low Water (MLLW) to feet in the North American Vertical Datum 1988 (NAVD88) system. This was first done by selecting an established benchmark near the Smith Cove entrance from a list obtained from Reference 1 (Appendix B.2). Benchmark stamping 12 1938 was selected, with a PID# of LX0160. From Reference 2 (Appendix B.3), it was determined that the conversion factor from feet above MLLW to the NAVD88 system was minus 2.03 feet. The conversion to NAVD88 can be found in Appendix C.

B) Determining Initial Water Level Elevations of Wells

Based on information obtained by a licensed surveyor (Appendix D) and information collected in the field, the initial water level elevations in the monitoring wells at Goss Cove were determined. All initial water level elevations were found by subtracting the reference point elevation by the initial water level from reference point taken in the field. Exceptions are footnoted at the bottom of the table.

| Well ID | Elevations (NAVD88) | | | Initial Water Level from Ref. Point (ft) | Initial Water Level Elevation (ft NAV88) |
|---|---|---|---|---|---|
| | Top of Vault (ft) | Ref. Point | 6" PVC Rim | | |
| 8MW1 | 12.58 | 11.97 | 11.97 | 11.90 | 0.07 |
| 8MW2D | 10.55 | 9.93 | 10.14 | 10.38 | -0.45 |
| 8MW2S | 10.58 | 9.63 | 9.98 | 9.29 | 0.34 |
| 8MW3 | 8.79 | 8.27 | 8.25 | 8.15 | 0.12 |
| 8MW5S | 12.73 | 12.32 | 12.30 | 10.62 | 1.7 |
| 8MW6D | 7.70 | 7.45 | 6.82 | 7.48 | -0.03 |
| 8MW6S | 8.63 | 8.41 | * | 8.17 | 0.24 |
| 8MW7S(1) | 9.71 | 9.19 | 9.17 | 8.80 | 0.37 |
| 8MW8D | 17.61 | 17.20 | * | 16.99 | 0.21 |
| 8MW8S | 16.87 | 16.47 | * | 15.13 | 1.34 |
| 8SG01(2) | 8.37 | NA | NA | 9.59 | -1.22 |

(1) Measured from 6" PVC
(2) Measured from edge of concrete walkway (notch)

* No visible inner well casing

After initial water level elevations were determined, the transducer data were converted into elevations in the NAVD88 system. These conversions can be seen in Appendix C.

C) Comparing Monitoring Well Groundwater Elevations to Smith Cove and Staff Gauge Surface Water Elevations

In order to compare monitoring well elevations, graphs were developed (Appendix E) from the elevation information found in Appendix C.

| | | | |
|---|---|---|---|
| CLIENT: Naval Submarine Base - New London | | JOB NUMBER: 2863-3520 | |
| SUBJECT: GOSS COVE LANDFILL MONITORING WELL LAG TIMES | | | |
| BASED ON: RESULTS OF TIDAL STUDY | | DRAWING NUMBER: 1 AND 2 | |
| BY: CAR<br>Date: 6-13-02 | CHECKED BY: JAW<br>Date: 6-13-02 | APPROVED BY: CAR | DATE: 6/13/02 |

**CONCLUSIONS:**

Based on the information included in this calculation, the following conclusions are made:

1) There is no significant difference between the times of Smith Cove and the Goss Cove staff gauge high and low tides. The high and low tide average lag times between the two stations are 4 minutes and 0.5 minutes, respectively.

2) The high and low tide lag times between the Goss Cove staff gauge and monitoring wells varied between wells, ranging from 3 to 111 minutes. The variations are likely due to the geologic material in the vicinity of each well.

3) From the graphs in Appendix E, monitoring wells 8MW1, 8MW2D, 8MW2S, 8MW3, 8MW5S, 8MW6D, and 8MW8D appear to all be tidally influenced wells. The transducer data obtained mirrors the data obtained for the Goss Cove staff gauge as well as the State Pier (Station 8461490). It should be noted that monitoring well 8MW5S is dry during low tide due to the depth of the well screen. Monitoring wells 8MW6S, 8MW7S, and 8MW8S do not appear to be tidally influenced wells. Since all of these wells are shallow wells, it is uncertain why they are not tidally influenced. An increase in the water elevation of monitoring well 8MW8S around 9:00 on 12-18-2002 is seen on the graph. This increase is likely due to the infiltration of precipitation into the well, and not an indication of tidal influence. Rainfall occurred during the tidal study and a copy of the rainfall data collected by Groton Utilities is provided in Appendix D. This rainfall gauge is the closest known gauge to Goss Cove Landfill.

The State Pier (Station 8461490) is a good starting point in determining when the monitoring wells of the Goss Cove Landfill should be sampled. An adjustment factor should be applied to the State Pier data to obtain the Smith Cove data. The Smith Cove data relates closely to the Goss Cove staff gauge. When sampling events are performed at Goss Cove, the average low tide lag times between the monitoring wells that are tidally influenced (8MW1, 8MW2D, 8MW2S, 8MW3, 8MW6D, and 8MW8D) and the staff gauge should be used to estimate the proper time for sampling at low tide. Monitoring well 8MW5S is also tidally influenced; however, in most cases the groundwater elevation at low tide is below the bottom of the screen interval of the monitoring well and sampling is not able to be completed at low tide. Therefore, purging and sampling at this well should begin shortly after high tide so that the sampling effort can be completed prior to the well going dry. Sampling between high and low tide should provide a reasonable estimate of contaminant levels in the groundwater.

**ADDITIONAL INFORMATION:**

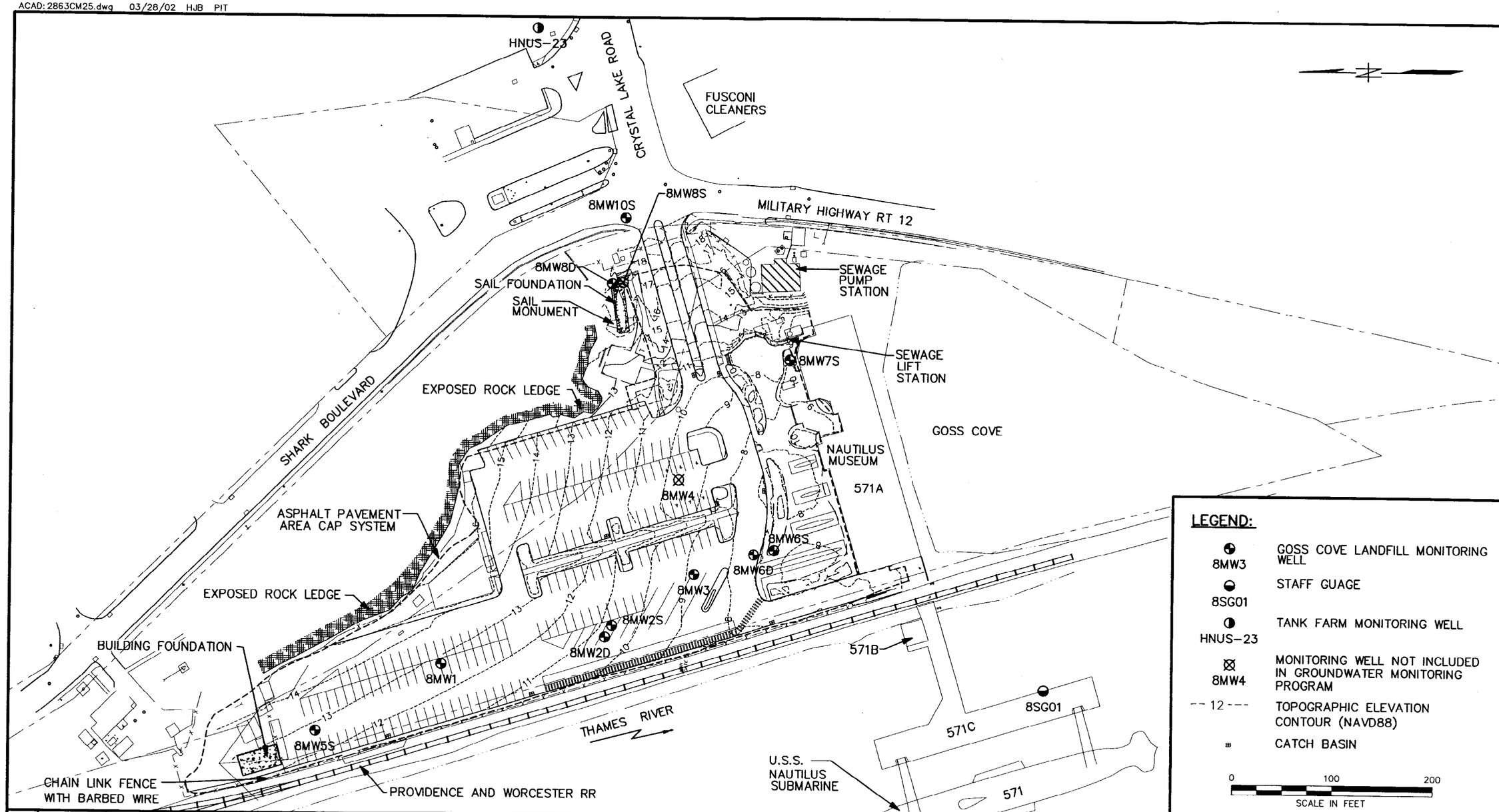
A subsequent field investigation was conducted on January 9, 2002 during which hand measurements were taken of the water levels at monitoring wells 8MW6S, 8MW7S, and 8MW10S. The measurements were taken at 8MW6S and 8MW7S to verify the results of the initial investigation. The measurements were taken at 8MW10S to determine if it was tidally influenced. This well was not part of the initial investigation, but was selected to replace 8MW8S in the monitoring program. Monitoring well 8MW8S was not a reliable monitoring location. The following data was collected:

| | | | |
|---|---|---|---|
| CLIENT: Naval Submarine Base - New London | | JOB NUMBER: 2863-3520 | |
| SUBJECT: GOSS COVE LANDFILL MONITORING WELL LAG TIMES | | | |
| BASED ON: RESULTS OF TIDAL STUDY | | DRAWING NUMBER: 1 AND 2 | |
| BY: CAR<br>Date: 6-13-02 | CHECKED BY: [illegible]<br>Date: 6-13-02 | APPROVED BY: | DATE: |

| Time (min) | Water Level (ft from Top of Riser) | | |
|---|---|---|---|
| | 8MW6S | 8MW7S | 8MW10S |
| 8:00 | 8.43 | 9.16 | 16.55 |
| 10:35 | 8.43 | 9.13 | 16.55 |
| 12:50 | 8.49 | 9.14 | 16.59 |
| 16:30 | 8.54 | 9.14 | 16.59 |
| 17:55 | 8.54 | 9.20 | 16.58 |

This additional data correlates with the initial investigation and is further proof that monitoring wells 8MW6S and 8MW7S are not tidally influenced. The data for 8MW10S also indicates that this well is not tidally influenced.

ACAD: 2863CM25.dwg 03/28/02 HJB PIT




| NO. | DATE | REVISIONS | BY | CHKD | APPD | REFERENCES |
|---|---|---|---|---|---|---|
| | | | | | | |

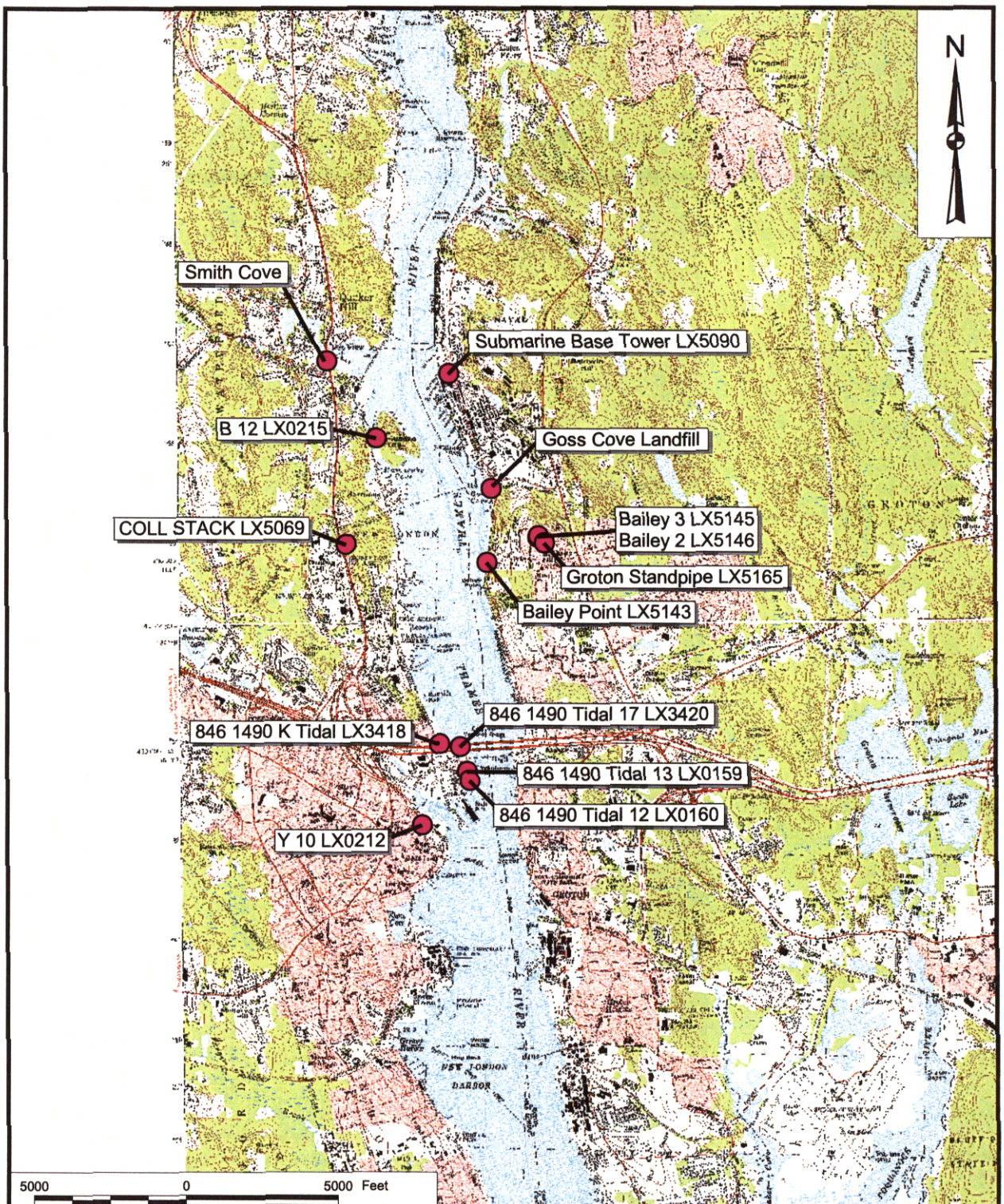
DRAWN BY HJB DATE 3/28/02
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

GENERAL SITE LAYOUT
GOSS COVE LANDFILL (SITE 8)
NSB-NLON, GROTON, CONNECTICUT

CONTRACT NO. 2863
OWNER NO. 0816
APPROVED BY CAR
DATE 4/5/02
APPROVED BY
DATE
DRAWING NO. FIGURE 1
REV. 0

FORM CADD NO. TtNUS_BH.DGN - REV 0 - 1/20/98




| | | | |
|---|---|---|---|
| DRAWN BY K. PEILA — DATE 02/28/02 | Tetra Tech NUS, Inc. | CONTRACT NUMBER 2863 | OWNER NO. 0520 |
| CHECKED BY — DATE — | BENCHMARKS<br>NSB NEW LONDON<br>NEW LONDON, CONNECTICUT | APPROVED BY CAR | DATE 4/5/02 |
| COST/SCHEDULE-AREA | | APPROVED BY — | DATE — |
| SCALE AS NOTED | | DRAWING NO. FIGURE 2 | REV 0 |

P:\GIS\NLON\NOAA_STATIONS.APR BENCHMARKS LAYOUT 02/28/02 KMP

# APPENDIX A
# STATE PIER (STATION 8461490) WATER LEVEL DATA

**Verified 6 minute Water Level Data (W1)**

| | | |
|---|---|---|
| Station | -- | Unique seven character identifier for the station |
| Date Time | -- | Date and time the data were collected by the DCP |
| WL | -- | Water level height |
| Sigma | -- | Standard deviation of 1 second samples used to compute the water level height |
| I | -- | A flag that indicates that the water level value has been inferred. |
| F | -- | A flag that when set to 1 indicates that the flat tolerance limit was exceeded |
| R | -- | A flag that when set to 1 indicates that the rate of change tolerance limit was exceeded |
| T | -- | A flag that when set to 1 indicates that the temperature difference tolerance limit was exceeded |

**Data are in Feet above MLLW**
**Times are on Local Standard Time (LST)**

**8461490 New London , CT from 20011217 to 20011219**

| Station | Date | Time | WL | Sigma | I | F | R | T |
|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/17 | 00:00 | 2.56 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:06 | 2.47 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:12 | 2.38 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:18 | 2.34 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:24 | 2.29 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:30 | 2.24 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:36 | 2.21 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:42 | 2.21 | 0.00 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:48 | 2.18 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 00:54 | 2.17 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:00 | 2.14 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:06 | 2.17 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:12 | 2.10 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:18 | 2.05 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:24 | 2.02 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:30 | 1.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:36 | 1.86 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:42 | 1.78 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:48 | 1.74 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 01:54 | 1.70 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:00 | 1.63 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:06 | 1.59 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:12 | 1.52 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:18 | 1.47 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:24 | 1.43 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:30 | 1.41 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:36 | 1.40 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:42 | 1.39 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:48 | 1.35 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 02:54 | 1.29 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:00 | 1.24 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:06 | 1.20 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:12 | 1.14 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:18 | 1.05 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:24 | 1.02 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:30 | 0.96 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:36 | 0.87 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:42 | 0.83 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:48 | 0.82 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 03:54 | 0.82 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:00 | 0.86 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:06 | 0.81 | 0.01 | 0 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/17 | 04:12 | 0.84 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:18 | 0.81 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:24 | 0.82 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:30 | 0.79 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:36 | 0.82 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:42 | 0.77 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:48 | 0.77 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 04:54 | 0.72 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:00 | 0.72 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:06 | 0.69 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:12 | 0.72 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:18 | 0.74 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:24 | 0.77 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:30 | 0.77 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:36 | 0.86 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:42 | 0.93 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:48 | 0.97 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 05:54 | 1.07 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:00 | 1.16 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:06 | 1.20 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:12 | 1.31 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:18 | 1.32 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:24 | 1.35 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:30 | 1.39 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:36 | 1.38 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:42 | 1.48 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:48 | 1.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 06:54 | 1.60 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:00 | 1.66 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:06 | 1.73 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:12 | 1.82 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:18 | 1.89 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:24 | 1.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:30 | 2.02 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:36 | 2.13 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:42 | 2.19 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:48 | 2.27 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 07:54 | 2.35 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:00 | 2.40 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:06 | 2.43 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:12 | 2.50 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:18 | 2.57 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:24 | 2.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:30 | 2.71 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:36 | 2.76 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:42 | 2.85 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:48 | 2.93 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 08:54 | 2.97 | 0.05 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:00 | 3.06 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:06 | 3.14 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:12 | 3.17 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:18 | 3.21 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:24 | 3.24 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:30 | 3.26 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:36 | 3.32 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:42 | 3.33 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:48 | 3.36 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 09:54 | 3.46 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:00 | 3.51 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:06 | 3.57 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:12 | 3.62 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:18 | 3.64 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:24 | 3.64 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:30 | 3.68 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:36 | 3.72 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 10:42 | 3.70 | 0 | 0 | 0 | 0 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/17 | 10:48 | 3.65 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 10:54 | 3.66 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:00 | 3.65 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:06 | 3.62 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:12 | 3.59 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:18 | 3.54 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:24 | 3.50 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:30 | 3.48 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:36 | 3.47 | 0 | 0 | 0 | 0 | | |
| 8461490 | 2001/12/17 | 11:42 | 3.45 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 11:48 | 3.43 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 11:54 | 3.41 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:00 | 3.36 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:06 | 3.30 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:12 | 3.24 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:18 | 3.22 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:24 | 3.13 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:30 | 3.03 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:36 | 2.96 | 0.04 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:42 | 2.91 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:48 | 2.84 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 12:54 | 2.77 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:00 | 2.70 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:06 | 2.67 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:12 | 2.66 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:18 | 2.66 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:24 | 2.60 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:30 | 2.57 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:36 | 2.55 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:42 | 2.50 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:48 | 2.43 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 13:54 | 2.37 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:00 | 2.28 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:06 | 2.28 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:12 | 2.21 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:18 | 2.14 | 0.08 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:24 | 2.13 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:30 | 2.07 | 0.07 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:36 | 2.01 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:42 | 1.94 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:48 | 1.93 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 14:54 | 1.87 | 0.03 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:00 | 1.84 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:06 | 1.82 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:12 | 1.75 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:18 | 1.68 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:24 | 1.62 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:30 | 1.56 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:36 | 1.47 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:42 | 1.42 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:48 | 1.37 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 15:54 | 1.30 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:00 | 1.25 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:06 | 1.18 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:12 | 1.14 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:18 | 1.10 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:24 | 1.05 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:30 | 1.01 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:36 | 0.98 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:42 | 0.95 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:48 | 0.92 | 0.04 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 16:54 | 0.89 | 0.03 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 17:00 | 0.87 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 17:06 | 0.86 | 0.01 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 17:12 | 0.86 | 0.02 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/17 | 17:18 | 0.83 | 0.01 | 0 | 0 | 0 | 0 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/17 | 17:24 | 0.84 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 17:30 | 0.86 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 17:36 | 0.85 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 17:42 | 0.87 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 17:48 | 0.91 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 17:54 | 0.93 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:00 | 0.96 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:06 | 0.99 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:12 | 1.04 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:18 | 1.10 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:24 | 1.14 | 0.05 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:30 | 1.18 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:36 | 1.23 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:42 | 1.32 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:48 | 1.38 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 18:54 | 1.39 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:00 | 1.44 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:06 | 1.52 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:12 | 1.58 | 0.05 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:18 | 1.66 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:24 | 1.74 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:30 | 1.84 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:36 | 1.90 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:42 | 1.93 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:48 | 1.99 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 19:54 | 2.06 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:00 | 2.14 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:06 | 2.19 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:12 | 2.21 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:18 | 2.29 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:24 | 2.36 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:30 | 2.42 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:36 | 2.48 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:42 | 2.50 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:48 | 2.53 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 20:54 | 2.60 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:00 | 2.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:06 | 2.74 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:12 | 2.77 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:18 | 2.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:24 | 2.83 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:30 | 2.89 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:36 | 2.94 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:42 | 3.00 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:48 | 3.05 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 21:54 | 3.08 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:00 | 3.12 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:06 | 3.20 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:12 | 3.26 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:18 | 3.31 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:24 | 3.35 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:30 | 3.40 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:36 | 3.43 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:42 | 3.49 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:48 | 3.54 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 22:54 | 3.55 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:00 | 3.59 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:06 | 3.64 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:12 | 3.65 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:18 | 3.65 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:24 | 3.64 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:30 | 3.65 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:36 | 3.68 | 0.05 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:42 | 3.68 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:48 | 3.66 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/17 | 23:54 | 3.65 | 0.03 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/18 | 00:00 | 3.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:06 | 3.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:12 | 3.62 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:18 | 3.59 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:24 | 3.55 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:30 | 3.52 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:36 | 3.45 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:42 | 3.40 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:48 | 3.37 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 00:54 | 3.31 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:00 | 3.21 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:06 | 3.16 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:12 | 3.14 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:18 | 3.12 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:24 | 3.07 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:30 | 3.04 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:36 | 3.00 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:42 | 2.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:48 | 2.90 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 01:54 | 2.86 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:00 | 2.81 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:06 | 2.74 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:12 | 2.70 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:18 | 2.66 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:24 | 2.59 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:30 | 2.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:36 | 2.49 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:42 | 2.41 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:48 | 2.36 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 02:54 | 2.33 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:00 | 2.29 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:06 | 2.24 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:12 | 2.18 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:18 | 2.12 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:24 | 2.06 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:30 | 2.02 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:36 | 1.96 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:42 | 1.91 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:48 | 1.86 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 03:54 | 1.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:00 | 1.74 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:06 | 1.74 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:12 | 1.72 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:18 | 1.72 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:24 | 1.70 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:30 | 1.69 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:36 | 1.66 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:42 | 1.68 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:48 | 1.66 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 04:54 | 1.66 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:00 | 1.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:06 | 1.60 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:12 | 1.57 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:18 | 1.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:24 | 1.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:30 | 1.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:36 | 1.53 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:42 | 1.51 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:48 | 1.51 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 05:54 | 1.54 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:00 | 1.59 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:06 | 1.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:12 | 1.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:18 | 1.71 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:24 | 1.76 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:30 | 1.82 | 0.02 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/18 | 06:36 | 1.86 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:42 | 1.89 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:48 | 1.91 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 06:54 | 1.94 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:00 | 1.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:06 | 1.97 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:12 | 2.03 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:18 | 2.05 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:24 | 2.06 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:30 | 2.12 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:36 | 2.19 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 07:42 | 2.24 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 07:48 | 2.30 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 07:54 | 2.39 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:00 | 2.46 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:06 | 2.52 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:12 | 2.59 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:18 | 2.68 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:24 | 2.75 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:30 | 2.79 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:36 | 2.89 | 0 | 0 | 0 | 0 | |
| 8461490 | 2001/12/18 | 08:42 | 2.99 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 08:48 | 3.03 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 08:54 | 3.08 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:00 | 3.09 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:06 | 3.07 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:12 | 3.14 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:18 | 3.26 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:24 | 3.39 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:30 | 3.45 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:36 | 3.43 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:42 | 3.49 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:48 | 3.57 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 09:54 | 3.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:00 | 3.76 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:06 | 3.76 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:12 | 3.86 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:18 | 3.85 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:24 | 3.86 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:30 | 3.92 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:36 | 3.97 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:42 | 4.01 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:48 | 3.94 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 10:54 | 3.90 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:00 | 3.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:06 | 3.94 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:12 | 3.92 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:18 | 3.93 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:24 | 3.91 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:30 | 3.84 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:36 | 3.81 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:42 | 3.77 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:48 | 3.75 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 11:54 | 3.73 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:00 | 3.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:06 | 3.63 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:12 | 3.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:18 | 3.50 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:24 | 3.45 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:30 | 3.44 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:36 | 3.38 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:42 | 3.36 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:48 | 3.35 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 12:54 | 3.19 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:00 | 3.13 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:06 | 3.04 | 0.02 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/18 | 13:12 | 3.02 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:18 | 2.96 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:24 | 2.90 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:30 | 2.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:36 | 2.77 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:42 | 2.69 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:48 | 2.62 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 13:54 | 2.57 | 0.05 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:00 | 2.55 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:06 | 2.53 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:12 | 2.48 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:18 | 2.42 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:24 | 2.39 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:30 | 2.35 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:36 | 2.33 | 0.05 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:42 | 2.23 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:48 | 2.18 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 14:54 | 2.10 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:00 | 2.06 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:06 | 1.98 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:12 | 1.91 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:18 | 1.84 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:24 | 1.81 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:30 | 1.76 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:36 | 1.69 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:42 | 1.61 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:48 | 1.54 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 15:54 | 1.48 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:00 | 1.42 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:06 | 1.35 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:12 | 1.30 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:18 | 1.26 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:24 | 1.20 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:30 | 1.15 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:36 | 1.10 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:42 | 1.04 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:48 | 0.99 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 16:54 | 0.94 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:00 | 0.89 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:06 | 0.88 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:12 | 0.80 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:18 | 0.74 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:24 | 0.68 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:30 | 0.60 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:36 | 0.54 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:42 | 0.49 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:48 | 0.46 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 17:54 | 0.42 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:00 | 0.35 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:06 | 0.29 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:12 | 0.26 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:18 | 0.21 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:24 | 0.19 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:30 | 0.16 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:36 | 0.19 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:42 | 0.20 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:48 | 0.20 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 18:54 | 0.19 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:00 | 0.19 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:06 | 0.21 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:12 | 0.24 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:18 | 0.21 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:24 | 0.19 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:30 | 0.25 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:36 | 0.26 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:42 | 0.33 | 0.03 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/18 | 19:48 | 0.42 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 19:54 | 0.50 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:00 | 0.55 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:06 | 0.63 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:12 | 0.70 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:18 | 0.79 | 0.08 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:24 | 0.90 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:30 | 1.03 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:36 | 1.14 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:42 | 1.22 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:48 | 1.31 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 20:54 | 1.39 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:00 | 1.55 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:06 | 1.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:12 | 1.73 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:18 | 1.77 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:24 | 1.81 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:30 | 1.85 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:36 | 1.93 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:42 | 2.03 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:48 | 2.10 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 21:54 | 2.14 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:00 | 2.19 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:06 | 2.25 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:12 | 2.29 | 0.06 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:18 | 2.35 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:24 | 2.33 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:30 | 2.37 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:36 | 2.37 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:42 | 2.41 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:48 | 2.43 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 22:54 | 2.48 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:00 | 2.49 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:06 | 2.49 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:12 | 2.49 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:18 | 2.47 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:24 | 2.47 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:30 | 2.49 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:36 | 2.50 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:42 | 2.55 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:48 | 2.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/18 | 23:54 | 2.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:00 | 2.56 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:06 | 2.58 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:12 | 2.57 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:18 | 2.61 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:24 | 2.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:30 | 2.65 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:36 | 2.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:42 | 2.63 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:48 | 2.61 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 00:54 | 2.57 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:00 | 2.51 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:06 | 2.48 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:12 | 2.45 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:18 | 2.45 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:24 | 2.45 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:30 | 2.40 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:36 | 2.36 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:42 | 2.35 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:48 | 2.31 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 01:54 | 2.28 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:00 | 2.21 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:06 | 2.15 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:12 | 2.12 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:18 | 2.08 | 0.02 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/19 | 02:24 | 2.02 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:30 | 1.97 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:36 | 1.91 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:42 | 1.86 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:48 | 1.82 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 02:54 | 1.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:00 | 1.74 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:06 | 1.71 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:12 | 1.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:18 | 1.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:24 | 1.64 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:30 | 1.61 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:36 | 1.59 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:42 | 1.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:48 | 1.51 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 03:54 | 1.47 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:00 | 1.44 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:06 | 1.40 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:12 | 1.35 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:18 | 1.33 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:24 | 1.30 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:30 | 1.28 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:36 | 1.27 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:42 | 1.28 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:48 | 1.25 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 04:54 | 1.25 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:00 | 1.23 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:06 | 1.22 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:12 | 1.19 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:18 | 1.15 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:24 | 1.10 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:30 | 1.09 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:36 | 1.07 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:42 | 1.04 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:48 | 1.02 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 05:54 | 1.01 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:00 | 1.00 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:06 | 0.98 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:12 | 0.98 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:18 | 0.98 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:24 | 0.99 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:30 | 1.00 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:36 | 0.97 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:42 | 0.96 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:48 | 0.94 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 06:54 | 0.92 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:00 | 0.93 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:06 | 0.93 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:12 | 0.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:18 | 0.99 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:24 | 1.02 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:30 | 1.07 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:36 | 1.11 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:42 | 1.16 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:48 | 1.20 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 07:54 | 1.26 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:00 | 1.32 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:06 | 1.38 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:12 | 1.42 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:18 | 1.49 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:24 | 1.54 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:30 | 1.60 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:36 | 1.65 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:42 | 1.70 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:48 | 1.75 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 08:54 | 1.81 | 0.04 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/19 | 09:00 | 1.89 | 0.05 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:06 | 1.95 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:12 | 2.01 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:18 | 2.08 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:24 | 2.14 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:30 | 2.17 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:36 | 2.21 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:42 | 2.27 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:48 | 2.30 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 09:54 | 2.35 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:00 | 2.40 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:06 | 2.45 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:12 | 2.51 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:18 | 2.56 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:24 | 2.60 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:30 | 2.63 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:36 | 2.69 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:42 | 2.75 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:48 | 2.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 10:54 | 2.81 | 0.06 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:00 | 2.86 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:06 | 2.90 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:12 | 2.93 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:18 | 2.94 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:24 | 2.95 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:30 | 2.97 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:36 | 2.99 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:42 | 3.02 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:48 | 3.05 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 11:54 | 3.10 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:00 | 3.11 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:06 | 3.11 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:12 | 3.13 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:18 | 3.13 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:24 | 3.12 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:30 | 3.14 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:36 | 3.17 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:42 | 3.14 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:48 | 3.12 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 12:54 | 3.15 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:00 | 3.14 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:06 | 3.14 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:12 | 3.11 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:18 | 3.12 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:24 | 3.07 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:30 | 3.04 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:36 | 2.97 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:42 | 2.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:48 | 2.88 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 13:54 | 2.86 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:00 | 2.80 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:06 | 2.75 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:12 | 2.70 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:18 | 2.67 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:24 | 2.58 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:30 | 2.53 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:36 | 2.53 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:42 | 2.48 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:48 | 2.44 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 14:54 | 2.38 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:00 | 2.33 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:06 | 2.26 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:12 | 2.24 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:18 | 2.10 | 0.07 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:24 | 2.07 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:30 | 2.06 | 0.03 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/19 | 15:36 | 2.03 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:42 | 1.97 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:48 | 1.95 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 15:54 | 1.92 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:00 | 1.90 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:06 | 1.85 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:12 | 1.80 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:18 | 1.78 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:24 | 1.73 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:30 | 1.68 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:36 | 1.63 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:42 | 1.59 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:48 | 1.53 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 16:54 | 1.47 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:00 | 1.41 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:06 | 1.36 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:12 | 1.31 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:18 | 1.29 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:24 | 1.27 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:30 | 1.25 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:36 | 1.21 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:42 | 1.20 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:48 | 1.16 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 17:54 | 1.14 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:00 | 1.09 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:06 | 1.06 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:12 | 1.02 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:18 | 0.97 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:24 | 0.93 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:30 | 0.91 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:36 | 0.88 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:42 | 0.88 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:48 | 0.82 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 18:54 | 0.81 | 0.04 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:00 | 0.81 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:06 | 0.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:12 | 0.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:18 | 0.78 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:24 | 0.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:30 | 0.78 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:36 | 0.78 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:42 | 0.81 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:48 | 0.82 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 19:54 | 0.86 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:00 | 0.89 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:06 | 0.92 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:12 | 0.93 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:18 | 1.01 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:24 | 1.04 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:30 | 1.13 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:36 | 1.21 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:42 | 1.25 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:48 | 1.31 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 20:54 | 1.38 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:00 | 1.43 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:06 | 1.48 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:12 | 1.54 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:18 | 1.60 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:24 | 1.64 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:30 | 1.68 | 0.03 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:36 | 1.73 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:42 | 1.79 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:48 | 1.87 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 21:54 | 1.92 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:00 | 1.97 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:06 | 2.03 | 0.06 | 0 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8461490 | 2001/12/19 | 22:12 | 2.09 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:18 | 2.14 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:24 | 2.22 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:30 | 2.25 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:36 | 2.27 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:42 | 2.32 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:48 | 2.37 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 22:54 | 2.39 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:00 | 2.44 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:06 | 2.46 | 0.00 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:12 | 2.50 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:18 | 2.54 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:24 | 2.58 | 0.02 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:30 | 2.63 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:36 | 2.67 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:42 | 2.70 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:48 | 2.73 | 0.01 | 0 | 0 | 0 | 0 |
| 8461490 | 2001/12/19 | 23:54 | 2.78 | 0.01 | 0 | 0 | 0 | 0 |

# APPENDIX B
## SMITH COVE INFORMATION

B.1 Adjustment factors

B.2 Benchmarks

B.3 Elevation Conversion

## B.1 ADJUSTMENT FACTORS

NOAA/NOS CO-OPS

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

# Tidal Differences and Other Constants

## CONNECTICUT, Long Island Sound

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

## NEW YORK

### Long Island Sound, north side

| Station | Time Diff. High | Time Diff. Low | Hgt. Diff. High | Hgt. Diff. Low | Ref. Station |
|---|---|---|---|---|---|
| Rye Beach | -0 19 | -0 28 | *1.01 | *1.11 | Kings Point |
| Mamaroneck | +0 01 | -0 10 | *1.02 | *1.07 | Kings Point |
| New Rochelle | -0 15 | -0 18 | *1.02 | *1.07 | Kings Point |
| Davids Island | +0 07 | -0 06 | *1.01 | *1.04 | Kings Point |
| City Island | +0 06 | -0 02 | *1.01 | *1.04 | Kings Point |
| Throgs Neck | +0 11 | +0 15 | *0.98 | *1.11 | Kings Point |

### East River

| Station | Time Diff. High | Time Diff. Low | Hgt. Diff. High | Hgt. Diff. Low | Ref. Station |
|---|---|---|---|---|---|

## B.2 BENCHMARKS

**Station ID:** 8461490 **PUBLICATION DATE:** 11/25/1985
**Name:** NEW LONDON (STATE PIER), THAMES RIVER CONNECTICUT
**NOAA Chart:** 13213 **Latitude:** 41ø 21.3' N
**USGS Quad:** NEW LONDON **Longitude:** 72ø 5.2' W

To reach the tidal bench marks from Interstate 95 take exit 84E to Crystal Avenue, continue on Crystal Avenue for 0.3 mile (0.5 km) to State Pier Road, follow the road for 0.8 mile (1.3 km) to State Pier. The tide house is located at the south of State Pier and the bench marks are located within 1 mile (1.6 km) radius of the tide station along the surrounding roads.

## T I D A L B E N C H M A R K S

### PRIMARY BENCH MARK STAMPING: 15 1947

MONUMENTATION: Survey Disk VM#: 239
AGENCY: PID#: LX0157
SETTING CLASSIFICATION: Concrete Retaining Wall

The bench mark is located on the west side of the concrete road leading from Winthrop Street to State Pier, 156.5 feet (47.7 m) NW of Bench Mark 14 1938, 22.1 feet (6.7 m) north of the south end of a chain link guard fence, 0.5 foot (0.1 m) east of the west face of the ramp, set in top of a concrete retaining wall, and 3.5 feet (1.1 m) above ground level.

### BENCH MARK STAMPING: 13 1938

MONUMENTATION: Survey Disk VM#: 236
AGENCY: PID#: LX0159
SETTING CLASSIFICATION: Concrete Base

The bench mark is located on the grounds of State Pier, set in concrete base of the NE leg of the only water tower in this area, 93.9 feet (28.6 m) SE of the SE corner of a two-story white warehouse #2, 40.0 feet (12.2 m) east of the NW leg of the water tower, 12.7 feet (3.9 m) west of the west rail of the railroad tracks leading to State Pier, 0.7 foot (0.2 m) east of the steel base plate of the NE tower leg, 1.2 feet (0.4 m) above ground level.

**Station ID:** 8461490 **PUBLICATION DATE:** 11/25/1985
**Name:** NEW LONDON (STATE PIER), THAMES RIVER CONNECTICUT
**NOAA Chart:** 13213 **Latitude:** 41ø 21.3' N
**USGS Quad:** NEW LONDON **Longitude:** 72ø 5.2' W

## T I D A L  B E N C H  M A R K S

**BENCH MARK STAMPING: 12 1938**

MONUMENTATION: Survey Disk VM#: 237
AGENCY: PID#: LX0160
SETTING CLASSIFICATION: Concrete Base

The bench mark is located at the northern end of State Pier on the NE side of the railroad tracks. The bench mark is set in concrete base of steel column which supports span over railroad tracks, 22.5 feet (6.9 m) WSW of power pole 11067 with three transformers, 4.6 feet (1.4 m) east of the easternmost rail at the entrance to State Pier, 0.7 foot (0.2 m) north of the steel column support, and set flush in a concrete base 1.1 feet (0.3 m) above asphalt ground level.

**BENCH MARK STAMPING: 14 1938**

MONUMENTATION: Survey Disk VM#: 238
AGENCY: PID#: LX0158
SETTING CLASSIFICATION: Concrete Foundation

The bench mark is located at the inshore end of State Pier in the NW corner of the concrete foundation around the weighing scales north of State Pier office building, 74.8 feet (22.8 m) ENE of the most easterly railroad track leading to State Pier, 59.0 feet (18.0 m) NNE of power pole #8887, 26.5 feet (8.1 m) NW of the NW corner of State office building, set flush in concrete, and level with the parking lot.

**BENCH MARK STAMPING: 17 1965**

MONUMENTATION: Survey Disk VM#: 240
AGENCY: PID#: LX3420
SETTING CLASSIFICATION: Concrete Handrail

The bench mark is located in the concrete underpass leading from Winthrop Street to State Pier, 900 feet (274 m) NW of Bench Mark 15 1947, 14.0 feet (4.3 m) east of the centerline of Winthrop Road, 4.5 feet (1.4 m) west of the east face of the southern bridge abutment, 1.2 feet (0.4 m) SE of a 6-inch steel vertical I Beam, and set flush in a concrete abutment, 1 inch below street level.

**Station ID:** 8461490 **PUBLICATION DATE:** 11/25/1985
**Name:** NEW LONDON (STATE PIER), THAMES RIVER CONNECTICUT
**NOAA Chart:** 13213 **Latitude:** 41ø 21.3' N
**USGS Quad:** NEW LONDON **Longitude:** 72ø 5.2' W

## T I D A L  B E N C H  M A R K S

**BENCH MARK STAMPING: 1490 J 1978**

MONUMENTATION: Survey Disk VM#: 241
AGENCY: PID#: LX3419
SETTING CLASSIFICATION: Concrete Bridge Abutment

The bench mark is located at the intersection of Winthrop Street and State Pier Road, 23.5 feet (7.2 m) west of the extended centerline of State Pier Road, 15.0 feet (4.6 m) north of the centerline of the bridge, and 3.0 feet (0.9 m) below the bridge surface.

**BENCH MARK STAMPING: 1490 K 1979**

MONUMENTATION: Survey Disk VM#: 242
AGENCY: PID#: LX3418
SETTING CLASSIFICATION: Bedrock

The bench mark is located on the north side of State Pier Road, 199.5 feet (60.8 m) west of the NW bridge abutment of the steel span over railroad tracks, 31.8 feet (9.7 m) north of the centerline of State Pier Road, 25.0 feet (7.6 m) south of the south rail of the southernmost railroad tracks, 12.0 feet (3.7 m) north of power pole #110H 1939 with the fire alarm box, and 9.7 feet (2.9 m) south with power pole marked with a white cross.

**BENCH MARK STAMPING: Y 5 1922 ELEV. 32.575 FT**

MONUMENTATION: Survey Disk VM#: 243
AGENCY: PID#: LX0154
SETTING CLASSIFICATION: Granite Step

The bench mark is located at the intersection of Captains Walk and Union Street, set in the west end of the second step from the bottom of Captains Walk entrance of City Hall, 56.0 feet (17.1 m) east of the extended centerline of Union Street, 35.0 feet (10.7 m) north of the center of Captains Walk, 15.0 feet (4.6 m) west of the west-south face entrance to City Hall.

# T I D A L  B E N C H  M A R K S

**BENCH MARK STAMPING: Y 10 1935**

MONUMENTATION: Survey Disk VM#: 244
AGENCY: PID#: LX0212
SETTING CLASSIFICATION: Granite Step

The bench mark is at the NE corner of the intersection of Captains Walk and Union Street, 93.0 feet (28.3 m) east of the extension of Union Street, 35 feet (10 m) north of the centerline of Captains Walk, 23 feet (7 m) east of the centerline of Union Street, set in the top of the east end of the third step from the bottom of the Captains Walk entrance to City Hall, 2 feet (1 m) higher than State Street.

**BENCH MARK STAMPING: Z 10 1935**

MONUMENTATION: Survey Disk VM#: 245
AGENCY: PID#: LX0213
SETTING CLASSIFICATION: Concrete Base

The bench mark is located 190 feet (65 m) SE of the intersection of Water Street and Gov. Winthrop Blvd., 0.2 mile (0.3 km) north from the ralroad station in New London, 100.5 feet (30.6 m) SE of the block signal No. 123.2, 69 feet (20.4 m) south of the entrance to the two-story red brick office, 37.5 feet (11.4 m) east of the chain link fence, 6.4 feet (1.9 m) north of the track switch, set in the top of the east corner of a concrete base formerly used to support the block siqnal.



Station ID: 8461490 PUBLICATION DATE: 11/25/1985
Name: NEW LONDON (STATE PIER), THAMES RIVER
CONNECTICUT

# T I D A L  D A T U M S

Tidal datums at NEW LONDON (STATE PIER), THAMES RIVER based on:

LENGTH OF SERIES: 17 YEARS
TIME PERIOD: 1960-1978
TIDAL EPOCH: 1960-1978
CONTROL TIDE STATION:

Elevations of tidal datums referred to Mean Lower Low Water (MLLW), in FEET:

| | | |
|---|---|---|
| HIGHEST OBSERVED WATER LEVEL (09/21/1938) | = | 10.76 |
| MEAN HIGHER HIGH WATER (MHHW) | = | 3.08 |
| MEAN HIGH WATER (MHW) | = | 2.78 |
| MEAN TIDE LEVEL (MTL) | = | 1.49 |
| * NATIONAL GEODETIC VERTICAL DATUM-1929 (NGVD) | = | 1.07 |
| MEAN LOW WATER (MLW) | = | 0.20 |
| MEAN LOWER LOW WATER (MLLW) | = | 0.00 |
| LOWEST OBSERVED WATER LEVEL (02/02/1976) | = | -3.82 |

* NGVD reference based on adjustment of 1967 and NOS levels of 1985.

Bench Mark Elevation Information — In FEET above:

| Stamping or Designation | MLLW | MHW |
|---|---|---|
| 15 1947 | 12.67 | 9.89 |
| 13 1938 | 10.36 | 7.58 |
| 12 1938 | 10.67 | 7.89 |
| 14 1938 | 10.54 | 7.76 |
| 17 1965 | 32.77 | 29.99 |
| 1490 J 1978 | 31.36 | 28.58 |
| 1490 K 1979 | 31.01 | 28.23 |
| Y 5 1922 ELEV. 32.575 FT | 33.65 | 30.87 |
| Y 10 1935 | 33.65 | 30.87 |
| Z 10 1935 | 8.70 | 5.92 |

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

## D E F I N I T I O N S

Mean Sea Level (MSL) is a tidal datum determined over a 19-year National Tidal Datum Epoch. It pertains to local mean sea level and should not be confused with the fixed datums of North American Vertical Datum of 1988 (NAVD 88).

NGVD 29 is a fixed datum adopted as a national standard geodetic reference for heights but is now considered superseded. NGVD 29 is sometimes referred to as Sea Level Datum of 1929 or as Mean Sea Level on some early issues of Geological Survey Topographic Quads. NGVD 29 was originally derived from a general adjustment of the first-order leveling networks of the U.S. and Canada after holding mean sea level observed at 26 long term tide stations as fixed. Numerous local and wide-spread adjustments have been made since establishment in 1929. Bench mark elevations relative to NGVD 29 are available from the National Geodetic Survey (NGS) data base via the World Wide Web at National Geodetic Survey.

NAVD 88 is a fixed datum derived from a simultaneous, least squares, minimum constraint adjustment of Canadian/Mexican/United States leveling observations. Local mean sea level observed at Father Point/Rimouski, Canada was held fixed as the single initial constraint. NAVD 88 replaces NGVD 29 as the national standard geodetic reference for heights. Bench mark elevations relative to NAVD 88 are available from NGS through the World Wide Web at National Geodetic Survey.

NGVD 29 and NAVD 88 are fixed geodetic datums whose elevation relationships to local MSL and other tidal datums may not be consistent from one location to another.

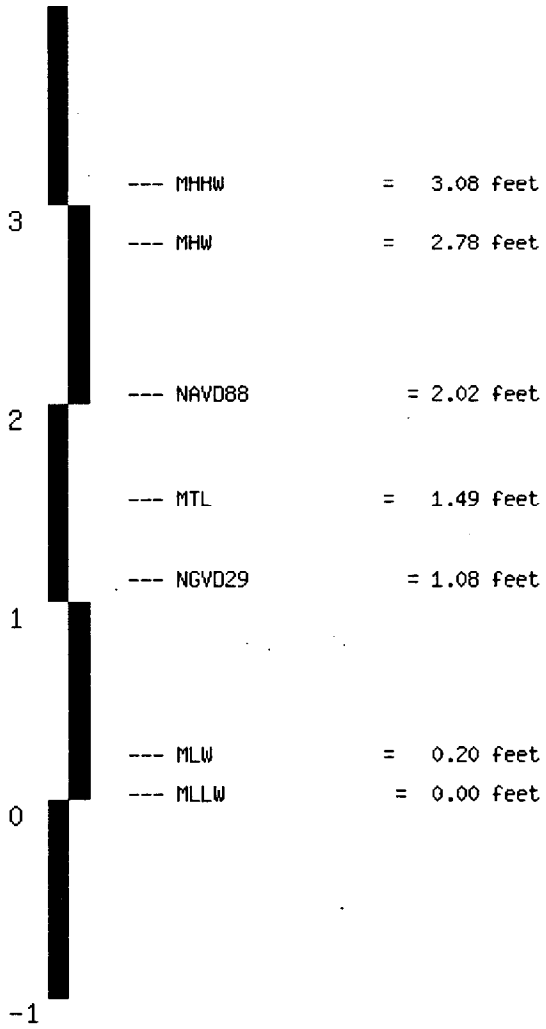
The Vertical Mark Number (VM#) and PID# shown on the bench mark sheet are unique identifiers for bench marks in the tidal and geodetic databases, respectively. Each bench mark in either database has a single, unique VM# and/or PID# assigned. Where both VM# and PID# are indicated, both tidal and geodetic elevations are available for the bench mark listed.

The NAVD 88 elevation is shown on the Elevations of Tidal Datums Table Referred to MLLW only when two or more of the bench marks listed have NAVD 88 elevations. The NAVD 88 elevation relationship shown in the table is derived from an average of several bench mark elevations relative to tide station datum. As a result of this averaging, NAVD 88 bench mark elevations computed indirectly from the tidal datums elevation table may differ slightly from NAVD 88 elevations listed for each bench mark in the NGS database.

## B.3 ELEVATION CONVERSION

Date created
Tue Feb 5 14:37:07 EST 2002

Elevation Information for PID = LX0160, VM = 237
Station_ID --- 8461490




The NAVD 88 and the NGVD 29 elevations related to MLLW were computed from Bench Mark, 846 1490 TIDAL 12, at the station.

Displayed tidal datums are Mean Higher High Water(MHHW), Mean High Water (MHW), Mean Tide Level(MTL), Mean Low Water(MLW), and Mean Lower Low Water(MLLW)

# APPENDIX C
# TRANSDUCER DATA

| Date & Time | State Pier WLD (ft above MLLW) | Smith Cove Adjusted WLD (ft above MLLW) | Smith Cove WLE (ft NAVD88) | 8MW1 | | | 8MW2D | | | | 8MW2S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TR | TA | WLE (ft NAVD88) | TR | TA | Adjust to Start at Zero | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/17/2001 15:00 | 1.84 | 1.77 | -0.25 | | | | | | | | | | |
| 12/17/2001 15:06 | 1.82 | 1.75 | -0.27 | | | | | | | | | | |
| 12/17/2001 15:12 | 1.75 | 1.68 | -0.34 | | | | | | | | | | |
| 12/17/2001 15:18 | 1.68 | 1.61 | -0.41 | | | | | | | | | | |
| 12/17/2001 15:24 | 1.62 | 1.56 | -0.46 | | | | | | | | | | |
| 12/17/2001 15:30 | 1.56 | 1.50 | -0.52 | | | | | | | | | | |
| 12/17/2001 15:36 | 1.47 | 1.41 | -0.61 | | | | | | | | | | |
| 12/17/2001 15:42 | 1.42 | 1.36 | -0.66 | | | | | | | | | | |
| 12/17/2001 15:48 | 1.37 | 1.32 | -0.70 | | | | | | | | | | |
| 12/17/2001 15:54 | 1.3 | 1.25 | -0.77 | | | | | | | | | | |
| 12/17/2001 16:00 | 1.25 | 1.20 | -0.82 | | | | | | | | | | |
| 12/17/2001 16:06 | 1.18 | 1.13 | -0.89 | | | | | | | | | | |
| 12/17/2001 16:12 | 1.14 | 1.09 | -0.93 | | | | | | | | | | |
| 12/17/2001 16:18 | 1.1 | 1.06 | -0.96 | | | | | | | | | | |
| 12/17/2001 16:24 | 1.05 | 1.01 | -1.01 | | | | | | | | | | |
| 12/17/2001 16:30 | 1.01 | 0.97 | -1.05 | | | | | | | | | | |
| 12/17/2001 16:36 | 0.98 | 0.94 | -1.08 | | | | | | | | | | |
| 12/17/2001 16:42 | 0.95 | 0.91 | -1.11 | | | | | | | | | | |
| 12/17/2001 16:48 | 0.92 | 0.88 | -1.14 | | | | | | | | | | |
| 12/17/2001 16:54 | 0.89 | 0.85 | -1.17 | | | | | | | | | | |
| 12/17/2001 17:00 | 0.87 | 0.84 | -1.18 | 0 | 0 | 0.07 | -5.042 | 5.042 | 0 | -0.45 | 0 | 0 | 0.34 |
| 12/17/2001 17:06 | 0.86 | 0.83 | -1.19 | 0.028 | -0.028 | 0.042 | -5.024 | 5.024 | -0.018 | -0.468 | 0.014 | -0.014 | 0.326 |
| 12/17/2001 17:12 | 0.86 | 0.83 | -1.19 | 0.039 | -0.039 | 0.031 | -4.987 | 4.987 | -0.055 | -0.505 | 0.018 | -0.018 | 0.322 |
| 12/17/2001 17:18 | 0.83 | 0.80 | -1.22 | 0.067 | -0.067 | 0.003 | -4.969 | 4.969 | -0.073 | -0.523 | 0.032 | -0.032 | 0.308 |
| 12/17/2001 17:24 | 0.84 | 0.81 | -1.21 | 0.085 | -0.085 | -0.015 | -4.964 | 4.964 | -0.078 | -0.528 | 0.037 | -0.037 | 0.303 |
| 12/17/2001 17:30 | 0.86 | 0.83 | -1.19 | 0.104 | -0.104 | -0.034 | -4.946 | 4.946 | -0.096 | -0.546 | 0.051 | -0.051 | 0.289 |
| 12/17/2001 17:36 | 0.85 | 0.82 | -1.20 | 0.118 | -0.118 | -0.048 | -4.941 | 4.941 | -0.101 | -0.551 | 0.055 | -0.055 | 0.285 |
| 12/17/2001 17:42 | 0.87 | 0.84 | -1.18 | 0.131 | -0.131 | -0.061 | -4.941 | 4.941 | -0.101 | -0.551 | 0.06 | -0.06 | 0.28 |
| 12/17/2001 17:48 | 0.91 | 0.87 | -1.15 | 0.145 | -0.145 | -0.075 | -4.941 | 4.941 | -0.101 | -0.551 | 0.074 | -0.074 | 0.266 |
| 12/17/2001 17:54 | 0.93 | 0.89 | -1.13 | 0.155 | -0.155 | -0.085 | -4.95 | 4.95 | -0.092 | -0.542 | 0.078 | -0.078 | 0.262 |
| 12/17/2001 18:00 | 0.96 | 0.92 | -1.10 | 0.155 | -0.155 | -0.085 | -4.959 | 4.959 | -0.083 | -0.533 | 0.083 | -0.083 | 0.257 |
| 12/17/2001 18:06 | 0.99 | 0.95 | -1.07 | 0.159 | -0.159 | -0.089 | -4.973 | 4.973 | -0.069 | -0.519 | 0.088 | -0.088 | 0.252 |
| 12/17/2001 18:12 | 1.04 | 1.00 | -1.02 | 0.155 | -0.155 | -0.085 | -4.992 | 4.992 | -0.05 | -0.5 | 0.097 | -0.097 | 0.243 |
| 12/17/2001 18:18 | 1.1 | 1.06 | -0.96 | 0.155 | -0.155 | -0.085 | -5.01 | 5.01 | -0.032 | -0.482 | 0.106 | -0.106 | 0.234 |
| 12/17/2001 18:24 | 1.14 | 1.09 | -0.93 | 0.145 | -0.145 | -0.075 | -5.033 | 5.033 | -0.009 | -0.459 | 0.111 | -0.111 | 0.229 |
| 12/17/2001 18:30 | 1.18 | 1.13 | -0.89 | 0.127 | -0.127 | -0.057 | -5.059 | 5.059 | 0.017 | -0.433 | 0.115 | -0.115 | 0.225 |
| 12/17/2001 18:36 | 1.23 | 1.18 | -0.84 | 0.108 | -0.108 | -0.038 | -5.086 | 5.086 | 0.044 | -0.406 | 0.12 | -0.12 | 0.22 |
| 12/17/2001 18:42 | 1.32 | 1.27 | -0.75 | 0.081 | -0.081 | -0.011 | -5.114 | 5.114 | 0.072 | -0.378 | 0.12 | -0.12 | 0.22 |
| 12/17/2001 18:48 | 1.38 | 1.32 | -0.70 | 0.053 | -0.053 | 0.017 | -5.142 | 5.142 | 0.1 | -0.35 | 0.125 | -0.125 | 0.215 |
| 12/17/2001 18:54 | 1.39 | 1.33 | -0.69 | 0.007 | -0.007 | 0.063 | -5.185 | 5.185 | 0.143 | -0.307 | 0.125 | -0.125 | 0.215 |
| 12/17/2001 19:00 | 1.44 | 1.38 | -0.64 | -0.037 | 0.037 | 0.107 | -5.227 | 5.227 | 0.185 | -0.265 | 0.12 | -0.12 | 0.22 |
| 12/17/2001 19:06 | 1.52 | 1.46 | -0.56 | -0.074 | 0.074 | 0.144 | -5.259 | 5.259 | 0.217 | -0.233 | 0.12 | -0.12 | 0.22 |
| 12/17/2001 19:12 | 1.58 | 1.52 | -0.50 | -0.106 | 0.106 | 0.176 | -5.285 | 5.285 | 0.243 | -0.207 | 0.125 | -0.125 | 0.215 |
| 12/17/2001 19:18 | 1.66 | 1.59 | -0.43 | -0.15 | 0.15 | 0.22 | -5.345 | 5.345 | 0.303 | -0.147 | 0.12 | -0.12 | 0.22 |
| 12/17/2001 19:24 | 1.74 | 1.67 | -0.35 | -0.21 | 0.21 | 0.28 | -5.384 | 5.384 | 0.342 | -0.108 | 0.115 | -0.115 | 0.225 |
| 12/17/2001 19:30 | 1.84 | 1.77 | -0.25 | -0.268 | 0.268 | 0.338 | -5.425 | 5.425 | 0.383 | -0.067 | 0.115 | -0.115 | 0.225 |
| 12/17/2001 19:36 | 1.9 | 1.82 | -0.20 | -0.332 | 0.332 | 0.402 | -5.481 | 5.481 | 0.439 | -0.011 | 0.106 | -0.106 | 0.234 |
| 12/17/2001 19:42 | 1.93 | 1.85 | -0.17 | -0.406 | 0.406 | 0.476 | -5.538 | 5.538 | 0.496 | 0.046 | 0.097 | -0.097 | 0.243 |
| 12/17/2001 19:48 | 1.99 | 1.91 | -0.11 | -0.473 | 0.473 | 0.543 | -5.594 | 5.594 | 0.552 | 0.102 | 0.088 | -0.088 | 0.252 |
| 12/17/2001 19:54 | 2.06 | 1.98 | -0.04 | -0.514 | 0.514 | 0.584 | -5.628 | 5.628 | 0.586 | 0.136 | 0.074 | -0.074 | 0.266 |
| 12/17/2001 20:00 | 2.14 | 2.05 | 0.03 | -0.544 | 0.544 | 0.614 | -5.661 | 5.661 | 0.619 | 0.169 | 0.074 | -0.074 | 0.266 |
| 12/17/2001 20:06 | 2.19 | 2.10 | 0.08 | -0.595 | 0.595 | 0.665 | -5.702 | 5.702 | 0.66 | 0.21 | 0.065 | -0.065 | 0.275 |
| 12/17/2001 20:12 | 2.21 | 2.12 | 0.10 | -0.657 | 0.657 | 0.727 | -5.751 | 5.751 | 0.709 | 0.259 | 0.055 | -0.055 | 0.285 |
| 12/17/2001 20:18 | 2.29 | 2.20 | 0.18 | -0.704 | 0.704 | 0.774 | -5.792 | 5.792 | 0.75 | 0.3 | 0.055 | -0.055 | 0.285 |
| 12/17/2001 20:24 | 2.36 | 2.27 | 0.25 | -0.734 | 0.734 | 0.804 | -5.824 | 5.824 | 0.782 | 0.332 | 0.042 | -0.042 | 0.298 |
| 12/17/2001 20:30 | 2.42 | 2.32 | 0.30 | -0.784 | 0.784 | 0.854 | -5.859 | 5.859 | 0.817 | 0.367 | 0.037 | -0.037 | 0.303 |
| 12/17/2001 20:36 | 2.48 | 2.38 | 0.36 | -0.83 | 0.83 | 0.9 | -5.91 | 5.91 | 0.868 | 0.418 | 0.028 | -0.028 | 0.312 |
| 12/17/2001 20:42 | 2.5 | 2.40 | 0.38 | -0.874 | 0.874 | 0.944 | -5.947 | 5.947 | 0.905 | 0.455 | 0.018 | -0.018 | 0.322 |
| 12/17/2001 20:48 | 2.53 | 2.43 | 0.41 | -0.911 | 0.911 | 0.981 | -5.981 | 5.981 | 0.939 | 0.489 | 0.009 | -0.009 | 0.331 |
| 12/17/2001 20:54 | 2.6 | 2.50 | 0.48 | -0.953 | 0.953 | 1.023 | -6.018 | 6.018 | 0.976 | 0.526 | 0 | 0 | 0.34 |
| 12/17/2001 21:00 | 2.67 | 2.56 | 0.54 | -0.983 | 0.983 | 1.053 | -6.05 | 6.05 | 1.008 | 0.558 | -0.009 | 0.009 | 0.349 |
| 12/17/2001 21:06 | 2.74 | 2.63 | 0.61 | -1.024 | 1.024 | 1.094 | -6.085 | 6.085 | 1.043 | 0.593 | -0.014 | 0.014 | 0.354 |
| 12/17/2001 21:12 | 2.77 | 2.66 | 0.64 | -1.07 | 1.07 | 1.14 | -6.127 | 6.127 | 1.085 | 0.635 | -0.023 | 0.023 | 0.363 |
| 12/17/2001 21:18 | 2.79 | 2.68 | 0.66 | -1.123 | 1.123 | 1.193 | -6.173 | 6.173 | 1.131 | 0.681 | -0.03 | 0.03 | 0.37 |
| 12/17/2001 21:24 | 2.83 | 2.72 | 0.70 | -1.16 | 1.16 | 1.23 | -6.212 | 6.212 | 1.17 | 0.72 | -0.044 | 0.044 | 0.384 |
| 12/17/2001 21:30 | 2.89 | 2.77 | 0.75 | -1.193 | 1.193 | 1.263 | -6.24 | 6.24 | 1.198 | 0.748 | -0.053 | 0.053 | 0.393 |
| 12/17/2001 21:36 | 2.94 | 2.82 | 0.80 | -1.223 | 1.223 | 1.293 | -6.272 | 6.272 | 1.23 | 0.78 | -0.062 | 0.062 | 0.402 |
| 12/17/2001 21:42 | 3 | 2.88 | 0.86 | -1.259 | 1.259 | 1.329 | -6.3 | 6.3 | 1.258 | 0.808 | -0.072 | 0.072 | 0.412 |
| 12/17/2001 21:48 | 3.05 | 2.93 | 0.91 | -1.296 | 1.296 | 1.366 | -6.33 | 6.33 | 1.288 | 0.838 | -0.085 | 0.085 | 0.425 |
| 12/17/2001 21:54 | 3.08 | 2.96 | 0.94 | -1.34 | 1.34 | 1.41 | -6.371 | 6.371 | 1.329 | 0.879 | -0.099 | 0.099 | 0.439 |
| 12/17/2001 22:00 | 3.12 | 3.00 | 0.98 | -1.386 | 1.386 | 1.456 | -6.415 | 6.415 | 1.373 | 0.923 | -0.108 | 0.108 | 0.448 |
| 12/17/2001 22:06 | 3.2 | 3.07 | 1.05 | -1.423 | 1.423 | 1.493 | -6.447 | 6.447 | 1.405 | 0.955 | -0.122 | 0.122 | 0.462 |
| 12/17/2001 22:12 | 3.26 | 3.13 | 1.11 | -1.446 | 1.446 | 1.516 | -6.479 | 6.479 | 1.437 | 0.987 | -0.131 | 0.131 | 0.471 |
| 12/17/2001 22:18 | 3.31 | 3.18 | 1.16 | -1.497 | 1.497 | 1.567 | -6.516 | 6.516 | 1.474 | 1.024 | -0.145 | 0.145 | 0.485 |
| 12/17/2001 22:24 | 3.35 | 3.22 | 1.20 | -1.55 | 1.55 | 1.62 | -6.565 | 6.565 | 1.523 | 1.073 | -0.164 | 0.164 | 0.504 |
| 12/17/2001 22:30 | 3.4 | 3.26 | 1.24 | -1.592 | 1.592 | 1.662 | -6.611 | 6.611 | 1.569 | 1.119 | -0.18 | 0.18 | 0.52 |
| 12/17/2001 22:36 | 3.43 | 3.29 | 1.27 | -1.629 | 1.629 | 1.699 | -6.646 | 6.646 | 1.604 | 1.154 | -0.198 | 0.198 | 0.538 |
| 12/17/2001 22:42 | 3.49 | 3.35 | 1.33 | -1.67 | 1.67 | 1.74 | -6.687 | 6.687 | 1.645 | 1.195 | -0.212 | 0.212 | 0.552 |
| 12/17/2001 22:48 | 3.54 | 3.40 | 1.38 | -1.707 | 1.707 | 1.777 | -6.724 | 6.724 | 1.682 | 1.232 | -0.231 | 0.231 | 0.571 |
| 12/17/2001 22:54 | 3.55 | 3.41 | 1.39 | -1.744 | 1.744 | 1.814 | -6.759 | 6.759 | 1.717 | 1.267 | -0.254 | 0.254 | 0.594 |
| 12/17/2001 23:00 | 3.59 | 3.45 | 1.43 | -1.781 | 1.781 | 1.851 | -6.795 | 6.795 | 1.753 | 1.303 | -0.268 | 0.268 | 0.608 |
| 12/17/2001 23:06 | 3.64 | 3.49 | 1.47 | -1.804 | 1.804 | 1.874 | -6.828 | 6.828 | 1.786 | 1.336 | -0.277 | 0.277 | 0.617 |
| 12/17/2001 23:12 | 3.65 | 3.50 | 1.48 | -1.831 | 1.831 | 1.901 | -6.855 | 6.855 | 1.813 | 1.363 | -0.291 | 0.291 | 0.631 |
| 12/17/2001 23:18 | 3.65 | 3.50 | 1.48 | -1.866 | 1.866 | 1.936 | -6.885 | 6.885 | 1.843 | 1.393 | -0.304 | 0.304 | 0.644 |
| 12/17/2001 23:24 | 3.64 | 3.49 | 1.47 | -1.891 | 1.891 | 1.961 | -6.904 | 6.904 | 1.862 | 1.412 | -0.318 | 0.318 | 0.658 |
| 12/17/2001 23:30 | 3.65 | 3.50 | 1.48 | -1.91 | 1.91 | 1.98 | -6.927 | 6.927 | 1.885 | 1.435 | -0.344 | 0.344 | 0.684 |
| 12/17/2001 23:36 | 3.68 | 3.53 | 1.51 | -1.915 | 1.915 | 1.985 | -6.932 | 6.932 | 1.89 | 1.44 | -0.348 | 0.348 | 0.688 |
| 12/17/2001 23:42 | 3.68 | 3.53 | 1.51 | -1.928 | 1.928 | 1.998 | -6.95 | 6.95 | 1.908 | 1.458 | -0.362 | 0.362 | 0.702 |

| Date & Time | State Pier WLD (ft above MLLW) | Smith Cove Adjusted WLD (ft above MLLW) | Smith Cove WLE (ft NAVD88) | 8MW1 | | | 8MW2D | | | | 8MW2S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TR | TA | WLE (ft NAVD88) | TR | TA | Adjust to Start at Zero | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/17/2001 23:48 | 3.66 | 3.51 | 1.49 | -1.947 | 1.947 | 2.017 | -6.959 | 6.959 | 1.917 | 1.467 | -0.381 | 0.381 | 0.721 |
| 12/17/2001 23:54 | 3.65 | 3.50 | 1.48 | -1.956 | 1.956 | 2.026 | -6.971 | 6.971 | 1.929 | 1.479 | -0.394 | 0.394 | 0.734 |
| 12/18/2001 0:00 | 3.64 | 3.49 | 1.47 | -1.961 | 1.961 | 2.031 | -6.975 | 6.975 | 1.933 | 1.483 | -0.408 | 0.408 | 0.748 |
| 12/18/2001 0:06 | 3.64 | 3.49 | 1.47 | -1.956 | 1.956 | 2.026 | -6.975 | 6.975 | 1.933 | 1.483 | -0.413 | 0.413 | 0.753 |
| 12/18/2001 0:12 | 3.62 | 3.48 | 1.46 | -1.961 | 1.961 | 2.031 | -6.975 | 6.975 | 1.933 | 1.483 | -0.427 | 0.427 | 0.767 |
| 12/18/2001 0:18 | 3.59 | 3.45 | 1.43 | -1.956 | 1.956 | 2.026 | -6.971 | 6.971 | 1.929 | 1.479 | -0.441 | 0.441 | 0.781 |
| 12/18/2001 0:24 | 3.55 | 3.41 | 1.39 | -1.942 | 1.942 | 2.012 | -6.962 | 6.962 | 1.92 | 1.47 | -0.454 | 0.454 | 0.794 |
| 12/18/2001 0:30 | 3.52 | 3.38 | 1.36 | -1.938 | 1.938 | 2.008 | -6.952 | 6.952 | 1.91 | 1.46 | -0.473 | 0.473 | 0.813 |
| 12/18/2001 0:36 | 3.45 | 3.31 | 1.29 | -1.919 | 1.919 | 1.989 | -6.936 | 6.936 | 1.894 | 1.444 | -0.475 | 0.475 | 0.815 |
| 12/18/2001 0:42 | 3.4 | 3.26 | 1.24 | -1.896 | 1.896 | 1.966 | -6.913 | 6.913 | 1.871 | 1.421 | -0.489 | 0.489 | 0.829 |
| 12/18/2001 0:48 | 3.37 | 3.24 | 1.22 | -1.852 | 1.852 | 1.922 | -6.881 | 6.881 | 1.839 | 1.389 | -0.489 | 0.489 | 0.829 |
| 12/18/2001 0:54 | 3.31 | 3.18 | 1.16 | -1.82 | 1.82 | 1.89 | -6.849 | 6.849 | 1.807 | 1.357 | -0.494 | 0.494 | 0.834 |
| 12/18/2001 1:00 | 3.21 | 3.08 | 1.06 | -1.797 | 1.797 | 1.867 | -6.819 | 6.819 | 1.777 | 1.327 | -0.494 | 0.494 | 0.834 |
| 12/18/2001 1:06 | 3.16 | 3.03 | 1.01 | -1.751 | 1.751 | 1.821 | -6.782 | 6.782 | 1.74 | 1.29 | -0.489 | 0.489 | 0.829 |
| 12/18/2001 1:12 | 3.14 | 3.01 | 0.99 | -1.686 | 1.686 | 1.756 | -6.731 | 6.731 | 1.689 | 1.239 | -0.503 | 0.503 | 0.843 |
| 12/18/2001 1:18 | 3.12 | 3.00 | 0.98 | -1.654 | 1.654 | 1.724 | -6.692 | 6.692 | 1.65 | 1.2 | -0.503 | 0.503 | 0.843 |
| 12/18/2001 1:24 | 3.07 | 2.95 | 0.93 | -1.631 | 1.631 | 1.701 | -6.659 | 6.659 | 1.617 | 1.167 | -0.498 | 0.498 | 0.838 |
| 12/18/2001 1:30 | 3.04 | 2.92 | 0.90 | -1.617 | 1.617 | 1.687 | -6.632 | 6.632 | 1.59 | 1.14 | -0.507 | 0.507 | 0.847 |
| 12/18/2001 1:36 | 3 | 2.88 | 0.86 | -1.575 | 1.575 | 1.645 | -6.604 | 6.604 | 1.562 | 1.112 | -0.507 | 0.507 | 0.847 |
| 12/18/2001 1:42 | 2.95 | 2.83 | 0.81 | -1.562 | 1.562 | 1.632 | -6.579 | 6.579 | 1.537 | 1.087 | -0.503 | 0.503 | 0.843 |
| 12/18/2001 1:48 | 2.9 | 2.78 | 0.76 | -1.541 | 1.541 | 1.611 | -6.556 | 6.556 | 1.514 | 1.064 | -0.503 | 0.503 | 0.843 |
| 12/18/2001 1:54 | 2.86 | 2.75 | 0.73 | -1.485 | 1.485 | 1.555 | -6.523 | 6.523 | 1.481 | 1.031 | -0.507 | 0.507 | 0.847 |
| 12/18/2001 2:00 | 2.81 | 2.70 | 0.68 | -1.435 | 1.435 | 1.505 | -6.482 | 6.482 | 1.44 | 0.99 | -0.503 | 0.503 | 0.843 |
| 12/18/2001 2:06 | 2.74 | 2.63 | 0.61 | -1.407 | 1.407 | 1.477 | -6.447 | 6.447 | 1.405 | 0.955 | -0.503 | 0.503 | 0.843 |
| 12/18/2001 2:12 | 2.7 | 2.59 | 0.57 | -1.377 | 1.377 | 1.447 | -6.419 | 6.419 | 1.377 | 0.927 | -0.494 | 0.494 | 0.834 |
| 12/18/2001 2:18 | 2.66 | 2.55 | 0.53 | -1.322 | 1.322 | 1.392 | -6.383 | 6.383 | 1.341 | 0.891 | -0.494 | 0.494 | 0.834 |
| 12/18/2001 2:24 | 2.59 | 2.49 | 0.47 | -1.276 | 1.276 | 1.346 | -6.339 | 6.339 | 1.297 | 0.847 | -0.489 | 0.489 | 0.829 |
| 12/18/2001 2:30 | 2.56 | 2.46 | 0.44 | -1.239 | 1.239 | 1.309 | -6.306 | 6.306 | 1.264 | 0.814 | -0.484 | 0.484 | 0.824 |
| 12/18/2001 2:36 | 2.49 | 2.39 | 0.37 | -1.199 | 1.199 | 1.269 | -6.265 | 6.265 | 1.223 | 0.773 | -0.48 | 0.48 | 0.82 |
| 12/18/2001 2:42 | 2.41 | 2.31 | 0.29 | -1.167 | 1.167 | 1.237 | -6.235 | 6.235 | 1.193 | 0.743 | -0.473 | 0.473 | 0.813 |
| 12/18/2001 2:48 | 2.36 | 2.27 | 0.25 | -1.13 | 1.13 | 1.2 | -6.193 | 6.193 | 1.151 | 0.701 | -0.475 | 0.475 | 0.815 |
| 12/18/2001 2:54 | 2.33 | 2.24 | 0.22 | -1.084 | 1.084 | 1.154 | -6.157 | 6.157 | 1.115 | 0.665 | -0.471 | 0.471 | 0.811 |
| 12/18/2001 3:00 | 2.29 | 2.20 | 0.18 | -1.04 | 1.04 | 1.11 | -6.117 | 6.117 | 1.075 | 0.625 | -0.464 | 0.464 | 0.804 |
| 12/18/2001 3:06 | 2.24 | 2.15 | 0.13 | -1.013 | 1.013 | 1.083 | -6.09 | 6.09 | 1.048 | 0.598 | -0.45 | 0.45 | 0.79 |
| 12/18/2001 3:12 | 2.18 | 2.09 | 0.07 | -0.98 | 0.98 | 1.05 | -6.057 | 6.057 | 1.015 | 0.565 | -0.445 | 0.445 | 0.785 |
| 12/18/2001 3:18 | 2.12 | 2.04 | 0.02 | -0.948 | 0.948 | 1.018 | -6.027 | 6.027 | 0.985 | 0.535 | -0.431 | 0.431 | 0.771 |
| 12/18/2001 3:24 | 2.06 | 1.98 | -0.04 | -0.913 | 0.913 | 0.983 | -5.99 | 5.99 | 0.948 | 0.498 | -0.427 | 0.427 | 0.767 |
| 12/18/2001 3:30 | 2.02 | 1.94 | -0.08 | -0.872 | 0.872 | 0.942 | -5.954 | 5.954 | 0.912 | 0.462 | -0.418 | 0.418 | 0.758 |
| 12/18/2001 3:36 | 1.96 | 1.88 | -0.14 | -0.826 | 0.826 | 0.896 | -5.914 | 5.914 | 0.872 | 0.422 | -0.404 | 0.404 | 0.744 |
| 12/18/2001 3:42 | 1.91 | 1.83 | -0.19 | -0.796 | 0.796 | 0.866 | -5.873 | 5.873 | 0.831 | 0.381 | -0.399 | 0.399 | 0.739 |
| 12/18/2001 3:48 | 1.86 | 1.79 | -0.23 | -0.75 | 0.75 | 0.82 | -5.836 | 5.836 | 0.794 | 0.344 | -0.39 | 0.39 | 0.73 |
| 12/18/2001 3:54 | 1.79 | 1.72 | -0.30 | -0.713 | 0.713 | 0.783 | -5.801 | 5.801 | 0.759 | 0.309 | -0.385 | 0.385 | 0.725 |
| 12/18/2001 4:00 | 1.74 | 1.67 | -0.35 | -0.683 | 0.683 | 0.753 | -5.764 | 5.764 | 0.722 | 0.272 | -0.367 | 0.367 | 0.707 |
| 12/18/2001 4:06 | 1.74 | 1.67 | -0.35 | -0.641 | 0.641 | 0.711 | -5.727 | 5.727 | 0.685 | 0.235 | -0.358 | 0.358 | 0.698 |
| 12/18/2001 4:12 | 1.72 | 1.65 | -0.37 | -0.6 | 0.6 | 0.67 | -5.684 | 5.684 | 0.642 | 0.192 | -0.348 | 0.348 | 0.688 |
| 12/18/2001 4:18 | 1.72 | 1.65 | -0.37 | -0.57 | 0.57 | 0.64 | -5.656 | 5.656 | 0.614 | 0.164 | -0.334 | 0.334 | 0.674 |
| 12/18/2001 4:24 | 1.7 | 1.63 | -0.39 | -0.551 | 0.551 | 0.621 | -5.633 | 5.633 | 0.591 | 0.141 | -0.325 | 0.325 | 0.665 |
| 12/18/2001 4:30 | 1.69 | 1.62 | -0.40 | -0.537 | 0.537 | 0.607 | -5.624 | 5.624 | 0.582 | 0.132 | -0.318 | 0.318 | 0.658 |
| 12/18/2001 4:36 | 1.66 | 1.59 | -0.43 | -0.514 | 0.514 | 0.584 | -5.61 | 5.61 | 0.568 | 0.118 | -0.309 | 0.309 | 0.649 |
| 12/18/2001 4:42 | 1.68 | 1.61 | -0.41 | -0.501 | 0.501 | 0.571 | -5.601 | 5.601 | 0.559 | 0.109 | -0.3 | 0.3 | 0.64 |
| 12/18/2001 4:48 | 1.66 | 1.59 | -0.43 | -0.487 | 0.487 | 0.557 | -5.584 | 5.584 | 0.542 | 0.092 | -0.291 | 0.291 | 0.631 |
| 12/18/2001 4:54 | 1.66 | 1.59 | -0.43 | -0.473 | 0.473 | 0.543 | -5.575 | 5.575 | 0.533 | 0.083 | -0.286 | 0.286 | 0.626 |
| 12/18/2001 5:00 | 1.64 | 1.57 | -0.45 | -0.461 | 0.461 | 0.531 | -5.566 | 5.566 | 0.524 | 0.074 | -0.281 | 0.281 | 0.621 |
| 12/18/2001 5:06 | 1.6 | 1.54 | -0.48 | -0.447 | 0.447 | 0.517 | -5.552 | 5.552 | 0.51 | 0.06 | -0.272 | 0.272 | 0.612 |
| 12/18/2001 5:12 | 1.57 | 1.51 | -0.51 | -0.438 | 0.438 | 0.508 | -5.543 | 5.543 | 0.501 | 0.051 | -0.263 | 0.263 | 0.603 |
| 12/18/2001 5:18 | 1.56 | 1.50 | -0.52 | -0.42 | 0.42 | 0.49 | -5.524 | 5.524 | 0.482 | 0.032 | -0.254 | 0.254 | 0.594 |
| 12/18/2001 5:24 | 1.56 | 1.50 | -0.52 | -0.397 | 0.397 | 0.467 | -5.501 | 5.501 | 0.459 | 0.009 | -0.249 | 0.249 | 0.589 |
| 12/18/2001 5:30 | 1.56 | 1.50 | -0.52 | -0.374 | 0.374 | 0.444 | -5.483 | 5.483 | 0.441 | -0.009 | -0.24 | 0.24 | 0.58 |
| 12/18/2001 5:36 | 1.53 | 1.47 | -0.55 | -0.364 | 0.364 | 0.434 | -5.481 | 5.481 | 0.439 | -0.011 | -0.235 | 0.235 | 0.575 |
| 12/18/2001 5:42 | 1.51 | 1.45 | -0.57 | -0.36 | 0.36 | 0.43 | -5.481 | 5.481 | 0.439 | -0.011 | -0.226 | 0.226 | 0.566 |
| 12/18/2001 5:48 | 1.51 | 1.45 | -0.57 | -0.351 | 0.351 | 0.421 | -5.467 | 5.467 | 0.425 | -0.025 | -0.226 | 0.226 | 0.566 |
| 12/18/2001 5:54 | 1.54 | 1.48 | -0.54 | -0.33 | 0.33 | 0.4 | -5.453 | 5.453 | 0.411 | -0.039 | -0.212 | 0.212 | 0.552 |
| 12/18/2001 6:00 | 1.59 | 1.53 | -0.49 | -0.325 | 0.325 | 0.395 | -5.444 | 5.444 | 0.402 | -0.048 | -0.208 | 0.208 | 0.548 |
| 12/18/2001 6:06 | 1.64 | 1.57 | -0.45 | -0.334 | 0.334 | 0.404 | -5.453 | 5.453 | 0.411 | -0.039 | -0.203 | 0.203 | 0.543 |
| 12/18/2001 6:12 | 1.67 | 1.60 | -0.42 | -0.351 | 0.351 | 0.421 | -5.471 | 5.471 | 0.429 | -0.021 | -0.189 | 0.189 | 0.529 |
| 12/18/2001 6:18 | 1.71 | 1.64 | -0.38 | -0.383 | 0.383 | 0.453 | -5.492 | 5.492 | 0.45 | 0 | -0.185 | 0.185 | 0.525 |
| 12/18/2001 6:24 | 1.76 | 1.69 | -0.33 | -0.411 | 0.411 | 0.481 | -5.52 | 5.52 | 0.478 | 0.028 | -0.18 | 0.18 | 0.52 |
| 12/18/2001 6:30 | 1.82 | 1.75 | -0.27 | -0.438 | 0.438 | 0.508 | -5.543 | 5.543 | 0.501 | 0.051 | -0.175 | 0.175 | 0.515 |
| 12/18/2001 6:36 | 1.86 | 1.79 | -0.23 | -0.471 | 0.471 | 0.541 | -5.571 | 5.571 | 0.529 | 0.079 | -0.171 | 0.171 | 0.511 |
| 12/18/2001 6:42 | 1.89 | 1.81 | -0.21 | -0.505 | 0.505 | 0.575 | -5.594 | 5.594 | 0.552 | 0.102 | -0.18 | 0.18 | 0.52 |
| 12/18/2001 6:48 | 1.91 | 1.83 | -0.19 | -0.528 | 0.528 | 0.598 | -5.619 | 5.619 | 0.577 | 0.127 | -0.171 | 0.171 | 0.511 |
| 12/18/2001 6:54 | 1.94 | 1.86 | -0.16 | -0.547 | 0.547 | 0.617 | -5.642 | 5.642 | 0.6 | 0.15 | -0.164 | 0.164 | 0.504 |
| 12/18/2001 7:00 | 1.95 | 1.87 | -0.15 | -0.57 | 0.57 | 0.64 | -5.661 | 5.661 | 0.619 | 0.169 | -0.164 | 0.164 | 0.504 |
| 12/18/2001 7:06 | 1.97 | 1.89 | -0.13 | -0.593 | 0.593 | 0.663 | -5.684 | 5.684 | 0.642 | 0.192 | -0.164 | 0.164 | 0.504 |
| 12/18/2001 7:12 | 2.03 | 1.95 | -0.07 | -0.602 | 0.602 | 0.672 | -5.693 | 5.693 | 0.651 | 0.201 | -0.164 | 0.164 | 0.504 |
| 12/18/2001 7:18 | 2.05 | 1.97 | -0.05 | -0.614 | 0.614 | 0.684 | -5.707 | 5.707 | 0.665 | 0.215 | -0.164 | 0.164 | 0.504 |
| 12/18/2001 7:24 | 2.06 | 1.98 | -0.04 | -0.65 | 0.65 | 0.72 | -5.723 | 5.723 | 0.681 | 0.231 | -0.166 | 0.166 | 0.506 |
| 12/18/2001 7:30 | 2.12 | 2.04 | 0.02 | -0.674 | 0.674 | 0.744 | -5.751 | 5.751 | 0.709 | 0.259 | -0.164 | 0.164 | 0.504 |
| 12/18/2001 7:36 | 2.19 | 2.10 | 0.08 | -0.687 | 0.687 | 0.757 | -5.764 | 5.764 | 0.722 | 0.272 | -0.164 | 0.164 | 0.504 |
| 12/18/2001 7:42 | 2.24 | 2.15 | 0.13 | -0.736 | 0.736 | 0.806 | -5.792 | 5.792 | 0.75 | 0.3 | -0.166 | 0.166 | 0.506 |
| 12/18/2001 7:48 | 2.3 | 2.21 | 0.19 | -0.787 | 0.787 | 0.857 | -5.831 | 5.831 | 0.789 | 0.339 | -0.171 | 0.171 | 0.511 |
| 12/18/2001 7:54 | 2.39 | 2.29 | 0.27 | -0.837 | 0.837 | 0.907 | -5.873 | 5.873 | 0.831 | 0.381 | -0.175 | 0.175 | 0.515 |
| 12/18/2001 8:00 | 2.46 | 2.36 | 0.34 | -0.886 | 0.886 | 0.956 | -5.914 | 5.914 | 0.872 | 0.422 | -0.18 | 0.18 | 0.52 |
| 12/18/2001 8:06 | 2.52 | 2.42 | 0.40 | -0.941 | 0.941 | 1.011 | -5.963 | 5.963 | 0.921 | 0.471 | -0.185 | 0.185 | 0.525 |
| 12/18/2001 8:12 | 2.59 | 2.49 | 0.47 | -1.003 | 1.003 | 1.073 | -6.009 | 6.009 | 0.967 | 0.517 | -0.189 | 0.189 | 0.529 |
| 12/18/2001 8:18 | 2.68 | 2.57 | 0.55 | -1.04 | 1.04 | 1.11 | -6.055 | 6.055 | 1.013 | 0.563 | -0.203 | 0.203 | 0.543 |
| 12/18/2001 8:24 | 2.75 | 2.64 | 0.62 | -1.082 | 1.082 | 1.152 | -6.099 | 6.099 | 1.057 | 0.607 | -0.208 | 0.208 | 0.548 |
| 12/18/2001 8:30 | 2.79 | 2.68 | 0.66 | -1.139 | 1.139 | 1.209 | -6.15 | 6.15 | 1.108 | 0.658 | -0.217 | 0.217 | 0.557 |

| Date & Time | State Pier WLD (ft above MLLW) | Smith Cove Adjusted WLD (ft above MLLW) | Smith Cove WLE (ft NAVD88) | 8MW1 | | | 8MW2D | | | | 8MW2S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TR | TA | WLE (ft NAVD88) | TR | TA | Adjust to Start at Zero | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/18/2001 8:36 | 2.89 | 2.77 | 0.75 | -1.199 | 1.199 | 1.269 | -6.203 | 6.203 | 1.161 | 0.711 | -0.226 | 0.226 | 0.566 |
| 12/18/2001 8:42 | 2.99 | 2.87 | 0.85 | -1.229 | 1.229 | 1.299 | -6.24 | 6.24 | 1.198 | 0.748 | -0.231 | 0.231 | 0.571 |
| 12/18/2001 8:48 | 3.03 | 2.91 | 0.89 | -1.294 | 1.294 | 1.364 | -6.286 | 6.286 | 1.244 | 0.794 | -0.245 | 0.245 | 0.585 |
| 12/18/2001 8:54 | 3.08 | 2.96 | 0.94 | -1.356 | 1.356 | 1.426 | -6.343 | 6.343 | 1.301 | 0.851 | -0.258 | 0.258 | 0.598 |
| 12/18/2001 9:00 | 3.09 | 2.97 | 0.95 | -1.402 | 1.402 | 1.472 | -6.394 | 6.394 | 1.352 | 0.902 | -0.272 | 0.272 | 0.612 |
| 12/18/2001 9:06 | 3.07 | 2.95 | 0.93 | -1.435 | 1.435 | 1.505 | -6.429 | 6.429 | 1.387 | 0.937 | -0.277 | 0.277 | 0.617 |
| 12/18/2001 9:12 | 3.14 | 3.01 | 0.99 | -1.456 | 1.456 | 1.526 | -6.452 | 6.452 | 1.41 | 0.96 | -0.291 | 0.291 | 0.631 |
| 12/18/2001 9:18 | 3.26 | 3.13 | 1.11 | -1.465 | 1.465 | 1.535 | -6.47 | 6.47 | 1.428 | 0.978 | -0.295 | 0.295 | 0.635 |
| 12/18/2001 9:24 | 3.39 | 3.25 | 1.23 | -1.511 | 1.511 | 1.581 | -6.498 | 6.498 | 1.456 | 1.006 | -0.309 | 0.309 | 0.649 |
| 12/18/2001 9:30 | 3.45 | 3.31 | 1.29 | -1.587 | 1.587 | 1.657 | -6.556 | 6.556 | 1.514 | 1.064 | -0.321 | 0.321 | 0.661 |
| 12/18/2001 9:36 | 3.43 | 3.29 | 1.27 | -1.679 | 1.679 | 1.749 | -6.641 | 6.641 | 1.599 | 1.149 | -0.33 | 0.33 | 0.67 |
| 12/18/2001 9:42 | 3.49 | 3.35 | 1.33 | -1.735 | 1.735 | 1.805 | -6.701 | 6.701 | 1.659 | 1.209 | -0.348 | 0.348 | 0.688 |
| 12/18/2001 9:48 | 3.57 | 3.43 | 1.41 | -1.742 | 1.742 | 1.812 | -6.733 | 6.733 | 1.691 | 1.241 | -0.362 | 0.362 | 0.702 |
| 12/18/2001 9:54 | 3.67 | 3.52 | 1.50 | -1.783 | 1.783 | 1.853 | -6.763 | 6.763 | 1.721 | 1.271 | -0.376 | 0.376 | 0.716 |
| 12/18/2001 10:00 | 3.76 | 3.61 | 1.59 | -1.834 | 1.834 | 1.904 | -6.805 | 6.805 | 1.763 | 1.313 | -0.394 | 0.394 | 0.734 |
| 12/18/2001 10:06 | 3.76 | 3.61 | 1.59 | -1.908 | 1.908 | 1.978 | -6.858 | 6.858 | 1.816 | 1.366 | -0.408 | 0.408 | 0.748 |
| 12/18/2001 10:12 | 3.86 | 3.71 | 1.69 | -1.975 | 1.975 | 2.045 | -6.922 | 6.922 | 1.88 | 1.43 | -0.427 | 0.427 | 0.767 |
| 12/18/2001 10:18 | 3.85 | 3.70 | 1.68 | -2.016 | 2.016 | 2.086 | -6.98 | 6.98 | 1.938 | 1.488 | -0.441 | 0.441 | 0.781 |
| 12/18/2001 10:24 | 3.86 | 3.71 | 1.69 | -2.062 | 2.062 | 2.132 | -7.022 | 7.022 | 1.98 | 1.53 | -0.454 | 0.454 | 0.794 |
| 12/18/2001 10:30 | 3.92 | 3.76 | 1.74 | -2.062 | 2.062 | 2.132 | -7.04 | 7.04 | 1.998 | 1.548 | -0.475 | 0.475 | 0.815 |
| 12/18/2001 10:36 | 3.97 | 3.81 | 1.79 | -2.067 | 2.067 | 2.137 | -7.054 | 7.054 | 2.012 | 1.562 | -0.489 | 0.489 | 0.829 |
| 12/18/2001 10:42 | 4.01 | 3.85 | 1.83 | -2.127 | 2.127 | 2.197 | -7.079 | 7.079 | 2.037 | 1.587 | -0.507 | 0.507 | 0.847 |
| 12/18/2001 10:48 | 3.94 | 3.78 | 1.76 | -2.173 | 2.173 | 2.243 | -7.121 | 7.121 | 2.079 | 1.629 | -0.521 | 0.521 | 0.861 |
| 12/18/2001 10:54 | 3.9 | 3.74 | 1.72 | -2.182 | 2.182 | 2.252 | -7.158 | 7.158 | 2.116 | 1.666 | -0.54 | 0.54 | 0.88 |
| 12/18/2001 11:00 | 3.95 | 3.79 | 1.77 | -2.154 | 2.154 | 2.224 | -7.148 | 7.148 | 2.106 | 1.656 | -0.544 | 0.544 | 0.884 |
| 12/18/2001 11:06 | 3.94 | 3.78 | 1.76 | -2.157 | 2.157 | 2.227 | -7.139 | 7.139 | 2.097 | 1.647 | -0.558 | 0.558 | 0.898 |
| 12/18/2001 11:12 | 3.92 | 3.76 | 1.74 | -2.191 | 2.191 | 2.261 | -7.158 | 7.158 | 2.116 | 1.666 | -0.577 | 0.577 | 0.917 |
| 12/18/2001 11:18 | 3.93 | 3.77 | 1.75 | -2.194 | 2.194 | 2.264 | -7.162 | 7.162 | 2.12 | 1.67 | -0.586 | 0.586 | 0.926 |
| 12/18/2001 11:24 | 3.91 | 3.75 | 1.73 | -2.184 | 2.184 | 2.254 | -7.162 | 7.162 | 2.12 | 1.67 | -0.595 | 0.595 | 0.935 |
| 12/18/2001 11:30 | 3.84 | 3.69 | 1.67 | -2.194 | 2.194 | 2.264 | -7.162 | 7.162 | 2.12 | 1.67 | -0.604 | 0.604 | 0.944 |
| 12/18/2001 11:36 | 3.81 | 3.66 | 1.64 | -2.194 | 2.194 | 2.264 | -7.167 | 7.167 | 2.125 | 1.675 | -0.609 | 0.609 | 0.949 |
| 12/18/2001 11:42 | 3.77 | 3.62 | 1.60 | -2.152 | 2.152 | 2.222 | -7.144 | 7.144 | 2.102 | 1.652 | -0.623 | 0.623 | 0.963 |
| 12/18/2001 11:48 | 3.75 | 3.60 | 1.58 | -2.138 | 2.138 | 2.208 | -7.121 | 7.121 | 2.079 | 1.629 | -0.625 | 0.625 | 0.965 |
| 12/18/2001 11:54 | 3.73 | 3.58 | 1.56 | -2.138 | 2.138 | 2.208 | -7.098 | 7.098 | 2.056 | 1.606 | -0.63 | 0.63 | 0.97 |
| 12/18/2001 12:00 | 3.67 | 3.52 | 1.50 | -2.118 | 2.118 | 2.188 | -7.084 | 7.084 | 2.042 | 1.592 | -0.639 | 0.639 | 0.979 |
| 12/18/2001 12:06 | 3.63 | 3.48 | 1.46 | -2.099 | 2.099 | 2.169 | -7.065 | 7.065 | 2.023 | 1.573 | -0.639 | 0.639 | 0.979 |
| 12/18/2001 12:12 | 3.56 | 3.42 | 1.40 | -2.058 | 2.058 | 2.128 | -7.031 | 7.031 | 1.989 | 1.539 | -0.644 | 0.644 | 0.984 |
| 12/18/2001 12:18 | 3.5 | 3.36 | 1.34 | -2.039 | 2.039 | 2.109 | -7.003 | 7.003 | 1.961 | 1.511 | -0.648 | 0.648 | 0.988 |
| 12/18/2001 12:24 | 3.45 | 3.31 | 1.29 | -1.984 | 1.984 | 2.054 | -6.966 | 6.966 | 1.924 | 1.474 | -0.657 | 0.657 | 0.997 |
| 12/18/2001 12:30 | 3.44 | 3.30 | 1.28 | -1.933 | 1.933 | 2.003 | -6.922 | 6.922 | 1.88 | 1.43 | -0.657 | 0.657 | 0.997 |
| 12/18/2001 12:36 | 3.38 | 3.24 | 1.22 | -1.924 | 1.924 | 1.994 | -6.885 | 6.885 | 1.843 | 1.393 | -0.657 | 0.657 | 0.997 |
| 12/18/2001 12:42 | 3.36 | 3.23 | 1.21 | -1.891 | 1.891 | 1.961 | -6.858 | 6.858 | 1.816 | 1.366 | -0.662 | 0.662 | 1.002 |
| 12/18/2001 12:48 | 3.35 | 3.22 | 1.20 | -1.864 | 1.864 | 1.934 | -6.825 | 6.825 | 1.783 | 1.333 | -0.657 | 0.657 | 0.997 |
| 12/18/2001 12:54 | 3.19 | 3.06 | 1.04 | -1.827 | 1.827 | 1.897 | -6.8 | 6.8 | 1.758 | 1.308 | -0.657 | 0.657 | 0.997 |
| 12/18/2001 13:00 | 3.13 | 3.00 | 0.98 | -1.813 | 1.813 | 1.883 | -6.782 | 6.782 | 1.74 | 1.29 | -0.662 | 0.662 | 1.002 |
| 12/18/2001 13:06 | 3.04 | 2.92 | 0.90 | -1.714 | 1.714 | 1.784 | -6.717 | 6.717 | 1.675 | 1.225 | -0.657 | 0.657 | 0.997 |
| 12/18/2001 13:12 | 3.02 | 2.90 | 0.88 | -1.654 | 1.654 | 1.724 | -6.664 | 6.664 | 1.622 | 1.172 | -0.653 | 0.653 | 0.993 |
| 12/18/2001 13:18 | 2.96 | 2.84 | 0.82 | -1.603 | 1.603 | 1.673 | -6.613 | 6.613 | 1.571 | 1.121 | -0.644 | 0.644 | 0.984 |
| 12/18/2001 13:24 | 2.9 | 2.78 | 0.76 | -1.564 | 1.564 | 1.634 | -6.574 | 6.574 | 1.532 | 1.082 | -0.639 | 0.639 | 0.979 |
| 12/18/2001 13:30 | 2.79 | 2.68 | 0.66 | -1.518 | 1.518 | 1.588 | -6.537 | 6.537 | 1.495 | 1.045 | -0.634 | 0.634 | 0.974 |
| 12/18/2001 13:36 | 2.77 | 2.66 | 0.64 | -1.458 | 1.458 | 1.528 | -6.491 | 6.491 | 1.449 | 0.999 | -0.634 | 0.634 | 0.974 |
| 12/18/2001 13:42 | 2.69 | 2.58 | 0.56 | -1.407 | 1.407 | 1.477 | -6.433 | 6.433 | 1.391 | 0.941 | -0.623 | 0.623 | 0.963 |
| 12/18/2001 13:48 | 2.62 | 2.52 | 0.50 | -1.37 | 1.37 | 1.44 | -6.401 | 6.401 | 1.359 | 0.909 | -0.618 | 0.618 | 0.958 |
| 12/18/2001 13:54 | 2.57 | 2.47 | 0.45 | -1.322 | 1.322 | 1.392 | -6.348 | 6.348 | 1.306 | 0.856 | -0.609 | 0.609 | 0.949 |
| 12/18/2001 14:00 | 2.55 | 2.45 | 0.43 | -1.266 | 1.266 | 1.336 | -6.302 | 6.302 | 1.26 | 0.81 | -0.6 | 0.6 | 0.94 |
| 12/18/2001 14:06 | 2.53 | 2.43 | 0.41 | -1.241 | 1.241 | 1.311 | -6.265 | 6.265 | 1.223 | 0.773 | -0.591 | 0.591 | 0.931 |
| 12/18/2001 14:12 | 2.48 | 2.38 | 0.36 | -1.209 | 1.209 | 1.279 | -6.226 | 6.226 | 1.184 | 0.734 | -0.581 | 0.581 | 0.921 |
| 12/18/2001 14:18 | 2.42 | 2.32 | 0.30 | -1.199 | 1.199 | 1.269 | -6.212 | 6.212 | 1.17 | 0.72 | -0.572 | 0.572 | 0.912 |
| 12/18/2001 14:24 | 2.39 | 2.29 | 0.27 | -1.158 | 1.158 | 1.228 | -6.18 | 6.18 | 1.138 | 0.688 | -0.567 | 0.567 | 0.907 |
| 12/18/2001 14:30 | 2.35 | 2.26 | 0.24 | -1.123 | 1.123 | 1.193 | -6.152 | 6.152 | 1.11 | 0.66 | -0.558 | 0.558 | 0.898 |
| 12/18/2001 14:36 | 2.33 | 2.24 | 0.22 | -1.1 | 1.1 | 1.17 | -6.127 | 6.127 | 1.085 | 0.635 | -0.549 | 0.549 | 0.889 |
| 12/18/2001 14:42 | 2.23 | 2.14 | 0.12 | -1.068 | 1.068 | 1.138 | -6.094 | 6.094 | 1.052 | 0.602 | -0.54 | 0.54 | 0.88 |
| 12/18/2001 14:48 | 2.18 | 2.09 | 0.07 | -1.029 | 1.029 | 1.099 | -6.053 | 6.053 | 1.011 | 0.561 | -0.526 | 0.526 | 0.866 |
| 12/18/2001 14:54 | 2.1 | 2.02 | 0.00 | -0.973 | 0.973 | 1.043 | -6.009 | 6.009 | 0.967 | 0.517 | -0.512 | 0.512 | 0.852 |
| 12/18/2001 15:00 | 2.06 | 1.98 | -0.04 | -0.932 | 0.932 | 1.002 | -5.967 | 5.967 | 0.925 | 0.475 | -0.503 | 0.503 | 0.843 |
| 12/18/2001 15:06 | 1.98 | 1.90 | -0.12 | -0.897 | 0.897 | 0.967 | -5.926 | 5.926 | 0.884 | 0.434 | -0.494 | 0.494 | 0.834 |
| 12/18/2001 15:12 | 1.91 | 1.83 | -0.19 | -0.86 | 0.86 | 0.93 | -5.896 | 5.896 | 0.854 | 0.404 | -0.475 | 0.475 | 0.815 |
| 12/18/2001 15:18 | 1.84 | 1.77 | -0.25 | -0.81 | 0.81 | 0.88 | -5.845 | 5.845 | 0.803 | 0.353 | -0.464 | 0.464 | 0.804 |
| 12/18/2001 15:24 | 1.81 | 1.74 | -0.28 | -0.766 | 0.766 | 0.836 | -5.797 | 5.797 | 0.755 | 0.305 | -0.45 | 0.45 | 0.79 |
| 12/18/2001 15:30 | 1.76 | 1.69 | -0.33 | -0.72 | 0.72 | 0.79 | -5.746 | 5.746 | 0.704 | 0.254 | -0.436 | 0.436 | 0.776 |
| 12/18/2001 15:36 | 1.69 | 1.62 | -0.40 | -0.683 | 0.683 | 0.753 | -5.709 | 5.709 | 0.667 | 0.217 | -0.427 | 0.427 | 0.767 |
| 12/18/2001 15:42 | 1.61 | 1.55 | -0.47 | -0.653 | 0.653 | 0.723 | -5.674 | 5.674 | 0.632 | 0.182 | -0.404 | 0.404 | 0.744 |
| 12/18/2001 15:48 | 1.54 | 1.48 | -0.54 | -0.607 | 0.607 | 0.677 | -5.633 | 5.633 | 0.591 | 0.141 | -0.39 | 0.39 | 0.73 |
| 12/18/2001 15:54 | 1.48 | 1.42 | -0.60 | -0.565 | 0.565 | 0.635 | -5.587 | 5.587 | 0.545 | 0.095 | -0.376 | 0.376 | 0.716 |
| 12/18/2001 16:00 | 1.42 | 1.36 | -0.66 | -0.526 | 0.526 | 0.596 | -5.538 | 5.538 | 0.496 | 0.046 | -0.358 | 0.358 | 0.698 |
| 12/18/2001 16:06 | 1.35 | 1.30 | -0.72 | -0.48 | 0.48 | 0.55 | -5.492 | 5.492 | 0.45 | 0 | -0.344 | 0.344 | 0.684 |
| 12/18/2001 16:12 | 1.3 | 1.25 | -0.77 | -0.443 | 0.443 | 0.513 | -5.444 | 5.444 | 0.402 | -0.048 | -0.325 | 0.325 | 0.665 |
| 12/18/2001 16:18 | 1.26 | 1.21 | -0.81 | -0.404 | 0.404 | 0.474 | -5.398 | 5.398 | 0.356 | -0.094 | -0.314 | 0.314 | 0.654 |
| 12/18/2001 16:24 | 1.2 | 1.15 | -0.87 | -0.362 | 0.362 | 0.432 | -5.356 | 5.356 | 0.314 | -0.136 | -0.3 | 0.3 | 0.64 |
| 12/18/2001 16:30 | 1.15 | 1.10 | -0.92 | -0.33 | 0.33 | 0.4 | -5.317 | 5.317 | 0.275 | -0.175 | -0.286 | 0.286 | 0.626 |
| 12/18/2001 16:36 | 1.1 | 1.06 | -0.96 | -0.298 | 0.298 | 0.368 | -5.275 | 5.275 | 0.233 | -0.217 | -0.272 | 0.272 | 0.612 |
| 12/18/2001 16:42 | 1.04 | 1.00 | -1.02 | -0.261 | 0.261 | 0.331 | -5.236 | 5.236 | 0.194 | -0.256 | -0.258 | 0.258 | 0.598 |
| 12/18/2001 16:48 | 0.99 | 0.95 | -1.07 | -0.226 | 0.226 | 0.296 | -5.19 | 5.19 | 0.148 | -0.302 | -0.24 | 0.24 | 0.58 |
| 12/18/2001 16:54 | 0.94 | 0.90 | -1.12 | -0.189 | 0.189 | 0.259 | -5.153 | 5.153 | 0.111 | -0.339 | -0.226 | 0.226 | 0.566 |
| 12/18/2001 17:00 | 0.89 | 0.85 | -1.17 | -0.161 | 0.161 | 0.231 | -5.114 | 5.114 | 0.072 | -0.378 | -0.208 | 0.208 | 0.548 |
| 12/18/2001 17:06 | 0.88 | 0.84 | -1.18 | -0.129 | 0.129 | 0.199 | -5.077 | 5.077 | 0.035 | -0.415 | -0.194 | 0.194 | 0.534 |
| 12/18/2001 17:12 | 0.8 | 0.77 | -1.25 | -0.099 | 0.099 | 0.169 | -5.04 | 5.04 | -0.002 | -0.452 | -0.175 | 0.175 | 0.515 |
| 12/18/2001 17:18 | 0.74 | 0.71 | -1.31 | -0.072 | 0.072 | 0.142 | -5.015 | 5.015 | -0.027 | -0.477 | -0.168 | 0.168 | 0.508 |

| Date & Time | State Pier WLD (ft above MLLW) | Smith Cove Adjusted WLD (ft above MLLW) | Smith Cove WLE (ft NAVD88) | 8MW1 | | | 8MW2D | | | | 8MW2S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TR | TA | WLE (ft NAVD88) | TR | TA | Adjust to Start at Zero | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/18/2001 17:24 | 0.68 | 0.65 | -1.37 | -0.044 | 0.044 | 0.114 | -4.978 | 4.978 | -0.064 | -0.514 | -0.15 | 0.15 | 0.49 |
| 12/18/2001 17:30 | 0.6 | 0.58 | -1.44 | -0.016 | 0.016 | 0.086 | -4.936 | 4.936 | -0.106 | -0.556 | -0.136 | 0.136 | 0.476 |
| 12/18/2001 17:36 | 0.54 | 0.52 | -1.50 | 0.016 | -0.016 | 0.054 | -4.897 | 4.897 | -0.145 | -0.595 | -0.127 | 0.127 | 0.467 |
| 12/18/2001 17:42 | 0.49 | 0.47 | -1.55 | 0.042 | -0.042 | 0.028 | -4.846 | 4.846 | -0.196 | -0.646 | -0.108 | 0.108 | 0.448 |
| 12/18/2001 17:48 | 0.46 | 0.44 | -1.58 | 0.074 | -0.074 | -0.004 | -4.802 | 4.802 | -0.24 | -0.69 | -0.095 | 0.095 | 0.435 |
| 12/18/2001 17:54 | 0.42 | 0.40 | -1.62 | 0.111 | -0.111 | -0.041 | -4.761 | 4.761 | -0.281 | -0.731 | -0.081 | 0.081 | 0.421 |
| 12/18/2001 18:00 | 0.35 | 0.34 | -1.68 | 0.136 | -0.136 | -0.066 | -4.729 | 4.729 | -0.313 | -0.763 | -0.062 | 0.062 | 0.402 |
| 12/18/2001 18:06 | 0.29 | 0.28 | -1.74 | 0.168 | -0.168 | -0.098 | -4.701 | 4.701 | -0.341 | -0.791 | -0.044 | 0.044 | 0.384 |
| 12/18/2001 18:12 | 0.26 | 0.25 | -1.77 | 0.196 | -0.196 | -0.126 | -4.671 | 4.671 | -0.371 | -0.821 | -0.025 | 0.025 | 0.365 |
| 12/18/2001 18:18 | 0.21 | 0.20 | -1.82 | 0.228 | -0.228 | -0.158 | -4.634 | 4.634 | -0.408 | -0.858 | -0.018 | 0.018 | 0.358 |
| 12/18/2001 18:24 | 0.19 | 0.18 | -1.84 | 0.254 | -0.254 | -0.184 | -4.597 | 4.597 | -0.445 | -0.895 | -0.005 | 0.005 | 0.345 |
| 12/18/2001 18:30 | 0.16 | 0.15 | -1.87 | 0.281 | -0.281 | -0.211 | -4.572 | 4.572 | -0.47 | -0.92 | 0.014 | -0.014 | 0.326 |
| 12/18/2001 18:36 | 0.19 | 0.18 | -1.84 | 0.314 | -0.314 | -0.244 | -4.544 | 4.544 | -0.498 | -0.948 | 0.028 | -0.028 | 0.312 |
| 12/18/2001 18:42 | 0.2 | 0.19 | -1.83 | 0.332 | -0.332 | -0.262 | -4.521 | 4.521 | -0.521 | -0.971 | 0.046 | -0.046 | 0.294 |
| 12/18/2001 18:48 | 0.2 | 0.19 | -1.83 | 0.36 | -0.36 | -0.29 | -4.516 | 4.516 | -0.526 | -0.976 | 0.06 | -0.06 | 0.28 |
| 12/18/2001 18:54 | 0.19 | 0.18 | -1.84 | 0.378 | -0.378 | -0.308 | -4.521 | 4.521 | -0.521 | -0.971 | 0.069 | -0.069 | 0.271 |
| 12/18/2001 19:00 | 0.19 | 0.18 | -1.84 | 0.399 | -0.399 | -0.329 | -4.521 | 4.521 | -0.521 | -0.971 | 0.083 | -0.083 | 0.257 |
| 12/18/2001 19:06 | 0.21 | 0.20 | -1.82 | 0.418 | -0.418 | -0.348 | -4.516 | 4.516 | -0.526 | -0.976 | 0.101 | -0.101 | 0.239 |
| 12/18/2001 19:12 | 0.24 | 0.23 | -1.79 | 0.436 | -0.436 | -0.366 | -4.507 | 4.507 | -0.535 | -0.985 | 0.111 | -0.111 | 0.229 |
| 12/18/2001 19:18 | 0.21 | 0.20 | -1.82 | 0.454 | -0.454 | -0.384 | -4.512 | 4.512 | -0.53 | -0.98 | 0.12 | -0.12 | 0.22 |
| 12/18/2001 19:24 | 0.19 | 0.18 | -1.84 | 0.468 | -0.468 | -0.398 | -4.516 | 4.516 | -0.526 | -0.976 | 0.134 | -0.134 | 0.206 |
| 12/18/2001 19:30 | 0.25 | 0.24 | -1.78 | 0.482 | -0.482 | -0.412 | -4.512 | 4.512 | -0.53 | -0.98 | 0.145 | -0.145 | 0.195 |
| 12/18/2001 19:36 | 0.26 | 0.25 | -1.77 | 0.496 | -0.496 | -0.426 | -4.503 | 4.503 | -0.539 | -0.989 | 0.159 | -0.159 | 0.181 |
| 12/18/2001 19:42 | 0.33 | 0.32 | -1.70 | 0.514 | -0.514 | -0.444 | -4.512 | 4.512 | -0.53 | -0.98 | 0.168 | -0.168 | 0.172 |
| 12/18/2001 19:48 | 0.42 | 0.40 | -1.62 | 0.519 | -0.519 | -0.449 | -4.53 | 4.53 | -0.512 | -0.962 | 0.178 | -0.178 | 0.162 |
| 12/18/2001 19:54 | 0.5 | 0.48 | -1.54 | 0.526 | -0.526 | -0.456 | -4.558 | 4.558 | -0.484 | -0.934 | 0.196 | -0.196 | 0.144 |
| 12/18/2001 20:00 | 0.55 | 0.53 | -1.49 | 0.524 | -0.524 | -0.454 | -4.586 | 4.586 | -0.456 | -0.906 | 0.205 | -0.205 | 0.135 |
| 12/18/2001 20:06 | 0.63 | 0.60 | -1.42 | 0.524 | -0.524 | -0.454 | -4.629 | 4.629 | -0.413 | -0.863 | 0.215 | -0.215 | 0.125 |
| 12/18/2001 20:12 | 0.7 | 0.67 | -1.35 | 0.514 | -0.514 | -0.444 | -4.671 | 4.671 | -0.371 | -0.821 | 0.224 | -0.224 | 0.116 |
| 12/18/2001 20:18 | 0.79 | 0.76 | -1.26 | 0.505 | -0.505 | -0.435 | -4.713 | 4.713 | -0.329 | -0.779 | 0.233 | -0.233 | 0.107 |
| 12/18/2001 20:24 | 0.9 | 0.86 | -1.16 | 0.487 | -0.487 | -0.417 | -4.752 | 4.752 | -0.29 | -0.74 | 0.238 | -0.238 | 0.102 |
| 12/18/2001 20:30 | 1.03 | 0.99 | -1.03 | 0.459 | -0.459 | -0.389 | -4.807 | 4.807 | -0.235 | -0.685 | 0.242 | -0.242 | 0.098 |
| 12/18/2001 20:36 | 1.14 | 1.09 | -0.93 | 0.418 | -0.418 | -0.348 | -4.869 | 4.869 | -0.173 | -0.623 | 0.256 | -0.256 | 0.084 |
| 12/18/2001 20:42 | 1.22 | 1.17 | -0.85 | 0.36 | -0.36 | -0.29 | -4.939 | 4.939 | -0.103 | -0.553 | 0.256 | -0.256 | 0.084 |
| 12/18/2001 20:48 | 1.31 | 1.26 | -0.76 | 0.295 | -0.295 | -0.225 | -5.019 | 5.019 | -0.023 | -0.473 | 0.256 | -0.256 | 0.084 |
| 12/18/2001 20:54 | 1.39 | 1.33 | -0.69 | 0.226 | -0.226 | -0.156 | -5.082 | 5.082 | 0.04 | -0.41 | 0.256 | -0.256 | 0.084 |
| 12/18/2001 21:00 | 1.55 | 1.49 | -0.53 | 0.159 | -0.159 | -0.089 | -5.137 | 5.137 | 0.095 | -0.355 | 0.256 | -0.256 | 0.084 |
| 12/18/2001 21:06 | 1.67 | 1.60 | -0.42 | 0.09 | -0.09 | -0.02 | -5.195 | 5.195 | 0.153 | -0.297 | 0.251 | -0.251 | 0.089 |
| 12/18/2001 21:12 | 1.73 | 1.66 | -0.36 | 0 | 0 | 0.07 | -5.278 | 5.278 | 0.236 | -0.214 | 0.247 | -0.247 | 0.093 |
| 12/18/2001 21:18 | 1.77 | 1.70 | -0.32 | -0.095 | 0.095 | 0.165 | -5.354 | 5.354 | 0.312 | -0.138 | 0.233 | -0.233 | 0.107 |
| 12/18/2001 21:24 | 1.81 | 1.74 | -0.28 | -0.187 | 0.187 | 0.257 | -5.411 | 5.411 | 0.369 | -0.081 | 0.228 | -0.228 | 0.112 |
| 12/18/2001 21:30 | 1.85 | 1.78 | -0.24 | -0.249 | 0.249 | 0.319 | -5.453 | 5.453 | 0.411 | -0.039 | 0.219 | -0.219 | 0.121 |
| 12/18/2001 21:36 | 1.93 | 1.85 | -0.17 | -0.304 | 0.304 | 0.374 | -5.494 | 5.494 | 0.452 | 0.002 | 0.21 | -0.21 | 0.13 |
| 12/18/2001 21:42 | 2.03 | 1.95 | -0.07 | -0.358 | 0.358 | 0.428 | -5.529 | 5.529 | 0.487 | 0.037 | 0.196 | -0.196 | 0.144 |
| 12/18/2001 21:48 | 2.1 | 2.02 | 0.00 | -0.404 | 0.404 | 0.474 | -5.571 | 5.571 | 0.529 | 0.079 | 0.196 | -0.196 | 0.144 |
| 12/18/2001 21:54 | 2.14 | 2.05 | 0.03 | -0.475 | 0.475 | 0.545 | -5.631 | 5.631 | 0.589 | 0.139 | 0.187 | -0.187 | 0.153 |
| 12/18/2001 22:00 | 2.19 | 2.10 | 0.08 | -0.554 | 0.554 | 0.624 | -5.688 | 5.688 | 0.646 | 0.196 | 0.178 | -0.178 | 0.162 |
| 12/18/2001 22:06 | 2.25 | 2.16 | 0.14 | -0.611 | 0.611 | 0.681 | -5.739 | 5.739 | 0.697 | 0.247 | 0.173 | -0.173 | 0.167 |
| 12/18/2001 22:12 | 2.29 | 2.20 | 0.18 | -0.657 | 0.657 | 0.727 | -5.778 | 5.778 | 0.736 | 0.286 | 0.159 | -0.159 | 0.181 |
| 12/18/2001 22:18 | 2.35 | 2.26 | 0.24 | -0.701 | 0.701 | 0.771 | -5.815 | 5.815 | 0.773 | 0.323 | 0.155 | -0.155 | 0.185 |
| 12/18/2001 22:24 | 2.33 | 2.24 | 0.22 | -0.745 | 0.745 | 0.815 | -5.847 | 5.847 | 0.805 | 0.355 | 0.145 | -0.145 | 0.195 |
| 12/18/2001 22:30 | 2.37 | 2.28 | 0.26 | -0.782 | 0.782 | 0.852 | -5.877 | 5.877 | 0.835 | 0.385 | 0.136 | -0.136 | 0.204 |
| 12/18/2001 22:36 | 2.37 | 2.28 | 0.26 | -0.798 | 0.798 | 0.868 | -5.896 | 5.896 | 0.854 | 0.404 | 0.127 | -0.127 | 0.213 |
| 12/18/2001 22:42 | 2.41 | 2.31 | 0.29 | -0.83 | 0.83 | 0.9 | -5.924 | 5.924 | 0.882 | 0.432 | 0.12 | -0.12 | 0.22 |
| 12/18/2001 22:48 | 2.43 | 2.33 | 0.31 | -0.844 | 0.844 | 0.914 | -5.937 | 5.937 | 0.895 | 0.445 | 0.111 | -0.111 | 0.229 |
| 12/18/2001 22:54 | 2.48 | 2.38 | 0.36 | -0.867 | 0.867 | 0.937 | -5.956 | 5.956 | 0.914 | 0.464 | 0.101 | -0.101 | 0.239 |
| 12/18/2001 23:00 | 2.49 | 2.39 | 0.37 | -0.89 | 0.89 | 0.96 | -5.977 | 5.977 | 0.935 | 0.485 | 0.092 | -0.092 | 0.248 |
| 12/18/2001 23:06 | 2.49 | 2.39 | 0.37 | -0.916 | 0.916 | 0.986 | -6 | 6 | 0.958 | 0.508 | 0.088 | -0.088 | 0.252 |
| 12/18/2001 23:12 | 2.49 | 2.39 | 0.37 | -0.934 | 0.934 | 1.004 | -6.023 | 6.023 | 0.981 | 0.531 | 0.078 | -0.078 | 0.262 |
| 12/18/2001 23:18 | 2.47 | 2.37 | 0.35 | -0.934 | 0.934 | 1.004 | -6.027 | 6.027 | 0.985 | 0.535 | 0.069 | -0.069 | 0.271 |
| 12/18/2001 23:24 | 2.47 | 2.37 | 0.35 | -0.939 | 0.939 | 1.009 | -6.032 | 6.032 | 0.99 | 0.54 | 0.06 | -0.06 | 0.28 |
| 12/18/2001 23:30 | 2.49 | 2.39 | 0.37 | -0.939 | 0.939 | 1.009 | -6.032 | 6.032 | 0.99 | 0.54 | 0.055 | -0.055 | 0.285 |
| 12/18/2001 23:36 | 2.5 | 2.40 | 0.38 | -0.943 | 0.943 | 1.013 | -6.041 | 6.041 | 0.999 | 0.549 | 0.046 | -0.046 | 0.294 |
| 12/18/2001 23:42 | 2.55 | 2.45 | 0.43 | -0.948 | 0.948 | 1.018 | -6.046 | 6.046 | 1.004 | 0.554 | 0.037 | -0.037 | 0.303 |
| 12/18/2001 23:48 | 2.56 | 2.46 | 0.44 | -0.966 | 0.966 | 1.036 | -6.06 | 6.06 | 1.018 | 0.568 | 0.032 | -0.032 | 0.308 |
| 12/18/2001 23:54 | 2.56 | 2.46 | 0.44 | -0.994 | 0.994 | 1.064 | -6.08 | 6.08 | 1.038 | 0.588 | 0.028 | -0.028 | 0.312 |
| 12/19/2001 0:00 | 2.56 | 2.46 | 0.44 | -1.003 | 1.003 | 1.073 | -6.094 | 6.094 | 1.052 | 0.602 | 0.023 | -0.023 | 0.317 |
| 12/19/2001 0:06 | 2.58 | 2.48 | 0.46 | -1.003 | 1.003 | 1.073 | -6.099 | 6.099 | 1.057 | 0.607 | 0.014 | -0.014 | 0.326 |
| 12/19/2001 0:12 | 2.57 | 2.47 | 0.45 | -1.008 | 1.008 | 1.078 | -6.103 | 6.103 | 1.061 | 0.611 | 0.009 | -0.009 | 0.331 |
| 12/19/2001 0:18 | 2.61 | 2.51 | 0.49 | -1.02 | 1.02 | 1.09 | -6.117 | 6.117 | 1.075 | 0.625 | 0 | 0 | 0.34 |
| 12/19/2001 0:24 | 2.64 | 2.53 | 0.51 | -1.029 | 1.029 | 1.099 | -6.122 | 6.122 | 1.08 | 0.63 | -0.009 | 0.009 | 0.349 |
| 12/19/2001 0:30 | 2.65 | 2.54 | 0.52 | -1.052 | 1.052 | 1.122 | -6.14 | 6.14 | 1.098 | 0.648 | -0.018 | 0.018 | 0.358 |
| 12/19/2001 0:36 | 2.64 | 2.53 | 0.51 | -1.08 | 1.08 | 1.15 | -6.163 | 6.163 | 1.121 | 0.671 | -0.023 | 0.023 | 0.363 |
| 12/19/2001 0:42 | 2.63 | 2.52 | 0.50 | -1.093 | 1.093 | 1.163 | -6.18 | 6.18 | 1.138 | 0.688 | -0.032 | 0.032 | 0.372 |
| 12/19/2001 0:48 | 2.61 | 2.51 | 0.49 | -1.089 | 1.089 | 1.159 | -6.184 | 6.184 | 1.142 | 0.692 | -0.032 | 0.032 | 0.372 |
| 12/19/2001 0:54 | 2.57 | 2.47 | 0.45 | -1.08 | 1.08 | 1.15 | -6.18 | 6.18 | 1.138 | 0.688 | -0.039 | 0.039 | 0.379 |
| 12/19/2001 1:00 | 2.51 | 2.41 | 0.39 | -1.07 | 1.07 | 1.14 | -6.175 | 6.175 | 1.133 | 0.683 | -0.048 | 0.048 | 0.388 |
| 12/19/2001 1:06 | 2.48 | 2.38 | 0.36 | -1.043 | 1.043 | 1.113 | -6.159 | 6.159 | 1.117 | 0.667 | -0.053 | 0.053 | 0.393 |
| 12/19/2001 1:12 | 2.45 | 2.35 | 0.33 | -1.01 | 1.01 | 1.08 | -6.136 | 6.136 | 1.094 | 0.644 | -0.053 | 0.053 | 0.393 |
| 12/19/2001 1:18 | 2.45 | 2.35 | 0.33 | -0.999 | 0.999 | 1.069 | -6.113 | 6.113 | 1.071 | 0.621 | -0.058 | 0.058 | 0.398 |
| 12/19/2001 1:24 | 2.45 | 2.35 | 0.33 | -0.994 | 0.994 | 1.064 | -6.099 | 6.099 | 1.057 | 0.607 | -0.058 | 0.058 | 0.398 |
| 12/19/2001 1:30 | 2.4 | 2.30 | 0.28 | -0.99 | 0.99 | 1.06 | -6.094 | 6.094 | 1.052 | 0.602 | -0.058 | 0.058 | 0.398 |
| 12/19/2001 1:36 | 2.36 | 2.27 | 0.25 | -0.985 | 0.985 | 1.055 | -6.085 | 6.085 | 1.043 | 0.593 | -0.067 | 0.067 | 0.407 |
| 12/19/2001 1:42 | 2.35 | 2.26 | 0.24 | -0.966 | 0.966 | 1.036 | -6.071 | 6.071 | 1.029 | 0.579 | -0.067 | 0.067 | 0.407 |
| 12/19/2001 1:48 | 2.31 | 2.22 | 0.20 | -0.939 | 0.939 | 1.009 | -6.057 | 6.057 | 1.015 | 0.565 | -0.067 | 0.067 | 0.407 |
| 12/19/2001 1:54 | 2.28 | 2.19 | 0.17 | -0.925 | 0.925 | 0.995 | -6.037 | 6.037 | 0.995 | 0.545 | -0.072 | 0.072 | 0.412 |
| 12/19/2001 2:00 | 2.21 | 2.12 | 0.10 | -0.904 | 0.904 | 0.974 | -6.023 | 6.023 | 0.981 | 0.531 | -0.072 | 0.072 | 0.412 |
| 12/19/2001 2:06 | 2.15 | 2.06 | 0.04 | -0.881 | 0.881 | 0.951 | -6 | 6 | 0.958 | 0.508 | -0.067 | 0.067 | 0.407 |

| Date & Time | State Pier WLD (ft above MLLW) | Smith Cove Adjusted WLD (ft above MLLW) | Smith Cove WLE (ft NAVD88) | 8MW1 | | | 8MW2D | | | | 8MW2S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TR | TA | WLE (ft NAVD88) | TR | TA | Adjust to Start at Zero | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/19/2001 2:12 | 2.12 | 2.04 | 0.02 | -0.83 | 0.83 | 0.9 | -5.972 | 5.972 | 0.93 | 0.48 | -0.072 | 0.072 | 0.412 |
| 12/19/2001 2:18 | 2.08 | 2.00 | -0.02 | -0.791 | 0.791 | 0.861 | -5.94 | 5.94 | 0.898 | 0.448 | -0.072 | 0.072 | 0.412 |
| 12/19/2001 2:24 | 2.02 | 1.94 | -0.08 | -0.75 | 0.75 | 0.82 | -5.91 | 5.91 | 0.868 | 0.418 | -0.072 | 0.072 | 0.412 |
| 12/19/2001 2:30 | 1.97 | 1.89 | -0.13 | -0.708 | 0.708 | 0.778 | -5.877 | 5.877 | 0.835 | 0.385 | -0.072 | 0.072 | 0.412 |
| 12/19/2001 2:36 | 1.91 | 1.83 | -0.19 | -0.66 | 0.66 | 0.73 | -5.831 | 5.831 | 0.789 | 0.339 | -0.067 | 0.067 | 0.407 |
| 12/19/2001 2:42 | 1.86 | 1.79 | -0.23 | -0.609 | 0.609 | 0.679 | -5.792 | 5.792 | 0.75 | 0.3 | -0.062 | 0.062 | 0.402 |
| 12/19/2001 2:48 | 1.82 | 1.75 | -0.27 | -0.567 | 0.567 | 0.637 | -5.751 | 5.751 | 0.709 | 0.259 | -0.053 | 0.053 | 0.393 |
| 12/19/2001 2:54 | 1.79 | 1.72 | -0.30 | -0.528 | 0.528 | 0.598 | -5.714 | 5.714 | 0.672 | 0.222 | -0.053 | 0.053 | 0.393 |
| 12/19/2001 3:00 | 1.74 | 1.67 | -0.35 | -0.496 | 0.496 | 0.566 | -5.679 | 5.679 | 0.637 | 0.187 | -0.044 | 0.044 | 0.384 |
| 12/19/2001 3:06 | 1.71 | 1.64 | -0.38 | -0.464 | 0.464 | 0.534 | -5.651 | 5.651 | 0.609 | 0.159 | -0.037 | 0.037 | 0.377 |
| 12/19/2001 3:12 | 1.67 | 1.60 | -0.42 | -0.438 | 0.438 | 0.508 | -5.624 | 5.624 | 0.582 | 0.132 | -0.032 | 0.032 | 0.372 |
| 12/19/2001 3:18 | 1.67 | 1.60 | -0.42 | -0.411 | 0.411 | 0.481 | -5.596 | 5.596 | 0.554 | 0.104 | -0.028 | 0.028 | 0.368 |
| 12/19/2001 3:24 | 1.64 | 1.57 | -0.45 | -0.383 | 0.383 | 0.453 | -5.571 | 5.571 | 0.529 | 0.079 | -0.018 | 0.018 | 0.358 |
| 12/19/2001 3:30 | 1.61 | 1.55 | -0.47 | -0.364 | 0.364 | 0.434 | -5.552 | 5.552 | 0.51 | 0.06 | -0.014 | 0.014 | 0.354 |
| 12/19/2001 3:36 | 1.59 | 1.53 | -0.49 | -0.348 | 0.348 | 0.418 | -5.534 | 5.534 | 0.492 | 0.042 | 0 | 0 | 0.34 |
| 12/19/2001 3:42 | 1.56 | 1.50 | -0.52 | -0.321 | 0.321 | 0.391 | -5.511 | 5.511 | 0.469 | 0.019 | 0.005 | -0.005 | 0.335 |
| 12/19/2001 3:48 | 1.51 | 1.45 | -0.57 | -0.298 | 0.298 | 0.368 | -5.483 | 5.483 | 0.441 | -0.009 | 0.009 | -0.009 | 0.331 |
| 12/19/2001 3:54 | 1.47 | 1.41 | -0.61 | -0.274 | 0.274 | 0.344 | -5.467 | 5.467 | 0.425 | -0.025 | 0.014 | -0.014 | 0.326 |
| 12/19/2001 4:00 | 1.44 | 1.38 | -0.64 | -0.251 | 0.251 | 0.321 | -5.439 | 5.439 | 0.397 | -0.053 | 0.023 | -0.023 | 0.317 |
| 12/19/2001 4:06 | 1.4 | 1.34 | -0.68 | -0.226 | 0.226 | 0.296 | -5.407 | 5.407 | 0.365 | -0.085 | 0.032 | -0.032 | 0.308 |
| 12/19/2001 4:12 | 1.35 | 1.30 | -0.72 | -0.198 | 0.198 | 0.268 | -5.379 | 5.379 | 0.337 | -0.113 | 0.032 | -0.032 | 0.308 |
| 12/19/2001 4:18 | 1.33 | 1.28 | -0.74 | -0.175 | 0.175 | 0.245 | -5.354 | 5.354 | 0.312 | -0.138 | 0.042 | -0.042 | 0.298 |
| 12/19/2001 4:24 | 1.3 | 1.25 | -0.77 | -0.148 | 0.148 | 0.218 | -5.331 | 5.331 | 0.289 | -0.161 | 0.046 | -0.046 | 0.294 |
| 12/19/2001 4:30 | 1.28 | 1.23 | -0.79 | -0.129 | 0.129 | 0.199 | -5.308 | 5.308 | 0.266 | -0.184 | 0.051 | -0.051 | 0.289 |
| 12/19/2001 4:36 | 1.27 | 1.22 | -0.80 | -0.106 | 0.106 | 0.176 | -5.294 | 5.294 | 0.252 | -0.198 | 0.065 | -0.065 | 0.275 |
| 12/19/2001 4:42 | 1.28 | 1.23 | -0.79 | -0.099 | 0.099 | 0.169 | -5.275 | 5.275 | 0.233 | -0.217 | 0.069 | -0.069 | 0.271 |
| 12/19/2001 4:48 | 1.25 | 1.20 | -0.82 | -0.081 | 0.081 | 0.151 | -5.266 | 5.266 | 0.224 | -0.226 | 0.074 | -0.074 | 0.266 |
| 12/19/2001 4:54 | 1.25 | 1.20 | -0.82 | -0.076 | 0.076 | 0.146 | -5.262 | 5.262 | 0.22 | -0.23 | 0.083 | -0.083 | 0.257 |
| 12/19/2001 5:00 | 1.23 | 1.18 | -0.84 | -0.067 | 0.067 | 0.137 | -5.259 | 5.259 | 0.217 | -0.233 | 0.092 | -0.092 | 0.248 |
| 12/19/2001 5:06 | 1.22 | 1.17 | -0.85 | -0.062 | 0.062 | 0.132 | -5.25 | 5.25 | 0.208 | -0.242 | 0.092 | -0.092 | 0.248 |
| 12/19/2001 5:12 | 1.19 | 1.14 | -0.88 | -0.048 | 0.048 | 0.118 | -5.245 | 5.245 | 0.203 | -0.247 | 0.106 | -0.106 | 0.234 |
| 12/19/2001 5:18 | 1.15 | 1.10 | -0.92 | -0.035 | 0.035 | 0.105 | -5.232 | 5.232 | 0.19 | -0.26 | 0.111 | -0.111 | 0.229 |
| 12/19/2001 5:24 | 1.1 | 1.06 | -0.96 | -0.021 | 0.021 | 0.091 | -5.218 | 5.218 | 0.176 | -0.274 | 0.113 | -0.113 | 0.227 |
| 12/19/2001 5:30 | 1.09 | 1.05 | -0.97 | -0.002 | 0.002 | 0.072 | -5.195 | 5.195 | 0.153 | -0.297 | 0.122 | -0.122 | 0.218 |
| 12/19/2001 5:36 | 1.07 | 1.03 | -0.99 | 0.025 | -0.025 | 0.045 | -5.162 | 5.162 | 0.12 | -0.33 | 0.127 | -0.127 | 0.213 |
| 12/19/2001 5:42 | 1.04 | 1.00 | -1.02 | 0.042 | -0.042 | 0.028 | -5.142 | 5.142 | 0.1 | -0.35 | 0.136 | -0.136 | 0.204 |
| 12/19/2001 5:48 | 1.02 | 0.98 | -1.04 | 0.055 | -0.055 | 0.015 | -5.128 | 5.128 | 0.086 | -0.364 | 0.141 | -0.141 | 0.199 |
| 12/19/2001 5:54 | 1.01 | 0.97 | -1.05 | 0.078 | -0.078 | -0.008 | -5.109 | 5.109 | 0.067 | -0.383 | 0.15 | -0.15 | 0.19 |
| 12/19/2001 6:00 | 1 | 0.96 | -1.06 | 0.092 | -0.092 | -0.022 | -5.091 | 5.091 | 0.049 | -0.401 | 0.159 | -0.159 | 0.181 |
| 12/19/2001 6:06 | 0.98 | 0.94 | -1.08 | 0.106 | -0.106 | -0.036 | -5.072 | 5.072 | 0.03 | -0.42 | 0.164 | -0.164 | 0.176 |
| 12/19/2001 6:12 | 0.98 | 0.94 | -1.08 | 0.12 | -0.12 | -0.05 | -5.068 | 5.068 | 0.026 | -0.424 | 0.173 | -0.173 | 0.167 |
| 12/19/2001 6:18 | 0.98 | 0.94 | -1.08 | 0.134 | -0.134 | -0.064 | -5.054 | 5.054 | 0.012 | -0.438 | 0.187 | -0.187 | 0.153 |
| 12/19/2001 6:24 | 0.99 | 0.95 | -1.07 | 0.152 | -0.152 | -0.082 | -5.047 | 5.047 | 0.005 | -0.445 | 0.191 | -0.191 | 0.149 |
| 12/19/2001 6:30 | 1 | 0.96 | -1.06 | 0.161 | -0.161 | -0.091 | -5.042 | 5.042 | 0 | -0.45 | 0.201 | -0.201 | 0.139 |
| 12/19/2001 6:36 | 0.97 | 0.93 | -1.09 | 0.166 | -0.166 | -0.096 | -5.042 | 5.042 | 0 | -0.45 | 0.21 | -0.21 | 0.13 |
| 12/19/2001 6:42 | 0.96 | 0.92 | -1.10 | 0.175 | -0.175 | -0.105 | -5.042 | 5.042 | 0 | -0.45 | 0.215 | -0.215 | 0.125 |
| 12/19/2001 6:48 | 0.94 | 0.90 | -1.12 | 0.182 | -0.182 | -0.112 | -5.029 | 5.029 | -0.013 | -0.463 | 0.219 | -0.219 | 0.121 |
| 12/19/2001 6:54 | 0.92 | 0.88 | -1.14 | 0.196 | -0.196 | -0.126 | -5.019 | 5.019 | -0.023 | -0.473 | 0.233 | -0.233 | 0.107 |
| 12/19/2001 7:00 | 0.93 | 0.89 | -1.13 | 0.21 | -0.21 | -0.14 | -5.005 | 5.005 | -0.037 | -0.487 | 0.233 | -0.233 | 0.107 |
| 12/19/2001 7:06 | 0.93 | 0.89 | -1.13 | 0.228 | -0.228 | -0.158 | -4.987 | 4.987 | -0.055 | -0.505 | 0.242 | -0.242 | 0.098 |
| 12/19/2001 7:12 | 0.95 | 0.91 | -1.11 | 0.242 | -0.242 | -0.172 | -4.973 | 4.973 | -0.069 | -0.519 | 0.251 | -0.251 | 0.089 |
| 12/19/2001 7:18 | 0.99 | 0.95 | -1.07 | 0.251 | -0.251 | -0.181 | -4.973 | 4.973 | -0.069 | -0.519 | 0.256 | -0.256 | 0.084 |
| 12/19/2001 7:24 | 1.02 | 0.98 | -1.04 | 0.256 | -0.256 | -0.186 | -4.978 | 4.978 | -0.064 | -0.514 | 0.258 | -0.258 | 0.082 |
| 12/19/2001 7:30 | 1.07 | 1.03 | -0.99 | 0.251 | -0.251 | -0.181 | -4.996 | 4.996 | -0.046 | -0.496 | 0.268 | -0.268 | 0.072 |
| 12/19/2001 7:36 | 1.11 | 1.07 | -0.95 | 0.242 | -0.242 | -0.172 | -5.015 | 5.015 | -0.027 | -0.477 | 0.272 | -0.272 | 0.068 |
| 12/19/2001 7:42 | 1.16 | 1.11 | -0.91 | 0.224 | -0.224 | -0.154 | -5.042 | 5.042 | 0 | -0.45 | 0.277 | -0.277 | 0.063 |
| 12/19/2001 7:48 | 1.2 | 1.15 | -0.87 | 0.196 | -0.196 | -0.126 | -5.068 | 5.068 | 0.026 | -0.424 | 0.286 | -0.286 | 0.054 |
| 12/19/2001 7:54 | 1.26 | 1.21 | -0.81 | 0.168 | -0.168 | -0.098 | -5.095 | 5.095 | 0.053 | -0.397 | 0.286 | -0.286 | 0.054 |
| 12/19/2001 8:00 | 1.32 | 1.27 | -0.75 | 0.143 | -0.143 | -0.073 | -5.123 | 5.123 | 0.081 | -0.369 | 0.286 | -0.286 | 0.054 |
| 12/19/2001 8:06 | 1.38 | 1.32 | -0.70 | 0.106 | -0.106 | -0.036 | -5.16 | 5.16 | 0.118 | -0.332 | 0.291 | -0.291 | 0.049 |
| 12/19/2001 8:12 | 1.42 | 1.36 | -0.66 | 0.069 | -0.069 | 0.001 | -5.199 | 5.199 | 0.157 | -0.293 | 0.295 | -0.295 | 0.045 |
| 12/19/2001 8:18 | 1.49 | 1.43 | -0.59 | 0.028 | -0.028 | 0.042 | -5.236 | 5.236 | 0.194 | -0.256 | 0.295 | -0.295 | 0.045 |
| 12/19/2001 8:24 | 1.54 | 1.48 | -0.54 | -0.012 | 0.012 | 0.082 | -5.268 | 5.268 | 0.226 | -0.224 | 0.291 | -0.291 | 0.049 |
| 12/19/2001 8:30 | 1.6 | 1.54 | -0.48 | -0.058 | 0.058 | 0.128 | -5.298 | 5.298 | 0.256 | -0.194 | 0.291 | -0.291 | 0.049 |
| 12/19/2001 8:36 | 1.65 | 1.58 | -0.44 | -0.108 | 0.108 | 0.178 | -5.335 | 5.335 | 0.293 | -0.157 | 0.291 | -0.291 | 0.049 |
| 12/19/2001 8:42 | 1.7 | 1.63 | -0.39 | -0.157 | 0.157 | 0.227 | -5.377 | 5.377 | 0.335 | -0.115 | 0.286 | -0.286 | 0.054 |
| 12/19/2001 8:48 | 1.75 | 1.68 | -0.34 | -0.198 | 0.198 | 0.268 | -5.411 | 5.411 | 0.369 | -0.081 | 0.281 | -0.281 | 0.059 |
| 12/19/2001 8:54 | 1.81 | 1.74 | -0.28 | -0.242 | 0.242 | 0.312 | -5.444 | 5.444 | 0.402 | -0.048 | 0.277 | -0.277 | 0.063 |
| 12/19/2001 9:00 | 1.89 | 1.81 | -0.21 | -0.284 | 0.284 | 0.354 | -5.485 | 5.485 | 0.443 | -0.007 | 0.272 | -0.272 | 0.068 |
| 12/19/2001 9:06 | 1.95 | 1.87 | -0.15 | -0.339 | 0.339 | 0.409 | -5.529 | 5.529 | 0.487 | 0.037 | 0.268 | -0.268 | 0.072 |
| 12/19/2001 9:12 | 2.01 | 1.93 | -0.09 | -0.392 | 0.392 | 0.462 | -5.571 | 5.571 | 0.529 | 0.079 | 0.258 | -0.258 | 0.082 |
| 12/19/2001 9:18 | 2.08 | 2.00 | -0.02 | -0.443 | 0.443 | 0.513 | -5.617 | 5.617 | 0.575 | 0.125 | 0.254 | -0.254 | 0.086 |
| 12/19/2001 9:24 | 2.14 | 2.05 | 0.03 | -0.496 | 0.496 | 0.566 | -5.665 | 5.665 | 0.623 | 0.173 | 0.247 | -0.247 | 0.093 |
| 12/19/2001 9:30 | 2.17 | 2.08 | 0.06 | -0.556 | 0.556 | 0.626 | -5.716 | 5.716 | 0.674 | 0.224 | 0.238 | -0.238 | 0.102 |
| 12/19/2001 9:36 | 2.21 | 2.12 | 0.10 | -0.604 | 0.604 | 0.674 | -5.755 | 5.755 | 0.713 | 0.263 | 0.242 | -0.242 | 0.098 |
| 12/19/2001 9:42 | 2.27 | 2.18 | 0.16 | -0.637 | 0.637 | 0.707 | -5.792 | 5.792 | 0.75 | 0.3 | | | |
| 12/19/2001 9:48 | 2.3 | 2.21 | 0.19 | -0.671 | 0.671 | 0.741 | | | | | | | |
| 12/19/2001 9:54 | 2.35 | 2.26 | 0.24 | | | | | | | | | | |
| 12/19/2001 10:00 | 2.4 | 2.30 | 0.28 | | | | | | | | | | |
| 12/19/2001 10:06 | 2.45 | 2.35 | 0.33 | | | | | | | | | | |
| 12/19/2001 10:12 | 2.51 | 2.41 | 0.39 | | | | | | | | | | |
| 12/19/2001 10:18 | 2.56 | 2.46 | 0.44 | | | | | | | | | | |
| 12/19/2001 10:24 | 2.6 | 2.50 | 0.48 | | | | | | | | | | |
| 12/19/2001 10:30 | 2.63 | 2.52 | 0.50 | | | | | | | | | | |
| 12/19/2001 10:36 | 2.69 | 2.58 | 0.56 | | | | | | | | | | |
| 12/19/2001 10:42 | 2.75 | 2.64 | 0.62 | | | | | | | | | | |
| 12/19/2001 10:48 | 2.79 | 2.68 | 0.66 | | | | | | | | | | |
| 12/19/2001 10:54 | 2.81 | 2.70 | 0.68 | | | | | | | | | | |

| Date & Time | State Pier WLD (ft above MLLW) | Smith Cove Adjusted WLD (ft above MLLW) | Smith Cove WLE (ft NAVD88) | 8MW1 | | | 8MW2D | | | | 8MW2S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TR | TA | WLE (ft NAVD88) | TR | TA | Adjust to Start at Zero | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/19/2001 11:00 | 2.86 | 2.75 | 0.73 | | | | | | | | | | |
| 12/19/2001 11:06 | 2.9 | 2.78 | 0.76 | | | | | | | | | | |
| 12/19/2001 11:12 | 2.93 | 2.81 | 0.79 | | | | | | | | | | |
| 12/19/2001 11:18 | 2.94 | 2.82 | 0.80 | | | | | | | | | | |
| 12/19/2001 11:24 | 2.95 | 2.83 | 0.81 | | | | | | | | | | |
| 12/19/2001 11:30 | 2.97 | 2.85 | 0.83 | | | | | | | | | | |
| 12/19/2001 11:36 | 2.99 | 2.87 | 0.85 | | | | | | | | | | |
| 12/19/2001 11:42 | 3.02 | 2.90 | 0.88 | | | | | | | | | | |
| 12/19/2001 11:48 | 3.05 | 2.93 | 0.91 | | | | | | | | | | |
| 12/19/2001 11:54 | 3.1 | 2.98 | 0.96 | | | | | | | | | | |
| 12/19/2001 12:00 | 3.11 | 2.99 | 0.97 | | | | | | | | | | |

**Notes:**

| | |
|---|---|
| TR | Transducer Reading |
| TA | Transducer Adjustment |
| WLD | Water Level Data |
| WLE | Water Level Elevation |
| | Represents high or low tide |

| Date & Time | 8MW3 | | | 8MW5S | | | 8MW6D | | | 8MW6S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/17/2001 15:00 | | | | | | | | | | | | |
| 12/17/2001 15:06 | | | | | | | | | | | | |
| 12/17/2001 15:12 | | | | | | | | | | | | |
| 12/17/2001 15:18 | | | | | | | | | | | | |
| 12/17/2001 15:24 | | | | | | | | | | | | |
| 12/17/2001 15:30 | | | | | | | | | | | | |
| 12/17/2001 15:36 | | | | | | | | | | | | |
| 12/17/2001 15:42 | | | | | | | | | | | | |
| 12/17/2001 15:48 | | | | | | | | | | | | |
| 12/17/2001 15:54 | | | | | | | | | | | | |
| 12/17/2001 16:00 | | | | | | | | | | | | |
| 12/17/2001 16:06 | | | | | | | | | | | | |
| 12/17/2001 16:12 | | | | | | | | | | | | |
| 12/17/2001 16:18 | | | | | | | | | | | | |
| 12/17/2001 16:24 | | | | | | | | | | | | |
| 12/17/2001 16:30 | | | | | | | | | | | | |
| 12/17/2001 16:36 | | | | | | | | | | | | |
| 12/17/2001 16:42 | | | | | | | | | | | | |
| 12/17/2001 16:48 | | | | | | | | | | | | |
| 12/17/2001 16:54 | | | | | | | | | | | | |
| 12/17/2001 17:00 | 0 | 0 | 0.12 | 0 | 0 | 1.7 | 0 | 0 | -0.03 | 0 | 0 | 0.24 |
| 12/17/2001 17:06 | 0.018 | -0.018 | 0.102 | 0 | 0 | 1.7 | 0.035 | -0.035 | -0.065 | 0.005 | -0.005 | 0.235 |
| 12/17/2001 17:12 | 0.018 | -0.018 | 0.102 | 0 | 0 | 1.7 | 0.048 | -0.048 | -0.078 | -0.005 | 0.005 | 0.245 |
| 12/17/2001 17:18 | 0.032 | -0.032 | 0.088 | 0 | 0 | 1.7 | 0.058 | -0.058 | -0.088 | -0.009 | 0.009 | 0.249 |
| 12/17/2001 17:24 | 0.032 | -0.032 | 0.088 | 0 | 0 | 1.7 | 0.067 | -0.067 | -0.097 | -0.018 | 0.018 | 0.258 |
| 12/17/2001 17:30 | 0.044 | -0.044 | 0.076 | 0 | 0 | 1.7 | 0.081 | -0.081 | -0.111 | -0.023 | 0.023 | 0.263 |
| 12/17/2001 17:36 | 0.053 | -0.053 | 0.067 | 0 | 0 | 1.7 | 0.085 | -0.085 | -0.115 | -0.028 | 0.028 | 0.268 |
| 12/17/2001 17:42 | 0.062 | -0.062 | 0.058 | 0 | 0 | 1.7 | 0.076 | -0.076 | -0.106 | -0.037 | 0.037 | 0.277 |
| 12/17/2001 17:48 | 0.067 | -0.067 | 0.053 | 0 | 0 | 1.7 | 0.081 | -0.081 | -0.111 | -0.042 | 0.042 | 0.282 |
| 12/17/2001 17:54 | 0.076 | -0.076 | 0.044 | 0 | 0 | 1.7 | 0.076 | -0.076 | -0.106 | -0.046 | 0.046 | 0.286 |
| 12/17/2001 18:00 | 0.076 | -0.076 | 0.044 | 0 | 0 | 1.7 | 0.058 | -0.058 | -0.088 | -0.06 | 0.06 | 0.3 |
| 12/17/2001 18:06 | 0.085 | -0.085 | 0.035 | 0 | 0 | 1.7 | 0.044 | -0.044 | -0.074 | -0.065 | 0.065 | 0.305 |
| 12/17/2001 18:12 | 0.095 | -0.095 | 0.025 | 0 | 0 | 1.7 | 0.025 | -0.025 | -0.055 | -0.06 | 0.06 | 0.3 |
| 12/17/2001 18:18 | 0.108 | -0.108 | 0.012 | 0 | 0 | 1.7 | 0.007 | -0.007 | -0.037 | -0.065 | 0.065 | 0.305 |
| 12/17/2001 18:24 | 0.108 | -0.108 | 0.012 | 0 | 0 | 1.7 | -0.014 | 0.014 | -0.016 | -0.065 | 0.065 | 0.305 |
| 12/17/2001 18:30 | 0.108 | -0.108 | 0.012 | 0 | 0 | 1.7 | -0.042 | 0.042 | 0.012 | -0.074 | 0.074 | 0.314 |
| 12/17/2001 18:36 | 0.118 | -0.118 | 0.002 | 0 | 0 | 1.7 | -0.069 | 0.069 | 0.039 | -0.074 | 0.074 | 0.314 |
| 12/17/2001 18:42 | 0.118 | -0.118 | 0.002 | 0 | 0 | 1.7 | -0.099 | 0.099 | 0.069 | -0.081 | 0.081 | 0.321 |
| 12/17/2001 18:48 | 0.122 | -0.122 | -0.002 | 0 | 0 | 1.7 | -0.131 | 0.131 | 0.101 | 0.005 | -0.005 | 0.235 |
| 12/17/2001 18:54 | 0.122 | -0.122 | -0.002 | 0 | 0 | 1.7 | -0.178 | 0.178 | 0.148 | 0 | 0 | 0.24 |
| 12/17/2001 19:00 | 0.118 | -0.118 | 0.002 | 0 | 0 | 1.7 | -0.217 | 0.217 | 0.187 | -0.014 | 0.014 | 0.254 |
| 12/17/2001 19:06 | 0.122 | -0.122 | -0.002 | 0 | 0 | 1.7 | -0.24 | 0.24 | 0.21 | 0.06 | -0.06 | 0.18 |
| 12/17/2001 19:12 | 0.122 | -0.122 | -0.002 | 0 | 0 | 1.7 | -0.274 | 0.274 | 0.244 | 0.058 | -0.058 | 0.182 |
| 12/17/2001 19:18 | 0.118 | -0.118 | 0.002 | 0 | 0 | 1.7 | -0.321 | 0.321 | 0.291 | 0.053 | -0.053 | 0.187 |
| 12/17/2001 19:24 | 0.122 | -0.122 | -0.002 | 0 | 0 | 1.7 | -0.36 | 0.36 | 0.33 | 0.053 | -0.053 | 0.187 |
| 12/17/2001 19:30 | 0.118 | -0.118 | 0.002 | 0 | 0 | 1.7 | -0.406 | 0.406 | 0.376 | 0.048 | -0.048 | 0.192 |
| 12/17/2001 19:36 | 0.108 | -0.108 | 0.012 | -0.042 | 0.042 | 1.742 | -0.464 | 0.464 | 0.434 | 0.042 | -0.042 | 0.198 |
| 12/17/2001 19:42 | 0.104 | -0.104 | 0.016 | -0.127 | 0.127 | 1.827 | -0.528 | 0.528 | 0.498 | 0.037 | -0.037 | 0.203 |
| 12/17/2001 19:48 | 0.09 | -0.09 | 0.03 | -0.205 | 0.205 | 1.905 | -0.567 | 0.567 | 0.537 | 0.023 | -0.023 | 0.217 |
| 12/17/2001 19:54 | 0.085 | -0.085 | 0.035 | -0.272 | 0.272 | 1.972 | -0.591 | 0.591 | 0.561 | 0.018 | -0.018 | 0.222 |
| 12/17/2001 20:00 | 0.081 | -0.081 | 0.039 | -0.328 | 0.328 | 2.028 | -0.63 | 0.63 | 0.6 | 0.009 | -0.009 | 0.231 |
| 12/17/2001 20:06 | 0.072 | -0.072 | 0.048 | -0.381 | 0.381 | 2.081 | -0.685 | 0.685 | 0.655 | 0.005 | -0.005 | 0.235 |
| 12/17/2001 20:12 | 0.067 | -0.067 | 0.053 | -0.452 | 0.452 | 2.152 | -0.729 | 0.729 | 0.699 | 0 | 0 | 0.24 |
| 12/17/2001 20:18 | 0.067 | -0.067 | 0.053 | -0.519 | 0.519 | 2.219 | -0.766 | 0.766 | 0.736 | 0.005 | -0.005 | 0.235 |
| 12/17/2001 20:24 | 0.048 | -0.048 | 0.072 | -0.558 | 0.558 | 2.258 | -0.793 | 0.793 | 0.763 | -0.009 | 0.009 | 0.249 |
| 12/17/2001 20:30 | 0.044 | -0.044 | 0.076 | -0.614 | 0.614 | 2.314 | -0.851 | 0.851 | 0.821 | -0.014 | 0.014 | 0.254 |
| 12/17/2001 20:36 | 0.039 | -0.039 | 0.081 | -0.68 | 0.68 | 2.38 | -0.89 | 0.89 | 0.86 | -0.014 | 0.014 | 0.254 |
| 12/17/2001 20:42 | 0.025 | -0.025 | 0.095 | -0.734 | 0.734 | 2.434 | -0.923 | 0.923 | 0.893 | -0.018 | 0.018 | 0.258 |
| 12/17/2001 20:48 | 0.021 | -0.021 | 0.099 | -0.787 | 0.787 | 2.487 | -0.964 | 0.964 | 0.934 | -0.023 | 0.023 | 0.263 |
| 12/17/2001 20:54 | 0.014 | -0.014 | 0.106 | -0.828 | 0.828 | 2.528 | -0.994 | 0.994 | 0.964 | -0.037 | 0.037 | 0.277 |
| 12/17/2001 21:00 | 0 | 0 | 0.12 | -0.867 | 0.867 | 2.567 | -1.026 | 1.026 | 0.996 | -0.042 | 0.042 | 0.282 |
| 12/17/2001 21:06 | -0.005 | 0.005 | 0.125 | -0.918 | 0.918 | 2.618 | -1.07 | 1.07 | 1.04 | -0.046 | 0.046 | 0.286 |
| 12/17/2001 21:12 | -0.018 | 0.018 | 0.138 | -0.971 | 0.971 | 2.671 | -1.116 | 1.116 | 1.086 | -0.051 | 0.051 | 0.291 |
| 12/17/2001 21:18 | -0.028 | 0.028 | 0.148 | -1.043 | 1.043 | 2.743 | -1.169 | 1.169 | 1.139 | -0.055 | 0.055 | 0.295 |
| 12/17/2001 21:24 | -0.042 | 0.042 | 0.162 | -1.089 | 1.089 | 2.789 | -1.193 | 1.193 | 1.163 | -0.065 | 0.065 | 0.305 |
| 12/17/2001 21:30 | -0.046 | 0.046 | 0.166 | -1.119 | 1.119 | 2.819 | -1.22 | 1.22 | 1.19 | -0.069 | 0.069 | 0.309 |
| 12/17/2001 21:36 | -0.06 | 0.06 | 0.18 | -1.156 | 1.156 | 2.856 | -1.25 | 1.25 | 1.22 | -0.076 | 0.076 | 0.316 |
| 12/17/2001 21:42 | -0.065 | 0.065 | 0.185 | -1.195 | 1.195 | 2.895 | -1.287 | 1.287 | 1.257 | -0.081 | 0.081 | 0.321 |
| 12/17/2001 21:48 | -0.078 | 0.078 | 0.198 | -1.236 | 1.236 | 2.936 | -1.324 | 1.324 | 1.294 | -0.09 | 0.09 | 0.33 |
| 12/17/2001 21:54 | -0.092 | 0.092 | 0.212 | -1.294 | 1.294 | 2.994 | -1.372 | 1.372 | 1.342 | -0.099 | 0.099 | 0.339 |
| 12/17/2001 22:00 | -0.097 | 0.097 | 0.217 | -1.356 | 1.356 | 3.056 | -1.416 | 1.416 | 1.386 | -0.099 | 0.099 | 0.339 |
| 12/17/2001 22:06 | -0.106 | 0.106 | 0.226 | -1.407 | 1.407 | 3.107 | -1.444 | 1.444 | 1.414 | -0.099 | 0.099 | 0.339 |
| 12/17/2001 22:12 | -0.12 | 0.12 | 0.24 | -1.439 | 1.439 | 3.139 | -1.472 | 1.472 | 1.442 | -0.099 | 0.099 | 0.339 |
| 12/17/2001 22:18 | -0.129 | 0.129 | 0.249 | -1.506 | 1.506 | 3.206 | -1.525 | 1.525 | 1.495 | -0.104 | 0.104 | 0.344 |
| 12/17/2001 22:24 | -0.148 | 0.148 | 0.268 | -1.569 | 1.569 | 3.269 | -1.571 | 1.571 | 1.541 | -0.108 | 0.108 | 0.348 |
| 12/17/2001 22:30 | -0.161 | 0.161 | 0.281 | -1.626 | 1.626 | 3.326 | -1.605 | 1.605 | 1.575 | -0.118 | 0.118 | 0.358 |
| 12/17/2001 22:36 | -0.175 | 0.175 | 0.295 | -1.668 | 1.668 | 3.368 | -1.647 | 1.647 | 1.617 | -0.127 | 0.127 | 0.367 |
| 12/17/2001 22:42 | -0.189 | 0.189 | 0.309 | -1.712 | 1.712 | 3.412 | -1.682 | 1.682 | 1.652 | -0.136 | 0.136 | 0.376 |
| 12/17/2001 22:48 | -0.203 | 0.203 | 0.323 | -1.748 | 1.748 | 3.448 | -1.723 | 1.723 | 1.693 | -0.15 | 0.15 | 0.39 |
| 12/17/2001 22:54 | -0.221 | 0.221 | 0.341 | -1.79 | 1.79 | 3.49 | -1.765 | 1.765 | 1.735 | -0.164 | 0.164 | 0.404 |
| 12/17/2001 23:00 | -0.226 | 0.226 | 0.346 | -1.843 | 1.843 | 3.543 | -1.795 | 1.795 | 1.765 | -0.164 | 0.164 | 0.404 |
| 12/17/2001 23:06 | -0.24 | 0.24 | 0.36 | -1.866 | 1.866 | 3.566 | -1.822 | 1.822 | 1.792 | -0.173 | 0.173 | 0.413 |
| 12/17/2001 23:12 | -0.245 | 0.245 | 0.365 | -1.915 | 1.915 | 3.615 | -1.855 | 1.855 | 1.825 | -0.159 | 0.159 | 0.399 |
| 12/17/2001 23:18 | -0.258 | 0.258 | 0.378 | -1.958 | 1.958 | 3.658 | -1.885 | 1.885 | 1.855 | -0.159 | 0.159 | 0.399 |
| 12/17/2001 23:24 | -0.277 | 0.277 | 0.397 | -1.961 | 1.961 | 3.661 | -1.903 | 1.903 | 1.873 | -0.173 | 0.173 | 0.413 |
| 12/17/2001 23:30 | -0.3 | 0.3 | 0.42 | -1.938 | 1.938 | 3.638 | -1.917 | 1.917 | 1.887 | -0.191 | 0.191 | 0.431 |
| 12/17/2001 23:36 | -0.295 | 0.295 | 0.415 | -1.951 | 1.951 | 3.651 | -1.931 | 1.931 | 1.901 | -0.182 | 0.182 | 0.422 |
| 12/17/2001 23:42 | -0.309 | 0.309 | 0.429 | -1.951 | 1.951 | 3.651 | -1.94 | 1.94 | 1.91 | -0.187 | 0.187 | 0.427 |

| Date & Time | 8MW3 | | | 8MW5S | | | 8MW6D | | | 8MW6S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/17/2001 23:48 | -0.332 | 0.332 | 0.452 | -1.942 | 1.942 | 3.642 | -1.951 | 1.951 | 1.921 | -0.201 | 0.201 | 0.441 |
| 12/17/2001 23:54 | -0.33 | 0.33 | 0.45 | -1.933 | 1.933 | 3.633 | -1.961 | 1.961 | 1.931 | -0.201 | 0.201 | 0.441 |
| 12/18/2001 0:00 | -0.344 | 0.344 | 0.464 | -1.933 | 1.933 | 3.633 | -1.97 | 1.97 | 1.94 | -0.203 | 0.203 | 0.443 |
| 12/18/2001 0:06 | -0.344 | 0.344 | 0.464 | -1.919 | 1.919 | 3.619 | -1.961 | 1.961 | 1.931 | -0.196 | 0.196 | 0.436 |
| 12/18/2001 0:12 | -0.362 | 0.362 | 0.482 | -1.887 | 1.887 | 3.587 | -1.961 | 1.961 | 1.931 | -0.203 | 0.203 | 0.443 |
| 12/18/2001 0:18 | -0.371 | 0.371 | 0.491 | -1.852 | 1.852 | 3.552 | -1.951 | 1.951 | 1.921 | -0.217 | 0.217 | 0.457 |
| 12/18/2001 0:24 | -0.381 | 0.381 | 0.501 | -1.829 | 1.829 | 3.529 | -1.945 | 1.945 | 1.915 | -0.217 | 0.217 | 0.457 |
| 12/18/2001 0:30 | -0.399 | 0.399 | 0.519 | -1.772 | 1.772 | 3.472 | -1.931 | 1.931 | 1.901 | -0.24 | 0.24 | 0.48 |
| 12/18/2001 0:36 | -0.404 | 0.404 | 0.524 | -1.73 | 1.73 | 3.43 | -1.912 | 1.912 | 1.882 | -0.136 | 0.136 | 0.376 |
| 12/18/2001 0:42 | -0.408 | 0.408 | 0.528 | -1.668 | 1.668 | 3.368 | -1.885 | 1.885 | 1.855 | -0.145 | 0.145 | 0.385 |
| 12/18/2001 0:48 | -0.413 | 0.413 | 0.533 | -1.596 | 1.596 | 3.296 | -1.845 | 1.845 | 1.815 | -0.145 | 0.145 | 0.385 |
| 12/18/2001 0:54 | -0.413 | 0.413 | 0.533 | -1.534 | 1.534 | 3.234 | -1.808 | 1.808 | 1.778 | -0.155 | 0.155 | 0.395 |
| 12/18/2001 1:00 | -0.418 | 0.418 | 0.538 | -1.497 | 1.497 | 3.197 | -1.776 | 1.776 | 1.746 | -0.145 | 0.145 | 0.385 |
| 12/18/2001 1:06 | -0.418 | 0.418 | 0.538 | -1.435 | 1.435 | 3.135 | -1.737 | 1.737 | 1.707 | -0.145 | 0.145 | 0.385 |
| 12/18/2001 1:12 | -0.427 | 0.427 | 0.547 | -1.331 | 1.331 | 3.031 | -1.682 | 1.682 | 1.652 | -0.159 | 0.159 | 0.399 |
| 12/18/2001 1:18 | -0.431 | 0.431 | 0.551 | -1.264 | 1.264 | 2.964 | -1.647 | 1.647 | 1.617 | -0.164 | 0.164 | 0.404 |
| 12/18/2001 1:24 | -0.427 | 0.427 | 0.547 | -1.229 | 1.229 | 2.929 | -1.624 | 1.624 | 1.594 | -0.159 | 0.159 | 0.399 |
| 12/18/2001 1:30 | -0.441 | 0.441 | 0.561 | -1.193 | 1.193 | 2.893 | -1.601 | 1.601 | 1.571 | -0.168 | 0.168 | 0.408 |
| 12/18/2001 1:36 | -0.436 | 0.436 | 0.556 | -1.144 | 1.144 | 2.844 | -1.566 | 1.566 | 1.536 | -0.178 | 0.178 | 0.418 |
| 12/18/2001 1:42 | -0.441 | 0.441 | 0.561 | -1.116 | 1.116 | 2.816 | -1.543 | 1.543 | 1.513 | -0.173 | 0.173 | 0.413 |
| 12/18/2001 1:48 | -0.441 | 0.441 | 0.561 | -1.082 | 1.082 | 2.782 | -1.52 | 1.52 | 1.49 | -0.178 | 0.178 | 0.418 |
| 12/18/2001 1:54 | -0.441 | 0.441 | 0.561 | -1.015 | 1.015 | 2.715 | -1.476 | 1.476 | 1.446 | -0.182 | 0.182 | 0.422 |
| 12/18/2001 2:00 | -0.445 | 0.445 | 0.565 | -0.95 | 0.95 | 2.65 | -1.435 | 1.435 | 1.405 | -0.187 | 0.187 | 0.427 |
| 12/18/2001 2:06 | -0.441 | 0.441 | 0.561 | -0.911 | 0.911 | 2.611 | -1.412 | 1.412 | 1.382 | -0.187 | 0.187 | 0.427 |
| 12/18/2001 2:12 | -0.441 | 0.441 | 0.561 | -0.874 | 0.874 | 2.574 | -1.377 | 1.377 | 1.347 | -0.187 | 0.187 | 0.427 |
| 12/18/2001 2:18 | -0.441 | 0.441 | 0.561 | -0.812 | 0.812 | 2.512 | -1.331 | 1.331 | 1.301 | -0.196 | 0.196 | 0.436 |
| 12/18/2001 2:24 | -0.436 | 0.436 | 0.556 | -0.754 | 0.754 | 2.454 | -1.296 | 1.296 | 1.266 | -0.191 | 0.191 | 0.431 |
| 12/18/2001 2:30 | -0.436 | 0.436 | 0.556 | -0.71 | 0.71 | 2.41 | -1.255 | 1.255 | 1.225 | -0.196 | 0.196 | 0.436 |
| 12/18/2001 2:36 | -0.431 | 0.431 | 0.551 | -0.653 | 0.653 | 2.353 | -1.225 | 1.225 | 1.195 | -0.196 | 0.196 | 0.436 |
| 12/18/2001 2:42 | -0.427 | 0.427 | 0.547 | -0.607 | 0.607 | 2.307 | -1.183 | 1.183 | 1.153 | -0.201 | 0.201 | 0.441 |
| 12/18/2001 2:48 | -0.431 | 0.431 | 0.551 | -0.54 | 0.54 | 2.24 | -1.146 | 1.146 | 1.116 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 2:54 | -0.427 | 0.427 | 0.547 | -0.473 | 0.473 | 2.173 | -1.103 | 1.103 | 1.073 | -0.226 | 0.226 | 0.466 |
| 12/18/2001 3:00 | -0.418 | 0.418 | 0.538 | -0.42 | 0.42 | 2.12 | -1.07 | 1.07 | 1.04 | -0.226 | 0.226 | 0.466 |
| 12/18/2001 3:06 | -0.413 | 0.413 | 0.533 | -0.378 | 0.378 | 2.078 | -1.05 | 1.05 | 1.02 | -0.231 | 0.231 | 0.471 |
| 12/18/2001 3:12 | -0.408 | 0.408 | 0.528 | -0.339 | 0.339 | 2.039 | -1.017 | 1.017 | 0.987 | -0.231 | 0.231 | 0.471 |
| 12/18/2001 3:18 | -0.404 | 0.404 | 0.524 | -0.3 | 0.3 | 2 | -0.98 | 0.98 | 0.95 | -0.24 | 0.24 | 0.48 |
| 12/18/2001 3:24 | -0.399 | 0.399 | 0.519 | -0.24 | 0.24 | 1.94 | -0.941 | 0.941 | 0.911 | -0.245 | 0.245 | 0.485 |
| 12/18/2001 3:30 | -0.39 | 0.39 | 0.51 | -0.196 | 0.196 | 1.896 | -0.904 | 0.904 | 0.874 | -0.24 | 0.24 | 0.48 |
| 12/18/2001 3:36 | -0.381 | 0.381 | 0.501 | -0.143 | 0.143 | 1.843 | -0.86 | 0.86 | 0.83 | -0.245 | 0.245 | 0.485 |
| 12/18/2001 3:42 | -0.381 | 0.381 | 0.501 | -0.081 | 0.081 | 1.781 | -0.823 | 0.823 | 0.793 | -0.258 | 0.258 | 0.498 |
| 12/18/2001 3:48 | -0.371 | 0.371 | 0.491 | -0.018 | 0.018 | 1.718 | -0.784 | 0.784 | 0.754 | -0.263 | 0.263 | 0.503 |
| 12/18/2001 3:54 | -0.367 | 0.367 | 0.487 | 0 | 0 | 1.7 | -0.752 | 0.752 | 0.722 | -0.277 | 0.277 | 0.517 |
| 12/18/2001 4:00 | -0.358 | 0.358 | 0.478 | 0 | 0 | 1.7 | -0.715 | 0.715 | 0.685 | -0.201 | 0.201 | 0.441 |
| 12/18/2001 4:06 | -0.348 | 0.348 | 0.468 | 0 | 0 | 1.7 | -0.671 | 0.671 | 0.641 | -0.201 | 0.201 | 0.441 |
| 12/18/2001 4:12 | -0.344 | 0.344 | 0.464 | 0 | 0 | 1.7 | -0.63 | 0.63 | 0.6 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 4:18 | -0.33 | 0.33 | 0.45 | 0 | 0 | 1.7 | -0.611 | 0.611 | 0.581 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 4:24 | -0.325 | 0.325 | 0.445 | 0 | 0 | 1.7 | -0.595 | 0.595 | 0.565 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 4:30 | -0.318 | 0.318 | 0.438 | 0 | 0 | 1.7 | -0.586 | 0.586 | 0.556 | -0.217 | 0.217 | 0.457 |
| 12/18/2001 4:36 | -0.309 | 0.309 | 0.429 | 0 | 0 | 1.7 | -0.567 | 0.567 | 0.537 | -0.217 | 0.217 | 0.457 |
| 12/18/2001 4:42 | -0.304 | 0.304 | 0.424 | 0 | 0 | 1.7 | -0.558 | 0.558 | 0.528 | -0.226 | 0.226 | 0.466 |
| 12/18/2001 4:48 | -0.3 | 0.3 | 0.42 | 0 | 0 | 1.7 | -0.544 | 0.544 | 0.514 | -0.226 | 0.226 | 0.466 |
| 12/18/2001 4:54 | -0.291 | 0.291 | 0.411 | 0 | 0 | 1.7 | -0.535 | 0.535 | 0.505 | -0.231 | 0.231 | 0.471 |
| 12/18/2001 5:00 | -0.286 | 0.286 | 0.406 | 0 | 0 | 1.7 | -0.521 | 0.521 | 0.491 | -0.235 | 0.235 | 0.475 |
| 12/18/2001 5:06 | -0.277 | 0.277 | 0.397 | 0 | 0 | 1.7 | -0.514 | 0.514 | 0.484 | -0.245 | 0.245 | 0.485 |
| 12/18/2001 5:12 | -0.272 | 0.272 | 0.392 | 0 | 0 | 1.7 | -0.501 | 0.501 | 0.471 | -0.245 | 0.245 | 0.485 |
| 12/18/2001 5:18 | -0.263 | 0.263 | 0.383 | 0 | 0 | 1.7 | -0.477 | 0.477 | 0.447 | -0.249 | 0.249 | 0.489 |
| 12/18/2001 5:24 | -0.258 | 0.258 | 0.378 | 0 | 0 | 1.7 | -0.454 | 0.454 | 0.424 | -0.182 | 0.182 | 0.422 |
| 12/18/2001 5:30 | -0.249 | 0.249 | 0.369 | 0 | 0 | 1.7 | -0.445 | 0.445 | 0.415 | -0.187 | 0.187 | 0.427 |
| 12/18/2001 5:36 | -0.245 | 0.245 | 0.365 | 0 | 0 | 1.7 | -0.441 | 0.441 | 0.411 | -0.196 | 0.196 | 0.436 |
| 12/18/2001 5:42 | -0.226 | 0.226 | 0.346 | 0 | 0 | 1.7 | -0.436 | 0.436 | 0.406 | -0.191 | 0.191 | 0.431 |
| 12/18/2001 5:48 | -0.231 | 0.231 | 0.351 | 0 | 0 | 1.7 | -0.424 | 0.424 | 0.394 | -0.205 | 0.205 | 0.445 |
| 12/18/2001 5:54 | -0.221 | 0.221 | 0.341 | 0 | 0 | 1.7 | -0.411 | 0.411 | 0.381 | -0.205 | 0.205 | 0.445 |
| 12/18/2001 6:00 | -0.217 | 0.217 | 0.337 | 0 | 0 | 1.7 | -0.415 | 0.415 | 0.385 | -0.205 | 0.205 | 0.445 |
| 12/18/2001 6:06 | -0.208 | 0.208 | 0.328 | 0 | 0 | 1.7 | -0.424 | 0.424 | 0.394 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 6:12 | -0.203 | 0.203 | 0.323 | 0 | 0 | 1.7 | -0.445 | 0.445 | 0.415 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 6:18 | -0.198 | 0.198 | 0.318 | 0 | 0 | 1.7 | -0.473 | 0.473 | 0.443 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 6:24 | -0.198 | 0.198 | 0.318 | 0 | 0 | 1.7 | -0.501 | 0.501 | 0.471 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 6:30 | -0.189 | 0.189 | 0.309 | 0 | 0 | 1.7 | -0.524 | 0.524 | 0.494 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 6:36 | -0.189 | 0.189 | 0.309 | 0 | 0 | 1.7 | -0.544 | 0.544 | 0.514 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 6:42 | -0.194 | 0.194 | 0.314 | 0 | 0 | 1.7 | -0.577 | 0.577 | 0.547 | -0.221 | 0.221 | 0.461 |
| 12/18/2001 6:48 | -0.189 | 0.189 | 0.309 | 0 | 0 | 1.7 | -0.595 | 0.595 | 0.565 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 6:54 | -0.185 | 0.185 | 0.305 | 0 | 0 | 1.7 | -0.616 | 0.616 | 0.586 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 7:00 | -0.185 | 0.185 | 0.305 | 0 | 0 | 1.7 | -0.634 | 0.634 | 0.604 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 7:06 | -0.185 | 0.185 | 0.305 | 0 | 0 | 1.7 | -0.653 | 0.653 | 0.623 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 7:12 | -0.18 | 0.18 | 0.3 | 0 | 0 | 1.7 | -0.667 | 0.667 | 0.637 | -0.208 | 0.208 | 0.448 |
| 12/18/2001 7:18 | -0.185 | 0.185 | 0.305 | 0 | 0 | 1.7 | -0.685 | 0.685 | 0.655 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 7:24 | -0.189 | 0.189 | 0.309 | 0 | 0 | 1.7 | -0.71 | 0.71 | 0.68 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 7:30 | -0.175 | 0.175 | 0.295 | 0 | 0 | 1.7 | -0.729 | 0.729 | 0.699 | -0.205 | 0.205 | 0.445 |
| 12/18/2001 7:36 | -0.18 | 0.18 | 0.3 | 0 | 0 | 1.7 | -0.743 | 0.743 | 0.713 | -0.205 | 0.205 | 0.445 |
| 12/18/2001 7:42 | -0.189 | 0.189 | 0.309 | 0 | 0 | 1.7 | -0.78 | 0.78 | 0.75 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 7:48 | -0.194 | 0.194 | 0.314 | -0.016 | 0.016 | 1.716 | -0.823 | 0.823 | 0.793 | -0.217 | 0.217 | 0.457 |
| 12/18/2001 7:54 | -0.194 | 0.194 | 0.314 | -0.074 | 0.074 | 1.774 | -0.865 | 0.865 | 0.835 | -0.221 | 0.221 | 0.461 |
| 12/18/2001 8:00 | -0.203 | 0.203 | 0.323 | -0.131 | 0.131 | 1.831 | -0.909 | 0.909 | 0.879 | -0.221 | 0.221 | 0.461 |
| 12/18/2001 8:06 | -0.203 | 0.203 | 0.323 | -0.208 | 0.208 | 1.908 | -0.96 | 0.96 | 0.93 | -0.212 | 0.212 | 0.452 |
| 12/18/2001 8:12 | -0.221 | 0.221 | 0.341 | -0.279 | 0.279 | 1.979 | -1.003 | 1.003 | 0.973 | -0.221 | 0.221 | 0.461 |
| 12/18/2001 8:18 | -0.221 | 0.221 | 0.341 | -0.346 | 0.346 | 2.046 | -1.045 | 1.045 | 1.015 | -0.221 | 0.221 | 0.461 |
| 12/18/2001 8:24 | -0.226 | 0.226 | 0.346 | -0.399 | 0.399 | 2.099 | -1.093 | 1.093 | 1.063 | -0.108 | 0.108 | 0.348 |
| 12/18/2001 8:30 | -0.226 | 0.226 | 0.346 | -0.489 | 0.489 | 2.189 | -1.151 | 1.151 | 1.121 | -0.104 | 0.104 | 0.344 |

| Date & Time | 8MW3 | | | 8MW5S | | | 8MW6D | | | 8MW6S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/18/2001 8:36 | -0.245 | 0.245 | 0.365 | -0.561 | 0.561 | 2.261 | -1.193 | 1.193 | 1.163 | -0.104 | 0.104 | 0.344 |
| 12/18/2001 8:42 | -0.254 | 0.254 | 0.374 | -0.618 | 0.618 | 2.318 | -1.229 | 1.229 | 1.199 | -0.104 | 0.104 | 0.344 |
| 12/18/2001 8:48 | -0.263 | 0.263 | 0.383 | -0.694 | 0.694 | 2.394 | -1.287 | 1.287 | 1.257 | -0.108 | 0.108 | 0.348 |
| 12/18/2001 8:54 | -0.277 | 0.277 | 0.397 | -0.78 | 0.78 | 2.48 | -1.345 | 1.345 | 1.315 | -0.113 | 0.113 | 0.353 |
| 12/18/2001 9:00 | -0.286 | 0.286 | 0.406 | -0.847 | 0.847 | 2.547 | -1.386 | 1.386 | 1.356 | -0.118 | 0.118 | 0.358 |
| 12/18/2001 9:06 | -0.291 | 0.291 | 0.411 | -0.911 | 0.911 | 2.611 | -1.416 | 1.416 | 1.386 | -0.113 | 0.113 | 0.353 |
| 12/18/2001 9:12 | -0.3 | 0.3 | 0.42 | -0.941 | 0.941 | 2.641 | -1.435 | 1.435 | 1.405 | -0.108 | 0.108 | 0.348 |
| 12/18/2001 9:18 | -0.304 | 0.304 | 0.424 | -0.964 | 0.964 | 2.664 | -1.453 | 1.453 | 1.423 | -0.104 | 0.104 | 0.344 |
| 12/18/2001 9:24 | -0.311 | 0.311 | 0.431 | -1.022 | 1.022 | 2.722 | -1.502 | 1.502 | 1.472 | -0.104 | 0.104 | 0.344 |
| 12/18/2001 9:30 | -0.321 | 0.321 | 0.441 | -1.126 | 1.126 | 2.826 | -1.589 | 1.589 | 1.559 | -0.108 | 0.108 | 0.348 |
| 12/18/2001 9:36 | -0.334 | 0.334 | 0.454 | -1.264 | 1.264 | 2.964 | -1.665 | 1.665 | 1.635 | -0.104 | 0.104 | 0.344 |
| 12/18/2001 9:42 | -0.344 | 0.344 | 0.464 | -1.368 | 1.368 | 3.068 | -1.705 | 1.705 | 1.675 | -0.095 | 0.095 | 0.335 |
| 12/18/2001 9:48 | -0.348 | 0.348 | 0.468 | -1.391 | 1.391 | 3.091 | -1.718 | 1.718 | 1.688 | -0.09 | 0.09 | 0.33 |
| 12/18/2001 9:54 | -0.362 | 0.362 | 0.482 | -1.449 | 1.449 | 3.149 | -1.76 | 1.76 | 1.73 | -0.085 | 0.085 | 0.325 |
| 12/18/2001 10:00 | -0.371 | 0.371 | 0.491 | -1.529 | 1.529 | 3.229 | -1.813 | 1.813 | 1.783 | -0.085 | 0.085 | 0.325 |
| 12/18/2001 10:06 | -0.385 | 0.385 | 0.505 | -1.633 | 1.633 | 3.333 | -1.875 | 1.875 | 1.845 | -0.081 | 0.081 | 0.321 |
| 12/18/2001 10:12 | -0.399 | 0.399 | 0.519 | -1.737 | 1.737 | 3.437 | -1.935 | 1.935 | 1.905 | -0.081 | 0.081 | 0.321 |
| 12/18/2001 10:18 | -0.413 | 0.413 | 0.533 | -1.808 | 1.808 | 3.508 | -1.984 | 1.984 | 1.954 | -0.081 | 0.081 | 0.321 |
| 12/18/2001 10:24 | -0.427 | 0.427 | 0.547 | -1.871 | 1.871 | 3.571 | -2.016 | 2.016 | 1.986 | -0.078 | 0.078 | 0.318 |
| 12/18/2001 10:30 | -0.436 | 0.436 | 0.556 | -1.859 | 1.859 | 3.559 | -2.03 | 2.03 | 2 | -0.078 | 0.078 | 0.318 |
| 12/18/2001 10:36 | -0.45 | 0.45 | 0.57 | -1.845 | 1.845 | 3.545 | -2.041 | 2.041 | 2.011 | -0.078 | 0.078 | 0.318 |
| 12/18/2001 10:42 | -0.464 | 0.464 | 0.584 | -1.926 | 1.926 | 3.626 | -2.097 | 2.097 | 2.067 | -0.074 | 0.074 | 0.314 |
| 12/18/2001 10:48 | -0.477 | 0.477 | 0.597 | -1.988 | 1.988 | 3.688 | -2.131 | 2.131 | 2.101 | -0.078 | 0.078 | 0.318 |
| 12/18/2001 10:54 | -0.491 | 0.491 | 0.611 | -1.984 | 1.984 | 3.684 | -2.141 | 2.141 | 2.111 | -0.074 | 0.074 | 0.314 |
| 12/18/2001 11:00 | -0.496 | 0.496 | 0.616 | -1.908 | 1.908 | 3.608 | -2.127 | 2.127 | 2.097 | -0.074 | 0.074 | 0.314 |
| 12/18/2001 11:06 | -0.505 | 0.505 | 0.625 | -1.889 | 1.889 | 3.589 | -2.127 | 2.127 | 2.097 | -0.069 | 0.069 | 0.309 |
| 12/18/2001 11:12 | -0.514 | 0.514 | 0.634 | -1.947 | 1.947 | 3.647 | -2.154 | 2.154 | 2.124 | -0.065 | 0.065 | 0.305 |
| 12/18/2001 11:18 | -0.528 | 0.528 | 0.648 | -1.926 | 1.926 | 3.626 | -2.15 | 2.15 | 2.12 | -0.065 | 0.065 | 0.305 |
| 12/18/2001 11:24 | -0.533 | 0.533 | 0.653 | -1.908 | 1.908 | 3.608 | -2.145 | 2.145 | 2.115 | -0.06 | 0.06 | 0.3 |
| 12/18/2001 11:30 | -0.542 | 0.542 | 0.662 | -1.912 | 1.912 | 3.612 | -2.154 | 2.154 | 2.124 | -0.055 | 0.055 | 0.295 |
| 12/18/2001 11:36 | -0.551 | 0.551 | 0.671 | -1.894 | 1.894 | 3.594 | -2.141 | 2.141 | 2.111 | -0.051 | 0.051 | 0.291 |
| 12/18/2001 11:42 | -0.561 | 0.561 | 0.681 | -1.799 | 1.799 | 3.499 | -2.111 | 2.111 | 2.081 | -0.055 | 0.055 | 0.295 |
| 12/18/2001 11:48 | -0.57 | 0.57 | 0.69 | -1.767 | 1.767 | 3.467 | -2.097 | 2.097 | 2.067 | -0.051 | 0.051 | 0.291 |
| 12/18/2001 11:54 | -0.579 | 0.579 | 0.699 | -1.739 | 1.739 | 3.439 | -2.083 | 2.083 | 2.053 | -0.051 | 0.051 | 0.291 |
| 12/18/2001 12:00 | -0.584 | 0.584 | 0.704 | -1.705 | 1.705 | 3.405 | -2.06 | 2.06 | 2.03 | -0.046 | 0.046 | 0.286 |
| 12/18/2001 12:06 | -0.588 | 0.588 | 0.708 | -1.656 | 1.656 | 3.356 | -2.032 | 2.032 | 2.002 | -0.046 | 0.046 | 0.286 |
| 12/18/2001 12:12 | -0.588 | 0.588 | 0.708 | -1.592 | 1.592 | 3.292 | -1.998 | 1.998 | 1.968 | -0.042 | 0.042 | 0.282 |
| 12/18/2001 12:18 | -0.597 | 0.597 | 0.717 | -1.548 | 1.548 | 3.248 | -1.97 | 1.97 | 1.94 | -0.046 | 0.046 | 0.286 |
| 12/18/2001 12:24 | -0.602 | 0.602 | 0.722 | -1.472 | 1.472 | 3.172 | -1.926 | 1.926 | 1.896 | -0.046 | 0.046 | 0.286 |
| 12/18/2001 12:30 | -0.607 | 0.607 | 0.727 | -1.4 | 1.4 | 3.1 | -1.875 | 1.875 | 1.845 | -0.046 | 0.046 | 0.286 |
| 12/18/2001 12:36 | -0.607 | 0.607 | 0.727 | -1.363 | 1.363 | 3.063 | -1.857 | 1.857 | 1.827 | -0.042 | 0.042 | 0.282 |
| 12/18/2001 12:42 | -0.616 | 0.616 | 0.736 | -1.319 | 1.319 | 3.019 | -1.822 | 1.822 | 1.792 | -0.046 | 0.046 | 0.286 |
| 12/18/2001 12:48 | -0.611 | 0.611 | 0.731 | -1.296 | 1.296 | 2.996 | -1.799 | 1.799 | 1.769 | -0.037 | 0.037 | 0.277 |
| 12/18/2001 12:54 | -0.616 | 0.616 | 0.736 | -1.253 | 1.253 | 2.953 | -1.762 | 1.762 | 1.732 | -0.037 | 0.037 | 0.277 |
| 12/18/2001 13:00 | -0.62 | 0.62 | 0.74 | -1.225 | 1.225 | 2.925 | -1.737 | 1.737 | 1.707 | -0.042 | 0.042 | 0.282 |
| 12/18/2001 13:06 | -0.616 | 0.616 | 0.736 | -1.13 | 1.13 | 2.83 | -1.665 | 1.665 | 1.635 | -0.037 | 0.037 | 0.277 |
| 12/18/2001 13:12 | -0.611 | 0.611 | 0.731 | -1.059 | 1.059 | 2.759 | -1.615 | 1.615 | 1.585 | -0.028 | 0.028 | 0.268 |
| 12/18/2001 13:18 | -0.607 | 0.607 | 0.727 | -0.996 | 0.996 | 2.696 | -1.571 | 1.571 | 1.541 | -0.018 | 0.018 | 0.258 |
| 12/18/2001 13:24 | -0.602 | 0.602 | 0.722 | -0.955 | 0.955 | 2.655 | -1.529 | 1.529 | 1.499 | -0.014 | 0.014 | 0.254 |
| 12/18/2001 13:30 | -0.607 | 0.607 | 0.727 | -0.902 | 0.902 | 2.602 | -1.492 | 1.492 | 1.462 | -0.014 | 0.014 | 0.254 |
| 12/18/2001 13:36 | -0.597 | 0.597 | 0.717 | -0.84 | 0.84 | 2.54 | -1.43 | 1.43 | 1.4 | -0.005 | 0.005 | 0.245 |
| 12/18/2001 13:42 | -0.597 | 0.597 | 0.717 | -0.777 | 0.777 | 2.477 | -1.396 | 1.396 | 1.366 | -0.005 | 0.005 | 0.245 |
| 12/18/2001 13:48 | -0.588 | 0.588 | 0.708 | -0.74 | 0.74 | 2.44 | -1.354 | 1.354 | 1.324 | 0 | 0 | 0.24 |
| 12/18/2001 13:54 | -0.579 | 0.579 | 0.699 | -0.683 | 0.683 | 2.383 | -1.301 | 1.301 | 1.271 | 0.005 | -0.005 | 0.235 |
| 12/18/2001 14:00 | -0.574 | 0.574 | 0.694 | -0.62 | 0.62 | 2.32 | -1.246 | 1.246 | 1.216 | 0.009 | -0.009 | 0.231 |
| 12/18/2001 14:06 | -0.57 | 0.57 | 0.69 | -0.584 | 0.584 | 2.284 | -1.22 | 1.22 | 1.19 | 0.014 | -0.014 | 0.226 |
| 12/18/2001 14:12 | -0.561 | 0.561 | 0.681 | -0.54 | 0.54 | 2.24 | -1.202 | 1.202 | 1.172 | 0.014 | -0.014 | 0.226 |
| 12/18/2001 14:18 | -0.551 | 0.551 | 0.671 | -0.535 | 0.535 | 2.235 | -1.174 | 1.174 | 1.144 | 0.023 | -0.023 | 0.217 |
| 12/18/2001 14:24 | -0.551 | 0.551 | 0.671 | -0.496 | 0.496 | 2.196 | -1.137 | 1.137 | 1.107 | 0.023 | -0.023 | 0.217 |
| 12/18/2001 14:30 | -0.547 | 0.547 | 0.667 | -0.457 | 0.457 | 2.157 | -1.107 | 1.107 | 1.077 | 0.028 | -0.028 | 0.212 |
| 12/18/2001 14:36 | -0.533 | 0.533 | 0.653 | -0.434 | 0.434 | 2.134 | -1.084 | 1.084 | 1.054 | 0.037 | -0.037 | 0.203 |
| 12/18/2001 14:42 | -0.524 | 0.524 | 0.644 | -0.401 | 0.401 | 2.101 | -1.047 | 1.047 | 1.017 | 0.037 | -0.037 | 0.203 |
| 12/18/2001 14:48 | -0.519 | 0.519 | 0.639 | -0.367 | 0.367 | 2.067 | -0.999 | 0.999 | 0.969 | 0.042 | -0.042 | 0.198 |
| 12/18/2001 14:54 | -0.514 | 0.514 | 0.634 | -0.314 | 0.314 | 2.014 | -0.957 | 0.957 | 0.927 | 0.048 | -0.048 | 0.192 |
| 12/18/2001 15:00 | -0.501 | 0.501 | 0.621 | -0.268 | 0.268 | 1.968 | -0.918 | 0.918 | 0.888 | 0.053 | -0.053 | 0.187 |
| 12/18/2001 15:06 | -0.491 | 0.491 | 0.611 | -0.224 | 0.224 | 1.924 | -0.881 | 0.881 | 0.851 | 0.058 | -0.058 | 0.182 |
| 12/18/2001 15:12 | -0.482 | 0.482 | 0.602 | -0.182 | 0.182 | 1.882 | -0.837 | 0.837 | 0.807 | 0.062 | -0.062 | 0.178 |
| 12/18/2001 15:18 | -0.477 | 0.477 | 0.597 | -0.129 | 0.129 | 1.829 | -0.78 | 0.78 | 0.75 | 0.067 | -0.067 | 0.173 |
| 12/18/2001 15:24 | -0.459 | 0.459 | 0.579 | -0.085 | 0.085 | 1.785 | -0.738 | 0.738 | 0.708 | 0.076 | -0.076 | 0.164 |
| 12/18/2001 15:30 | -0.454 | 0.454 | 0.574 | -0.032 | 0.032 | 1.732 | -0.697 | 0.697 | 0.667 | 0.076 | -0.076 | 0.164 |
| 12/18/2001 15:36 | -0.441 | 0.441 | 0.561 | 0 | 0 | 1.7 | -0.662 | 0.662 | 0.632 | 0.085 | -0.085 | 0.155 |
| 12/18/2001 15:42 | -0.427 | 0.427 | 0.547 | 0 | 0 | 1.7 | -0.625 | 0.625 | 0.595 | 0.09 | -0.09 | 0.15 |
| 12/18/2001 15:48 | -0.418 | 0.418 | 0.538 | 0 | 0 | 1.7 | -0.586 | 0.586 | 0.556 | 0.095 | -0.095 | 0.145 |
| 12/18/2001 15:54 | -0.404 | 0.404 | 0.524 | 0 | 0 | 1.7 | -0.531 | 0.531 | 0.501 | 0.104 | -0.104 | 0.136 |
| 12/18/2001 16:00 | -0.385 | 0.385 | 0.505 | 0 | 0 | 1.7 | -0.487 | 0.487 | 0.457 | 0.113 | -0.113 | 0.127 |
| 12/18/2001 16:06 | -0.376 | 0.376 | 0.496 | 0 | 0 | 1.7 | -0.436 | 0.436 | 0.406 | 0.113 | -0.113 | 0.127 |
| 12/18/2001 16:12 | -0.367 | 0.367 | 0.487 | 0 | 0 | 1.7 | -0.388 | 0.388 | 0.358 | 0.122 | -0.122 | 0.118 |
| 12/18/2001 16:18 | -0.353 | 0.353 | 0.473 | 0 | 0 | 1.7 | -0.346 | 0.346 | 0.316 | 0.122 | -0.122 | 0.118 |
| 12/18/2001 16:24 | -0.339 | 0.339 | 0.459 | 0 | 0 | 1.7 | -0.307 | 0.307 | 0.277 | 0.131 | -0.131 | 0.109 |
| 12/18/2001 16:30 | -0.321 | 0.321 | 0.441 | 0 | 0 | 1.7 | -0.27 | 0.27 | 0.24 | 0.136 | -0.136 | 0.104 |
| 12/18/2001 16:36 | -0.314 | 0.314 | 0.434 | 0 | 0 | 1.7 | -0.231 | 0.231 | 0.201 | 0.145 | -0.145 | 0.095 |
| 12/18/2001 16:42 | -0.3 | 0.3 | 0.42 | 0 | 0 | 1.7 | -0.185 | 0.185 | 0.155 | 0.145 | -0.145 | 0.095 |
| 12/18/2001 16:48 | -0.281 | 0.281 | 0.401 | 0 | 0 | 1.7 | -0.145 | 0.145 | 0.115 | 0.155 | -0.155 | 0.085 |
| 12/18/2001 16:54 | -0.268 | 0.268 | 0.388 | 0 | 0 | 1.7 | -0.104 | 0.104 | 0.074 | 0.166 | -0.166 | 0.074 |
| 12/18/2001 17:00 | -0.254 | 0.254 | 0.374 | 0 | 0 | 1.7 | -0.069 | 0.069 | 0.039 | 0.166 | -0.166 | 0.074 |
| 12/18/2001 17:06 | -0.24 | 0.24 | 0.36 | 0 | 0 | 1.7 | -0.032 | 0.032 | 0.002 | 0.175 | -0.175 | 0.065 |
| 12/18/2001 17:12 | -0.226 | 0.226 | 0.346 | 0 | 0 | 1.7 | 0 | 0 | -0.03 | 0.175 | -0.175 | 0.065 |
| 12/18/2001 17:18 | -0.217 | 0.217 | 0.337 | 0 | 0 | 1.7 | 0.03 | -0.03 | -0.06 | 0.185 | -0.185 | 0.055 |

| Date & Time | 8MW3 | | | 8MW5S | | | 8MW6D | | | 8MW6S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/18/2001 17:24 | -0.203 | 0.203 | 0.323 | 0 | 0 | 1.7 | 0.067 | -0.067 | -0.097 | 0.185 | -0.185 | 0.055 |
| 12/18/2001 17:30 | -0.189 | 0.189 | 0.309 | 0 | 0 | 1.7 | 0.111 | -0.111 | -0.141 | 0.189 | -0.189 | 0.051 |
| 12/18/2001 17:36 | -0.175 | 0.175 | 0.295 | 0 | 0 | 1.7 | 0.152 | -0.152 | -0.182 | 0.194 | -0.194 | 0.046 |
| 12/18/2001 17:42 | -0.166 | 0.166 | 0.286 | 0 | 0 | 1.7 | 0.205 | -0.205 | -0.235 | 0.198 | -0.198 | 0.042 |
| 12/18/2001 17:48 | -0.148 | 0.148 | 0.268 | 0 | 0 | 1.7 | 0.247 | -0.247 | -0.277 | 0.198 | -0.198 | 0.042 |
| 12/18/2001 17:54 | -0.138 | 0.138 | 0.258 | 0 | 0 | 1.7 | 0.286 | -0.286 | -0.316 | 0.203 | -0.203 | 0.037 |
| 12/18/2001 18:00 | -0.125 | 0.125 | 0.245 | 0 | 0 | 1.7 | 0.309 | -0.309 | -0.339 | 0.212 | -0.212 | 0.028 |
| 12/18/2001 18:06 | -0.111 | 0.111 | 0.231 | 0 | 0 | 1.7 | 0.337 | -0.337 | -0.367 | 0.217 | -0.217 | 0.023 |
| 12/18/2001 18:12 | -0.097 | 0.097 | 0.217 | 0 | 0 | 1.7 | 0.376 | -0.376 | -0.406 | 0.221 | -0.221 | 0.019 |
| 12/18/2001 18:18 | -0.083 | 0.083 | 0.203 | 0 | 0 | 1.7 | 0.418 | -0.418 | -0.448 | 0.231 | -0.231 | 0.009 |
| 12/18/2001 18:24 | -0.074 | 0.074 | 0.194 | 0 | 0 | 1.7 | 0.441 | -0.441 | -0.471 | 0.231 | -0.231 | 0.009 |
| 12/18/2001 18:30 | -0.06 | 0.06 | 0.18 | 0 | 0 | 1.7 | 0.466 | -0.466 | -0.496 | 0.235 | -0.235 | 0.005 |
| 12/18/2001 18:36 | -0.042 | 0.042 | 0.162 | 0 | 0 | 1.7 | 0.494 | -0.494 | -0.524 | 0.245 | -0.245 | -0.005 |
| 12/18/2001 18:42 | -0.037 | 0.037 | 0.157 | 0 | 0 | 1.7 | 0.507 | -0.507 | -0.537 | 0.245 | -0.245 | -0.005 |
| 12/18/2001 18:48 | -0.018 | 0.018 | 0.138 | 0 | 0 | 1.7 | 0.503 | -0.503 | -0.533 | 0.249 | -0.249 | -0.009 |
| 12/18/2001 18:54 | -0.009 | 0.009 | 0.129 | 0 | 0 | 1.7 | 0.494 | -0.494 | -0.524 | 0.249 | -0.249 | -0.009 |
| 12/18/2001 19:00 | 0.005 | -0.005 | 0.115 | 0 | 0 | 1.7 | 0.503 | -0.503 | -0.533 | 0.258 | -0.258 | -0.018 |
| 12/18/2001 19:06 | 0.014 | -0.014 | 0.106 | 0 | 0 | 1.7 | 0.517 | -0.517 | -0.547 | 0.258 | -0.258 | -0.018 |
| 12/18/2001 19:12 | 0.023 | -0.023 | 0.097 | 0 | 0 | 1.7 | 0.521 | -0.521 | -0.551 | 0.258 | -0.258 | -0.018 |
| 12/18/2001 19:18 | 0.032 | -0.032 | 0.088 | 0 | 0 | 1.7 | 0.507 | -0.507 | -0.537 | 0.258 | -0.258 | -0.018 |
| 12/18/2001 19:24 | 0.044 | -0.044 | 0.076 | 0 | 0 | 1.7 | 0.503 | -0.503 | -0.533 | 0.268 | -0.268 | -0.028 |
| 12/18/2001 19:30 | 0.053 | -0.053 | 0.067 | 0 | 0 | 1.7 | 0.521 | -0.521 | -0.551 | 0.263 | -0.263 | -0.023 |
| 12/18/2001 19:36 | 0.067 | -0.067 | 0.053 | 0 | 0 | 1.7 | 0.526 | -0.526 | -0.556 | 0.272 | -0.272 | -0.032 |
| 12/18/2001 19:42 | 0.076 | -0.076 | 0.044 | 0 | 0 | 1.7 | 0.503 | -0.503 | -0.533 | 0.277 | -0.277 | -0.037 |
| 12/18/2001 19:48 | 0.085 | -0.085 | 0.035 | 0 | 0 | 1.7 | 0.484 | -0.484 | -0.514 | 0.277 | -0.277 | -0.037 |
| 12/18/2001 19:54 | 0.099 | -0.099 | 0.021 | 0 | 0 | 1.7 | 0.452 | -0.452 | -0.482 | 0.281 | -0.281 | -0.041 |
| 12/18/2001 20:00 | 0.108 | -0.108 | 0.012 | 0 | 0 | 1.7 | 0.413 | -0.413 | -0.443 | 0.286 | -0.286 | -0.046 |
| 12/18/2001 20:06 | 0.122 | -0.122 | -0.002 | 0 | 0 | 1.7 | 0.367 | -0.367 | -0.397 | 0.288 | -0.288 | -0.048 |
| 12/18/2001 20:12 | 0.127 | -0.127 | -0.007 | 0 | 0 | 1.7 | 0.328 | -0.328 | -0.358 | 0.293 | -0.293 | -0.053 |
| 12/18/2001 20:18 | 0.136 | -0.136 | -0.016 | 0 | 0 | 1.7 | 0.291 | -0.291 | -0.321 | 0.298 | -0.298 | -0.058 |
| 12/18/2001 20:24 | 0.141 | -0.141 | -0.021 | 0 | 0 | 1.7 | 0.242 | -0.242 | -0.272 | 0.298 | -0.298 | -0.058 |
| 12/18/2001 20:30 | 0.145 | -0.145 | -0.025 | 0 | 0 | 1.7 | 0.187 | -0.187 | -0.217 | 0.302 | -0.302 | -0.062 |
| 12/18/2001 20:36 | 0.155 | -0.155 | -0.035 | 0 | 0 | 1.7 | 0.115 | -0.115 | -0.145 | 0.307 | -0.307 | -0.067 |
| 12/18/2001 20:42 | 0.155 | -0.155 | -0.035 | 0 | 0 | 1.7 | 0.048 | -0.048 | -0.078 | 0.302 | -0.302 | -0.062 |
| 12/18/2001 20:48 | 0.155 | -0.155 | -0.035 | 0 | 0 | 1.7 | -0.023 | 0.023 | -0.007 | 0.307 | -0.307 | -0.067 |
| 12/18/2001 20:54 | 0.155 | -0.155 | -0.035 | 0 | 0 | 1.7 | -0.078 | 0.078 | 0.048 | 0.307 | -0.307 | -0.067 |
| 12/18/2001 21:00 | 0.159 | -0.159 | -0.039 | 0 | 0 | 1.7 | -0.136 | 0.136 | 0.106 | 0.311 | -0.311 | -0.071 |
| 12/18/2001 21:06 | 0.155 | -0.155 | -0.035 | 0 | 0 | 1.7 | -0.194 | 0.194 | 0.164 | 0.321 | -0.321 | -0.081 |
| 12/18/2001 21:12 | 0.15 | -0.15 | -0.03 | 0 | 0 | 1.7 | -0.284 | 0.284 | 0.254 | 0.321 | -0.321 | -0.081 |
| 12/18/2001 21:18 | 0.141 | -0.141 | -0.021 | 0 | 0 | 1.7 | -0.348 | 0.348 | 0.318 | 0.325 | -0.325 | -0.085 |
| 12/18/2001 21:24 | 0.136 | -0.136 | -0.016 | 0 | 0 | 1.7 | -0.397 | 0.397 | 0.367 | 0.325 | -0.325 | -0.085 |
| 12/18/2001 21:30 | 0.131 | -0.131 | -0.011 | 0 | 0 | 1.7 | -0.434 | 0.434 | 0.404 | 0.325 | -0.325 | -0.085 |
| 12/18/2001 21:36 | 0.127 | -0.127 | -0.007 | 0 | 0 | 1.7 | -0.473 | 0.473 | 0.443 | 0.33 | -0.33 | -0.09 |
| 12/18/2001 21:42 | 0.118 | -0.118 | 0.002 | 0 | 0 | 1.7 | -0.501 | 0.501 | 0.471 | 0.33 | -0.33 | -0.09 |
| 12/18/2001 21:48 | 0.113 | -0.113 | 0.007 | -0.053 | 0.053 | 1.753 | -0.558 | 0.558 | 0.528 | 0.334 | -0.334 | -0.094 |
| 12/18/2001 21:54 | 0.104 | -0.104 | 0.016 | -0.161 | 0.161 | 1.861 | -0.625 | 0.625 | 0.595 | 0.339 | -0.339 | -0.099 |
| 12/18/2001 22:00 | 0.099 | -0.099 | 0.021 | -0.277 | 0.277 | 1.977 | -0.68 | 0.68 | 0.65 | 0.344 | -0.344 | -0.104 |
| 12/18/2001 22:06 | 0.095 | -0.095 | 0.025 | -0.385 | 0.385 | 2.085 | -0.72 | 0.72 | 0.69 | 0.348 | -0.348 | -0.108 |
| 12/18/2001 22:12 | 0.085 | -0.085 | 0.035 | -0.466 | 0.466 | 2.166 | -0.757 | 0.757 | 0.727 | 0.353 | -0.353 | -0.113 |
| 12/18/2001 22:18 | 0.081 | -0.081 | 0.039 | -0.537 | 0.537 | 2.237 | -0.793 | 0.793 | 0.763 | 0.367 | -0.367 | -0.127 |
| 12/18/2001 22:24 | 0.072 | -0.072 | 0.048 | -0.595 | 0.595 | 2.295 | -0.833 | 0.833 | 0.803 | 0.362 | -0.362 | -0.122 |
| 12/18/2001 22:30 | 0.067 | -0.067 | 0.053 | -0.657 | 0.657 | 2.357 | -0.856 | 0.856 | 0.826 | 0.367 | -0.367 | -0.127 |
| 12/18/2001 22:36 | 0.062 | -0.062 | 0.058 | -0.694 | 0.694 | 2.394 | -0.874 | 0.874 | 0.844 | 0.376 | -0.376 | -0.136 |
| 12/18/2001 22:42 | 0.048 | -0.048 | 0.072 | -0.738 | 0.738 | 2.438 | -0.9 | 0.9 | 0.87 | 0.376 | -0.376 | -0.136 |
| 12/18/2001 22:48 | 0.048 | -0.048 | 0.072 | -0.766 | 0.766 | 2.466 | -0.918 | 0.918 | 0.888 | 0.381 | -0.381 | -0.141 |
| 12/18/2001 22:54 | 0.039 | -0.039 | 0.081 | -0.787 | 0.787 | 2.487 | -0.937 | 0.937 | 0.907 | 0.381 | -0.381 | -0.141 |
| 12/18/2001 23:00 | 0.035 | -0.035 | 0.085 | -0.81 | 0.81 | 2.51 | -0.969 | 0.969 | 0.939 | 0.381 | -0.381 | -0.141 |
| 12/18/2001 23:06 | 0.025 | -0.025 | 0.095 | -0.856 | 0.856 | 2.556 | -0.985 | 0.985 | 0.955 | 0.385 | -0.385 | -0.145 |
| 12/18/2001 23:12 | 0.023 | -0.023 | 0.097 | -0.877 | 0.877 | 2.577 | -1.003 | 1.003 | 0.973 | 0.39 | -0.39 | -0.15 |
| 12/18/2001 23:18 | 0.018 | -0.018 | 0.102 | -0.872 | 0.872 | 2.572 | -1.008 | 1.008 | 0.978 | 0.39 | -0.39 | -0.15 |
| 12/18/2001 23:24 | 0.014 | -0.014 | 0.106 | -0.872 | 0.872 | 2.572 | -1.008 | 1.008 | 0.978 | 0.394 | -0.394 | -0.154 |
| 12/18/2001 23:30 | 0.005 | -0.005 | 0.115 | -0.865 | 0.865 | 2.565 | -1.013 | 1.013 | 0.983 | 0.394 | -0.394 | -0.154 |
| 12/18/2001 23:36 | 0 | 0 | 0.12 | -0.86 | 0.86 | 2.56 | -1.022 | 1.022 | 0.992 | 0.394 | -0.394 | -0.154 |
| 12/18/2001 23:42 | -0.005 | 0.005 | 0.125 | -0.867 | 0.867 | 2.567 | -1.031 | 1.031 | 1.001 | 0.394 | -0.394 | -0.154 |
| 12/18/2001 23:48 | -0.009 | 0.009 | 0.129 | -0.895 | 0.895 | 2.595 | -1.054 | 1.054 | 1.024 | 0.394 | -0.394 | -0.154 |
| 12/18/2001 23:54 | -0.014 | 0.014 | 0.134 | -0.927 | 0.927 | 2.627 | -1.075 | 1.075 | 1.045 | 0.399 | -0.399 | -0.159 |
| 12/19/2001 0:00 | -0.018 | 0.018 | 0.138 | -0.937 | 0.937 | 2.637 | -1.08 | 1.08 | 1.05 | 0.404 | -0.404 | -0.164 |
| 12/19/2001 0:06 | -0.023 | 0.023 | 0.143 | -0.937 | 0.937 | 2.637 | -1.08 | 1.08 | 1.05 | 0.404 | -0.404 | -0.164 |
| 12/19/2001 0:12 | -0.032 | 0.032 | 0.152 | -0.927 | 0.927 | 2.627 | -1.093 | 1.093 | 1.063 | 0.404 | -0.404 | -0.164 |
| 12/19/2001 0:18 | -0.037 | 0.037 | 0.157 | -0.941 | 0.941 | 2.641 | -1.103 | 1.103 | 1.073 | 0.399 | -0.399 | -0.159 |
| 12/19/2001 0:24 | -0.046 | 0.046 | 0.166 | -0.953 | 0.953 | 2.653 | -1.116 | 1.116 | 1.086 | 0.404 | -0.404 | -0.164 |
| 12/19/2001 0:30 | -0.046 | 0.046 | 0.166 | -0.98 | 0.98 | 2.68 | -1.139 | 1.139 | 1.109 | 0.404 | -0.404 | -0.164 |
| 12/19/2001 0:36 | -0.06 | 0.06 | 0.18 | -1.017 | 1.017 | 2.717 | -1.16 | 1.16 | 1.13 | 0.404 | -0.404 | -0.164 |
| 12/19/2001 0:42 | -0.06 | 0.06 | 0.18 | -1.043 | 1.043 | 2.743 | -1.169 | 1.169 | 1.139 | 0.408 | -0.408 | -0.168 |
| 12/19/2001 0:48 | -0.065 | 0.065 | 0.185 | -1.033 | 1.033 | 2.733 | -1.165 | 1.165 | 1.135 | 0.415 | -0.415 | -0.175 |
| 12/19/2001 0:54 | -0.069 | 0.069 | 0.189 | -1.013 | 1.013 | 2.713 | -1.16 | 1.16 | 1.13 | 0.42 | -0.42 | -0.18 |
| 12/19/2001 1:00 | -0.074 | 0.074 | 0.194 | -0.999 | 0.999 | 2.699 | -1.156 | 1.156 | 1.126 | 0.42 | -0.42 | -0.18 |
| 12/19/2001 1:06 | -0.078 | 0.078 | 0.198 | -0.957 | 0.957 | 2.657 | -1.13 | 1.13 | 1.1 | 0.42 | -0.42 | -0.18 |
| 12/19/2001 1:12 | -0.074 | 0.074 | 0.194 | -0.918 | 0.918 | 2.618 | -1.103 | 1.103 | 1.073 | 0.429 | -0.429 | -0.189 |
| 12/19/2001 1:18 | -0.078 | 0.078 | 0.198 | -0.895 | 0.895 | 2.595 | -1.089 | 1.089 | 1.059 | 0.434 | -0.434 | -0.194 |
| 12/19/2001 1:24 | -0.078 | 0.078 | 0.198 | -0.886 | 0.886 | 2.586 | -1.08 | 1.08 | 1.05 | 0.438 | -0.438 | -0.198 |
| 12/19/2001 1:30 | -0.083 | 0.083 | 0.203 | -0.886 | 0.886 | 2.586 | -1.075 | 1.075 | 1.045 | 0.447 | -0.447 | -0.207 |
| 12/19/2001 1:36 | -0.088 | 0.088 | 0.208 | -0.883 | 0.883 | 2.583 | -1.066 | 1.066 | 1.036 | 0.452 | -0.452 | -0.212 |
| 12/19/2001 1:42 | -0.088 | 0.088 | 0.208 | -0.86 | 0.86 | 2.56 | -1.05 | 1.05 | 1.02 | 0.452 | -0.452 | -0.212 |
| 12/19/2001 1:48 | -0.083 | 0.083 | 0.203 | -0.833 | 0.833 | 2.533 | -1.026 | 1.026 | 0.996 | 0.461 | -0.461 | -0.221 |
| 12/19/2001 1:54 | -0.088 | 0.088 | 0.208 | -0.814 | 0.814 | 2.514 | -1.013 | 1.013 | 0.983 | 0.466 | -0.466 | -0.226 |
| 12/19/2001 2:00 | -0.092 | 0.092 | 0.212 | -0.784 | 0.784 | 2.484 | -0.994 | 0.994 | 0.964 | 0.461 | -0.461 | -0.221 |
| 12/19/2001 2:06 | -0.097 | 0.097 | 0.217 | -0.757 | 0.757 | 2.457 | -0.971 | 0.971 | 0.941 | 0.466 | -0.466 | -0.226 |

| Date & Time | 8MW3 | | | 8MW5S | | | 8MW6D | | | 8MW6S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/19/2001 2:12 | -0.092 | 0.092 | 0.212 | -0.713 | 0.713 | 2.413 | -0.932 | 0.932 | 0.902 | 0.466 | -0.466 | -0.226 |
| 12/19/2001 2:18 | -0.092 | 0.092 | 0.212 | -0.66 | 0.66 | 2.36 | -0.904 | 0.904 | 0.874 | 0.466 | -0.466 | -0.226 |
| 12/19/2001 2:24 | -0.088 | 0.088 | 0.208 | -0.614 | 0.614 | 2.314 | -0.874 | 0.874 | 0.844 | 0.466 | -0.466 | -0.226 |
| 12/19/2001 2:30 | -0.083 | 0.083 | 0.203 | -0.579 | 0.579 | 2.279 | -0.833 | 0.833 | 0.803 | 0.471 | -0.471 | -0.231 |
| 12/19/2001 2:36 | -0.078 | 0.078 | 0.198 | -0.517 | 0.517 | 2.217 | -0.791 | 0.791 | 0.761 | 0.475 | -0.475 | -0.235 |
| 12/19/2001 2:42 | -0.074 | 0.074 | 0.194 | -0.461 | 0.461 | 2.161 | -0.747 | 0.747 | 0.717 | 0.475 | -0.475 | -0.235 |
| 12/19/2001 2:48 | -0.069 | 0.069 | 0.189 | -0.413 | 0.413 | 2.113 | -0.715 | 0.715 | 0.685 | 0.475 | -0.475 | -0.235 |
| 12/19/2001 2:54 | -0.065 | 0.065 | 0.185 | -0.364 | 0.364 | 2.064 | -0.676 | 0.676 | 0.646 | 0.475 | -0.475 | -0.235 |
| 12/19/2001 3:00 | -0.055 | 0.055 | 0.175 | -0.318 | 0.318 | 2.018 | -0.644 | 0.644 | 0.614 | 0.48 | -0.48 | -0.24 |
| 12/19/2001 3:06 | -0.051 | 0.051 | 0.171 | -0.279 | 0.279 | 1.979 | -0.616 | 0.616 | 0.586 | 0.48 | -0.48 | -0.24 |
| 12/19/2001 3:12 | -0.046 | 0.046 | 0.166 | -0.245 | 0.245 | 1.945 | -0.595 | 0.595 | 0.565 | 0.48 | -0.48 | -0.24 |
| 12/19/2001 3:18 | -0.042 | 0.042 | 0.162 | -0.212 | 0.212 | 1.912 | -0.567 | 0.567 | 0.537 | 0.48 | -0.48 | -0.24 |
| 12/19/2001 3:24 | -0.032 | 0.032 | 0.152 | -0.185 | 0.185 | 1.885 | -0.54 | 0.54 | 0.51 | 0.489 | -0.489 | -0.249 |
| 12/19/2001 3:30 | -0.023 | 0.023 | 0.143 | -0.164 | 0.164 | 1.864 | -0.526 | 0.526 | 0.496 | 0.498 | -0.498 | -0.258 |
| 12/19/2001 3:36 | -0.023 | 0.023 | 0.143 | -0.145 | 0.145 | 1.845 | -0.505 | 0.505 | 0.475 | 0.498 | -0.498 | -0.258 |
| 12/19/2001 3:42 | -0.009 | 0.009 | 0.129 | -0.122 | 0.122 | 1.822 | -0.482 | 0.482 | 0.452 | 0.503 | -0.503 | -0.263 |
| 12/19/2001 3:48 | -0.005 | 0.005 | 0.125 | -0.106 | 0.106 | 1.806 | -0.454 | 0.454 | 0.424 | 0.507 | -0.507 | -0.267 |
| 12/19/2001 3:54 | 0 | 0 | 0.12 | -0.078 | 0.078 | 1.778 | -0.436 | 0.436 | 0.406 | 0.512 | -0.512 | -0.272 |
| 12/19/2001 4:00 | 0.009 | -0.009 | 0.111 | -0.06 | 0.06 | 1.76 | -0.406 | 0.406 | 0.376 | 0.517 | -0.517 | -0.277 |
| 12/19/2001 4:06 | 0.014 | -0.014 | 0.106 | -0.025 | 0.025 | 1.725 | -0.369 | 0.369 | 0.339 | 0.517 | -0.517 | -0.277 |
| 12/19/2001 4:12 | 0.018 | -0.018 | 0.102 | -0.002 | 0.002 | 1.702 | -0.351 | 0.351 | 0.321 | 0.517 | -0.517 | -0.277 |
| 12/19/2001 4:18 | 0.028 | -0.028 | 0.092 | 0 | 0 | 1.7 | -0.33 | 0.33 | 0.3 | 0.517 | -0.517 | -0.277 |
| 12/19/2001 4:24 | 0.035 | -0.035 | 0.085 | 0 | 0 | 1.7 | -0.302 | 0.302 | 0.272 | 0.521 | -0.521 | -0.281 |
| 12/19/2001 4:30 | 0.039 | -0.039 | 0.081 | 0 | 0 | 1.7 | -0.284 | 0.284 | 0.254 | 0.526 | -0.526 | -0.286 |
| 12/19/2001 4:36 | 0.048 | -0.048 | 0.072 | 0 | 0 | 1.7 | -0.27 | 0.27 | 0.24 | 0.526 | -0.526 | -0.286 |
| 12/19/2001 4:42 | 0.053 | -0.053 | 0.067 | 0 | 0 | 1.7 | -0.258 | 0.258 | 0.228 | 0.521 | -0.521 | -0.281 |
| 12/19/2001 4:48 | 0.062 | -0.062 | 0.058 | 0 | 0 | 1.7 | -0.249 | 0.249 | 0.219 | 0.526 | -0.526 | -0.286 |
| 12/19/2001 4:54 | 0.067 | -0.067 | 0.053 | 0 | 0 | 1.7 | -0.245 | 0.245 | 0.215 | 0.533 | -0.533 | -0.293 |
| 12/19/2001 5:00 | 0.076 | -0.076 | 0.044 | 0 | 0 | 1.7 | -0.24 | 0.24 | 0.21 | 0.533 | -0.533 | -0.293 |
| 12/19/2001 5:06 | 0.081 | -0.081 | 0.039 | 0 | 0 | 1.7 | -0.235 | 0.235 | 0.205 | 0.537 | -0.537 | -0.297 |
| 12/19/2001 5:12 | 0.09 | -0.09 | 0.03 | 0 | 0 | 1.7 | -0.221 | 0.221 | 0.191 | 0.542 | -0.542 | -0.302 |
| 12/19/2001 5:18 | 0.099 | -0.099 | 0.021 | 0 | 0 | 1.7 | -0.208 | 0.208 | 0.178 | 0.542 | -0.542 | -0.302 |
| 12/19/2001 5:24 | 0.104 | -0.104 | 0.016 | 0 | 0 | 1.7 | -0.185 | 0.185 | 0.155 | 0.547 | -0.547 | -0.307 |
| 12/19/2001 5:30 | 0.108 | -0.108 | 0.012 | 0 | 0 | 1.7 | -0.164 | 0.164 | 0.134 | 0.547 | -0.547 | -0.307 |
| 12/19/2001 5:36 | 0.118 | -0.118 | 0.002 | 0 | 0 | 1.7 | -0.131 | 0.131 | 0.101 | 0.556 | -0.556 | -0.316 |
| 12/19/2001 5:42 | 0.127 | -0.127 | -0.007 | 0 | 0 | 1.7 | -0.122 | 0.122 | 0.092 | 0.556 | -0.556 | -0.316 |
| 12/19/2001 5:48 | 0.136 | -0.136 | -0.016 | 0 | 0 | 1.7 | -0.099 | 0.099 | 0.069 | 0.565 | -0.565 | -0.325 |
| 12/19/2001 5:54 | 0.145 | -0.145 | -0.025 | 0 | 0 | 1.7 | -0.083 | 0.083 | 0.053 | 0.57 | -0.57 | -0.33 |
| 12/19/2001 6:00 | 0.155 | -0.155 | -0.035 | 0 | 0 | 1.7 | -0.065 | 0.065 | 0.035 | 0.574 | -0.574 | -0.334 |
| 12/19/2001 6:06 | 0.159 | -0.159 | -0.039 | 0 | 0 | 1.7 | -0.055 | 0.055 | 0.025 | 0.574 | -0.574 | -0.334 |
| 12/19/2001 6:12 | 0.168 | -0.168 | -0.048 | 0 | 0 | 1.7 | -0.046 | 0.046 | 0.016 | 0.579 | -0.579 | -0.339 |
| 12/19/2001 6:18 | 0.178 | -0.178 | -0.058 | 0 | 0 | 1.7 | -0.037 | 0.037 | 0.007 | 0.584 | -0.584 | -0.344 |
| 12/19/2001 6:24 | 0.182 | -0.182 | -0.062 | 0 | 0 | 1.7 | -0.028 | 0.028 | -0.002 | 0.588 | -0.588 | -0.348 |
| 12/19/2001 6:30 | 0.191 | -0.191 | -0.071 | 0 | 0 | 1.7 | -0.032 | 0.032 | 0.002 | 0.593 | -0.593 | -0.353 |
| 12/19/2001 6:36 | 0.196 | -0.196 | -0.076 | 0 | 0 | 1.7 | -0.028 | 0.028 | -0.002 | 0.597 | -0.597 | -0.357 |
| 12/19/2001 6:42 | 0.205 | -0.205 | -0.085 | 0 | 0 | 1.7 | -0.023 | 0.023 | -0.007 | 0.602 | -0.602 | -0.362 |
| 12/19/2001 6:48 | 0.21 | -0.21 | -0.09 | 0 | 0 | 1.7 | -0.005 | 0.005 | -0.025 | 0.602 | -0.602 | -0.362 |
| 12/19/2001 6:54 | 0.215 | -0.215 | -0.095 | 0 | 0 | 1.7 | 0.002 | -0.002 | -0.032 | 0.602 | -0.602 | -0.362 |
| 12/19/2001 7:00 | 0.224 | -0.224 | -0.104 | 0 | 0 | 1.7 | 0.021 | -0.021 | -0.051 | 0.607 | -0.607 | -0.367 |
| 12/19/2001 7:06 | 0.228 | -0.228 | -0.108 | 0 | 0 | 1.7 | 0.035 | -0.035 | -0.065 | 0.607 | -0.607 | -0.367 |
| 12/19/2001 7:12 | 0.238 | -0.238 | -0.118 | 0 | 0 | 1.7 | 0.039 | -0.039 | -0.069 | 0.611 | -0.611 | -0.371 |
| 12/19/2001 7:18 | 0.242 | -0.242 | -0.122 | 0 | 0 | 1.7 | 0.035 | -0.035 | -0.065 | 0.611 | -0.611 | -0.371 |
| 12/19/2001 7:24 | 0.247 | -0.247 | -0.127 | 0 | 0 | 1.7 | 0.025 | -0.025 | -0.055 | 0.611 | -0.611 | -0.371 |
| 12/19/2001 7:30 | 0.256 | -0.256 | -0.136 | 0 | 0 | 1.7 | 0.007 | -0.007 | -0.037 | 0.616 | -0.616 | -0.376 |
| 12/19/2001 7:36 | 0.261 | -0.261 | -0.141 | 0 | 0 | 1.7 | -0.014 | 0.014 | -0.016 | 0.62 | -0.62 | -0.38 |
| 12/19/2001 7:42 | 0.265 | -0.265 | -0.145 | 0 | 0 | 1.7 | -0.042 | 0.042 | 0.012 | 0.62 | -0.62 | -0.38 |
| 12/19/2001 7:48 | 0.27 | -0.27 | -0.15 | 0 | 0 | 1.7 | -0.069 | 0.069 | 0.039 | 0.625 | -0.625 | -0.385 |
| 12/19/2001 7:54 | 0.27 | -0.27 | -0.15 | 0 | 0 | 1.7 | -0.095 | 0.095 | 0.065 | 0.63 | -0.63 | -0.39 |
| 12/19/2001 8:00 | 0.274 | -0.274 | -0.154 | 0 | 0 | 1.7 | -0.122 | 0.122 | 0.092 | 0.63 | -0.63 | -0.39 |
| 12/19/2001 8:06 | 0.27 | -0.27 | -0.15 | 0 | 0 | 1.7 | -0.159 | 0.159 | 0.129 | 0.634 | -0.634 | -0.394 |
| 12/19/2001 8:12 | 0.27 | -0.27 | -0.15 | 0 | 0 | 1.7 | -0.198 | 0.198 | 0.168 | 0.639 | -0.639 | -0.399 |
| 12/19/2001 8:18 | 0.27 | -0.27 | -0.15 | 0 | 0 | 1.7 | -0.231 | 0.231 | 0.201 | 0.639 | -0.639 | -0.399 |
| 12/19/2001 8:24 | 0.274 | -0.274 | -0.154 | 0 | 0 | 1.7 | -0.263 | 0.263 | 0.233 | 0.644 | -0.644 | -0.404 |
| 12/19/2001 8:30 | 0.265 | -0.265 | -0.145 | 0 | 0 | 1.7 | -0.293 | 0.293 | 0.263 | 0.644 | -0.644 | -0.404 |
| 12/19/2001 8:36 | 0.265 | -0.265 | -0.145 | -0.009 | 0.009 | 1.709 | -0.339 | 0.339 | 0.309 | 0.644 | -0.644 | -0.404 |
| 12/19/2001 8:42 | 0.261 | -0.261 | -0.141 | -0.072 | 0.072 | 1.772 | -0.374 | 0.374 | 0.344 | 0.498 | -0.498 | -0.258 |
| 12/19/2001 8:48 | 0.256 | -0.256 | -0.136 | -0.134 | 0.134 | 1.834 | | | | 0.498 | -0.498 | -0.258 |
| 12/19/2001 8:54 | 0.251 | -0.251 | -0.131 | -0.201 | 0.201 | 1.901 | | | | 0.39 | -0.39 | -0.15 |
| 12/19/2001 9:00 | 0.247 | -0.247 | -0.127 | -0.263 | 0.263 | 1.963 | | | | | | |
| 12/19/2001 9:06 | 0.238 | -0.238 | -0.118 | -0.334 | 0.334 | 2.034 | | | | | | |
| 12/19/2001 9:12 | 0.233 | -0.233 | -0.113 | -0.406 | 0.406 | 2.106 | | | | | | |
| 12/19/2001 9:18 | 0.224 | -0.224 | -0.104 | -0.482 | 0.482 | 2.182 | | | | | | |
| 12/19/2001 9:24 | 0.219 | -0.219 | -0.099 | -0.558 | 0.558 | 2.258 | | | | | | |
| 12/19/2001 9:30 | | | | -0.644 | 0.644 | 2.344 | | | | | | |
| 12/19/2001 9:36 | | | | -0.72 | 0.72 | 2.42 | | | | | | |
| 12/19/2001 9:42 | | | | -0.777 | 0.777 | 2.477 | | | | | | |
| 12/19/2001 9:48 | | | | -0.823 | 0.823 | 2.523 | | | | | | |
| 12/19/2001 9:54 | | | | -0.881 | 0.881 | 2.581 | | | | | | |
| 12/19/2001 10:00 | | | | | | | | | | | | |
| 12/19/2001 10:06 | | | | | | | | | | | | |
| 12/19/2001 10:12 | | | | | | | | | | | | |
| 12/19/2001 10:18 | | | | | | | | | | | | |
| 12/19/2001 10:24 | | | | | | | | | | | | |
| 12/19/2001 10:30 | | | | | | | | | | | | |
| 12/19/2001 10:36 | | | | | | | | | | | | |
| 12/19/2001 10:42 | | | | | | | | | | | | |
| 12/19/2001 10:48 | | | | | | | | | | | | |
| 12/19/2001 10:54 | | | | | | | | | | | | |

| Date & Time | 8MW3 | | | 8MW5S | | | 8MW6D | | | 8MW6S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/19/2001 11:00 | | | | | | | | | | | | |
| 12/19/2001 11:06 | | | | | | | | | | | | |
| 12/19/2001 11:12 | | | | | | | | | | | | |
| 12/19/2001 11:18 | | | | | | | | | | | | |
| 12/19/2001 11:24 | | | | | | | | | | | | |
| 12/19/2001 11:30 | | | | | | | | | | | | |
| 12/19/2001 11:36 | | | | | | | | | | | | |
| 12/19/2001 11:42 | | | | | | | | | | | | |
| 12/19/2001 11:48 | | | | | | | | | | | | |
| 12/19/2001 11:54 | | | | | | | | | | | | |
| 12/19/2001 12:00 | | | | | | | | | | | | |

**Notes:**

TR Transducer Reading
TA Transducer Adjustment
WLD Water Level Data
WLE Water Level Elevation
Represents high or low tide

| Date & Time | 8MW7S | | | 8MW8D | | | 8MW8S | | | 8SG01 (Staff Gauge) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/17/2001 15:00 | | | | | | | | | | | | |
| 12/17/2001 15:06 | | | | | | | | | | | | |
| 12/17/2001 15:12 | | | | | | | | | | | | |
| 12/17/2001 15:18 | | | | | | | | | | | | |
| 12/17/2001 15:24 | | | | | | | | | | | | |
| 12/17/2001 15:30 | | | | | | | | | | | | |
| 12/17/2001 15:36 | | | | | | | | | | | | |
| 12/17/2001 15:42 | | | | | | | | | | | | |
| 12/17/2001 15:48 | | | | | | | | | | | | |
| 12/17/2001 15:54 | | | | | | | | | | | | |
| 12/17/2001 16:00 | | | | | | | | | | | | |
| 12/17/2001 16:06 | | | | | | | | | | | | |
| 12/17/2001 16:12 | | | | | | | | | | | | |
| 12/17/2001 16:18 | | | | | | | | | | | | |
| 12/17/2001 16:24 | | | | | | | | | | | | |
| 12/17/2001 16:30 | | | | | | | | | | | | |
| 12/17/2001 16:36 | | | | | | | | | | | | |
| 12/17/2001 16:42 | | | | | | | | | | | | |
| 12/17/2001 16:48 | | | | | | | | | | | | |
| 12/17/2001 16:54 | | | | | | | | | | | | |
| 12/17/2001 17:00 | 0 | 0 | 0.37 | 0 | 0 | 0.21 | 0 | 0 | 1.34 | 0 | 0 | -1.22 |
| 12/17/2001 17:06 | 0.005 | -0.005 | 0.365 | 0.009 | -0.009 | 0.201 | 0 | 0 | 1.34 | 0.021 | -0.021 | -1.241 |
| 12/17/2001 17:12 | -0.005 | 0.005 | 0.375 | 0.037 | -0.037 | 0.173 | 0.005 | -0.005 | 1.335 | 0.016 | -0.016 | -1.236 |
| 12/17/2001 17:18 | -0.005 | 0.005 | 0.375 | 0.065 | -0.065 | 0.145 | 0 | 0 | 1.34 | 0.023 | -0.023 | -1.243 |
| 12/17/2001 17:24 | -0.005 | 0.005 | 0.375 | 0.088 | -0.088 | 0.122 | 0.005 | -0.005 | 1.335 | 0.012 | -0.012 | -1.232 |
| 12/17/2001 17:30 | -0.005 | 0.005 | 0.375 | 0.095 | -0.095 | 0.115 | 0.005 | -0.005 | 1.335 | 0 | 0 | -1.22 |
| 12/17/2001 17:36 | -0.005 | 0.005 | 0.375 | 0.108 | -0.108 | 0.102 | 0.009 | -0.009 | 1.331 | 0.016 | -0.016 | -1.236 |
| 12/17/2001 17:42 | -0.005 | 0.005 | 0.375 | 0.118 | -0.118 | 0.092 | 0.009 | -0.009 | 1.331 | 0.048 | -0.048 | -1.268 |
| 12/17/2001 17:48 | -0.005 | 0.005 | 0.375 | 0.131 | -0.131 | 0.079 | 0.009 | -0.009 | 1.331 | 0.053 | -0.053 | -1.273 |
| 12/17/2001 17:54 | -0.009 | 0.009 | 0.379 | 0.131 | -0.131 | 0.079 | 0.009 | -0.009 | 1.331 | -0.012 | 0.012 | -1.208 |
| 12/17/2001 18:00 | -0.009 | 0.009 | 0.379 | 0.15 | -0.15 | 0.06 | 0.009 | -0.009 | 1.331 | -0.012 | 0.012 | -1.208 |
| 12/17/2001 18:06 | -0.009 | 0.009 | 0.379 | 0.145 | -0.145 | 0.065 | 0.009 | -0.009 | 1.331 | -0.053 | 0.053 | -1.167 |
| 12/17/2001 18:12 | -0.005 | 0.005 | 0.375 | 0.131 | -0.131 | 0.079 | 0.009 | -0.009 | 1.331 | -0.081 | 0.081 | -1.139 |
| 12/17/2001 18:18 | -0.005 | 0.005 | 0.375 | 0.131 | -0.131 | 0.079 | 0.009 | -0.009 | 1.331 | -0.097 | 0.097 | -1.123 |
| 12/17/2001 18:24 | -0.009 | 0.009 | 0.379 | 0.122 | -0.122 | 0.088 | 0.009 | -0.009 | 1.331 | -0.161 | 0.161 | -1.059 |
| 12/17/2001 18:30 | -0.009 | 0.009 | 0.379 | 0.113 | -0.113 | 0.097 | 0.009 | -0.009 | 1.331 | -0.191 | 0.191 | -1.029 |
| 12/17/2001 18:36 | -0.005 | 0.005 | 0.375 | 0.104 | -0.104 | 0.106 | 0.009 | -0.009 | 1.331 | -0.247 | 0.247 | -0.973 |
| 12/17/2001 18:42 | -0.005 | 0.005 | 0.375 | 0.095 | -0.095 | 0.115 | 0.009 | -0.009 | 1.331 | -0.293 | 0.293 | -0.927 |
| 12/17/2001 18:48 | -0.005 | 0.005 | 0.375 | 0.088 | -0.088 | 0.122 | 0.009 | -0.009 | 1.331 | -0.371 | 0.371 | -0.849 |
| 12/17/2001 18:54 | -0.009 | 0.009 | 0.379 | 0.074 | -0.074 | 0.136 | 0.014 | -0.014 | 1.326 | -0.471 | 0.471 | -0.749 |
| 12/17/2001 19:00 | -0.014 | 0.014 | 0.384 | 0.06 | -0.06 | 0.15 | 0.014 | -0.014 | 1.326 | -0.51 | 0.51 | -0.71 |
| 12/17/2001 19:06 | -0.014 | 0.014 | 0.384 | 0.042 | -0.042 | 0.168 | 0.009 | -0.009 | 1.331 | -0.533 | 0.533 | -0.687 |
| 12/17/2001 19:12 | -0.009 | 0.009 | 0.379 | 0.023 | -0.023 | 0.187 | 0.014 | -0.014 | 1.326 | -0.63 | 0.63 | -0.59 |
| 12/17/2001 19:18 | -0.014 | 0.014 | 0.384 | 0 | 0 | 0.21 | 0.014 | -0.014 | 1.326 | -0.727 | 0.727 | -0.493 |
| 12/17/2001 19:24 | -0.009 | 0.009 | 0.379 | -0.016 | 0.016 | 0.226 | 0.014 | -0.014 | 1.326 | -0.796 | 0.796 | -0.424 |
| 12/17/2001 19:30 | -0.009 | 0.009 | 0.379 | -0.035 | 0.035 | 0.245 | 0.014 | -0.014 | 1.326 | -0.874 | 0.874 | -0.346 |
| 12/17/2001 19:36 | -0.014 | 0.014 | 0.384 | -0.053 | 0.053 | 0.263 | 0.014 | -0.014 | 1.326 | -0.955 | 0.955 | -0.265 |
| 12/17/2001 19:42 | -0.014 | 0.014 | 0.384 | -0.085 | 0.085 | 0.295 | 0.014 | -0.014 | 1.326 | -1.075 | 1.075 | -0.145 |
| 12/17/2001 19:48 | -0.014 | 0.014 | 0.384 | -0.108 | 0.108 | 0.318 | 0.014 | -0.014 | 1.326 | -1.098 | 1.098 | -0.122 |
| 12/17/2001 19:54 | -0.014 | 0.014 | 0.384 | -0.12 | 0.12 | 0.33 | 0.018 | -0.018 | 1.322 | -1.068 | 1.068 | -0.152 |
| 12/17/2001 20:00 | -0.014 | 0.014 | 0.384 | -0.134 | 0.134 | 0.344 | 0.014 | -0.014 | 1.326 | -1.11 | 1.11 | -0.11 |
| 12/17/2001 20:06 | -0.014 | 0.014 | 0.384 | -0.152 | 0.152 | 0.362 | 0.014 | -0.014 | 1.326 | -1.218 | 1.218 | -0.002 |
| 12/17/2001 20:12 | -0.014 | 0.014 | 0.384 | -0.577 | 0.577 | 0.787 | 0.014 | -0.014 | 1.326 | -1.296 | 1.296 | 0.076 |
| 12/17/2001 20:18 | -0.009 | 0.009 | 0.379 | -0.6 | 0.6 | 0.81 | 0.014 | -0.014 | 1.326 | -1.317 | 1.317 | 0.097 |
| 12/17/2001 20:24 | -0.014 | 0.014 | 0.384 | -0.609 | 0.609 | 0.819 | 0.014 | -0.014 | 1.326 | -1.34 | 1.34 | 0.12 |
| 12/17/2001 20:30 | -0.014 | 0.014 | 0.384 | -0.63 | 0.63 | 0.84 | 0.014 | -0.014 | 1.326 | -1.456 | 1.456 | 0.236 |
| 12/17/2001 20:36 | -0.014 | 0.014 | 0.384 | -0.657 | 0.657 | 0.867 | 0.014 | -0.014 | 1.326 | -1.485 | 1.485 | 0.265 |
| 12/17/2001 20:42 | -0.014 | 0.014 | 0.384 | -0.676 | 0.676 | 0.886 | 0.018 | -0.018 | 1.322 | -1.499 | 1.499 | 0.279 |
| 12/17/2001 20:48 | -0.014 | 0.014 | 0.384 | -0.699 | 0.699 | 0.909 | 0.014 | -0.014 | 1.326 | -1.555 | 1.555 | 0.335 |
| 12/17/2001 20:54 | -0.018 | 0.018 | 0.388 | -0.708 | 0.708 | 0.918 | 0.018 | -0.018 | 1.322 | -1.557 | 1.557 | 0.337 |
| 12/17/2001 21:00 | -0.014 | 0.014 | 0.384 | -0.727 | 0.727 | 0.937 | 0.014 | -0.014 | 1.326 | -1.585 | 1.585 | 0.365 |
| 12/17/2001 21:06 | -0.018 | 0.018 | 0.388 | -0.747 | 0.747 | 0.957 | 0.014 | -0.014 | 1.326 | -1.691 | 1.691 | 0.471 |
| 12/17/2001 21:12 | -0.018 | 0.018 | 0.388 | -0.766 | 0.766 | 0.976 | 0.014 | -0.014 | 1.326 | -1.785 | 1.785 | 0.565 |
| 12/17/2001 21:18 | -0.018 | 0.018 | 0.388 | -0.789 | 0.789 | 0.999 | 0.014 | -0.014 | 1.326 | -1.857 | 1.857 | 0.637 |
| 12/17/2001 21:24 | -0.023 | 0.023 | 0.393 | -0.803 | 0.803 | 1.013 | 0.014 | -0.014 | 1.326 | -1.831 | 1.831 | 0.611 |
| 12/17/2001 21:30 | -0.018 | 0.018 | 0.388 | -0.826 | 0.826 | 1.036 | 0.014 | -0.014 | 1.326 | -1.82 | 1.82 | 0.6 |
| 12/17/2001 21:36 | -0.023 | 0.023 | 0.393 | -0.83 | 0.83 | 1.04 | 0.014 | -0.014 | 1.326 | -1.831 | 1.831 | 0.611 |
| 12/17/2001 21:42 | -0.018 | 0.018 | 0.388 | -0.851 | 0.851 | 1.061 | 0.014 | -0.014 | 1.326 | -1.873 | 1.873 | 0.653 |
| 12/17/2001 21:48 | -0.018 | 0.018 | 0.388 | -0.86 | 0.86 | 1.07 | 0.014 | -0.014 | 1.326 | -1.915 | 1.915 | 0.695 |
| 12/17/2001 21:54 | -0.023 | 0.023 | 0.393 | -0.879 | 0.879 | 1.089 | 0.014 | -0.014 | 1.326 | -1.993 | 1.993 | 0.773 |
| 12/17/2001 22:00 | -0.018 | 0.018 | 0.388 | -0.907 | 0.907 | 1.117 | 0.014 | -0.014 | 1.326 | -2.058 | 2.058 | 0.838 |
| 12/17/2001 22:06 | -0.018 | 0.018 | 0.388 | -0.932 | 0.932 | 1.142 | 0.014 | -0.014 | 1.326 | -2.085 | 2.085 | 0.865 |
| 12/17/2001 22:12 | -0.023 | 0.023 | 0.393 | -0.95 | 0.95 | 1.16 | 0.014 | -0.014 | 1.326 | -2.108 | 2.108 | 0.888 |
| 12/17/2001 22:18 | -0.023 | 0.023 | 0.393 | -0.969 | 0.969 | 1.179 | 0.014 | -0.014 | 1.326 | -2.214 | 2.214 | 0.994 |
| 12/17/2001 22:24 | -0.028 | 0.028 | 0.398 | -0.992 | 0.992 | 1.202 | 0.014 | -0.014 | 1.326 | -2.279 | 2.279 | 1.059 |
| 12/17/2001 22:30 | -0.028 | 0.028 | 0.398 | -1.015 | 1.015 | 1.225 | 0.014 | -0.014 | 1.326 | -2.284 | 2.284 | 1.064 |
| 12/17/2001 22:36 | -0.032 | 0.032 | 0.402 | -1.033 | 1.033 | 1.243 | 0.014 | -0.014 | 1.326 | -2.311 | 2.311 | 1.091 |
| 12/17/2001 22:42 | -0.028 | 0.028 | 0.398 | -1.045 | 1.045 | 1.255 | 0.009 | -0.009 | 1.331 | -2.327 | 2.327 | 1.107 |
| 12/17/2001 22:48 | -0.032 | 0.032 | 0.402 | -1.059 | 1.059 | 1.269 | 0.009 | -0.009 | 1.331 | -2.364 | 2.364 | 1.144 |
| 12/17/2001 22:54 | -0.032 | 0.032 | 0.402 | -1.073 | 1.073 | 1.283 | 0.014 | -0.014 | 1.326 | -2.415 | 2.415 | 1.195 |
| 12/17/2001 23:00 | -0.028 | 0.028 | 0.398 | -1.096 | 1.096 | 1.306 | 0.009 | -0.009 | 1.331 | -2.443 | 2.443 | 1.223 |
| 12/17/2001 23:06 | -0.032 | 0.032 | 0.402 | -1.114 | 1.114 | 1.324 | 0.014 | -0.014 | 1.326 | -2.466 | 2.466 | 1.246 |
| 12/17/2001 23:12 | -0.028 | 0.028 | 0.398 | -1.137 | 1.137 | 1.347 | 0.009 | -0.009 | 1.331 | -2.526 | 2.526 | 1.306 |
| 12/17/2001 23:18 | -0.028 | 0.028 | 0.398 | -1.163 | 1.163 | 1.373 | 0.014 | -0.014 | 1.326 | -2.558 | 2.558 | 1.338 |
| 12/17/2001 23:24 | -0.037 | 0.037 | 0.407 | -1.167 | 1.167 | 1.377 | 0.014 | -0.014 | 1.326 | -2.549 | 2.549 | 1.329 |
| 12/17/2001 23:30 | -0.042 | 0.042 | 0.412 | -1.163 | 1.163 | 1.373 | 0.009 | -0.009 | 1.331 | -2.521 | 2.521 | 1.301 |
| 12/17/2001 23:36 | -0.032 | 0.032 | 0.402 | -1.19 | 1.19 | 1.4 | 0.009 | -0.009 | 1.331 | -2.544 | 2.544 | 1.324 |
| 12/17/2001 23:42 | -0.037 | 0.037 | 0.407 | -1.199 | 1.199 | 1.409 | 0.009 | -0.009 | 1.331 | -2.553 | 2.553 | 1.333 |

| Date & Time | 8MW7S | | | 8MW8D | | | 8MW8S | | | 8SG01 (Staff Gauge) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/17/2001 23:48 | -0.042 | 0.042 | 0.412 | -1.195 | 1.195 | 1.405 | 0.009 | -0.009 | 1.331 | -2.547 | 2.547 | 1.327 |
| 12/17/2001 23:54 | -0.037 | 0.037 | 0.407 | -1.204 | 1.204 | 1.414 | 0.009 | -0.009 | 1.331 | -2.542 | 2.542 | 1.322 |
| 12/18/2001 0:00 | -0.037 | 0.037 | 0.407 | -1.209 | 1.209 | 1.419 | 0.009 | -0.009 | 1.331 | -2.547 | 2.547 | 1.327 |
| 12/18/2001 0:06 | -0.042 | 0.042 | 0.412 | -1.223 | 1.223 | 1.433 | 0.009 | -0.009 | 1.331 | -2.533 | 2.533 | 1.313 |
| 12/18/2001 0:12 | -0.042 | 0.042 | 0.412 | -1.213 | 1.213 | 1.423 | 0.009 | -0.009 | 1.331 | -2.514 | 2.514 | 1.294 |
| 12/18/2001 0:18 | -0.046 | 0.046 | 0.416 | -1.204 | 1.204 | 1.414 | 0.009 | -0.009 | 1.331 | -2.464 | 2.464 | 1.244 |
| 12/18/2001 0:24 | -0.046 | 0.046 | 0.416 | -1.195 | 1.195 | 1.405 | 0.009 | -0.009 | 1.331 | -2.454 | 2.454 | 1.234 |
| 12/18/2001 0:30 | -0.055 | 0.055 | 0.425 | -1.167 | 1.167 | 1.377 | 0.009 | -0.009 | 1.331 | -2.397 | 2.397 | 1.177 |
| 12/18/2001 0:36 | -0.051 | 0.051 | 0.421 | -1.163 | 1.163 | 1.373 | 0.009 | -0.009 | 1.331 | -2.36 | 2.36 | 1.14 |
| 12/18/2001 0:42 | -0.051 | 0.051 | 0.421 | -1.144 | 1.144 | 1.354 | 0.009 | -0.009 | 1.331 | -2.277 | 2.277 | 1.057 |
| 12/18/2001 0:48 | -0.051 | 0.051 | 0.421 | -1.133 | 1.133 | 1.343 | 0.009 | -0.009 | 1.331 | -2.194 | 2.194 | 0.974 |
| 12/18/2001 0:54 | -0.051 | 0.051 | 0.421 | -1.105 | 1.105 | 1.315 | 0.009 | -0.009 | 1.331 | -2.138 | 2.138 | 0.918 |
| 12/18/2001 1:00 | -0.046 | 0.046 | 0.416 | -1.091 | 1.091 | 1.301 | 0.009 | -0.009 | 1.331 | -2.097 | 2.097 | 0.877 |
| 12/18/2001 1:06 | -0.051 | 0.051 | 0.421 | -1.077 | 1.077 | 1.287 | 0.005 | -0.005 | 1.335 | -2.007 | 2.007 | 0.787 |
| 12/18/2001 1:12 | -0.055 | 0.055 | 0.425 | -1.036 | 1.036 | 1.246 | 0.005 | -0.005 | 1.335 | -1.887 | 1.887 | 0.667 |
| 12/18/2001 1:18 | -0.055 | 0.055 | 0.425 | -1.006 | 1.006 | 1.216 | 0.005 | -0.005 | 1.335 | -1.85 | 1.85 | 0.63 |
| 12/18/2001 1:24 | -0.051 | 0.051 | 0.421 | -0.983 | 0.983 | 1.193 | 0.009 | -0.009 | 1.331 | -1.841 | 1.841 | 0.621 |
| 12/18/2001 1:30 | -0.06 | 0.06 | 0.43 | -0.96 | 0.96 | 1.17 | 0.005 | -0.005 | 1.335 | -1.783 | 1.783 | 0.563 |
| 12/18/2001 1:36 | -0.06 | 0.06 | 0.43 | -0.941 | 0.941 | 1.151 | 0.005 | -0.005 | 1.335 | -1.714 | 1.714 | 0.494 |
| 12/18/2001 1:42 | -0.055 | 0.055 | 0.425 | -0.92 | 0.92 | 1.13 | 0.009 | -0.009 | 1.331 | -1.705 | 1.705 | 0.485 |
| 12/18/2001 1:48 | -0.055 | 0.055 | 0.425 | -0.902 | 0.902 | 1.112 | 0.009 | -0.009 | 1.331 | -1.658 | 1.658 | 0.438 |
| 12/18/2001 1:54 | -0.06 | 0.06 | 0.43 | -0.874 | 0.874 | 1.084 | 0.005 | -0.005 | 1.335 | -1.564 | 1.564 | 0.344 |
| 12/18/2001 2:00 | -0.06 | 0.06 | 0.43 | -0.847 | 0.847 | 1.057 | 0.005 | -0.005 | 1.335 | -1.504 | 1.504 | 0.284 |
| 12/18/2001 2:06 | -0.06 | 0.06 | 0.43 | -0.828 | 0.828 | 1.038 | 0.005 | -0.005 | 1.335 | -1.476 | 1.476 | 0.256 |
| 12/18/2001 2:12 | -0.06 | 0.06 | 0.43 | -0.807 | 0.807 | 1.017 | 0.009 | -0.009 | 1.331 | -1.412 | 1.412 | 0.192 |
| 12/18/2001 2:18 | -0.065 | 0.065 | 0.435 | -0.784 | 0.784 | 0.994 | 0.005 | -0.005 | 1.335 | -1.331 | 1.331 | 0.111 |
| 12/18/2001 2:24 | -0.055 | 0.055 | 0.425 | -0.747 | 0.747 | 0.957 | 0.009 | -0.009 | 1.331 | -1.289 | 1.289 | 0.069 |
| 12/18/2001 2:30 | -0.06 | 0.06 | 0.43 | -0.724 | 0.724 | 0.934 | 0.005 | -0.005 | 1.335 | -1.22 | 1.22 | 0 |
| 12/18/2001 2:36 | -0.065 | 0.065 | 0.435 | -0.704 | 0.704 | 0.914 | 0.005 | -0.005 | 1.335 | -1.183 | 1.183 | -0.037 |
| 12/18/2001 2:42 | -0.065 | 0.065 | 0.435 | -0.676 | 0.676 | 0.886 | 0.005 | -0.005 | 1.335 | -1.116 | 1.116 | -0.104 |
| 12/18/2001 2:48 | -0.069 | 0.069 | 0.439 | -0.634 | 0.634 | 0.844 | 0.005 | -0.005 | 1.335 | -1.038 | 1.038 | -0.182 |
| 12/18/2001 2:54 | -0.074 | 0.074 | 0.444 | -1.063 | 1.063 | 1.273 | 0.005 | -0.005 | 1.335 | -0.955 | 0.955 | -0.265 |
| 12/18/2001 3:00 | -0.069 | 0.069 | 0.439 | -1.036 | 1.036 | 1.246 | 0.005 | -0.005 | 1.335 | -0.913 | 0.913 | -0.307 |
| 12/18/2001 3:06 | -0.069 | 0.069 | 0.439 | -1.01 | 1.01 | 1.22 | 0.005 | -0.005 | 1.335 | -0.895 | 0.895 | -0.325 |
| 12/18/2001 3:12 | -0.069 | 0.069 | 0.439 | -0.992 | 0.992 | 1.202 | 0.005 | -0.005 | 1.335 | -0.847 | 0.847 | -0.373 |
| 12/18/2001 3:18 | -0.069 | 0.069 | 0.439 | -0.973 | 0.973 | 1.183 | 0.005 | -0.005 | 1.335 | -0.777 | 0.777 | -0.443 |
| 12/18/2001 3:24 | -0.069 | 0.069 | 0.439 | -0.932 | 0.932 | 1.142 | 0.005 | -0.005 | 1.335 | -0.724 | 0.724 | -0.496 |
| 12/18/2001 3:30 | -0.074 | 0.074 | 0.444 | -0.92 | 0.92 | 1.13 | 0.005 | -0.005 | 1.335 | -0.669 | 0.669 | -0.551 |
| 12/18/2001 3:36 | -0.069 | 0.069 | 0.439 | -0.888 | 0.888 | 1.098 | 0.009 | -0.009 | 1.331 | -0.611 | 0.611 | -0.609 |
| 12/18/2001 3:42 | -0.074 | 0.074 | 0.444 | -0.856 | 0.856 | 1.066 | 0 | 0 | 1.34 | -0.537 | 0.537 | -0.683 |
| 12/18/2001 3:48 | -0.074 | 0.074 | 0.444 | -0.821 | 0.821 | 1.031 | 0.005 | -0.005 | 1.335 | -0.48 | 0.48 | -0.74 |
| 12/18/2001 3:54 | -0.078 | 0.078 | 0.448 | -0.784 | 0.784 | 0.994 | 0.005 | -0.005 | 1.335 | -0.438 | 0.438 | -0.782 |
| 12/18/2001 4:00 | -0.074 | 0.074 | 0.444 | -0.766 | 0.766 | 0.976 | 0.005 | -0.005 | 1.335 | -0.374 | 0.374 | -0.846 |
| 12/18/2001 4:06 | -0.074 | 0.074 | 0.444 | -0.738 | 0.738 | 0.948 | 0.005 | -0.005 | 1.335 | -0.293 | 0.293 | -0.927 |
| 12/18/2001 4:12 | -0.074 | 0.074 | 0.444 | -0.708 | 0.708 | 0.918 | 0 | 0 | 1.34 | -0.247 | 0.247 | -0.973 |
| 12/18/2001 4:18 | -0.078 | 0.078 | 0.448 | -0.68 | 0.68 | 0.89 | 0.005 | -0.005 | 1.335 | -0.251 | 0.251 | -0.969 |
| 12/18/2001 4:24 | -0.078 | 0.078 | 0.448 | -0.667 | 0.667 | 0.877 | 0.005 | -0.005 | 1.335 | -0.242 | 0.242 | -0.978 |
| 12/18/2001 4:30 | -0.074 | 0.074 | 0.444 | -0.648 | 0.648 | 0.858 | 0.005 | -0.005 | 1.335 | -0.228 | 0.228 | -0.992 |
| 12/18/2001 4:36 | -0.074 | 0.074 | 0.444 | -0.639 | 0.639 | 0.849 | 0.005 | -0.005 | 1.335 | -0.201 | 0.201 | -1.019 |
| 12/18/2001 4:42 | -0.074 | 0.074 | 0.444 | -0.618 | 0.618 | 0.828 | 0.005 | -0.005 | 1.335 | -0.201 | 0.201 | -1.019 |
| 12/18/2001 4:48 | -0.078 | 0.078 | 0.448 | -0.604 | 0.604 | 0.814 | 0.005 | -0.005 | 1.335 | -0.178 | 0.178 | -1.042 |
| 12/18/2001 4:54 | -0.078 | 0.078 | 0.448 | -0.591 | 0.591 | 0.801 | 0.005 | -0.005 | 1.335 | -0.173 | 0.173 | -1.047 |
| 12/18/2001 5:00 | -0.078 | 0.078 | 0.448 | -0.577 | 0.577 | 0.787 | 0.005 | -0.005 | 1.335 | -0.141 | 0.141 | -1.079 |
| 12/18/2001 5:06 | -0.078 | 0.078 | 0.448 | -0.563 | 0.563 | 0.773 | 0.009 | -0.009 | 1.331 | -0.148 | 0.148 | -1.072 |
| 12/18/2001 5:12 | -0.078 | 0.078 | 0.448 | -0.554 | 0.554 | 0.764 | 0.005 | -0.005 | 1.335 | -0.125 | 0.125 | -1.095 |
| 12/18/2001 5:18 | -0.078 | 0.078 | 0.448 | -0.549 | 0.549 | 0.759 | 0.005 | -0.005 | 1.335 | -0.09 | 0.09 | -1.13 |
| 12/18/2001 5:24 | -0.083 | 0.083 | 0.453 | -0.521 | 0.521 | 0.731 | 0.005 | -0.005 | 1.335 | -0.044 | 0.044 | -1.176 |
| 12/18/2001 5:30 | -0.078 | 0.078 | 0.448 | -0.514 | 0.514 | 0.724 | 0.009 | -0.009 | 1.331 | -0.035 | 0.035 | -1.185 |
| 12/18/2001 5:36 | -0.083 | 0.083 | 0.453 | -0.491 | 0.491 | 0.701 | 0.009 | -0.009 | 1.331 | -0.048 | 0.048 | -1.172 |
| 12/18/2001 5:42 | -0.078 | 0.078 | 0.448 | -0.491 | 0.491 | 0.701 | 0.005 | -0.005 | 1.335 | -0.035 | 0.035 | -1.185 |
| 12/18/2001 5:48 | -0.088 | 0.088 | 0.458 | -0.477 | 0.477 | 0.687 | 0.005 | -0.005 | 1.335 | 0.002 | -0.002 | -1.222 |
| 12/18/2001 5:54 | -0.078 | 0.078 | 0.448 | -0.468 | 0.468 | 0.678 | 0.009 | -0.009 | 1.331 | 0.016 | -0.016 | -1.236 |
| 12/18/2001 6:00 | -0.083 | 0.083 | 0.453 | -0.464 | 0.464 | 0.674 | 0.005 | -0.005 | 1.335 | -0.016 | 0.016 | -1.204 |
| 12/18/2001 6:06 | -0.078 | 0.078 | 0.448 | -0.459 | 0.459 | 0.669 | 0.009 | -0.009 | 1.331 | -0.058 | 0.058 | -1.162 |
| 12/18/2001 6:12 | -0.078 | 0.078 | 0.448 | -0.468 | 0.468 | 0.678 | 0.009 | -0.009 | 1.331 | -0.125 | 0.125 | -1.095 |
| 12/18/2001 6:18 | -0.083 | 0.083 | 0.453 | -0.477 | 0.477 | 0.687 | 0.009 | -0.009 | 1.331 | -0.185 | 0.185 | -1.035 |
| 12/18/2001 6:24 | -0.083 | 0.083 | 0.453 | -0.482 | 0.482 | 0.692 | 0.005 | -0.005 | 1.335 | -0.226 | 0.226 | -0.994 |
| 12/18/2001 6:30 | -0.078 | 0.078 | 0.448 | -0.505 | 0.505 | 0.715 | 0.005 | -0.005 | 1.335 | -0.272 | 0.272 | -0.948 |
| 12/18/2001 6:36 | -0.078 | 0.078 | 0.448 | -0.519 | 0.519 | 0.729 | 0.005 | -0.005 | 1.335 | -0.321 | 0.321 | -0.899 |
| 12/18/2001 6:42 | -0.088 | 0.088 | 0.458 | -0.519 | 0.519 | 0.729 | 0.005 | -0.005 | 1.335 | -0.362 | 0.362 | -0.858 |
| 12/18/2001 6:48 | -0.083 | 0.083 | 0.453 | -0.535 | 0.535 | 0.745 | 0 | 0 | 1.34 | -0.381 | 0.381 | -0.839 |
| 12/18/2001 6:54 | -0.078 | 0.078 | 0.448 | -0.554 | 0.554 | 0.764 | -0.009 | 0.009 | 1.349 | -0.431 | 0.431 | -0.789 |
| 12/18/2001 7:00 | -0.074 | 0.074 | 0.444 | -0.567 | 0.567 | 0.777 | -0.014 | 0.014 | 1.354 | -0.484 | 0.484 | -0.736 |
| 12/18/2001 7:06 | -0.078 | 0.078 | 0.448 | -0.577 | 0.577 | 0.787 | -0.023 | 0.023 | 1.363 | -0.512 | 0.512 | -0.708 |
| 12/18/2001 7:12 | -0.078 | 0.078 | 0.448 | -0.586 | 0.586 | 0.796 | -0.037 | 0.037 | 1.377 | -0.526 | 0.526 | -0.694 |
| 12/18/2001 7:18 | -0.078 | 0.078 | 0.448 | -0.591 | 0.591 | 0.801 | -0.051 | 0.051 | 1.391 | -0.57 | 0.57 | -0.65 |
| 12/18/2001 7:24 | -0.083 | 0.083 | 0.453 | -0.6 | 0.6 | 0.81 | -0.065 | 0.065 | 1.405 | -0.614 | 0.614 | -0.606 |
| 12/18/2001 7:30 | -0.074 | 0.074 | 0.444 | -0.63 | 0.63 | 0.84 | -0.078 | 0.078 | 1.418 | -0.65 | 0.65 | -0.57 |
| 12/18/2001 7:36 | -0.078 | 0.078 | 0.448 | -0.639 | 0.639 | 0.849 | -0.092 | 0.092 | 1.432 | -0.676 | 0.676 | -0.544 |
| 12/18/2001 7:42 | -0.083 | 0.083 | 0.453 | -0.639 | 0.639 | 0.849 | -0.097 | 0.097 | 1.437 | -0.747 | 0.747 | -0.473 |
| 12/18/2001 7:48 | -0.078 | 0.078 | 0.448 | -0.657 | 0.657 | 0.867 | -0.106 | 0.106 | 1.446 | -0.821 | 0.821 | -0.399 |
| 12/18/2001 7:54 | -0.083 | 0.083 | 0.453 | -0.68 | 0.68 | 0.89 | -0.115 | 0.115 | 1.455 | -0.863 | 0.863 | -0.357 |
| 12/18/2001 8:00 | -0.083 | 0.083 | 0.453 | -0.699 | 0.699 | 0.909 | -0.129 | 0.129 | 1.469 | -0.932 | 0.932 | -0.288 |
| 12/18/2001 8:06 | -0.074 | 0.074 | 0.444 | -0.738 | 0.738 | 0.948 | -0.134 | 0.134 | 1.474 | -1.045 | 1.045 | -0.175 |
| 12/18/2001 8:12 | -0.088 | 0.088 | 0.458 | -0.757 | 0.757 | 0.967 | -0.138 | 0.138 | 1.478 | -1.082 | 1.082 | -0.138 |
| 12/18/2001 8:18 | -0.078 | 0.078 | 0.448 | -0.784 | 0.784 | 0.994 | -0.152 | 0.152 | 1.492 | -1.142 | 1.142 | -0.078 |
| 12/18/2001 8:24 | -0.078 | 0.078 | 0.448 | -0.807 | 0.807 | 1.017 | -0.166 | 0.166 | 1.506 | -1.213 | 1.213 | -0.007 |
| 12/18/2001 8:30 | -0.078 | 0.078 | 0.448 | -0.851 | 0.851 | 1.061 | -0.196 | 0.196 | 1.536 | -1.312 | 1.312 | 0.092 |

| Date & Time | 8MW7S | | | 8MW8D | | | 8MW8S | | | 8SG01 (Staff Gauge) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/18/2001 8:36 | -0.078 | 0.078 | 0.448 | -0.87 | 0.87 | 1.08 | -0.228 | 0.228 | 1.568 | -1.31 | 1.31 | 0.09 |
| 12/18/2001 8:42 | -0.078 | 0.078 | 0.448 | -0.902 | 0.902 | 1.112 | -0.265 | 0.265 | 1.605 | -1.34 | 1.34 | 0.12 |
| 12/18/2001 8:48 | -0.078 | 0.078 | 0.448 | -0.932 | 0.932 | 1.142 | -0.298 | 0.298 | 1.638 | -1.449 | 1.449 | 0.229 |
| 12/18/2001 8:54 | -0.088 | 0.088 | 0.458 | -0.955 | 0.955 | 1.165 | -0.325 | 0.325 | 1.665 | -1.504 | 1.504 | 0.284 |
| 12/18/2001 9:00 | -0.083 | 0.083 | 0.453 | -0.987 | 0.987 | 1.197 | -0.362 | 0.362 | 1.702 | -1.529 | 1.529 | 0.309 |
| 12/18/2001 9:06 | -0.078 | 0.078 | 0.448 | -1.02 | 1.02 | 1.23 | -0.397 | 0.397 | 1.737 | -1.557 | 1.557 | 0.337 |
| 12/18/2001 9:12 | -0.083 | 0.083 | 0.453 | -1.04 | 1.04 | 1.25 | -0.434 | 0.434 | 1.774 | -1.564 | 1.564 | 0.344 |
| 12/18/2001 9:18 | -0.083 | 0.083 | 0.453 | -1.063 | 1.063 | 1.273 | -0.475 | 0.475 | 1.815 | -1.582 | 1.582 | 0.362 |
| 12/18/2001 9:24 | -0.083 | 0.083 | 0.453 | -1.082 | 1.082 | 1.292 | -0.503 | 0.503 | 1.843 | -1.7 | 1.7 | 0.48 |
| 12/18/2001 9:30 | -0.083 | 0.083 | 0.453 | -1.114 | 1.114 | 1.324 | -0.526 | 0.526 | 1.866 | -1.894 | 1.894 | 0.674 |
| 12/18/2001 9:36 | -0.078 | 0.078 | 0.448 | -1.153 | 1.153 | 1.363 | -0.544 | 0.544 | 1.884 | -2.021 | 2.021 | 0.801 |
| 12/18/2001 9:42 | -0.078 | 0.078 | 0.448 | -1.209 | 1.209 | 1.419 | -0.563 | 0.563 | 1.903 | -2.034 | 2.034 | 0.814 |
| 12/18/2001 9:48 | -0.078 | 0.078 | 0.448 | -1.239 | 1.239 | 1.449 | -0.567 | 0.567 | 1.907 | -2.034 | 2.034 | 0.814 |
| 12/18/2001 9:54 | -0.078 | 0.078 | 0.448 | -1.266 | 1.266 | 1.476 | -0.574 | 0.574 | 1.914 | -2.099 | 2.099 | 0.879 |
| 12/18/2001 10:00 | -0.078 | 0.078 | 0.448 | -1.308 | 1.308 | 1.518 | -0.584 | 0.584 | 1.924 | -2.212 | 2.212 | 0.992 |
| 12/18/2001 10:06 | -0.083 | 0.083 | 0.453 | -1.342 | 1.342 | 1.552 | -0.597 | 0.597 | 1.937 | -2.35 | 2.35 | 1.13 |
| 12/18/2001 10:12 | -0.083 | 0.083 | 0.453 | -1.384 | 1.384 | 1.594 | -0.607 | 0.607 | 1.947 | -2.422 | 2.422 | 1.202 |
| 12/18/2001 10:18 | -0.083 | 0.083 | 0.453 | -1.43 | 1.43 | 1.64 | -0.611 | 0.611 | 1.951 | -2.498 | 2.498 | 1.278 |
| 12/18/2001 10:24 | -0.088 | 0.088 | 0.458 | -1.46 | 1.46 | 1.67 | -0.616 | 0.616 | 1.956 | -2.484 | 2.484 | 1.264 |
| 12/18/2001 10:30 | -0.083 | 0.083 | 0.453 | -1.488 | 1.488 | 1.698 | -0.63 | 0.63 | 1.97 | -2.484 | 2.484 | 1.264 |
| 12/18/2001 10:36 | -0.088 | 0.088 | 0.458 | -1.506 | 1.506 | 1.716 | -0.634 | 0.634 | 1.974 | -2.489 | 2.489 | 1.269 |
| 12/18/2001 10:42 | -0.088 | 0.088 | 0.458 | -1.525 | 1.525 | 1.735 | -0.644 | 0.644 | 1.984 | -2.586 | 2.586 | 1.366 |
| 12/18/2001 10:48 | -0.088 | 0.088 | 0.458 | -1.55 | 1.55 | 1.76 | -0.648 | 0.648 | 1.988 | -2.655 | 2.655 | 1.435 |
| 12/18/2001 10:54 | -0.092 | 0.092 | 0.462 | -1.573 | 1.573 | 1.783 | -0.653 | 0.653 | 1.993 | -2.6 | 2.6 | 1.38 |
| 12/18/2001 11:00 | -0.083 | 0.083 | 0.453 | -1.582 | 1.582 | 1.792 | -0.667 | 0.667 | 2.007 | -2.521 | 2.521 | 1.301 |
| 12/18/2001 11:06 | -0.092 | 0.092 | 0.462 | -1.587 | 1.587 | 1.797 | -0.671 | 0.671 | 2.011 | -2.535 | 2.535 | 1.315 |
| 12/18/2001 11:12 | -0.088 | 0.088 | 0.458 | -1.605 | 1.605 | 1.815 | -0.676 | 0.676 | 2.016 | -2.57 | 2.57 | 1.35 |
| 12/18/2001 11:18 | -0.092 | 0.092 | 0.462 | -1.61 | 1.61 | 1.82 | -0.676 | 0.676 | 2.016 | -2.533 | 2.533 | 1.313 |
| 12/18/2001 11:24 | -0.088 | 0.088 | 0.458 | -1.629 | 1.629 | 1.839 | -0.699 | 0.699 | 2.039 | -2.533 | 2.533 | 1.313 |
| 12/18/2001 11:30 | -0.092 | 0.092 | 0.462 | -1.624 | 1.624 | 1.834 | -0.699 | 0.699 | 2.039 | -2.56 | 2.56 | 1.34 |
| 12/18/2001 11:36 | -0.088 | 0.088 | 0.458 | -1.638 | 1.638 | 1.848 | -0.699 | 0.699 | 2.039 | -2.505 | 2.505 | 1.285 |
| 12/18/2001 11:42 | -0.088 | 0.088 | 0.458 | -1.633 | 1.633 | 1.843 | -0.704 | 0.704 | 2.044 | -2.38 | 2.38 | 1.16 |
| 12/18/2001 11:48 | -0.097 | 0.097 | 0.467 | -1.619 | 1.619 | 1.829 | -0.699 | 0.699 | 2.039 | -2.369 | 2.369 | 1.149 |
| 12/18/2001 11:54 | -0.097 | 0.097 | 0.467 | -1.615 | 1.615 | 1.825 | -0.699 | 0.699 | 2.039 | -2.346 | 2.346 | 1.126 |
| 12/18/2001 12:00 | -0.092 | 0.092 | 0.462 | -1.601 | 1.601 | 1.811 | -0.699 | 0.699 | 2.039 | -2.307 | 2.307 | 1.087 |
| 12/18/2001 12:06 | -0.092 | 0.092 | 0.462 | -1.592 | 1.592 | 1.802 | -0.699 | 0.699 | 2.039 | -2.256 | 2.256 | 1.036 |
| 12/18/2001 12:12 | -0.097 | 0.097 | 0.467 | -1.582 | 1.582 | 1.792 | -0.699 | 0.699 | 2.039 | -2.168 | 2.168 | 0.948 |
| 12/18/2001 12:18 | -0.101 | 0.101 | 0.471 | -1.559 | 1.559 | 1.769 | -0.694 | 0.694 | 2.034 | -2.145 | 2.145 | 0.925 |
| 12/18/2001 12:24 | -0.101 | 0.101 | 0.471 | -1.539 | 1.539 | 1.749 | -0.699 | 0.699 | 2.039 | -2.069 | 2.069 | 0.849 |
| 12/18/2001 12:30 | -0.097 | 0.097 | 0.467 | -1.52 | 1.52 | 1.73 | -0.694 | 0.694 | 2.034 | -1.988 | 1.988 | 0.768 |
| 12/18/2001 12:36 | -0.097 | 0.097 | 0.467 | -1.502 | 1.502 | 1.712 | -0.69 | 0.69 | 2.03 | -1.972 | 1.972 | 0.752 |
| 12/18/2001 12:42 | -0.106 | 0.106 | 0.476 | -1.474 | 1.474 | 1.684 | -0.699 | 0.699 | 2.039 | -1.905 | 1.905 | 0.685 |
| 12/18/2001 12:48 | -0.092 | 0.092 | 0.462 | -1.469 | 1.469 | 1.679 | -0.694 | 0.694 | 2.034 | -1.91 | 1.91 | 0.69 |
| 12/18/2001 12:54 | -0.097 | 0.097 | 0.467 | -1.446 | 1.446 | 1.656 | -0.694 | 0.694 | 2.034 | -1.85 | 1.85 | 0.63 |
| 12/18/2001 13:00 | -0.101 | 0.101 | 0.471 | -1.435 | 1.435 | 1.645 | -0.694 | 0.694 | 2.034 | -1.804 | 1.804 | 0.584 |
| 12/18/2001 13:06 | -0.097 | 0.097 | 0.467 | -1.412 | 1.412 | 1.622 | -0.69 | 0.69 | 2.03 | -1.661 | 1.661 | 0.441 |
| 12/18/2001 13:12 | -0.097 | 0.097 | 0.467 | -1.379 | 1.379 | 1.589 | -0.69 | 0.69 | 2.03 | -1.612 | 1.612 | 0.392 |
| 12/18/2001 13:18 | -0.092 | 0.092 | 0.462 | -1.356 | 1.356 | 1.566 | -0.69 | 0.69 | 2.03 | -1.599 | 1.599 | 0.379 |
| 12/18/2001 13:24 | -0.097 | 0.097 | 0.467 | -1.338 | 1.338 | 1.548 | -0.69 | 0.69 | 2.03 | -1.539 | 1.539 | 0.319 |
| 12/18/2001 13:30 | -0.101 | 0.101 | 0.471 | -1.312 | 1.312 | 1.522 | -0.69 | 0.69 | 2.03 | -1.495 | 1.495 | 0.275 |
| 12/18/2001 13:36 | -0.097 | 0.097 | 0.467 | -1.285 | 1.285 | 1.495 | -0.685 | 0.685 | 2.025 | -1.386 | 1.386 | 0.166 |
| 12/18/2001 13:42 | -0.101 | 0.101 | 0.471 | -1.253 | 1.253 | 1.463 | -0.69 | 0.69 | 2.03 | -1.377 | 1.377 | 0.157 |
| 12/18/2001 13:48 | -0.097 | 0.097 | 0.467 | -1.232 | 1.232 | 1.442 | -0.685 | 0.685 | 2.025 | -1.303 | 1.303 | 0.083 |
| 12/18/2001 13:54 | -0.097 | 0.097 | 0.467 | -1.204 | 1.204 | 1.414 | -0.685 | 0.685 | 2.025 | -1.236 | 1.236 | 0.016 |
| 12/18/2001 14:00 | -0.097 | 0.097 | 0.467 | -1.167 | 1.167 | 1.377 | -0.685 | 0.685 | 2.025 | -1.181 | 1.181 | -0.039 |
| 12/18/2001 14:06 | -0.101 | 0.101 | 0.471 | -1.153 | 1.153 | 1.363 | -0.685 | 0.685 | 2.025 | -1.188 | 1.188 | -0.032 |
| 12/18/2001 14:12 | -0.097 | 0.097 | 0.467 | -1.13 | 1.13 | 1.34 | -0.685 | 0.685 | 2.025 | -1.151 | 1.151 | -0.069 |
| 12/18/2001 14:18 | -0.097 | 0.097 | 0.467 | -1.128 | 1.128 | 1.338 | -0.685 | 0.685 | 2.025 | -1.151 | 1.151 | -0.069 |
| 12/18/2001 14:24 | -0.097 | 0.097 | 0.467 | -1.105 | 1.105 | 1.315 | -0.685 | 0.685 | 2.025 | -1.112 | 1.112 | -0.108 |
| 12/18/2001 14:30 | -0.097 | 0.097 | 0.467 | -1.096 | 1.096 | 1.306 | -0.685 | 0.685 | 2.025 | -1.08 | 1.08 | -0.14 |
| 12/18/2001 14:36 | -0.092 | 0.092 | 0.462 | -1.086 | 1.086 | 1.296 | -0.685 | 0.685 | 2.025 | -1.075 | 1.075 | -0.145 |
| 12/18/2001 14:42 | -0.097 | 0.097 | 0.467 | -1.063 | 1.063 | 1.273 | -0.685 | 0.685 | 2.025 | -0.92 | 0.92 | -0.3 |
| 12/18/2001 14:48 | -0.092 | 0.092 | 0.462 | -1.05 | 1.05 | 1.26 | -0.685 | 0.685 | 2.025 | -0.86 | 0.86 | -0.36 |
| 12/18/2001 14:54 | -0.097 | 0.097 | 0.467 | -1.024 | 1.024 | 1.234 | -0.685 | 0.685 | 2.025 | -0.823 | 0.823 | -0.397 |
| 12/18/2001 15:00 | -0.092 | 0.092 | 0.462 | -1.006 | 1.006 | 1.216 | -0.68 | 0.68 | 2.02 | -0.821 | 0.821 | -0.399 |
| 12/18/2001 15:06 | -0.097 | 0.097 | 0.467 | -0.987 | 0.987 | 1.197 | -0.68 | 0.68 | 2.02 | -0.782 | 0.782 | -0.438 |
| 12/18/2001 15:12 | -0.092 | 0.092 | 0.462 | -0.969 | 0.969 | 1.179 | -0.676 | 0.676 | 2.016 | -0.694 | 0.694 | -0.526 |
| 12/18/2001 15:18 | -0.092 | 0.092 | 0.462 | -0.946 | 0.946 | 1.156 | -0.68 | 0.68 | 2.02 | -0.614 | 0.614 | -0.606 |
| 12/18/2001 15:24 | -0.092 | 0.092 | 0.462 | -0.92 | 0.92 | 1.13 | -0.68 | 0.68 | 2.02 | -0.489 | 0.489 | -0.731 |
| 12/18/2001 15:30 | -0.092 | 0.092 | 0.462 | -0.893 | 0.893 | 1.103 | -0.676 | 0.676 | 2.016 | -0.498 | 0.498 | -0.722 |
| 12/18/2001 15:36 | -0.092 | 0.092 | 0.462 | -0.879 | 0.879 | 1.089 | -0.676 | 0.676 | 2.016 | -0.48 | 0.48 | -0.74 |
| 12/18/2001 15:42 | -0.092 | 0.092 | 0.462 | -0.86 | 0.86 | 1.07 | -0.676 | 0.676 | 2.016 | -0.45 | 0.45 | -0.77 |
| 12/18/2001 15:48 | -0.092 | 0.092 | 0.462 | -0.837 | 0.837 | 1.047 | -0.676 | 0.676 | 2.016 | -0.36 | 0.36 | -0.86 |
| 12/18/2001 15:54 | -0.088 | 0.088 | 0.458 | -0.821 | 0.821 | 1.031 | -0.68 | 0.68 | 2.02 | -0.291 | 0.291 | -0.929 |
| 12/18/2001 16:00 | -0.092 | 0.092 | 0.462 | -0.789 | 0.789 | 0.999 | -0.68 | 0.68 | 2.02 | -0.245 | 0.245 | -0.975 |
| 12/18/2001 16:06 | -0.092 | 0.092 | 0.462 | -0.761 | 0.761 | 0.971 | -0.68 | 0.68 | 2.02 | -0.171 | 0.171 | -1.049 |
| 12/18/2001 16:12 | -0.092 | 0.092 | 0.462 | -0.729 | 0.729 | 0.939 | -0.68 | 0.68 | 2.02 | -0.099 | 0.099 | -1.121 |
| 12/18/2001 16:18 | -0.088 | 0.088 | 0.458 | -0.704 | 0.704 | 0.914 | -0.68 | 0.68 | 2.02 | -0.053 | 0.053 | -1.167 |
| 12/18/2001 16:24 | -0.088 | 0.088 | 0.458 | -0.68 | 0.68 | 0.89 | -0.68 | 0.68 | 2.02 | -0.007 | 0.007 | -1.213 |
| 12/18/2001 16:30 | -0.088 | 0.088 | 0.458 | -0.653 | 0.653 | 0.863 | -0.68 | 0.68 | 2.02 | 0.018 | -0.018 | -1.238 |
| 12/18/2001 16:36 | -0.088 | 0.088 | 0.458 | -0.639 | 0.639 | 0.849 | -0.68 | 0.68 | 2.02 | 0.078 | -0.078 | -1.298 |
| 12/18/2001 16:42 | -0.088 | 0.088 | 0.458 | -0.618 | 0.618 | 0.828 | -0.68 | 0.68 | 2.02 | 0.136 | -0.136 | -1.356 |
| 12/18/2001 16:48 | -0.083 | 0.083 | 0.453 | -0.591 | 0.591 | 0.801 | -0.68 | 0.68 | 2.02 | 0.182 | -0.182 | -1.402 |
| 12/18/2001 16:54 | -0.083 | 0.083 | 0.453 | -0.586 | 0.586 | 0.796 | -0.68 | 0.68 | 2.02 | 0.203 | -0.203 | -1.423 |
| 12/18/2001 17:00 | -0.083 | 0.083 | 0.453 | -0.558 | 0.558 | 0.768 | -0.68 | 0.68 | 2.02 | 0.249 | -0.249 | -1.469 |
| 12/18/2001 17:06 | -0.083 | 0.083 | 0.453 | -0.531 | 0.531 | 0.741 | -0.68 | 0.68 | 2.02 | 0.304 | -0.304 | -1.524 |
| 12/18/2001 17:12 | -0.083 | 0.083 | 0.453 | -0.514 | 0.514 | 0.724 | -0.68 | 0.68 | 2.02 | 0.346 | -0.346 | -1.566 |
| 12/18/2001 17:18 | -0.078 | 0.078 | 0.448 | -0.501 | 0.501 | 0.711 | -0.68 | 0.68 | 2.02 | 0.369 | -0.369 | -1.589 |

| Date & Time | 8MW7S | | | 8MW8D | | | 8MW8S | | | 8SG01 (Staff Gauge) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/18/2001 17:24 | -0.083 | 0.083 | 0.453 | -0.477 | 0.477 | 0.687 | -0.676 | 0.676 | 2.016 | 0.42 | -0.42 | -1.64 |
| 12/18/2001 17:30 | -0.078 | 0.078 | 0.448 | -0.459 | 0.459 | 0.669 | -0.676 | 0.676 | 2.016 | 0.505 | -0.505 | -1.725 |
| 12/18/2001 17:36 | -0.078 | 0.078 | 0.448 | -0.431 | 0.431 | 0.641 | -0.68 | 0.68 | 2.02 | 0.57 | -0.57 | -1.79 |
| 12/18/2001 17:42 | -0.083 | 0.083 | 0.453 | -0.406 | 0.406 | 0.616 | -0.68 | 0.68 | 2.02 | 0.66 | -0.66 | -1.88 |
| 12/18/2001 17:48 | -0.083 | 0.083 | 0.453 | -0.378 | 0.378 | 0.588 | -0.68 | 0.68 | 2.02 | 0.706 | -0.706 | -1.926 |
| 12/18/2001 17:54 | -0.078 | 0.078 | 0.448 | -0.355 | 0.355 | 0.565 | -0.68 | 0.68 | 2.02 | 0.757 | -0.757 | -1.977 |
| 12/18/2001 18:00 | -0.078 | 0.078 | 0.448 | -0.341 | 0.341 | 0.551 | -0.676 | 0.676 | 2.016 | 0.738 | -0.738 | -1.958 |
| 12/18/2001 18:06 | -0.074 | 0.074 | 0.444 | -0.328 | 0.328 | 0.538 | -0.676 | 0.676 | 2.016 | 0.796 | -0.796 | -2.016 |
| 12/18/2001 18:12 | -0.074 | 0.074 | 0.444 | -0.318 | 0.318 | 0.528 | -0.68 | 0.68 | 2.02 | 0.847 | -0.847 | -2.067 |
| 12/18/2001 18:18 | -0.074 | 0.074 | 0.444 | -0.298 | 0.298 | 0.508 | -0.676 | 0.676 | 2.016 | 0.913 | -0.913 | -2.133 |
| 12/18/2001 18:24 | -0.074 | 0.074 | 0.444 | -0.284 | 0.284 | 0.494 | -0.676 | 0.676 | 2.016 | 0.923 | -0.923 | -2.143 |
| 12/18/2001 18:30 | -0.074 | 0.074 | 0.444 | -0.265 | 0.265 | 0.475 | -0.68 | 0.68 | 2.02 | 0.946 | -0.946 | -2.166 |
| 12/18/2001 18:36 | -0.074 | 0.074 | 0.444 | -0.251 | 0.251 | 0.461 | -0.676 | 0.676 | 2.016 | 0.978 | -0.978 | -2.198 |
| 12/18/2001 18:42 | -0.074 | 0.074 | 0.444 | -0.233 | 0.233 | 0.443 | -0.676 | 0.676 | 2.016 | 0.969 | -0.969 | -2.189 |
| 12/18/2001 18:48 | -0.074 | 0.074 | 0.444 | -0.228 | 0.228 | 0.438 | -0.676 | 0.676 | 2.016 | 0.904 | -0.904 | -2.124 |
| 12/18/2001 18:54 | -0.074 | 0.074 | 0.444 | -0.224 | 0.224 | 0.434 | -0.676 | 0.676 | 2.016 | 0.867 | -0.867 | -2.087 |
| 12/18/2001 19:00 | -0.069 | 0.069 | 0.439 | -0.228 | 0.228 | 0.438 | -0.676 | 0.676 | 2.016 | 0.895 | -0.895 | -2.115 |
| 12/18/2001 19:06 | -0.074 | 0.074 | 0.444 | -0.228 | 0.228 | 0.438 | -0.676 | 0.676 | 2.016 | 0.909 | -0.909 | -2.129 |
| 12/18/2001 19:12 | -0.074 | 0.074 | 0.444 | -0.224 | 0.224 | 0.434 | -0.676 | 0.676 | 2.016 | 0.9 | -0.9 | -2.12 |
| 12/18/2001 19:18 | -0.078 | 0.078 | 0.448 | -0.219 | 0.219 | 0.429 | -0.676 | 0.676 | 2.016 | 0.849 | -0.849 | -2.069 |
| 12/18/2001 19:24 | -0.074 | 0.074 | 0.444 | -0.228 | 0.228 | 0.438 | -0.676 | 0.676 | 2.016 | 0.84 | -0.84 | -2.06 |
| 12/18/2001 19:30 | -0.069 | 0.069 | 0.439 | -0.224 | 0.224 | 0.434 | -0.676 | 0.676 | 2.016 | 0.881 | -0.881 | -2.101 |
| 12/18/2001 19:36 | -0.074 | 0.074 | 0.444 | -0.219 | 0.219 | 0.429 | -0.676 | 0.676 | 2.016 | 0.849 | -0.849 | -2.069 |
| 12/18/2001 19:42 | -0.069 | 0.069 | 0.439 | -0.219 | 0.219 | 0.429 | -0.676 | 0.676 | 2.016 | 0.78 | -0.78 | -2 |
| 12/18/2001 19:48 | -0.069 | 0.069 | 0.439 | -0.233 | 0.233 | 0.443 | -0.676 | 0.676 | 2.016 | 0.731 | -0.731 | -1.951 |
| 12/18/2001 19:54 | -0.069 | 0.069 | 0.439 | -0.251 | 0.251 | 0.461 | -0.676 | 0.676 | 2.016 | 0.699 | -0.699 | -1.919 |
| 12/18/2001 20:00 | -0.069 | 0.069 | 0.439 | -0.274 | 0.274 | 0.484 | -0.676 | 0.676 | 2.016 | 0.609 | -0.609 | -1.829 |
| 12/18/2001 20:06 | -0.069 | 0.069 | 0.439 | -0.288 | 0.288 | 0.498 | -0.676 | 0.676 | 2.016 | 0.528 | -0.528 | -1.748 |
| 12/18/2001 20:12 | -0.069 | 0.069 | 0.439 | -0.323 | 0.323 | 0.533 | -0.676 | 0.676 | 2.016 | 0.441 | -0.441 | -1.661 |
| 12/18/2001 20:18 | -0.069 | 0.069 | 0.439 | -0.346 | 0.346 | 0.556 | -0.676 | 0.676 | 2.016 | 0.371 | -0.371 | -1.591 |
| 12/18/2001 20:24 | -0.069 | 0.069 | 0.439 | -0.203 | 0.203 | 0.413 | -0.676 | 0.676 | 2.016 | 0.268 | -0.268 | -1.488 |
| 12/18/2001 20:30 | -0.069 | 0.069 | 0.439 | -0.228 | 0.228 | 0.438 | -0.676 | 0.676 | 2.016 | 0.161 | -0.161 | -1.381 |
| 12/18/2001 20:36 | -0.065 | 0.065 | 0.435 | -0.265 | 0.265 | 0.475 | -0.676 | 0.676 | 2.016 | 0.007 | -0.007 | -1.227 |
| 12/18/2001 20:42 | -0.069 | 0.069 | 0.439 | -0.302 | 0.302 | 0.512 | -0.676 | 0.676 | 2.016 | -0.115 | 0.115 | -1.105 |
| 12/18/2001 20:48 | -0.069 | 0.069 | 0.439 | -0.346 | 0.346 | 0.556 | -0.676 | 0.676 | 2.016 | -0.226 | 0.226 | -0.994 |
| 12/18/2001 20:54 | -0.069 | 0.069 | 0.439 | -0.388 | 0.388 | 0.598 | -0.676 | 0.676 | 2.016 | -0.293 | 0.293 | -0.927 |
| 12/18/2001 21:00 | -0.06 | 0.06 | 0.43 | -0.427 | 0.427 | 0.637 | -0.671 | 0.671 | 2.011 | -0.394 | 0.394 | -0.826 |
| 12/18/2001 21:06 | -0.065 | 0.065 | 0.435 | -0.468 | 0.468 | 0.678 | -0.676 | 0.676 | 2.016 | -0.503 | 0.503 | -0.717 |
| 12/18/2001 21:12 | -0.065 | 0.065 | 0.435 | -0.514 | 0.514 | 0.724 | -0.671 | 0.671 | 2.011 | -0.676 | 0.676 | -0.544 |
| 12/18/2001 21:18 | -0.065 | 0.065 | 0.435 | -0.558 | 0.558 | 0.768 | -0.676 | 0.676 | 2.016 | -0.736 | 0.736 | -0.484 |
| 12/18/2001 21:24 | -0.065 | 0.065 | 0.435 | -0.595 | 0.595 | 0.805 | -0.671 | 0.671 | 2.011 | -0.791 | 0.791 | -0.429 |
| 12/18/2001 21:30 | -0.06 | 0.06 | 0.43 | -0.627 | 0.627 | 0.837 | -0.671 | 0.671 | 2.011 | -0.826 | 0.826 | -0.394 |
| 12/18/2001 21:36 | -0.065 | 0.065 | 0.435 | -0.657 | 0.657 | 0.867 | -0.671 | 0.671 | 2.011 | -0.886 | 0.886 | -0.334 |
| 12/18/2001 21:42 | -0.065 | 0.065 | 0.435 | -0.685 | 0.685 | 0.895 | -0.671 | 0.671 | 2.011 | -0.9 | 0.9 | -0.32 |
| 12/18/2001 21:48 | -0.065 | 0.065 | 0.435 | -0.708 | 0.708 | 0.918 | -0.671 | 0.671 | 2.011 | -1.031 | 1.031 | -0.189 |
| 12/18/2001 21:54 | -0.06 | 0.06 | 0.43 | -0.747 | 0.747 | 0.957 | -0.671 | 0.671 | 2.011 | -1.133 | 1.133 | -0.087 |
| 12/18/2001 22:00 | -0.06 | 0.06 | 0.43 | -0.784 | 0.784 | 0.994 | -0.667 | 0.667 | 2.007 | -1.227 | 1.227 | 0.007 |
| 12/18/2001 22:06 | -0.06 | 0.06 | 0.43 | -0.826 | 0.826 | 1.036 | -0.667 | 0.667 | 2.007 | -1.269 | 1.269 | 0.049 |
| 12/18/2001 22:12 | -0.055 | 0.055 | 0.425 | -0.856 | 0.856 | 1.066 | -0.667 | 0.667 | 2.007 | -1.31 | 1.31 | 0.09 |
| 12/18/2001 22:18 | -0.055 | 0.055 | 0.425 | -0.893 | 0.893 | 1.103 | -0.667 | 0.667 | 2.007 | -1.354 | 1.354 | 0.134 |
| 12/18/2001 22:24 | -0.06 | 0.06 | 0.43 | -0.916 | 0.916 | 1.126 | -0.667 | 0.667 | 2.007 | -1.409 | 1.409 | 0.189 |
| 12/18/2001 22:30 | -0.055 | 0.055 | 0.425 | -0.937 | 0.937 | 1.147 | -0.662 | 0.662 | 2.002 | -1.414 | 1.414 | 0.194 |
| 12/18/2001 22:36 | -0.055 | 0.055 | 0.425 | -0.955 | 0.955 | 1.165 | -0.667 | 0.667 | 2.007 | -1.446 | 1.446 | 0.226 |
| 12/18/2001 22:42 | -0.055 | 0.055 | 0.425 | -0.978 | 0.978 | 1.188 | -0.662 | 0.662 | 2.002 | -1.474 | 1.474 | 0.254 |
| 12/18/2001 22:48 | -0.055 | 0.055 | 0.425 | -0.996 | 0.996 | 1.206 | -0.662 | 0.662 | 2.002 | -1.488 | 1.488 | 0.268 |
| 12/18/2001 22:54 | -0.06 | 0.06 | 0.43 | -1.006 | 1.006 | 1.216 | -0.657 | 0.657 | 1.997 | -1.497 | 1.497 | 0.277 |
| 12/18/2001 23:00 | -0.055 | 0.055 | 0.425 | -1.024 | 1.024 | 1.234 | -0.662 | 0.662 | 2.002 | -1.552 | 1.552 | 0.332 |
| 12/18/2001 23:06 | -0.051 | 0.051 | 0.421 | -1.04 | 1.04 | 1.25 | -0.657 | 0.657 | 1.997 | -1.575 | 1.575 | 0.355 |
| 12/18/2001 23:12 | -0.055 | 0.055 | 0.425 | -1.059 | 1.059 | 1.269 | -0.653 | 0.653 | 1.993 | -1.575 | 1.575 | 0.355 |
| 12/18/2001 23:18 | -0.055 | 0.055 | 0.425 | -1.068 | 1.068 | 1.278 | -0.657 | 0.657 | 1.997 | -1.566 | 1.566 | 0.346 |
| 12/18/2001 23:24 | -0.055 | 0.055 | 0.425 | -1.077 | 1.077 | 1.287 | -0.653 | 0.653 | 1.993 | -1.539 | 1.539 | 0.319 |
| 12/18/2001 23:30 | -0.055 | 0.055 | 0.425 | -1.082 | 1.082 | 1.292 | -0.653 | 0.653 | 1.993 | -1.529 | 1.529 | 0.309 |
| 12/18/2001 23:36 | -0.055 | 0.055 | 0.425 | -1.086 | 1.086 | 1.296 | -0.648 | 0.648 | 1.988 | -1.541 | 1.541 | 0.321 |
| 12/18/2001 23:42 | -0.055 | 0.055 | 0.425 | -1.096 | 1.096 | 1.306 | -0.648 | 0.648 | 1.988 | -1.548 | 1.548 | 0.328 |
| 12/18/2001 23:48 | -0.055 | 0.055 | 0.425 | -1.1 | 1.1 | 1.31 | -0.648 | 0.648 | 1.988 | -1.589 | 1.589 | 0.369 |
| 12/18/2001 23:54 | -0.055 | 0.055 | 0.425 | -1.119 | 1.119 | 1.329 | -0.648 | 0.648 | 1.988 | -1.615 | 1.615 | 0.395 |
| 12/19/2001 0:00 | -0.055 | 0.055 | 0.425 | -1.133 | 1.133 | 1.343 | -0.648 | 0.648 | 1.988 | -1.605 | 1.605 | 0.385 |
| 12/19/2001 0:06 | -0.055 | 0.055 | 0.425 | -1.135 | 1.135 | 1.345 | -0.648 | 0.648 | 1.988 | -1.592 | 1.592 | 0.372 |
| 12/19/2001 0:12 | -0.055 | 0.055 | 0.425 | -1.135 | 1.135 | 1.345 | -0.648 | 0.648 | 1.988 | -1.596 | 1.596 | 0.376 |
| 12/19/2001 0:18 | -0.055 | 0.055 | 0.425 | -1.144 | 1.144 | 1.354 | -0.648 | 0.648 | 1.988 | -1.596 | 1.596 | 0.376 |
| 12/19/2001 0:24 | -0.055 | 0.055 | 0.425 | -1.149 | 1.149 | 1.359 | -0.648 | 0.648 | 1.988 | -1.608 | 1.608 | 0.388 |
| 12/19/2001 0:30 | -0.051 | 0.051 | 0.421 | -1.167 | 1.167 | 1.377 | -0.648 | 0.648 | 1.988 | -1.645 | 1.645 | 0.425 |
| 12/19/2001 0:36 | -0.055 | 0.055 | 0.425 | -1.172 | 1.172 | 1.382 | -0.644 | 0.644 | 1.984 | -1.688 | 1.688 | 0.468 |
| 12/19/2001 0:42 | -0.051 | 0.051 | 0.421 | -1.195 | 1.195 | 1.405 | -0.644 | 0.644 | 1.984 | -1.67 | 1.67 | 0.45 |
| 12/19/2001 0:48 | -0.055 | 0.055 | 0.425 | -1.199 | 1.199 | 1.409 | -0.644 | 0.644 | 1.984 | -1.652 | 1.652 | 0.432 |
| 12/19/2001 0:54 | -0.055 | 0.055 | 0.425 | -1.209 | 1.209 | 1.419 | -0.639 | 0.639 | 1.979 | -1.629 | 1.629 | 0.409 |
| 12/19/2001 1:00 | -0.055 | 0.055 | 0.425 | -1.213 | 1.213 | 1.423 | -0.639 | 0.639 | 1.979 | -1.612 | 1.612 | 0.392 |
| 12/19/2001 1:06 | -0.051 | 0.051 | 0.421 | -1.213 | 1.213 | 1.423 | -0.639 | 0.639 | 1.979 | -1.557 | 1.557 | 0.337 |
| 12/19/2001 1:12 | -0.051 | 0.051 | 0.421 | -1.199 | 1.199 | 1.409 | -0.634 | 0.634 | 1.974 | -1.515 | 1.515 | 0.295 |
| 12/19/2001 1:18 | -0.051 | 0.051 | 0.421 | -1.19 | 1.19 | 1.4 | -0.634 | 0.634 | 1.974 | -1.515 | 1.515 | 0.295 |
| 12/19/2001 1:24 | -0.051 | 0.051 | 0.421 | -1.19 | 1.19 | 1.4 | -0.63 | 0.63 | 1.97 | -1.515 | 1.515 | 0.295 |
| 12/19/2001 1:30 | -0.051 | 0.051 | 0.421 | -1.195 | 1.195 | 1.405 | -0.634 | 0.634 | 1.974 | -1.52 | 1.52 | 0.3 |
| 12/19/2001 1:36 | -0.051 | 0.051 | 0.421 | -1.195 | 1.195 | 1.405 | -0.634 | 0.634 | 1.974 | -1.502 | 1.502 | 0.282 |
| 12/19/2001 1:42 | -0.051 | 0.051 | 0.421 | -1.186 | 1.186 | 1.396 | -0.63 | 0.63 | 1.97 | -1.476 | 1.476 | 0.256 |
| 12/19/2001 1:48 | -0.051 | 0.051 | 0.421 | -1.181 | 1.181 | 1.391 | -0.63 | 0.63 | 1.97 | -1.458 | 1.458 | 0.238 |
| 12/19/2001 1:54 | -0.051 | 0.051 | 0.421 | -1.172 | 1.172 | 1.382 | -0.625 | 0.625 | 1.965 | -1.43 | 1.43 | 0.21 |
| 12/19/2001 2:00 | -0.055 | 0.055 | 0.425 | -1.167 | 1.167 | 1.377 | -0.625 | 0.625 | 1.965 | -1.407 | 1.407 | 0.187 |
| 12/19/2001 2:06 | -0.055 | 0.055 | 0.425 | -1.163 | 1.163 | 1.373 | -0.625 | 0.625 | 1.965 | -1.377 | 1.377 | 0.157 |

| Date & Time | 8MW7S | | | 8MW8D | | | 8MW8S | | | 8SG01 (Staff Gauge) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/19/2001 2:12 | -0.051 | 0.051 | 0.421 | -1.149 | 1.149 | 1.359 | -0.625 | 0.625 | 1.965 | -1.294 | 1.294 | 0.074 |
| 12/19/2001 2:18 | -0.051 | 0.051 | 0.421 | -1.128 | 1.128 | 1.338 | -0.62 | 0.62 | 1.96 | -1.248 | 1.248 | 0.028 |
| 12/19/2001 2:24 | -0.055 | 0.055 | 0.425 | -1.11 | 1.11 | 1.32 | -0.62 | 0.62 | 1.96 | -1.206 | 1.206 | -0.014 |
| 12/19/2001 2:30 | -0.051 | 0.051 | 0.421 | -1.1 | 1.1 | 1.31 | -0.616 | 0.616 | 1.956 | -1.112 | 1.112 | -0.108 |
| 12/19/2001 2:36 | -0.051 | 0.051 | 0.421 | -1.073 | 1.073 | 1.283 | -0.616 | 0.616 | 1.956 | -1.052 | 1.052 | -0.168 |
| 12/19/2001 2:42 | -0.051 | 0.051 | 0.421 | -1.054 | 1.054 | 1.264 | -0.616 | 0.616 | 1.956 | -0.99 | 0.99 | -0.23 |
| 12/19/2001 2:48 | -0.051 | 0.051 | 0.421 | -1.036 | 1.036 | 1.246 | -0.616 | 0.616 | 1.956 | -0.953 | 0.953 | -0.267 |
| 12/19/2001 2:54 | -0.051 | 0.051 | 0.421 | -1.015 | 1.015 | 1.225 | -0.616 | 0.616 | 1.956 | -0.893 | 0.893 | -0.327 |
| 12/19/2001 3:00 | -0.051 | 0.051 | 0.421 | -0.996 | 0.996 | 1.206 | -0.616 | 0.616 | 1.956 | -0.856 | 0.856 | -0.364 |
| 12/19/2001 3:06 | -0.051 | 0.051 | 0.421 | -0.973 | 0.973 | 1.183 | -0.611 | 0.611 | 1.951 | -0.821 | 0.821 | -0.399 |
| 12/19/2001 3:12 | -0.055 | 0.055 | 0.425 | -0.955 | 0.955 | 1.165 | -0.611 | 0.611 | 1.951 | -0.793 | 0.793 | -0.427 |
| 12/19/2001 3:18 | -0.051 | 0.051 | 0.421 | -0.941 | 0.941 | 1.151 | -0.611 | 0.611 | 1.951 | -0.757 | 0.757 | -0.463 |
| 12/19/2001 3:24 | -0.051 | 0.051 | 0.421 | -0.932 | 0.932 | 1.142 | -0.611 | 0.611 | 1.951 | -0.747 | 0.747 | -0.473 |
| 12/19/2001 3:30 | -0.046 | 0.046 | 0.416 | -0.927 | 0.927 | 1.137 | -0.611 | 0.611 | 1.951 | -0.743 | 0.743 | -0.477 |
| 12/19/2001 3:36 | -0.051 | 0.051 | 0.421 | -0.916 | 0.916 | 1.126 | -0.611 | 0.611 | 1.951 | -0.704 | 0.704 | -0.516 |
| 12/19/2001 3:42 | -0.051 | 0.051 | 0.421 | -0.907 | 0.907 | 1.117 | -0.611 | 0.611 | 1.951 | -0.685 | 0.685 | -0.535 |
| 12/19/2001 3:48 | -0.046 | 0.046 | 0.416 | -0.897 | 0.897 | 1.107 | -0.611 | 0.611 | 1.951 | -0.653 | 0.653 | -0.567 |
| 12/19/2001 3:54 | -0.046 | 0.046 | 0.416 | -0.888 | 0.888 | 1.098 | -0.607 | 0.607 | 1.947 | -0.63 | 0.63 | -0.59 |
| 12/19/2001 4:00 | -0.046 | 0.046 | 0.416 | -0.874 | 0.874 | 1.084 | -0.607 | 0.607 | 1.947 | -0.57 | 0.57 | -0.65 |
| 12/19/2001 4:06 | -0.046 | 0.046 | 0.416 | -0.86 | 0.86 | 1.07 | -0.607 | 0.607 | 1.947 | -0.531 | 0.531 | -0.689 |
| 12/19/2001 4:12 | -0.046 | 0.046 | 0.416 | -0.837 | 0.837 | 1.047 | -0.607 | 0.607 | 1.947 | -0.501 | 0.501 | -0.719 |
| 12/19/2001 4:18 | -0.051 | 0.051 | 0.421 | -0.826 | 0.826 | 1.036 | -0.602 | 0.602 | 1.942 | -0.475 | 0.475 | -0.745 |
| 12/19/2001 4:24 | -0.042 | 0.042 | 0.412 | -0.812 | 0.812 | 1.022 | -0.602 | 0.602 | 1.942 | -0.438 | 0.438 | -0.782 |
| 12/19/2001 4:30 | -0.046 | 0.046 | 0.416 | -0.798 | 0.798 | 1.008 | -0.602 | 0.602 | 1.942 | -0.42 | 0.42 | -0.8 |
| 12/19/2001 4:36 | -0.046 | 0.046 | 0.416 | -0.793 | 0.793 | 1.003 | -0.602 | 0.602 | 1.942 | -0.42 | 0.42 | -0.8 |
| 12/19/2001 4:42 | -0.051 | 0.051 | 0.421 | -0.78 | 0.78 | 0.99 | -0.602 | 0.602 | 1.942 | -0.401 | 0.401 | -0.819 |
| 12/19/2001 4:48 | -0.046 | 0.046 | 0.416 | -0.77 | 0.77 | 0.98 | -0.597 | 0.597 | 1.937 | -0.42 | 0.42 | -0.8 |
| 12/19/2001 4:54 | -0.051 | 0.051 | 0.421 | -0.77 | 0.77 | 0.98 | -0.597 | 0.597 | 1.937 | -0.424 | 0.424 | -0.796 |
| 12/19/2001 5:00 | -0.042 | 0.042 | 0.412 | -0.77 | 0.77 | 0.98 | -0.597 | 0.597 | 1.937 | -0.452 | 0.452 | -0.768 |
| 12/19/2001 5:06 | -0.042 | 0.042 | 0.412 | -0.766 | 0.766 | 0.976 | -0.593 | 0.593 | 1.933 | -0.45 | 0.45 | -0.77 |
| 12/19/2001 5:12 | -0.046 | 0.046 | 0.416 | -0.761 | 0.761 | 0.971 | -0.593 | 0.593 | 1.933 | -0.436 | 0.436 | -0.784 |
| 12/19/2001 5:18 | -0.046 | 0.046 | 0.416 | -0.757 | 0.757 | 0.967 | -0.593 | 0.593 | 1.933 | -0.408 | 0.408 | -0.812 |
| 12/19/2001 5:24 | -0.042 | 0.042 | 0.412 | -0.752 | 0.752 | 0.962 | -0.593 | 0.593 | 1.933 | -0.367 | 0.367 | -0.853 |
| 12/19/2001 5:30 | -0.042 | 0.042 | 0.412 | -0.743 | 0.743 | 0.953 | -0.588 | 0.588 | 1.928 | -0.325 | 0.325 | -0.895 |
| 12/19/2001 5:36 | -0.042 | 0.042 | 0.412 | -0.734 | 0.734 | 0.944 | -0.584 | 0.584 | 1.924 | -0.261 | 0.261 | -0.959 |
| 12/19/2001 5:42 | -0.042 | 0.042 | 0.412 | -0.717 | 0.717 | 0.927 | -0.581 | 0.581 | 1.921 | -0.274 | 0.274 | -0.946 |
| 12/19/2001 5:48 | -0.037 | 0.037 | 0.407 | -0.713 | 0.713 | 0.923 | -0.581 | 0.581 | 1.921 | -0.263 | 0.263 | -0.957 |
| 12/19/2001 5:54 | -0.037 | 0.037 | 0.407 | -0.708 | 0.708 | 0.918 | -0.581 | 0.581 | 1.921 | -0.245 | 0.245 | -0.975 |
| 12/19/2001 6:00 | -0.037 | 0.037 | 0.407 | -0.699 | 0.699 | 0.909 | -0.577 | 0.577 | 1.917 | -0.217 | 0.217 | -1.003 |
| 12/19/2001 6:06 | -0.037 | 0.037 | 0.407 | -0.694 | 0.694 | 0.904 | -0.577 | 0.577 | 1.917 | -0.24 | 0.24 | -0.98 |
| 12/19/2001 6:12 | -0.037 | 0.037 | 0.407 | -0.685 | 0.685 | 0.895 | -0.577 | 0.577 | 1.917 | -0.217 | 0.217 | -1.003 |
| 12/19/2001 6:18 | -0.037 | 0.037 | 0.407 | -0.68 | 0.68 | 0.89 | -0.577 | 0.577 | 1.917 | -0.217 | 0.217 | -1.003 |
| 12/19/2001 6:24 | -0.032 | 0.032 | 0.402 | -0.676 | 0.676 | 0.886 | -0.577 | 0.577 | 1.917 | -0.217 | 0.217 | -1.003 |
| 12/19/2001 6:30 | -0.037 | 0.037 | 0.407 | -0.685 | 0.685 | 0.895 | -0.577 | 0.577 | 1.917 | -0.235 | 0.235 | -0.985 |
| 12/19/2001 6:36 | -0.037 | 0.037 | 0.407 | -0.68 | 0.68 | 0.89 | -0.577 | 0.577 | 1.917 | -0.263 | 0.263 | -0.957 |
| 12/19/2001 6:42 | -0.037 | 0.037 | 0.407 | -0.685 | 0.685 | 0.895 | -0.572 | 0.572 | 1.912 | -0.256 | 0.256 | -0.964 |
| 12/19/2001 6:48 | -0.037 | 0.037 | 0.407 | -0.685 | 0.685 | 0.895 | -0.567 | 0.567 | 1.907 | -0.233 | 0.233 | -0.987 |
| 12/19/2001 6:54 | -0.037 | 0.037 | 0.407 | -0.671 | 0.671 | 0.881 | -0.567 | 0.567 | 1.907 | -0.212 | 0.212 | -1.008 |
| 12/19/2001 7:00 | -0.037 | 0.037 | 0.407 | -0.667 | 0.667 | 0.877 | -0.567 | 0.567 | 1.907 | -0.185 | 0.185 | -1.035 |
| 12/19/2001 7:06 | -0.032 | 0.032 | 0.402 | -0.662 | 0.662 | 0.872 | -0.567 | 0.567 | 1.907 | -0.171 | 0.171 | -1.049 |
| 12/19/2001 7:12 | -0.032 | 0.032 | 0.402 | -0.653 | 0.653 | 0.863 | -0.563 | 0.563 | 1.903 | -0.18 | 0.18 | -1.04 |
| 12/19/2001 7:18 | -0.037 | 0.037 | 0.407 | -0.648 | 0.648 | 0.858 | -0.563 | 0.563 | 1.903 | -0.203 | 0.203 | -1.017 |
| 12/19/2001 7:24 | -0.037 | 0.037 | 0.407 | -0.648 | 0.648 | 0.858 | -0.563 | 0.563 | 1.903 | -0.224 | 0.224 | -0.996 |
| 12/19/2001 7:30 | -0.032 | 0.032 | 0.402 | -0.657 | 0.657 | 0.867 | -0.563 | 0.563 | 1.903 | -0.258 | 0.258 | -0.962 |
| 12/19/2001 7:36 | -0.032 | 0.032 | 0.402 | -0.671 | 0.671 | 0.881 | -0.558 | 0.558 | 1.898 | -0.328 | 0.328 | -0.892 |
| 12/19/2001 7:42 | | | | -0.68 | 0.68 | 0.89 | -0.558 | 0.558 | 1.898 | -0.378 | 0.378 | -0.842 |
| 12/19/2001 7:48 | | | | -0.699 | 0.699 | 0.909 | -0.558 | 0.558 | 1.898 | -0.436 | 0.436 | -0.784 |
| 12/19/2001 7:54 | | | | -0.717 | 0.717 | 0.927 | -0.554 | 0.554 | 1.894 | -0.487 | 0.487 | -0.733 |
| 12/19/2001 8:00 | | | | -0.734 | 0.734 | 0.944 | -0.549 | 0.549 | 1.889 | -0.549 | 0.549 | -0.671 |
| 12/19/2001 8:06 | | | | -0.757 | 0.757 | 0.967 | -0.554 | 0.554 | 1.894 | -0.604 | 0.604 | -0.616 |
| 12/19/2001 8:12 | | | | -0.77 | 0.77 | 0.98 | -0.549 | 0.549 | 1.889 | -0.676 | 0.676 | -0.544 |
| 12/19/2001 8:18 | | | | -0.803 | 0.803 | 1.013 | | | | -0.717 | 0.717 | -0.503 |
| 12/19/2001 8:24 | | | | -0.821 | 0.821 | 1.031 | | | | -0.77 | 0.77 | -0.45 |
| 12/19/2001 8:30 | | | | -0.865 | 0.865 | 1.075 | | | | -0.84 | 0.84 | -0.38 |
| 12/19/2001 8:36 | | | | | | | | | | -0.913 | 0.913 | -0.307 |
| 12/19/2001 8:42 | | | | | | | | | | -0.964 | 0.964 | -0.256 |
| 12/19/2001 8:48 | | | | | | | | | | -1.024 | 1.024 | -0.196 |
| 12/19/2001 8:54 | | | | | | | | | | -1.08 | 1.08 | -0.14 |
| 12/19/2001 9:00 | | | | | | | | | | -1.174 | 1.174 | -0.046 |
| 12/19/2001 9:06 | | | | | | | | | | -1.239 | 1.239 | 0.019 |
| 12/19/2001 9:12 | | | | | | | | | | | | |
| 12/19/2001 9:18 | | | | | | | | | | | | |
| 12/19/2001 9:24 | | | | | | | | | | | | |
| 12/19/2001 9:30 | | | | | | | | | | | | |
| 12/19/2001 9:36 | | | | | | | | | | | | |
| 12/19/2001 9:42 | | | | | | | | | | | | |
| 12/19/2001 9:48 | | | | | | | | | | | | |
| 12/19/2001 9:54 | | | | | | | | | | | | |
| 12/19/2001 10:00 | | | | | | | | | | | | |
| 12/19/2001 10:06 | | | | | | | | | | | | |
| 12/19/2001 10:12 | | | | | | | | | | | | |
| 12/19/2001 10:18 | | | | | | | | | | | | |
| 12/19/2001 10:24 | | | | | | | | | | | | |
| 12/19/2001 10:30 | | | | | | | | | | | | |
| 12/19/2001 10:36 | | | | | | | | | | | | |
| 12/19/2001 10:42 | | | | | | | | | | | | |
| 12/19/2001 10:48 | | | | | | | | | | | | |
| 12/19/2001 10:54 | | | | | | | | | | | | |

| Date & Time | 8MW7S | | | 8MW8D | | | 8MW8S | | | 8SG01 (Staff Gauge) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) | TR | TA | WLE (ft NAVD88) |
| 12/19/2001 11:00 | | | | | | | | | | | | |
| 12/19/2001 11:06 | | | | | | | | | | | | |
| 12/19/2001 11:12 | | | | | | | | | | | | |
| 12/19/2001 11:18 | | | | | | | | | | | | |
| 12/19/2001 11:24 | | | | | | | | | | | | |
| 12/19/2001 11:30 | | | | | | | | | | | | |
| 12/19/2001 11:36 | | | | | | | | | | | | |
| 12/19/2001 11:42 | | | | | | | | | | | | |
| 12/19/2001 11:48 | | | | | | | | | | | | |
| 12/19/2001 11:54 | | | | | | | | | | | | |
| 12/19/2001 12:00 | | | | | | | | | | | | |

**Notes:**

TR Transducer Reading
TA Transducer Adjustment
WLD Water Level Data
WLE Water Level Elevation
Represents high or low tide

# APPENDIX D
# SURVEYOR AND RAINFALL INFORMATION

# MONITOR WELL SURVEY VALUES

| Well Id | Geodetic Coordinates | | State Plane Coordinates | | Elevations | | | |
|---|---|---|---|---|---|---|---|---|
| | Latitude | Longitude | Northing | Easting | Top of Frame | 2" PVC Rim | 6" PVC Rim | Ground (Approx.) |
| 8MW1 | N 41°23'19.00977" | W 72°05'16.11421" | 703019.076754 | 1181704.701936 | 12.58 | 11.97 | 11.97 | 12.6 |
| 8MW2D | N 41°23'17.39072" | W 72°05'15.77024" | 702855.412471 | 1181732.175685 | 10.55 | 9.93 | 10.14 | 10.5 |
| 8MW2S | N 41°23'17.32076" | W 72°05'15.62209" | 702848.418166 | 1181743.521881 | 10.58 | 9.63 | 9.98 | 10.6 |
| 8MW3 | N 41°23'16.50612" | W 72°05'14.96265" | 702766.352703 | 1181794.417266 | 8.79 | 8.27 | 8.25 | 8.8 |
| 8MW4 | N 41°23'16.65975" | W 72°05'13.73227" | 702782.620833 | 1181888.079162 | 9.60 | 8.88 | 9.05 | 9.6 |
| 8MW5S | N 41°23'20.25103" | W 72°05'16.97638" | 703144.201716 | 1181638.024589 | 12.73 | 12.32 | 12.30 | 12.7 |
| 8MW6D | N 41°23'15.90935" | W 72°05'14.70666" | 702706.103082 | 1181814.392297 | 7.70 | 7.45 | 6.82 | 7.7 |
| 8MW6S | N 41°23'15.70531" | W 72°05'14.65211" | 702685.484249 | 1181818.708467 | 8.63 | 8.41 | * | 8.6 |
| 8MW7S | N 41°23'15.54595" | W 72°05'12.17551" | 702670.803893 | 1182007.602824 | 9.71 | 9.19 | 9.17 | 9.7 |
| 8MW8D | N 41°23'17.31629" | W 72°05'11.18684" | 702850.558707 | 1182081.584986 | 17.61 | 17.20 | * | 17.6 |
| 8MW8S | N 41°23'17.21045" | W 72°05'11.17206" | 702839.855534 | 1182082.793861 | 16.87 | 16.47 | * | 16.9 |
| 8MW10S | N 41°23'17.18348" | W 72°05'10.33571" | 702837.615265 | 1182146.562348 | 19.75 | 19.24 | * | 19.8 |
| 8SG01 | N 41°23'13.04635" | W 72°05'16.46469" | 702415.310285 | 1181682.612448 | 8.37 | At Mark | 8.46 | Top of Wall Chamfer |
| HNUS-23 | N 41°23'18.05662" | W 72°05'07.88120" | 702927.424976 | 1182332.968259 | 18.56 | 18.11 | * | 18.6 |

* - No visible inner well casing

# SURVEY CONTROL MONUMENTATION

| | | | | | |
|---|---|---|---|---|---|
| N 41°23'18.16883" | W 72°05'12.43774" | 702936.113000 | 1181985.578000 | 72.74 | NGS Disk - "Crystal" |
| N 41°23'16.83160" | W 72°05'08.29182" | 702803.199000 | 1182302.624000 | 21.57 | Base Control - IR w/Cut Cross |

| Well Id | Check Values | |
|---|---|---|
| | 2" PVC | 6" PVC |
| 8MW1 | -0.61 | -0.61 |
| 8MW2D | -0.62 | -0.41 |
| 8MW2S | -0.95 | -0.60 |
| 8MW3 | -0.52 | -0.54 |
| 8MW4 | -0.72 | -0.55 |
| 8MW5S | -0.41 | -0.43 |
| 8MW6D | -0.25 | -0.88 |
| 8MW6S | -0.22 | |
| 8MW7S | -0.52 | -0.54 |
| 8MW8D | -0.41 | |
| 8MW8S | -0.40 | |
| 8MW10S | -0.51 | |
| 8SG01 | | 0.09 |
| HNUS-23 | -0.45 | |

**Notes:**

Survey coordinates were derived from the existing control monumentation within the Groton/New London Submarine Base as established by David Stein, LS. Control monumentation is using the Connecticut Department of Transportation SPCS 83/87 coordinate values.

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**Architecture, Engineering, Environmental Science & Surveying**

GROTON UTILITIES

Groton Water Treatment Plant
Groton Utilities
295 Meridian St.
Groton, CT 06340

Telephone: (860) 446-4082
FAX: (860) 446-4084

FASCIMILE TRANSMISSION COVER SHEET

Date: 1-2-2002

Time:

From: TOM CARONIA

To: KEITH SIMSON FAX 412-921-4040

Message:
weather records
NSB-NLON TIDAL STUDY

You will receive _____ pages of copy, including this cover sheet; any transmission problems, please call (860) 446-4082.

STATION (Name) GROTON (River Station, if different) MONTH DEC 2001

STATE CT COUNTY NEW LONDON RIVER

TIME (local) OF OBSERVATION RIVER TEMP MID PRECIPITATION MID STANDARD TIME IN USE E

TYPE OF RIVER GAGE ELEVATION OF RIVER GAGE ZERO Ft. FLOOD STAGE Ft. NORMAL POOL STAGE Ft.

WS FORM B-91 (7-89)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

# RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

| DATE | TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX. | MIN. | MID NIGHT AT OBSN. | PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths) | Snow, ice pellets (ins. and tenths) | At Ob. Snow, ice pellets, hail, ice on ground (ins.) | WEATHER (Calendar Day) Fog | Ice Pellets | Glaze | Thunder | Hail | Damaging Winds | Time of observation if different from above | RIVER STAGE CONDITION | GAGE READING AT ___ A.M. | TENDENCY | NOON | REMARKS (Special observations, etc.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 69 | 52 | 52 | 0 | | | | | | | | | | | | | 65 | |
| 2 | 53 | 39 | 39 | 0 | | | | | | | | | | | | | 52 | |
| 3 | 52 | 32 | 51 | 0 | | | | | | | | | | | | | 48 | |
| 4 | 57 | 37 | 46 | 0 | | | | | | | | | | | | | 55 | |
| 5 | 65 | 46 | 48 | T | | | | | | | | | | | | | 61 | |
| 6 | 66 | 49 | 63 | 0 | | | | | | | | | | | | | 64 | |
| 7 | 62 | 46 | 46 | .08 | | | | | | | | | | | | | 39 | |
| 8 | 47 | 34 | 35 | .01 | | | | | | | | | | | | | 43 | |
| 9 | 42 | 31 | 31 | .69 | | | | | | | | | | | | | 37 | |
| 10 | 51 | 28 | 51 | T | | | | | | | | | | | | | 44 | |
| 11 | 53 | 38 | 38 | 0 | | | | | | | | | | | | | 47 | |
| 12 | 48 | 34 | 44 | 0 | | | | | | | | | | | | | 46 | |
| 13 | 54 | 42 | 54 | .05 | | | | | | | | | | | | | 50 | |
| 14 | 58 | 45 | 58 | .22 | | | | | | | | | | | | | 53 | |
| 15 | 60 | 34 | 34 | 0 | | | | | | | | | | | | | 43 | |
| 16 | 42 | 30 | 34 | 0 | | | | | | | | | | | | | 37 | |
| 17 | 50 | 33 | 50 | .10 | | | | | | | | | | | | | 38 | |
| 18 | 52 | 39 | 41 | .56 | | | | | | | | | | | | | 40 | |
| 19 | 49 | 33 | 33 | 0 | | | | | | | | | | | | | 46 | |
| 20 | 47 | 33 | 37 | 0 | | | | | | | | | | | | | 46 | |
| 21 | 40 | 31 | 31 | 0 | | | | | | | | | | | | | 39 | |
| 22 | 40 | 28 | 30 | 0 | | | | | | | | | | | | | 35 | |
| 23 | 48 | 24 | 48 | T | | | | | | | | | | | | | 40 | |
| 24 | 54 | 35 | 35 | .72 | | | | | | | | | | | | | 49 | |
| 25 | 41 | 28 | 32 | 0 | | | | | | | | | | | | | 38 | |
| 26 | 41 | 28 | 29 | 0 | | | | | | | | | | | | | 39 | |
| 27 | 34 | 24 | 29 | 0 | | | | | | | | | | | | | 32 | |
| 28 | 42 | 26 | 36 | 0 | | | | | | | | | | | | | 37 | |
| 29 | 38 | 30 | 31 | T | | T | | | | | | | | | | | 37 | |
| 30 | 35 | 25 | 27 | 0 | | | | | | | | | | | | | 32 | |
| 31 | 36 | 21 | 27 | 0 | | | | | | | | | | | | | 30 | |
| Sum | | | Sum | 2.43 | | | | | | | | | | | | | | |

Draw a straight line (——) through hours precipitation was observed, and a waved line (~~~) through hours precipitation probably occurred unobserved.

Mark 'X' for all types occurring each day.

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

CHECK BAR (For wire-weight) NORMAL CK. BAR

| READING | DATE |
|---|---|
| | |

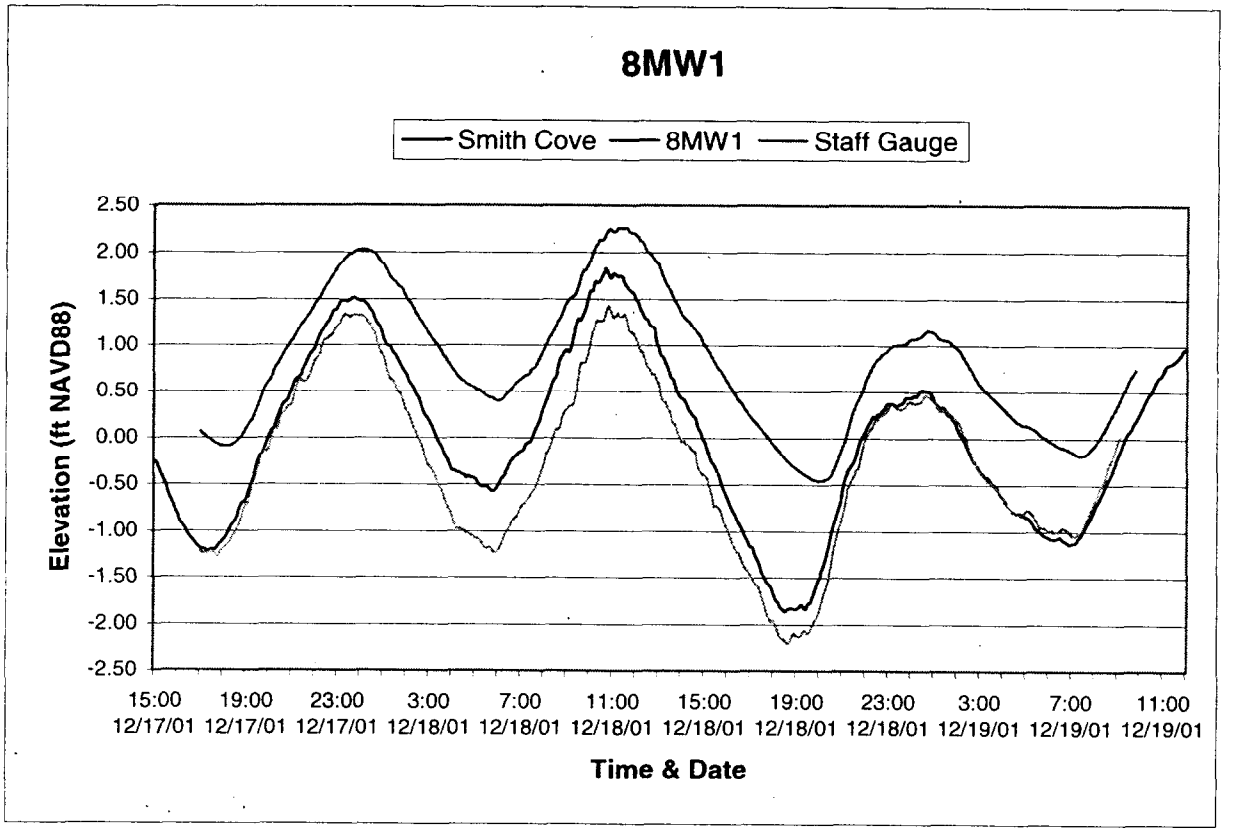
OBSERVER CITY OF GROTON - WTP

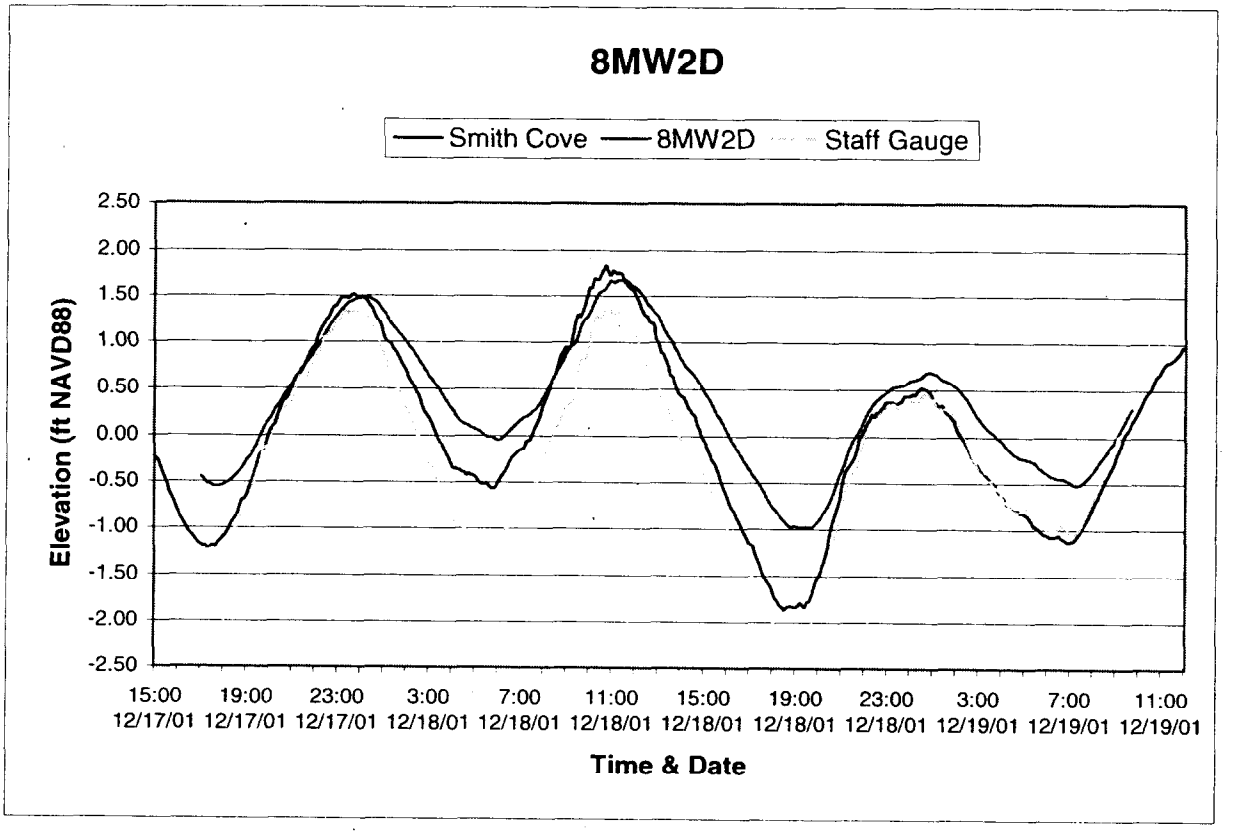
SUPERVISING OFFICE NERFC

STATION INDEX NO 06-3207-3

Fe lix

# APPENDIX E
# GRAPHS


8MW1
Smith Cove
8MW1
Staff Gauge
Elevation (ft NAVD88)
2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
7:00 12/18/01
11:00 12/18/01
15:00 12/18/01
19:00 12/18/01
23:00 12/18/01
3:00 12/19/01
7:00 12/19/01
11:00 12/19/01
Time & Date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Smith Cove
8MW2D
Staff Gauge
Elevation (ft NAVD88)
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2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
7:00 12/18/01
11:00 12/18/01
15:00 12/18/01
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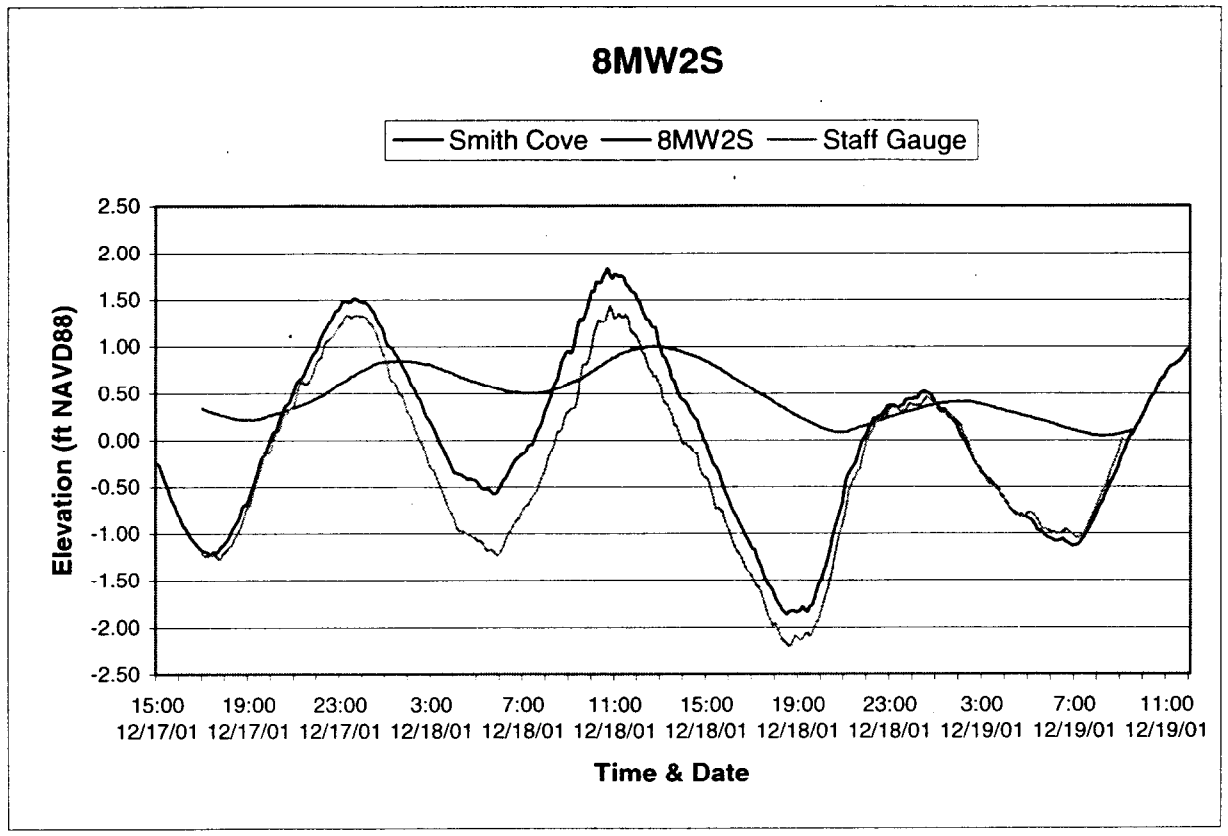
11:00 12/19/01
Time & Date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Smith Cove
8MW2S
Staff Gauge
Elevation (ft NAVD88)
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2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
7:00 12/18/01
11:00 12/18/01
15:00 12/18/01
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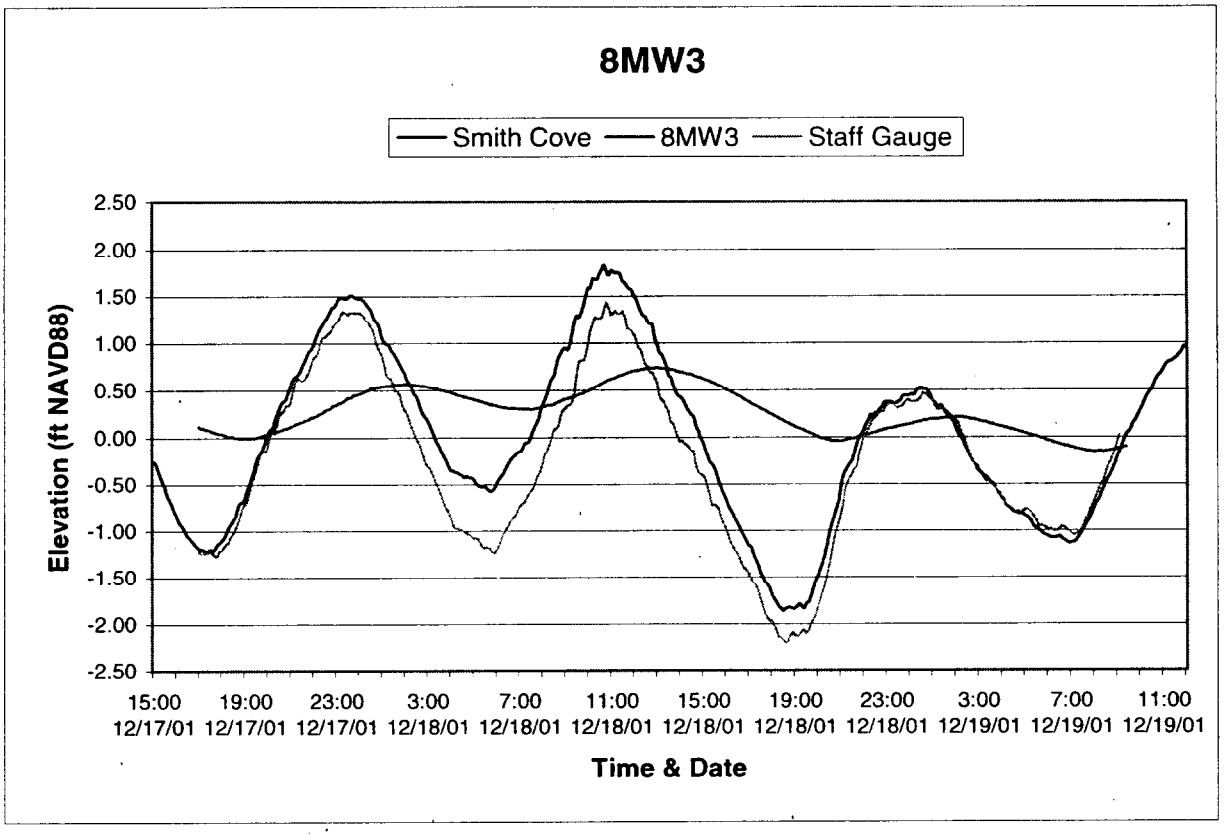
11:00 12/19/01
Time & Date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Smith Cove
8MW3
Staff Gauge
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2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
7:00 12/18/01
11:00 12/18/01
15:00 12/18/01
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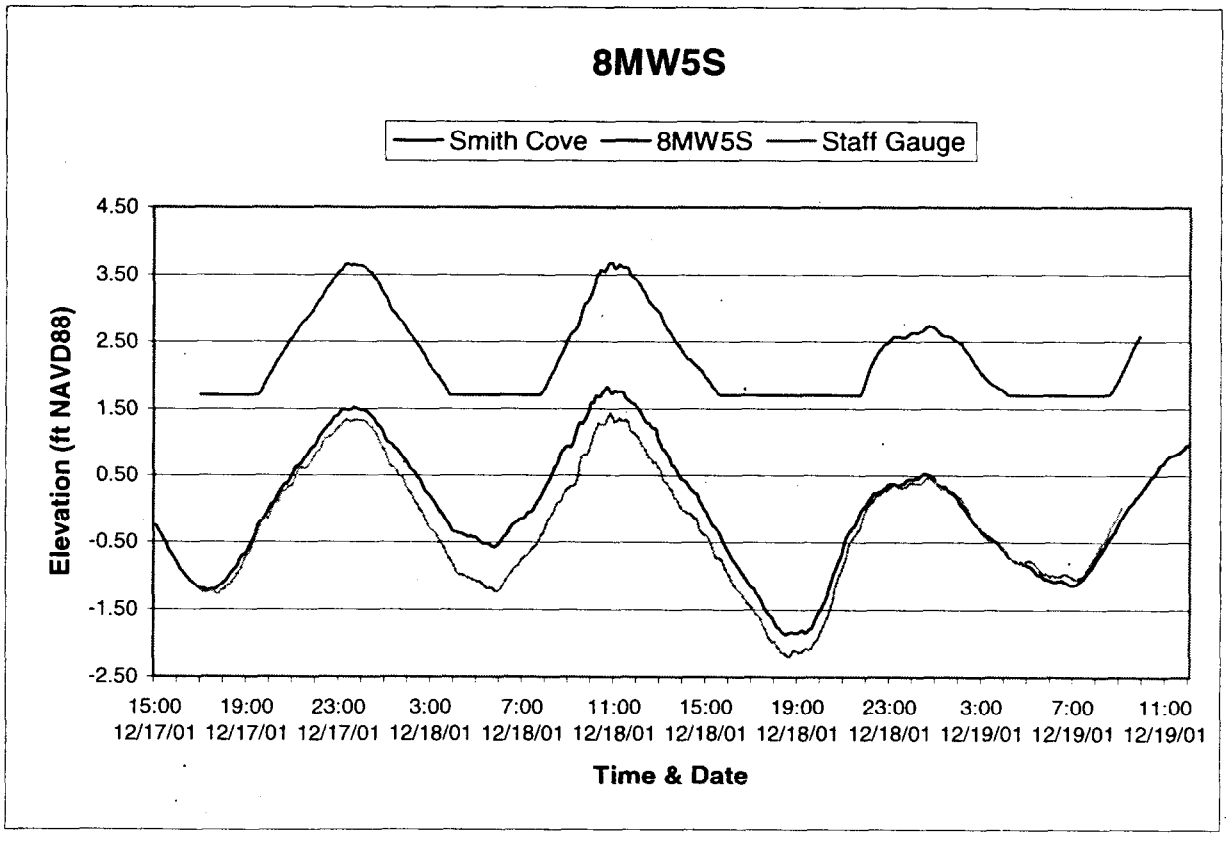
11:00 12/19/01
Time & Date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Smith Cove
8MW5S
Staff Gauge
4.50
3.50
2.50
1.50
0.50
-0.50
-1.50
-2.50
Elevation (ft NAVD88)
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
7:00 12/18/01
11:00 12/18/01
15:00 12/18/01
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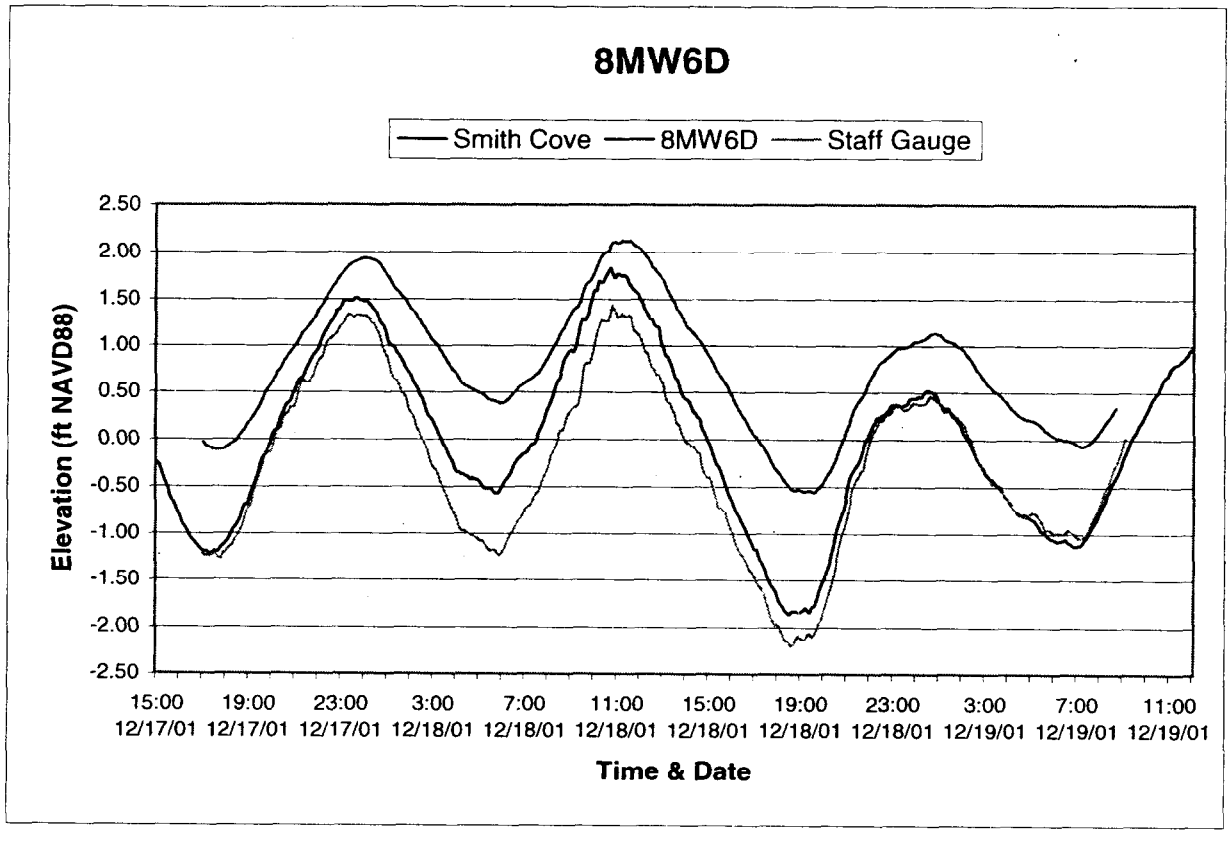
Time & Date


8MW6D
Smith Cove
8MW6D
Staff Gauge
2.50
2.00
1.50
1.00
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-1.00
-1.50
-2.00
-2.50
Elevation (ft NAVD88)
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
7:00 12/18/01
11:00 12/18/01
15:00 12/18/01
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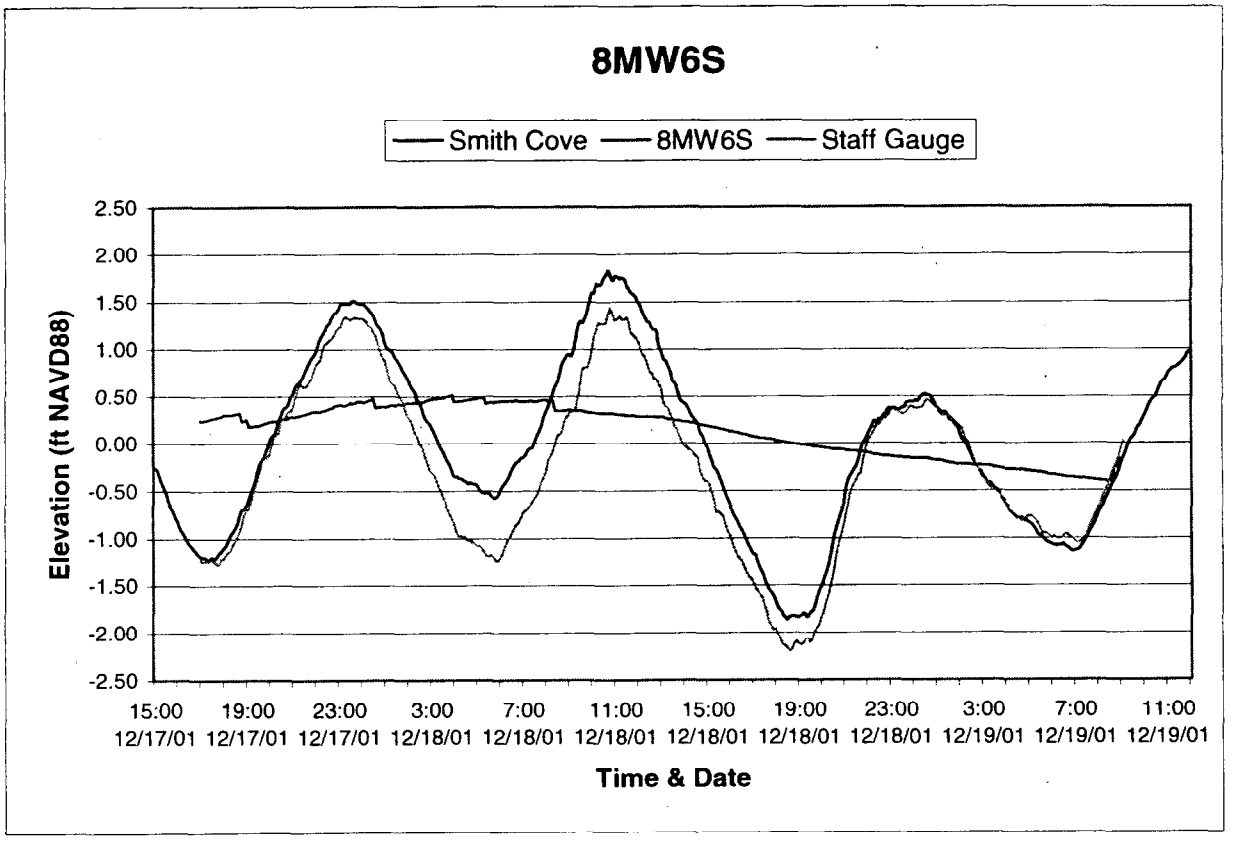
Time & Date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Smith Cove
8MW6S
Staff Gauge
Elevation (ft NAVD88)
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2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
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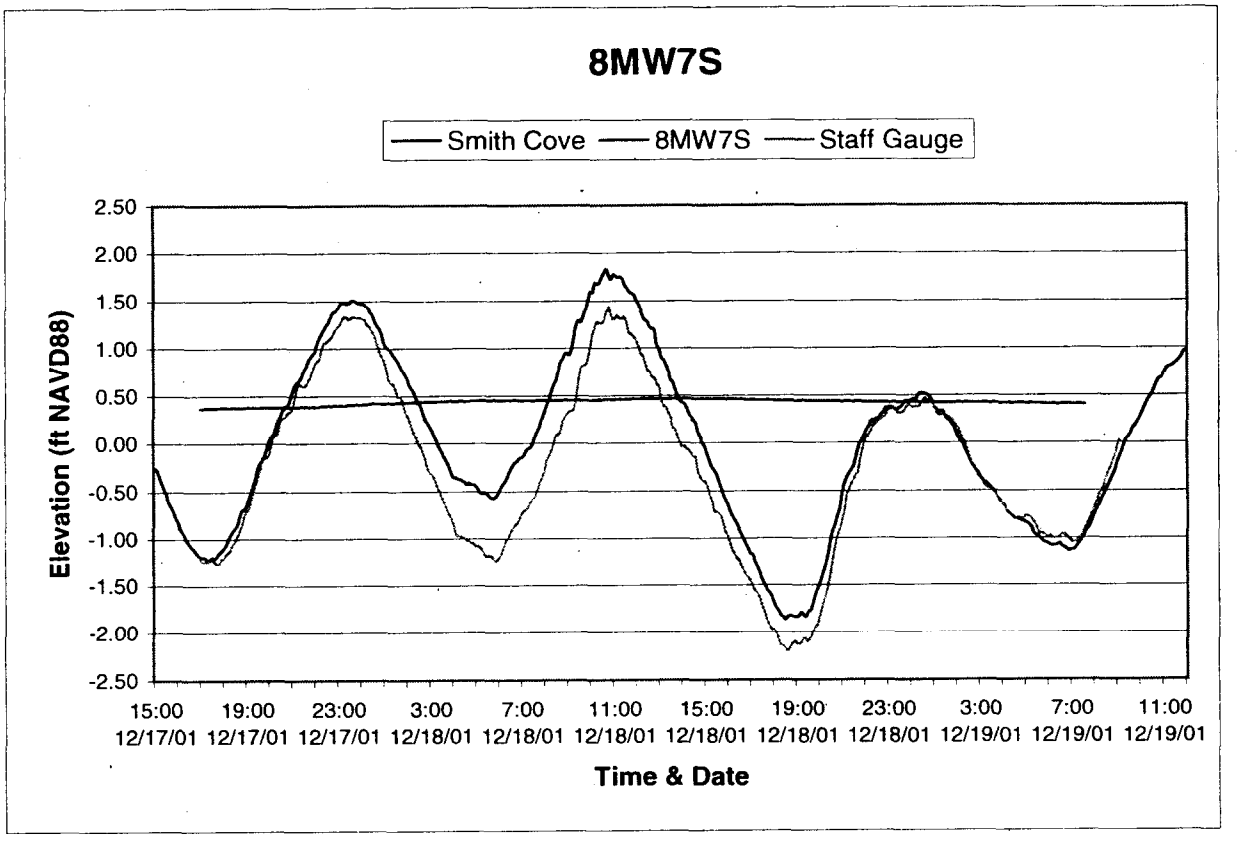
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Smith Cove
8MW7S
Staff Gauge
Elevation (ft NAVD88)
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2.00
1.50
1.00
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-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
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23:00 12/17/01
3:00 12/18/01
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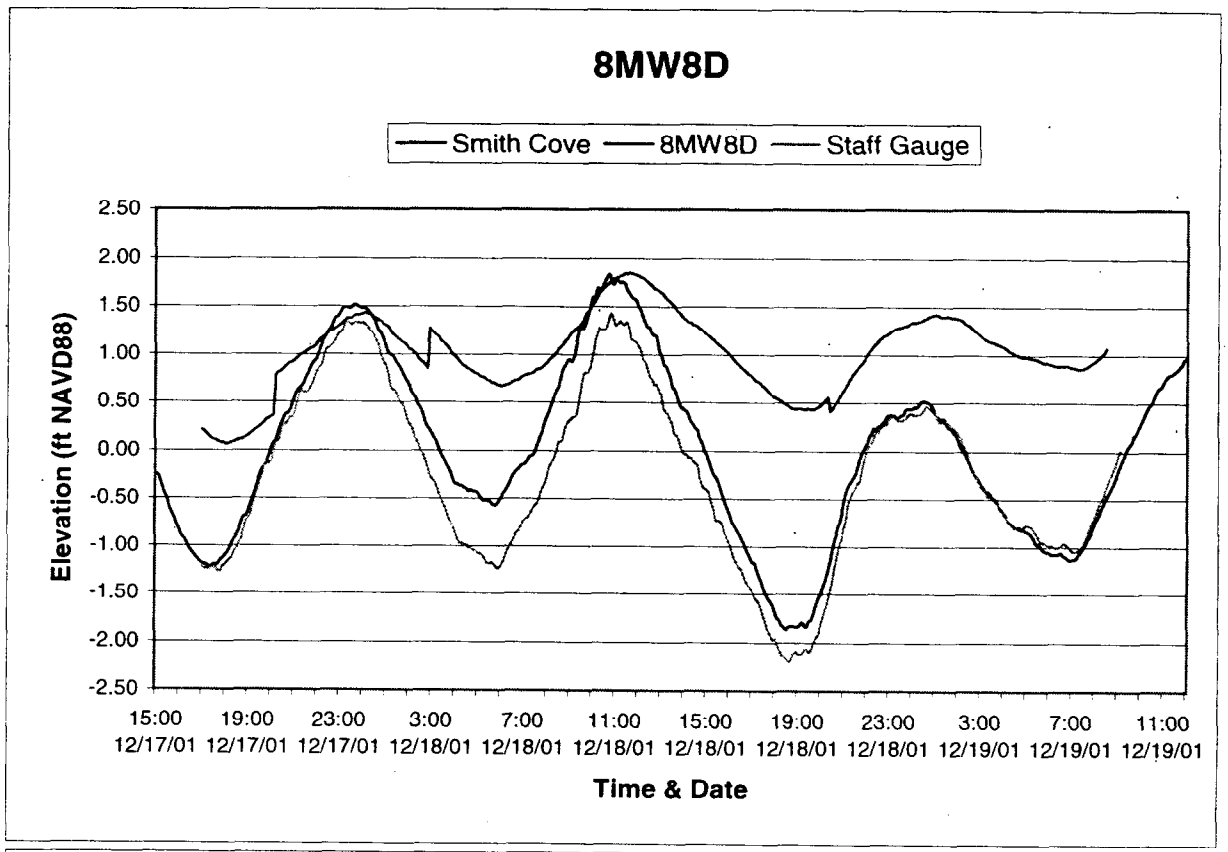
Time & Date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Smith Cove
8MW8D
Staff Gauge
Elevation (ft NAVD88)
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1.00
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0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
19:00 12/17/01
23:00 12/17/01
3:00 12/18/01
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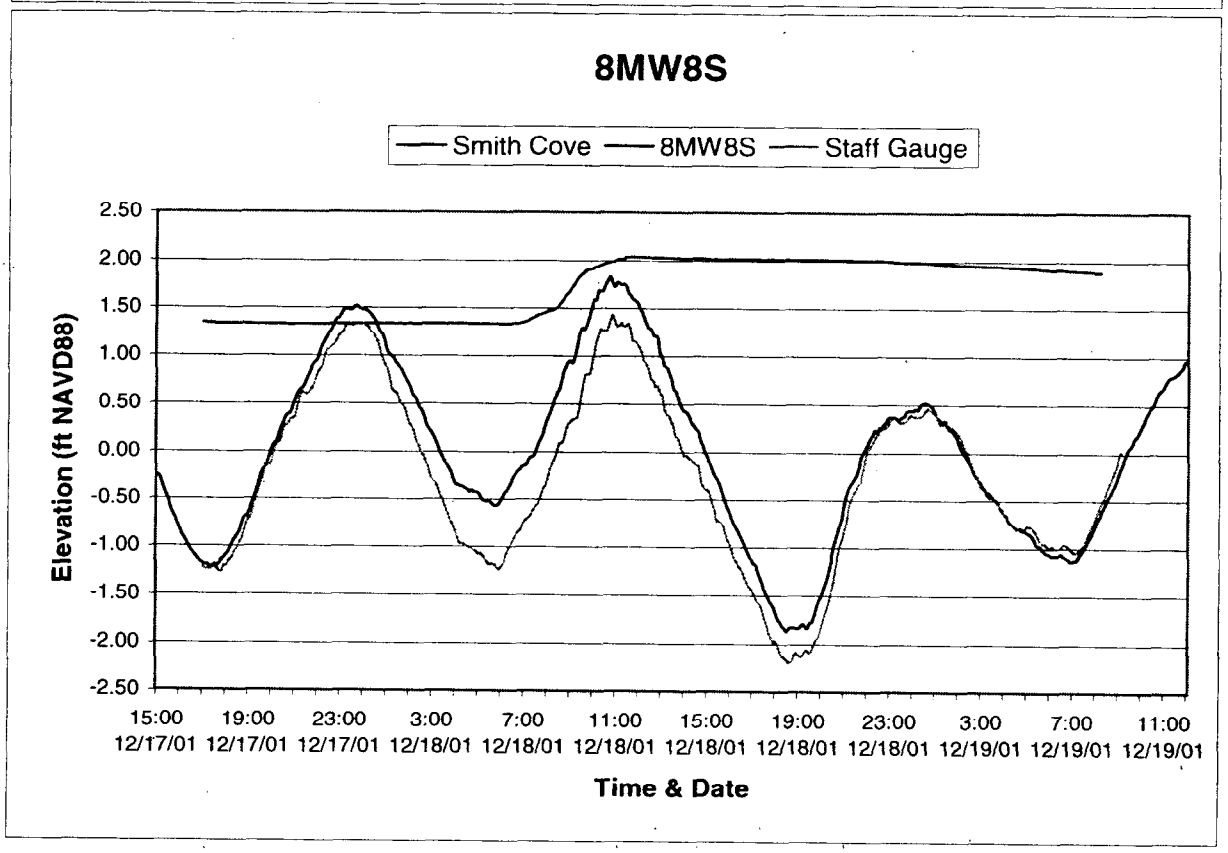
Time & Date


8MW8S
Smith Cove
8MW8S
Staff Gauge
Elevation (ft NAVD88)
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2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
19:00 12/17/01
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3:00 12/18/01
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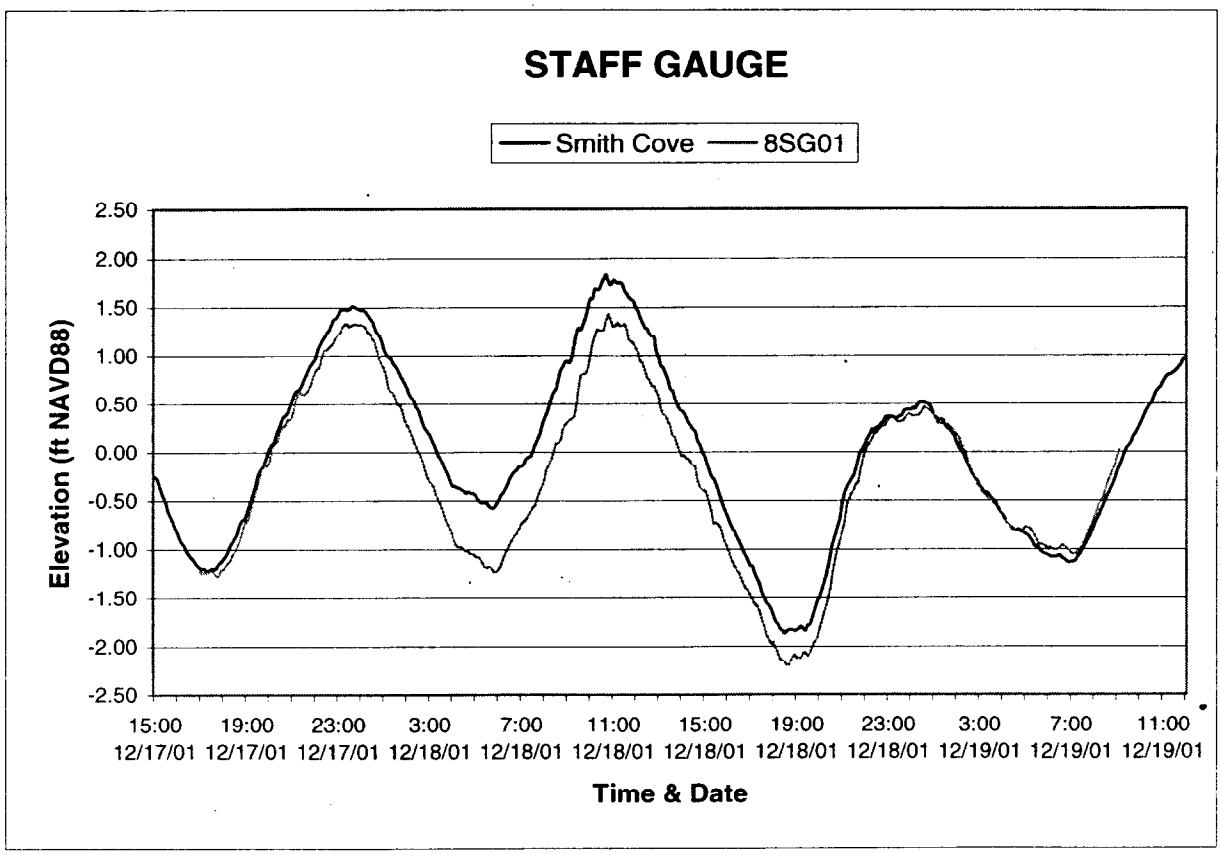
Time & Date


STAFF GAUGE
Smith Cove
8SG01
Elevation (ft NAVD88)
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2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
15:00 12/17/01
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7:00 12/18/01
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15:00 12/18/01
19:00 12/18/01
23:00 12/18/01
3:00 12/19/01
7:00 12/19/01
11:00 12/19/01
Time & Date