TETRA TECH

PITT-07-10-028

July 23, 2010

Project Number 112G02630

NAVFAC MID-ATLANTIC, Northeast IPT
Attn: Mr. Jim Gravette (Code OPTE3-1)
Bldg Z-144
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order WE57

Subject: Final Summary of Round 1 Field Work and Results
Groundwater Pre-Design Investigation at Lower Subase
Naval Submarine Base-New London, Groton, Connecticut

Dear Mr. Gravette:

Tetra Tech completed the subject sampling effort under Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Contract Number N62470-08-D-1001, Contract Task Order WE57 during the period of April 19, 2010 through April 30, 2010. The field work was conducted in accordance with the Final Unified Federal Policy (UFP)-Sampling and Analysis Plan (SAP) for Pre-Design Groundwater Sampling at Lower Subase (Tetra Tech, April 2010) and Health and Safety Plan (Tetra Tech, June 2009). The focus of the effort was to collect and analyze additional groundwater samples from 15 monitoring wells to address gaps in the groundwater database for Zones 1, 4, 5 and 7 at the Lower Subase. The effort also involved installation of four of the 15 wells, development of the wells prior to sampling, and collection of a comprehensive round of water levels. The Round 1 data will be used in conjunction with Round 2 data to be collected in September 2010 to validate the zone-specific remedies selected for groundwater in the Lower Subase Feasibility Study.

A description of the field work and resulting data for Round 1 of the Groundwater Pre-Design Investigation (PDI) is provided in this Technical Memorandum. Attachment 1 to this memorandum includes the field forms and other related information for Phase 1 field work and Attachment 2 includes analytical and hydrogeologic data.

One electronic copy (CD) of this final Technical Memorandum is enclosed for your records. Electronic copies of the memorandum were also distributed to the New London Project Team per the distribution list provided at the end of the document.

Field Work

Tetra Tech mobilized to Naval Submarine Base – New London (NSB-NLON) on April 19, 2010 to complete Round 1 of the Groundwater PDI. The Tetra Tech Field Operations Leader (FOL) picked up necessary field supplies and sample bottleware and met with the Base Point of Contact (Mr. Richard Conant). The FOL also met with base contact (Linda Tirrell) to set up a staging area for equipment, supplies and Investigation-Derived Waste (IDW). The FOL also reviewed the SAP, received Radiation Control (RADCON) training, cleared drilling locations, and reviewed final dig permits and drilling locations.

On April 20, 2010, the FOL completed One Call for drilling work. The FOL met with the utility clearance subcontractor (ACCUMARK) to receive RADCON Navy-related training. The FOL obtained the dig

Tetra Tech NUS, Inc.
661 Andersen Drive, Pittsburgh, PA 15220-2745
Tel 412.921.7090 Fax 412.921.4040 www.ttnus.com

permits (see Attachment 1.1) and ACCUMARK located and marked utilities at the proposed well installation locations. Utility clearance was performed for wells MW1-1PDI, MW1-4PDI, MW1-5PDI, and MW1-7PDI. Representatives from NSB-NLON Public Works field verified the marked utilities and cleared the drilling locations.

Concurrently, another Tetra Tech employee arrived onsite and received RADCON training, picked up supplies, and redeveloped well NES010.

On April 21, 2010, the FOL facilitated site access issues with the drilling subcontractor (Drillex) and Navy-related RADCON training. After training, the FOL supervised the drilling and installation of monitoring well MWI-5PDI. During the initial boring installation for MWI-5PDI, an obstruction was encountered and at 4.25 to 4.35 feet below ground surface (ft bgs) and the hole filled with water. Based on discussions with NSB-NLON Public Works, the obstruction was thought to be an abandoned line and a concrete patch would be sufficient to address it. Per direction from NSB-NLON Public Works, Tetra Tech's drilling subcontractor applied the concrete patch to the bottom of the borehole, backfilled the borehole with a bentonite-concrete slurry, and applied an asphalt patch to the top. The location of MWI-5PDI was moved approximately three feet to the west, a new soil boring was completed, and a 2-inch PVC well was installed. Concurrently, a Tetra Tech employee redeveloped wells NES011, 13MW13, 13MW20, 13MW21, FOMW14, and MW4-7RI. The riser in well 13MW19 was bent at approximately 3 ft bgs, resulting in the need to redevelop the well with a peristaltic pump the following day. Boring logs, well construction logs, well development logs, and equipment calibration logs are provided in Attachments 1.2, 1.3, 1.4, and 1.7, respectively.

On April 22, 2010, the FOL contacted the Treatment Storage and Disposal Facility (TSDF) Manager (Linda Tirrell) to arrange for IDW to be picked up by TSDF employees during their runs through the Lower Subase. The drillers reported that the plug in the initial borehole for MW1-5PDI was unsuccessful and water was pooling on the ground surface. After further discussions with NSB-NLON Public Works and review of additional utility drawings, it was determined that a forced-main sanitary sewer line was damaged. The leak was handled as a spill, with the water pumped and containerized. Per Base Environmental personnel (Rich Mousad), Tetra Tech applied a bleach solution to the spill area to mitigate any potential bacterial issues. A NSB-NLON Public Works contactor arrived onsite, repaired the broken sanitary sewer line, and backfilled the excavated area. The NSB-NLON Public Works Engineering Manager (Mark Schultz) and Engineering Technician (Debra Jacobs) stated that the design drawings were incorrect and the sanitary line should have been 18 feet west of the location where the line was encountered; therefore, Tetra Tech was not at fault for the incident. The Sanitary Sewer Incident Report is provided in Appendix 1.10. Concurrently, wells 19MW3, 13MW19, MW3-7RI, and 13MW14 were redeveloped and well 13MW13 was sampled with a peristaltic pump by Tetra Tech. Groundwater Sampling Log Sheets are included in Attachment 1.5.

On April 23, 2010, the FOL coordinated IDW pickup with TSDF employees. Base contacts decided that the remaining well locations should be re-cleared for utilities using Ground Penetrating Radar (GPR), which is a modification to the SAP (April 2010). Concurrent to the FOL and Base contacts discussing additional utility clearance and obtaining work permits, the other Tetra Tech employee sampled wells FOMW14 and 13MW19 with a peristaltic pump. While waiting to discuss modified scope of work with the utility clearance contractor, the FOL and other Tetra Tech employee purged and sampled wells 13MW20 and 13MW21 with a peristaltic pump. Samples for wells 13MW13, FOMW14, 13MW19, 13MW20, and 13MW21 were packed and shipped to the laboratory. Groundwater Sample Chain of Custodies are included in Attachment 1.6.

On Saturday April 24, 2010, the FOL purged and sampled wells MW4-7RI, NESO11, and NESO10, while the other Tetra Tech employee purged and sampled wells MW3-7RI, 19MW3, and 13MW14 with

peristaltic pumps. After discussing the remaining workload, the other Tetra Tech employee demobilized from the site.

On Monday April 26, 2010, the FOL met with the Base Point of Contact to discuss work performed to-date and activities planned for the remainder of the week. The FOL purged and sampled well MW1-5PDI and coordinated a drum pickup with TSDF employees. Samples for wells MW3-7RI, 19MW3, 13MW14, MW4-7RI, NESO11, NESO10, and MW1-5PDI were packed and shipped to the laboratory. The FOL also shipped some sampling equipment back to the vendor.

On April 27, 2010, the FOL facilitated site access issues with the utility clearance contractor (Hager-Richter). Utility clearance by GPR was conducted at the MW1-1PDI, MW1-4PDI, and MW1-7PDI locations. Anomalies were found at the originally proposed MW1-7PDI location and it was subsequently moved northwest of the original location. Minor anomalies were found at the MW1-1PDI and MW1-4PDI locations.

On April 28, 2010, the FOL and drillers installed wells MW1-1PDI, MW1-4PDI, and MW1-7PDI. The FOL coordinated a drum pickup of IDW with the TSDF employees at well locations MW1-7PDI and MW1-1PDI.

On April 29, 2010, the FOL coordinated the remaining sampling efforts with the Base Point of Contact regarding the tide timing and IDW pickup with the TSDF employees. The FOL met with the drillers for equipment decontamination and demobilization. All decontamination water was containerized. The FOL developed wells MW1-7PDI, MW1-1PDI, and MW1-4PDI and coordinated drum unloading at the TSDF area for staging.

On April 30, 2010, the FOL purged and sampled wells MW1-1PDI, MW1-4PDI, and MW1-7PDI. The surveyor arrived on site and surveyed the four new monitoring wells. Well survey information is provided in Attached 1.8. The IDW contractor also arrived onsite and collected samples to characterize the solid and liquid IDW. The resulting IDW waste characterization profiles and manifests are included in Attachment 1.9. The FOL performed one round of water level readings at 15 wells in the Lower Subase. The FOL also pack and shipped samples for wells MW1-7PDI, MW1-1PDI, and MW1-4PDI to the laboratory, packed field equipment, and demobilized from the site.

Phase 1 PDI Results

Analytical

The project laboratory (Columbia Analytical) received and analyzed all of the groundwater samples collected during Phase 1 of the Groundwater PDI. Unfiltered (total) and filtered (dissolved) groundwater samples were analyzed for arsenic, copper, and lead. The laboratory completed analysis of the samples and submitted the analytical data package to Tetra Tech on May 17, 2010. Tetra Tech validated the data according to the procedures outlined in the Groundwater PDI SAP. The completed data validation letter is provided in Attachment 2.1. No matrix interference (salinity) or elevated detection limit issues were identified with the data set. The quality of the groundwater data is most likely attributable to the combined impact of redeveloping the wells prior to sampling, conducting sampling per proper low-flow groundwater sampling procedures, and using sample preparation Method SW-846 1640 to minimize matrix interferences (salinity).

A summary of the groundwater analytical data is provided in Table 2-1 in Attachment 2.1. Arsenic, copper, and lead were detected in all of the unfiltered and filtered groundwater samples. None of the detected concentrations exceeded the project action limits (PALs) identified in the Groundwater PDI SAP. The maximum detected total concentrations of arsenic (1.35 µg/L), copper (4.57 µg/L), and lead (7.3 µg/L) and dissolved concentrations of arsenic (1.63 µg/L), copper (2.12 µg/L), and lead (0.977 µg/L) in

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Zone 1 were significantly less than their respective project action limits [arsenic - 10 µg/L, copper – 48 µg/L, and lead – 810 µg/L]. The maximum detected total concentrations of arsenic (3.2 µg/L), copper (57 µg/L), and lead (43.5 µg/L) and dissolved concentrations of arsenic (3.33 µg/L), copper (37.7 µg/L), and lead (10.5 µg/L) in Zones 4, 5 and 7 were significantly less than their respective project action limits [arsenic - 10 µg/L, copper – 310 µg/L, and lead – 810 µg/L].

Hydrogeology

A comprehensive round of water level measurements was taken in the 15 wells from which groundwater samples were collected and 10 additional existing wells located in the Lower Subase. The water levels were taken near low tide. A summary of the water levels and well construction details is provided in Attachment 2.2.

The water level data was used to develop potentiometric surface maps for Zones 1, 4, 5, and 7 (see Figures 1 through 4, respectively, in Attachment 2.2). The figures show that the general groundwater flow direction was to the west towards the Thames River. The Zone 1 data was difficult to interpret because the data was collected from focused areas of the zone.

Conclusions

The following conclusions were reached based on the cursory evaluation of the Round 1 data performed in this Technical Memorandum:

- The groundwater samples were collected and analyzed in accordance with the SAP and no matrix interference (salinity) or elevated detection limit issues were identified with the data set. The quality of the groundwater data is most likely attributable to the combined impact of redeveloping the wells prior to sampling, conducting sampling per proper low-flow groundwater sampling procedures, and using sample preparation Method SW-846 1640 to minimize matrix interferences (salinity).

- The detected concentrations of arsenic, copper, and lead were all less than the PALs identified in the SAP.

- Groundwater flow directions during low tide are generally toward the Thames River to the west.

- The Round 2 groundwater sampling effort is scheduled to be completed in September 2010. A detailed evaluation of both rounds of data will be conducted and documented in the Groundwater PDI Completion Report.

If you have any questions regarding the Round 1 field work or results, please contact me at (412) 921-8984.

Sincerely,

Corey A. Rich, P.E.
New London Base Coordinator/Project Manager

CAR/clm
Attachment(s)

TETRA TECH

cc: Ms. Kymberlee Keckler, EPA-Region 1 (letter and 1 CD)
Mr. Mark Lewis, CTDEP (letter and 1 CD)
Mr. Richard Conant, NSB-NLON (letter and 1 CD)
Mr. Peter Golonka, Gannett Flemming (letter and 1 CD)
Mr. Glenn Garth, Tetra Tech Norfolk (letter only)
Mr. Glenn Wagner, Tetra Tech-PITT (1 copy/1 CD)
CTO WE57 – File Copy (1 copy/1 CD)

ATTACHMENT 1

FIELD FORMS

1.1 Dig Permits
1.2 Boring Logs
1.3 Well Construction Logs
1.4 Well Development Logs
1.5 Groundwater Sampling Log Sheets
1.6 Chain of Custodies
1.7 Equipment Calibration Logs
1.8 Well Survey Information
1.9 Investigation-Derived Waste Information
1.10 Sanitary Sewer Incident Report

1.1 Dig Permits

Request for Permit to Excavate

From: TETRA TECH NUS FRED W. RAMSER Date 4-12-10 To: PWD Facilities Management Division

Subject: REQUEST: FOR EXCAVATION PERMIT PURSUANT TO:

1. Purpose of Excavation: Monitoring Well installation
2. Time and Date of Excavation: 0700 hrs through 2000 hrs daily as needed April 21 through April 28, 2010
3. Description & location of Excavation: (Attach sketch/plan) See Attached Figures, AT [redacted] LOCATIONS: MW1-5PDI, [redacted] I (REPLACE EXISTING WELLS)
4. Other Pertinent Information: Installation will be done using 10-inch nominal diameter hollow stem augers making a 10-in hole.

Kevin Braniff
Contract Representative./Engineering Tech. Signature & Phone #

Fred W. Ramser Geoscientist 412.921.8838
Contractors Signature, Title & Phone #

From: Public Works FMD To: Kevin Braniff Date: 4/20/2010

1. ☑ Approved, subject to completing "Other Actions Required below" and the following change(s):

3. ☐ Disapproved, due to the following reason(s) :

Other Actions Required & Comments:

1. "Call Before You Dig" 1-800-922-4455. 2. Contact 694-5499 to identify Navy owned telephone lines.
3. Is dig location in or near a **Subase Installation Restoration (IR)** site? (Yes ☒ No ☐)
   If "Yes", **STOP HERE**, you are required to contact the Subase Environmental Div., IR Program Manager at 694-5149 for further information.
   3a. Preliminary **IR** Approval Attached & Validated within past year? (Yes ☒ No ☐)
Signature by IR Program Manager required before continuing:
4. Is dig location in or near a **Subase RADCON** site? (Yes ☒ No ☐)
   If "Yes", **STOP HERE**, contact the NRMD RADCON Engineer at 694-1314, or 908-3974 for further information.
   Diving involved? (Yes ☐ No ☒) If "Yes", **refer to MOA RSG-NRMD-4**
   4a. Preliminary **RADCON** Approval Attached & Validated within past year? (Yes ☐ No ☐)
   Signature by **NRMD 520 RADCON Engineer** required before continuing: 4-19-10 RCE
5. Return form to FMD for final approval. Is contracted utility line location required? (Yes ☑ No ☐)
   If "Yes", **STOP HERE**, contact the Contracting Officer for further information.
   5a. Preliminary Line location Approval Attached & Validated within past year? (Yes ☐ No ☑)
   Signature by Contracting Officer required before continuing. Line Location service provided by contractor.
6. See attached plan(s) for location of existing utilities.
7. **This Dig Permit & utility location drawing(s) must be on site during excavation**
8. Additional Comments/Requirements:

ALL DIGGING TO BE IN ACCORDANCE WITH ATTACHED SUBASE DIG PROCEDURES.

Mark Schub
PWD FMD Signature

S.U.E. Central Records Signature

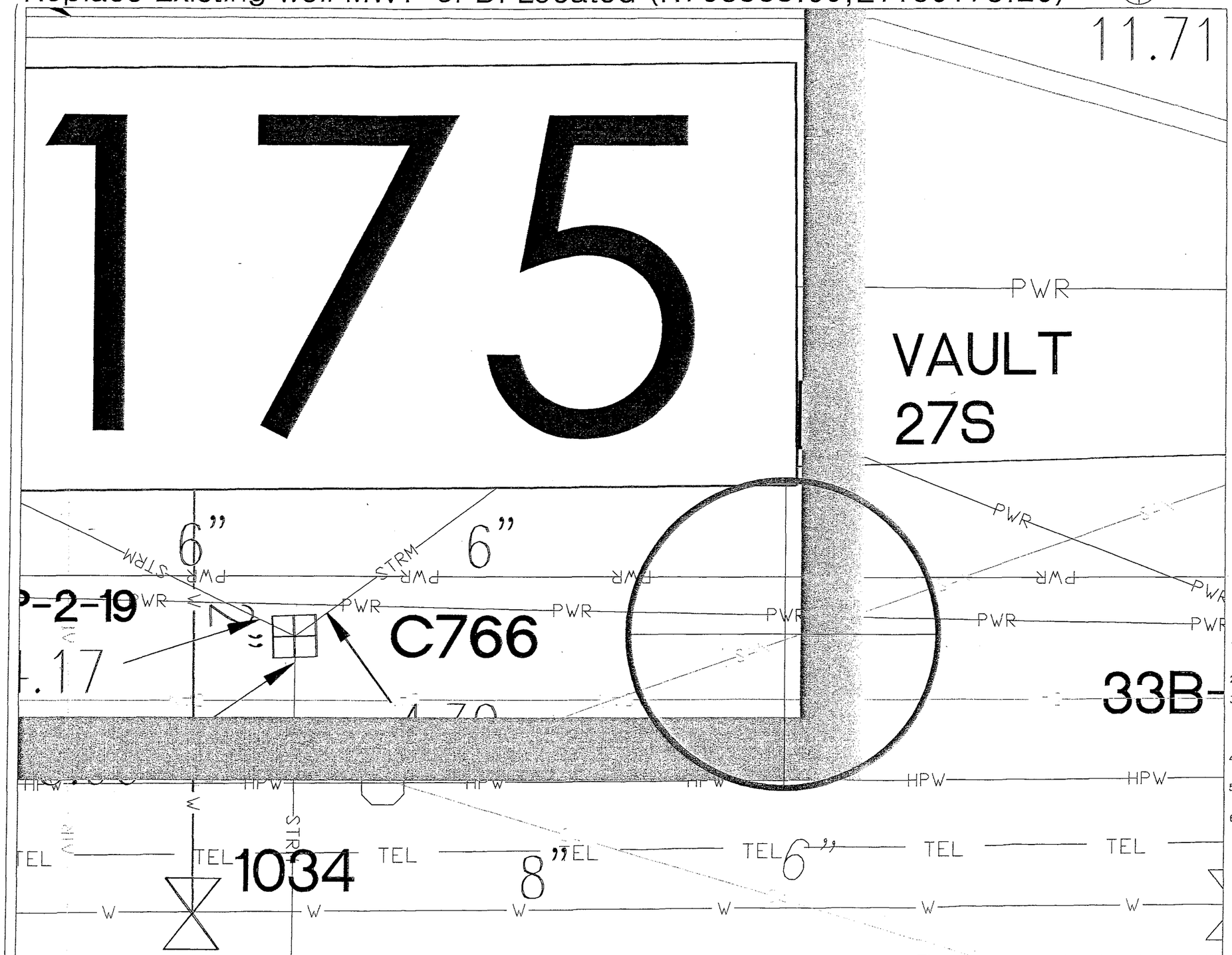
Public Works, Contractor and Visitor personnel will promptly obey any posted, verbal or written radiological control instructions including "Stop Work" and "Evacuate" orders. Deviations outside of approved work areas must be resubmitted for evaluation.

Form revised 1-/19/2009 to add line location test. All requests on older forms will be transferred to this form.

SUBMIT TWO COPIES OF ALL DOCUMENTS AND ENCLOSURES

Replace Existing well MW1-5PDI Located (N708333.00,E1180178.20)

April 2010



LEGEND

- PWR — POWER DUCT
- OHW — OVERHEAD POWER
- SL — STREET LIGHTING
- W — LOW PRESSURE WATER
- HW — HOT WATER
- HPW — HIGH PRESSURE WATER
- SANITARY SEWER
- STRM — STORM SEWER
- DIESEL OIL
- COMPRESSED AIR
- VNT — BURIED VENT LINE
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- NG — NATURAL GAS
- SPG — SPARGING SYSTEM
- VNT — SPARGING SYSTEM VENT LINE
- TEL — TELEPHONE, FIBER OPTIC, CABLE
- CATCH BASIN
- LIGHT POLE
- OTHER POWERED POLE
- HYDRANT (HIGH PRESSURE)
- HYDRANT (LOW PRESSURE)
- MANHOLE(S)
- VENT OR OTHER PENETRATIONS
- 2X4 — NUMBERS IDENTIFY POWER DUCT CONFIGURATION
- 123 — SUBASE TRAVERSE MONUMENT

NOTES

1. ALL UTILITIES DEPICTED ARE QUALITY LEVEL "D" UNLESS OTHERWISE NOTED PER ASCE STANDARD CI/ASCE 38-02
2. TELEPHONE, FIBER OPTIC CABLES AND CABLE TV SHOWN AS ONE
3. IF ANY KNOWN OR MARKED UTILITIES CANNOT BE LOCATED, NOTIFY PUBLIC WORKS PRIOR TO BEGINNING WORK IN THAT AREA. IF ANY UNKNOWN OR UNMARKED UTILITIES ARE FOUND, NOTIFY PUBLIC WORKS PLANNING PRIOR TO CONTINUING WORK IN THAT AREA.
4. REPORT ALL CHANGES TO DESIGN CONDITIONS AND ANY ERRORS IDENTIFIED ON EXISTING UTILITY MAPS TO PWD PLANNING.
5. DRAWING SCALE IS APPROXIMATE +/- 15 feet. EXACT UTILITY POSITION MAY VARY FROM LOCATIONS SHOWN
6. TELEPHONE, FIBER OPTIC AND CABLE TV ARE ALL IN THE SAME CONDUIT

APPROXIMATE SCALE: 1" = 40'

E
N DAJ S
W

Navy Utilities shown are the best available now. You must call "Call Before Your Dig" 1-800-922-4455 before dig to ID Non-Navy utilities!

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3. Description & location of Excavation: (Attach sketch/plan) See Attached Figures, AT [redacted] LOCATIONS: [redacted] MW1-7PDI (REPLACE EXISTING WELLS)
4. Other Pertinent Information: Installation will be done using 10-inch nominal diameter hollow stem augers making a 10-in hole.

Kevin Braniff
Contract Representative./Engineering Tech. Signature & Phone #

Fred W. Ramser Geoscientist 412.921.8838
Contractors Signature, Title & Phone #

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   3a. Preliminary **IR** Approval Attached & Validated within past year? (Yes ☒ No ☐)
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5. Return form to FMD for final approval. Is contracted utility line location required? (Yes ☑ No ☐)
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6. See attached plan(s) for location of existing utilities.
7. **This Dig Permit & utility location drawing(s) must be on site during excavation**
8. Additional Comments/Requirements:

ALL DIGGING TO BE IN ACCORDANCE WITH ATTACHED SUBASE DIG PROCEDURES.

Mark W Schulz
PWD FMD Signature

S.U.E. Central Records Signature

Public Works, Contractor and Visitor personnel will promptly obey any posted, verbal or written radiological control instructions including "Stop Work" and "Evacuate" orders. Deviations outside of approved work areas must be resubmitted for evaluation.

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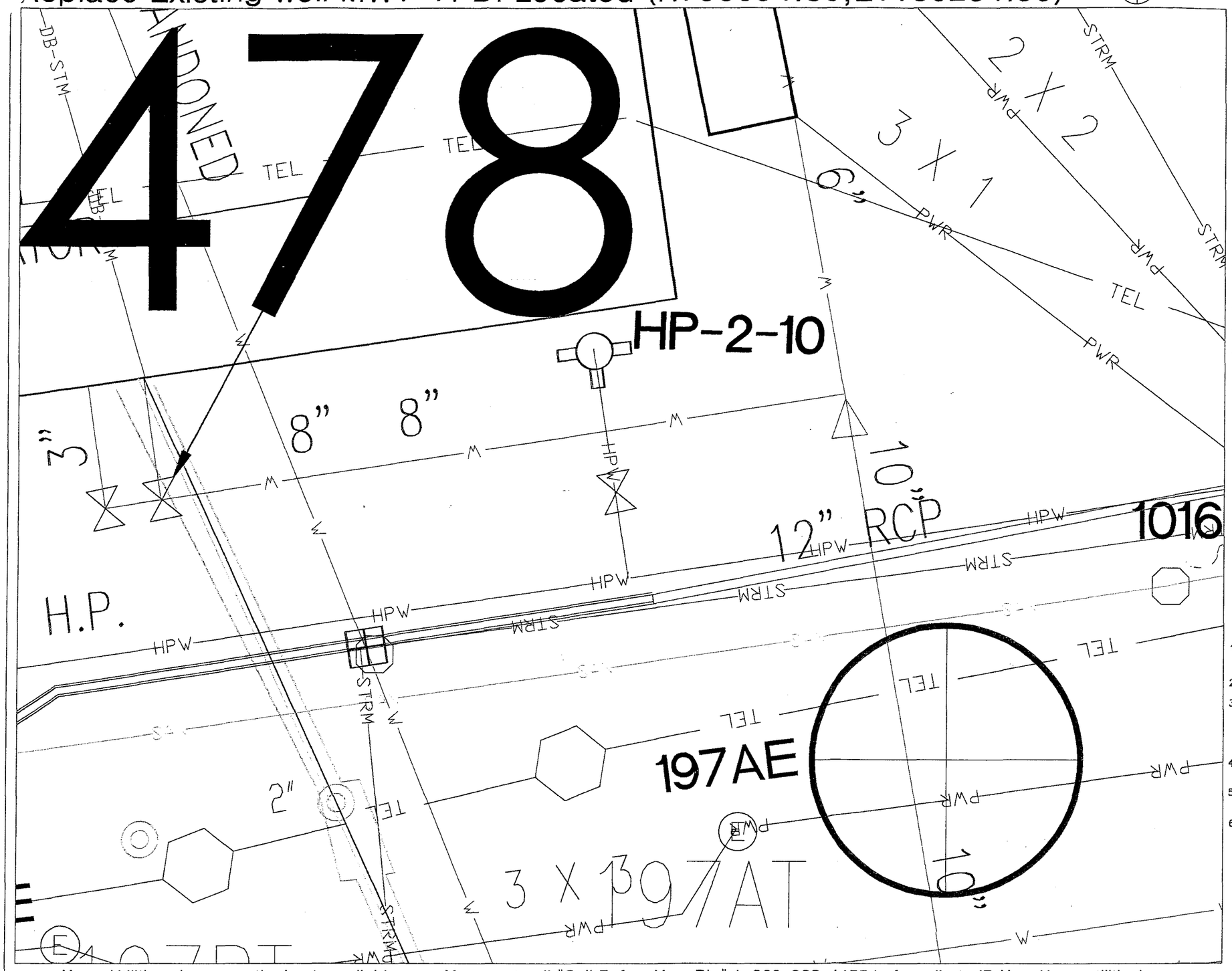
SUBMIT TWO COPIES OF ALL DOCUMENTS AND ENCLOSURES

Replace Existing well MW1-7PDI Located (N706694.80,E1180254.90)



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LEGEND

April 2010

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- STRM — STORM SEWER
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E
N DAJ S
W

NEW HOLE/WELL

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Kevin Braniff — Contract Representative./Engineering Tech. Signature & Phone #

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   3a. Preliminary **IR** Approval Attached & Validated within past year? (Yes ☒ No ☐)
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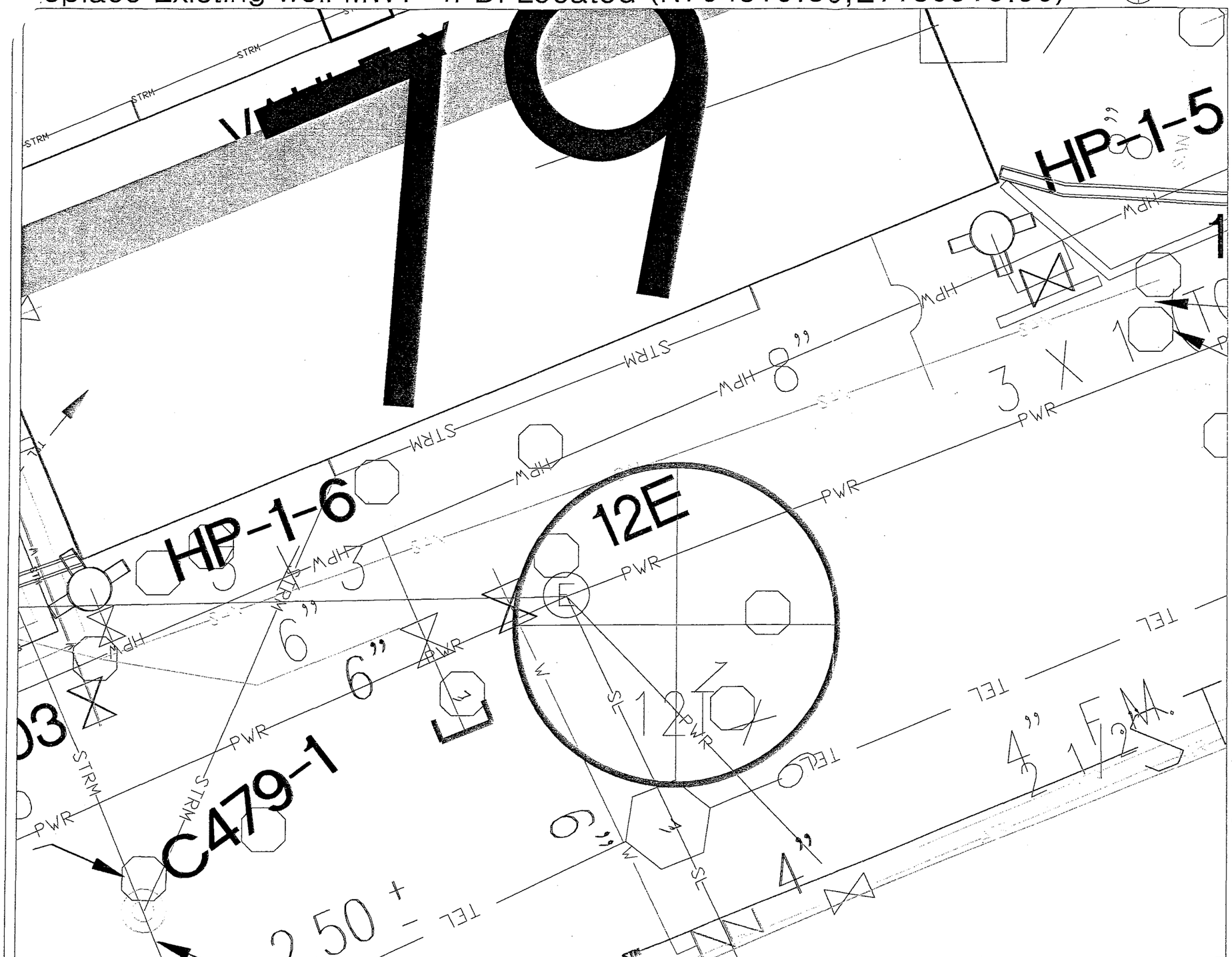
After hours

eplace Existing well MW1-4PDI Located (N704310.30,E1180916.90)

April 2010



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- LIGHT POLE
- OTHER POWERED POLE
- HYDRANT (HIGH PRESSURE)
- HYDRANT (LOW PRESSURE)
- MANHOLE(S)
- VENT OR OTHER PENETRATIONS
- 2X4 — NUMBERS IDENTIFY POWER DUCT CONFIGURATION
- 123 — SUBASE TRAVERSE MONUMENT

NOTES

1. ALL UTILITIES DEPICTED ARE QUALITY LEVEL "D" UNLESS OTHERWISE NOTED PER ASCE STANDARD CI/ASCE 38-02
2. TELEPHONE, FIBER OPTIC CABLES AND CABLE TV SHOWN AS ONE
3. IF ANY KNOWN OR MARKED UTILITIES CANNOT BE LOCATED, NOTIFY PUBLIC WORKS PRIOR TO BEGINNING WORK IN THAT AREA. IF ANY UNKNOWN OR UNMARKED UTILITIES ARE FOUND, NOTIFY PUBLIC WORKS PLANNING PRIOR TO CONTINUING WORK IN THAT AREA.
4. REPORT ALL CHANGES TO DESIGN CONDITIONS AND ANY ERRORS IDENTIFIED ON EXISTING UTILITY MAPS TO PWD PLANNING.
5. DRAWING SCALE IS APPROXIMATE +/- 15 feet. EXACT UTILITY POSITION MAY VARY FROM LOCATIONS SHOWN
6. TELEPHONE, FIBER OPTIC AND CABLE TV ARE ALL IN THE SAME CONDUIT

APPROXIMATE SCALE: 1" = 40'

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W

Navy Utilities shown are the best available now. You must call "Call Before Your Dig" 1-800-922-4455 before dig to ID Non-Navy utilities!

Request for Permit to Excavate

From: TETRA TECH NUS FRED W. RAMSFER Date 4-12-10 To: PWD Facilities Management Division

Subject: REQUEST: FOR EXCAVATION PERMIT PURSUANT TO:

1. Purpose of Excavation: Monitoring Well installation
2. Time and Date of Excavation: 0700 hrs through 2000 hrs daily as needed April 21 through April 28, 2010
3. Description & location of Excavation: (Attach sketch/plan) See Attached Figures, AT ~~FOUR LOCATIONS~~: ~~MWI-5PDI, MWI-1PDI~~, MWI-1PDI AND ~~MWI-1PDI~~ (REPLACE EXISTING WELLS)
4. Other Pertinent Information: Installation will be done using 10-inch nominal diameter hollow stem augers making a 10-in hole.

Kevin Braniff
Contract Representative./Engineering Tech. Signature & Phone #

Fred W. Ramser Geoscientist 412.921.8838
Contractors Signature, Title & Phone #

From: Public Works FMD To: Kevin Braniff Date: 4/20/2010

1. ☑ Approved, subject to completing "Other Actions Required below" and the following change(s):

3. ☐ Disapproved, due to the following reason(s) :

Other Actions Required & Comments:

1. "Call Before You Dig" 1-800-922-4455. 2. Contact 694-5499 to identify Navy owned telephone lines.
3. Is dig location in or near a **Subase Installation Restoration (IR)** site? (Yes ☒ No ☐)
   If "Yes", **STOP HERE**, you are required to contact the Subase Environmental Div., IR Program Manager at 694-~~5197~~ 5484 for further information.
   3a. Preliminary **IR** Approval Attached & Validated within past year? (Yes ☒ No ☐)
Signature by IR Program Manager required before continuing:
4. Is dig location in or near a **Subase RADCON** site? (Yes ☒ No ☐)
   If "Yes", **STOP HERE**, contact the NRMD RADCON Engineer at 694-1314, or 908-3974 for further information.
   Diving involved? (Yes ☐ No ☒) If "Yes", **refer to MOA RSG-NRMD-4**
   4a. Preliminary **RADCON** Approval Attached & Validated within past year? (Yes ☐ No ☐)
   Signature by **NRMD 520 RADCON Engineer** required before continuing: 4-19-10 520 RCE
5. Return form to FMD for final approval. Is contracted utility line location required? (Yes ☑ No ☐)
   If "Yes", **STOP HERE**, contact the Contracting Officer for further information.
   5a. Preliminary Line location Approval Attached & Validated within past year? (Yes ☐ No ☑)
   Signature by Contracting Officer required before continuing. Line Location service provided by contractor.
6. See attached plan(s) for location of existing utilities.
7. **This Dig Permit & utility location drawing(s) must be on site during excavation**
8. Additional Comments/Requirements:

ALL DIGGING TO BE IN ACCORDANCE WITH ATTACHED SUBASE DIG PROCEDURES.

Mark Schultz
PWD FMD Signature

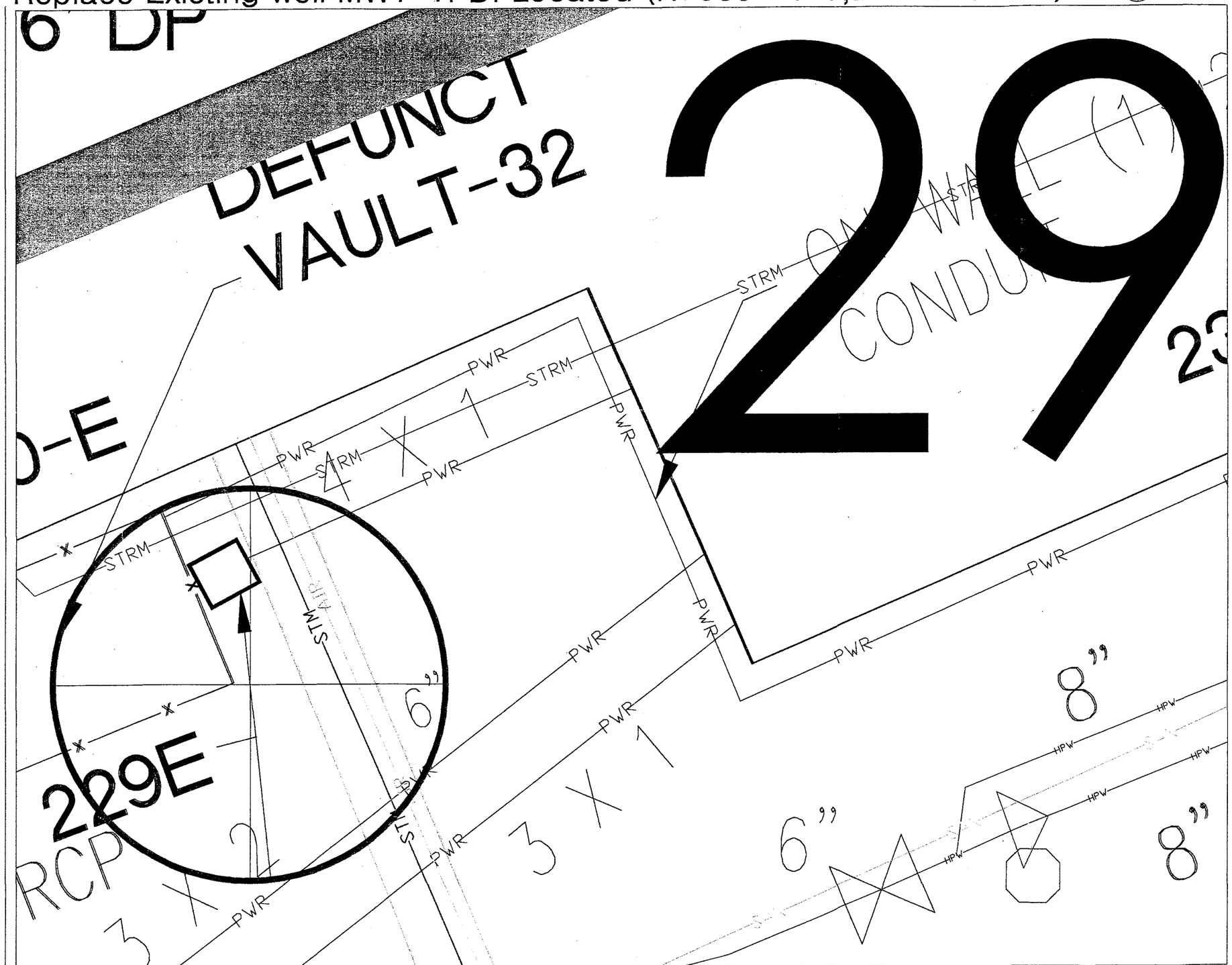
S.U.E. Central Records Signature

Public Works, Contractor and Visitor personnel will promptly obey any posted, verbal or written radiological control instructions including "Stop Work" and "Evacuate" orders. Deviations outside of approved work areas must be resubmitted for evaluation.

Form revised 1-/19/2009 to add line location test. All requests on older forms will be transferred to this form.

SUBMIT TWO COPIES OF ALL DOCUMENTS AND ENCLOSURES

Replace Existing well MW1-1PDI Located (N705377.10,E1180452.60)



LEGEND

- PWR — POWER DUCT
- OHW — OVERHEAD POWER
- SL — STREET LIGHTING
- W — LOW PRESSURE WATER
- HW — HOT WATER
- HPW — HIGH PRESSURE WATER
- SA — SANITARY SEWER
- STRM — STORM SEWER
- DO — DIESEL OIL
- CA — COMPRESSED AIR
- VNT — BURIED VENT LINE
- STM — STEAM IN TRENCH OR ABOVE GROUND
- ZS-STM — DIRECT BURIED STEAM
- NG — NATURAL GAS
- SPG — SPARGING SYSTEM
- VNT — SPARGING SYSTEM VENT LINE
- TEL — TELEPHONE, FIBER OPTIC, CABLE
- CATCH BASIN
- LIGHT POLE
- OTHER POWERED POLE
- HYDRANT (HIGH PRESSURE)
- HYDRANT (LOW PRESSURE)
- MANHOLE(S)
- VENT OR OTHER PENETRATIONS
- 2X4 — NUMBERS IDENTIFY POWER DUCT CONFIGURATION
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NOTES

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APPROXIMATE SCALE: 1" = 40'

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Navy Utilities shown are the best available now. You must call "Call Before Your Dig" 1-800-922-4455 before dig to ID Non-Navy utilities!

1.2 Boring Logs

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PDI New London Subase
PROJECT NUMBER: 112G02630 CTO WE24
DRILLING COMPANY: DRILLER
DRILLING RIG: CME 55

BORING No.: MW1-1PDI
DATE: April 28, 2010
GEOLOGIST: J. FERGUSON
DRILLER: L. HAGAN

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-1				HARD	Black	ASPHALT 0-0.75', Gray Gm						
	1-2				Brown		fine-coarse sand and	SP		0			
	2-3				Brown		f-c gravel, trace-little	SP					
	3-4				Brown		cobbles	SP		0			
S-1	4-5	4/6			Loose	Brown	Silty, medium-coarse sand	SM					
	5-6	4/1	2.0			Brown	little silt, petroleum odor	SM		20			
S-2	6-7	2/3			LOOSE	Brown-Black		SM					
	7-8	4/3	2.0			Brown-Black		SM		15			
S-3	8-9	4/3			LOOSE	Brown		SM					
	9-10	2/2	2.0			Brown		SM		25			
S-4	10-11	4/8			M. Dense	Gray	Silty, medium-coarse sand	SM/SP					
	11-12	9/5	2.0			Gray	trace-little f-c gravel	SM/SP		20			
S-5	12-13	2/8			M. Dense	Gray		SM/SP					
	13-14	9/6	2.0			Gray		SM/SP		0.2			
	14-15					Gray							

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: _____

Drilling Area Background (ppm): _____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PDI New London Subase
PROJECT NUMBER: 112G02630 CTO WE24
DRILLING COMPANY: Dallex
DRILLING RIG: CME 55

BORING No.: MW1-4PDI
DATE: April 28, 2010
GEOLOGIST: J. Ferguson
DRILLER: C. Hagan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
	0-1				Hand	Black	0-0.25 Black asphalt	GM	Augered through				
	1-2					Gray-Brn	0.25-1.5' Medium-coarse	GM	Asphalt, Hand	0			
	2-3					Black-Brn	limestone sub-base.	SP	Dug to 4.0' w/				
	3-4					Brn	MEDIUM-COARSE sand	SP	post hole digger	0			
	4-5					Brn	some cobbles (f,11)	SP					
S-1	5-6	10/9	0.30		M. Dense	Brn	↓	SP					
	6-7	8/10	2.0			Brn	↓	SP		0			
	7-8			WOOD			Augered through wood						
	8-9			V. D			plug falls through auger						
	9-10												
S-2	10-11	W/O	0.1		V. Loose	Black	Black, silt and org.	ml					
	11-12	R	2.0			Black	material wet	ml		0			
S-3	12-13	W/O	1.0		V. Loose	Brn-Gry	Silt, trace fine-very	ml					
	13-14	R	2.0			Brn-Gry	fine sand, wet	ml		0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: INSTALLED 2" Ø SCH 40 PVC Screen 3'-13'

Converted to Well: Yes x No _____ Well I.D. #: MW1-4PDI

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NSB New London GW PDI
PROJECT NUMBER: 112G02630
DRILLING COMPANY: Driller
DRILLING RIG: CME 55

BORING NUMBER: MW1-5PDI
DATE: April 21, 2010
GEOLOGIST: J. Ferguson
DRILLER: C. Hagan

Sample No. and Type or RQD	Depth (FT.) or Run No.	Blows/ 6" or RQD (%)	Sample Recovery/ Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
S-1	0-1	7 / 9	1.0		M. Dense	Black Brown	medium sand, some fine-	SM	0-0.25 Black Asphalt	0			0
	1-2	14 / 12	2.0			Brown	coarse gravel, moist	SM					
S-2	2-3	8 / 15	1.3		M. Dense	Brown	↓	SM		1/1			0
	3-4	17 / 10	2.0			Brown	↓	SM					
S-3	4-5	3 / 8	1.3		M. Dense	Black-Brown	medium - coarse sand, trace-	SM		1.7/1			0
	5-6	11 / 35	2.0			Black-Brown	little fine- coarse gravel, wet,	SM					
	6-7						petroleum odor.						
							Bottom of Borg = 6.25'						

*When rock coring, enter rock brokeness.
**Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Drilling Area Background (ppm): 0

Remarks: 2" ϕ Sch 40 PVC well 1'-6' BGS.
Sand to 0.5-6.25'
Seal 0.25' - 0.5 Bent.

Converted to Well: Yes X No _____ Well I.D. #: _____

ACAD:FORM_BORLOG.dwg 07/27/99 INL

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSB New London
PROJECT NUMBER: 112G02630
DRILLING COMPANY: BAILLEY
DRILLING RIG: CME-90

BORING No.: MW1-7DDJ
DATE: April 28, 2016
GEOLOGIST: J. Ferguson
DRILLER: CHRIS HAGAN

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
	0-1						0-0.5 Black Asphalt		Hand dig with				
	1-2					Brown	Silty, fine-medium sand,	SM	post hole digger				
	2-3					Brown	trace-little f-c gravel,	SM	wet @ 4.0'				
	3-4						↓	SM					
S-1	4-5	2 / 2	1.4		Loose	Gray	Medium Sand, wet	SP		0.6	0	0	
	5-6	2 / 4	2.0			Gray		SP					
	6-7												
	7-8						↓						
S-2	8-9	1 / 1	1.6		Loose	Gray	Medium-Coarse Sand,	SP	8:30	0	0	0	
	9-10	1 / 2	2.0			Gray	wet	SP					
S-3	10-11	2 / 2	2.0		Loose	Gray		SP	8:42	0	0	0	
	11-12	1 / 1	2.0			Gray		SP					
S-4	12-13	1 / 1	1.6		Loose	Gray		SP		0	0	0	
	13-14	2 / 1	2.0			Gray	↓	SP					
							Bottom of Borg.						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Replaces 20 MW7 (2.5-12.5)
New well 3'-13'

Drilling Area Background (ppm): 0

Converted to Well: Yes _____ No _____ Well I.D. #: _____

1.3 Well Construction Logs

Tetra Tech NUS, Inc.

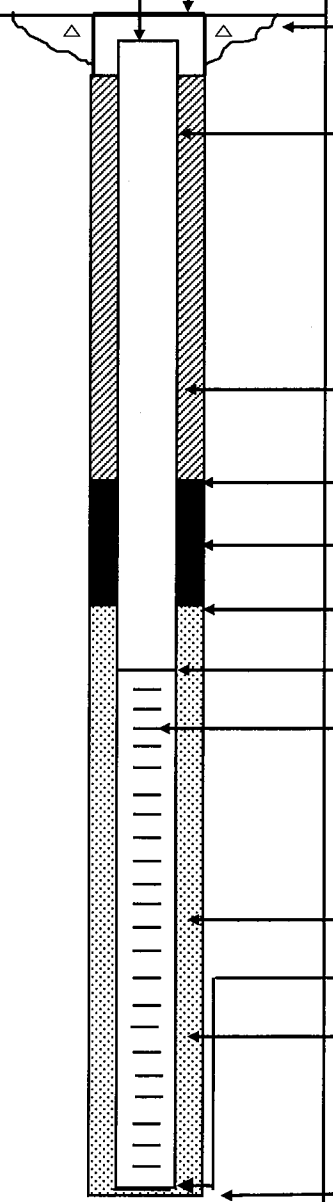
WELL No.: MW1-1PDI

MONITORING WELL SHEET

PERMIT No:

PROJECT:	NSB New London	DRILLING Co.:	Drillex	BORING No.:	MW1-1PDI
PROJECT No.:	112G02630	DRILLER:	Chris Hagan	DATE COMPLETED:	April 28, 2010
SITE:	Zone 1	DRILLING METHOD:	Hollow stem auger	NORTHING:	705393.439
GEOLOGIST:	J. Ferguson	DEV. METHOD:	Surge / Sub. Pump	EASTING:	1180442.314

Ground Elevation Datum: 5.90



Not to Scale

Elevation / Depth of Top of Riser:	5.46 / 0.44	
Elevation / Depth of Top of Surface Casing:	5.89 / 0.01'	
I.D. of Surface Casing:	8"	
Type of Surface Casing:	Flush - Steel	
Type of Surface Seal:	CONCRETE	
I.D. of Riser:	2"	
Type of Riser:	Sch. 40 PVC	
Borehole Diameter:	8.25"	
Note: MW1-1PDI is replacement well for 13MW7.		
Type of Backfill:	Bentonite pellet.	
Elevation / Depth of Seal:	4.90 / 1.0	
Type of Seal:	Bentonite pellet	
Elevation / Depth of Top of Filter Pack:	3.90 / 2.0	
Elevation / Depth of Top of Screen:	1.90 / 4.0	
Type of Screen:	Sch. 40 PVC	
Slot Size x Length:	0.010 SLOT 10'	
I.D. of Screen:	2"	
Type of Filter Pack:	No. 1 silica sand	
Elevation / Depth of Bottom of Screen:	-8.10 / 14.0	
Elevation / Depth of Bottom of filter pack	-8.10 / 14.0	
Type of Backfill Below Well:	No. 1 silica sand	
Elevation / Total Depth of Borehole:	-8.10 / 14.0	

Note:
1. Monitoring well survey completed by CME Associates, Inc. of Norwich Connecticut.
2. Monitoring well horizontal location based on Connecticut State Planar Coordinates (NAD83).
3. Monitoring well vertical locations based on NAVD88.

Tetra Tech NUS, Inc.

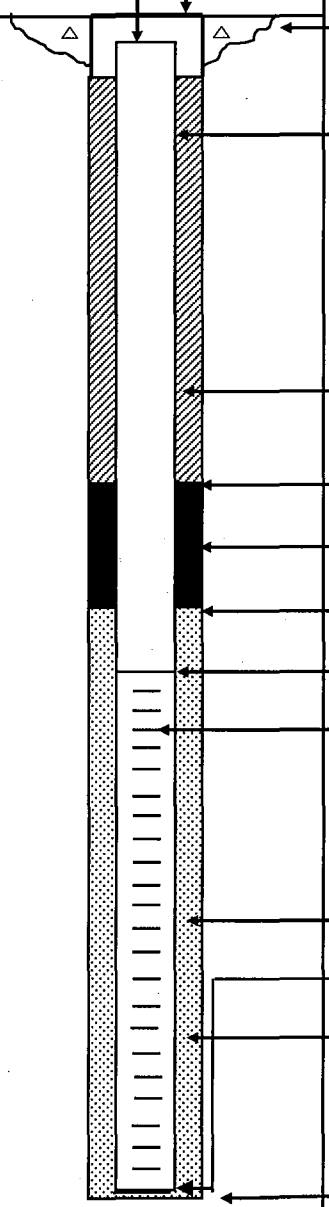
WELL No.: MW1-4PDI

MONITORING WELL SHEET

PERMIT No:

PROJECT:	NSB New London	DRILLING Co.:	Drillex	BORING No.:	MW1-4PDI
PROJECT No.:	112G02630	DRILLER:	Chris Hagan	DATE COMPLETED:	April 28, 2010
SITE:	Zone 4	DRILLING METHOD:	Hollow stem auger	NORTHING:	704303.210
GEOLOGIST:	J. Ferguson	DEV. METHOD:	Surge / Sub. Pump	EASTING:	1180917.204

Ground Elevation Datum: 5.60



Not to Scale

Elevation / Depth of Top of Riser:	5.06 / 0.54	
Elevation / Height of Top of Surface Casing:	5.61 / 0.01	
I.D. of Surface Casing:	8"	
Type of Surface Casing:	Flush - Steel	
Type of Surface Seal:	Concrete	
I.D. of Riser:	2"	
Type of Riser:	Sch. 40 PVC	
Borehole Diameter:	8.25"	
Note: MW1-4PDI replaces well 13MW15.		
Type of Backfill:	Bentonite pellet.	
Elevation / Depth of Seal:	4.60 / 1.0	
Type of Seal:	Bentonite pellet.	
Elevation / Depth of Top of Filter Pack:	3.60 / 2.0	
Elevation / Depth of Top of Screen:	2.60 / 3.0	
Type of Screen:	Sch. 40 PVC	
Slot Size x Length:	0.010 SLOT 10'	
I.D. of Screen:	2"	
Type of Filter Pack:	No. 1 silica sand.	
Elevation / Depth of Bottom of Screen:	-7.40 / 13.0	
Elevation / Depth of Bottom of filter pack	-8.40 / 14.0	
Type of Backfill Below Well: No. 1 silica sand.	/	
Elevation / Total Depth of Borehole:	-8.40 / 14.0	

Note:
1. Monitoring well survey completed by CME Associates, Inc. of Norwich Connecticut.
2. Monitoring well horizontal location based on Connecticut State Planar Coordinates (NAD83).
3. Monitoring well vertical locations based on NAVD88.

Tetra Tech NUS, Inc.

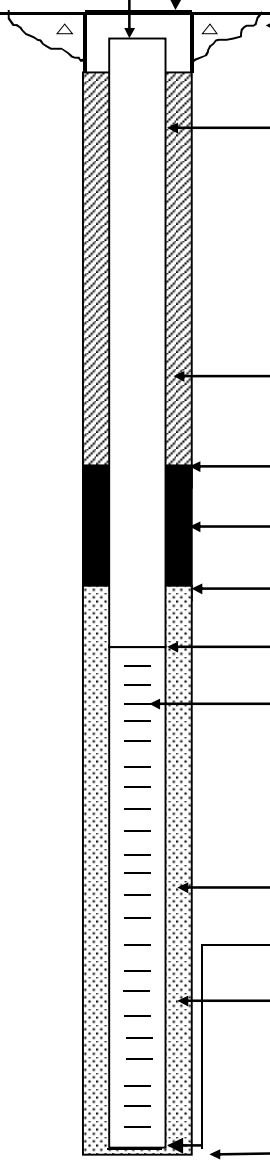
WELL No.: MW1-5PDI

MONITORING WELL SHEET

PERMIT No:

PROJECT:	NSB New London	DRILLING Co.:	Drillex	BORING No.:	MW1-5PDI
PROJECT No.:	112G01489	DRILLER:	Chris Hagan	DATE COMPLETED:	April 21, 2010
SITE:	Zone 5	DRILLING METHOD:	Hollow stem auger	NORTHING:	708330.130
GEOLOGIST:	J. Ferguson	DEV. METHOD:	Surge / Sub. Pump	EASTING:	1180166.318

Ground Elevation Datum: 5.10



Not to Scale

Elevation / Depth of Top of Riser:		4.68 / 0.57'
Elevation / Height of Top of Surface Casing:		5.05 / 0.0'
I.D. of Surface Casing:	8"	
Type of Surface Casing:	Flush - Steel	
Type of Surface Seal:	CONCRETE	
I.D. of Riser:	2"	
Type of Riser:	Sch. 40 PVC	
Borehole Diameter:	8.25"	
Note: MW1-5PDI replaces well 19MW4.		
Type of Backfill:	Bentonite pellet.	
Elevation / Depth of Seal:		4.85 / 0.25
Type of Seal:	Bentonite pellet.	
Elevation / Depth of Top of Filter Pack:		4.35 / 0.75
Elevation / Depth of Top of Screen:		4.10 / 1.00
Type of Screen:	PVC	
Slot Size x Length:	0.010 SLOT 10'	
I.D. of Screen:	2"	
Type of Filter Pack:	No. 4 Global Silica	
Elevation / Depth of Bottom of Screen:		-0.90 / 6.00
Elevation / Depth of Bottom of filter pack		-1.15 / 6.25
Type of Backfill Below Well:	NA	
Elevation / Total Depth of Borehole:		-1.15 / 6.25

Note:
1. Monitoring well survey completed by CME Associates, Inc. of Norwich Connecticut.
2. Monitoring well horizontal location based on Connecticut State Planar Coordinates (NAD83).
3. Monitoring well vertical locations based on NAVD88.

Tetra Tech NUS, Inc.

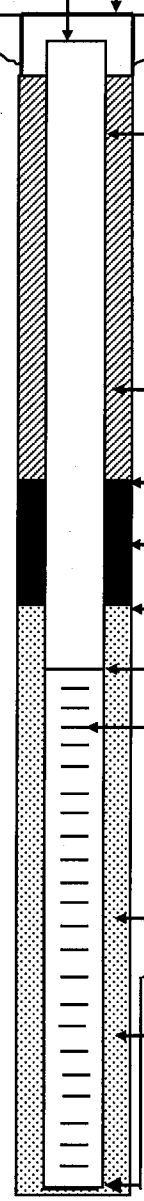
WELL No.: MW1-7PDI

MONITORING WELL SHEET

PERMIT No:

PROJECT:	NSB New London	DRILLING Co.:	Drillex	BORING No.:	MW1-7PDI
PROJECT No.:	112G02630	DRILLER:	Chris Hagan	DATE COMPLETED:	04/28/10
SITE:	Zone 7	DRILLING METHOD:	H S A	NORTHING:	706684.822
GEOLOGIST:	J. Ferguson	DEV. METHOD:	Surge / Sub. Pump	EASTING:	1180243.449

Ground Elevation Datum: 4.10



Not to Scale

Elevation / Depth of Top of Riser:		3.84 / 0.26
Elevation / Height of Top of Surface Casing:		4.16 / +0.06'
I.D. of Surface Casing:	8"	
Type of Surface Casing:	Flush - Steel	
Type of Surface Seal:	Concrete	
I.D. of Riser:	2"	
Type of Riser:	Sch. 40 PVC	
Borehole Diameter:	8.25"	

Note: MW1-7PDI replacement well for 20MW7.

Type of Backfill:	Bentonite pellet.	
Elevation / Depth of Seal:		3.10 / 1.0
Type of Seal:	Bentonite pellet.	
Elevation / Depth of Top of Filter Pack:		2.10 / 2.0
Elevation / Depth of Top of Screen:		1.10 / 3.0
Type of Screen:	Sch. 40 PVC	
Slot Size x Length:	0.010 SLOT 10'	
I.D. of Screen:	2"	
Type of Filter Pack:	No. 1 silica sand	
Elevation / Depth of Bottom of Screen:		-8.90 / 13.0
Elevation / Depth of Bottom of filter pack:		-9.90 / 14.0
Type of Backfill Below Well:	No. 1 silica sand.	/
Elevation / Total Depth of Borehole:		-9.90 / 14.0

Note:
1. Monitoring well survey completed by CME Associates, Inc. of Norwich Connecticut.
2. Monitoring well horizontal location based on Connecticut State Planar Coordinates (NAD83).
3. Monitoring well vertical locations based on NAVD88.

1.4 Well Development Logs

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 13MW13
Site: NSB New London
Date Installed: NA
Date Developed: 4-21-10
Dev. Method: SURGE + PUMP
Pump Type: SUB, 12VDC

Depth to Bottom (ft.): 14.3 TPVC @ 814HRS
Static Water Level Before (ft.): 5.70
Static Water Level After (ft.): 9.98
Screen Length (ft.):
Specific Capacity:
Casing ID (in.): 2" PVC

Responsible Personnel: FRED WRAMSK
Drilling Co.: NA
Project Name: NSB NEW LONDON
Project Number: 112602630

EXSITING WELL RE-DEVELOPMEN

Time	Estimated Sediment Thickness (Ft.)	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.)
0830	0	6	5.70	14.78	6.66	0.309	50	
0850	0	12	6.50	15.09	6.75	0.598	40	
0853	0	18	8.92	15.13	6.79	0.603	10	
0856	0	24	9.50	15.23	6.73	0.608	7.4	
0858	0	30	9.98	15.27	6.75	0.602	5	COMPLETED DEV.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 13MW14
Site: NSB New London
Date Installed: NA
Date Developed: 4-22-10
Dev. Method: SURGE + PUMP
Pump Type: 12VDC SUB.

Depth to Bottom (ft.): 14.2 TPVC
Static Water Level Before (ft.): 4.80
Static Water Level After (ft.): 4.80
Screen Length (ft.): 10.0'
Specific Capacity: NA
Casing ID (in.): 2"

Responsible Personnel: FRED WRAMSKEZ
Drilling Co.: NA
Project Name: NSB New London
Project Number: 112602630

Time	Estimated Sediment Thickness (Ft.)	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.)
1551	0	3.5	4.8	18.86	7.61	9.819		
1554	0	5	4.8	18.75	7.21	10.01	29	SAL = 6.51
1558	0	6.5	4.8	18.51	7.08	9.810	12	
1602	0	8.0	4.8	18.41	7.01	9.794	4	
1606	0	10.0	4.8	18.41	6.97	9.819	3	FINISH DEV.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 13MW19
Site: ZONE 1
Date Installed: NA
Date Developed: 4-22-10
Dev. Method: PERISTALTIC PUMP
Pump Type: PERISTALTIC

Depth to Bottom (ft.): 14.6
Static Water Level Before (ft.): 3.86
Static Water Level After (ft.): 4.78
Screen Length (ft.): 10.0
Specific Capacity: NA
Casing ID (in.): 2" Ø SCH 40 PVC

Responsible Personnel: FRED W. ROMSER
Drilling Co.: NA
Project Name: NSB New London
Project Number: 112602630

RE-DEVELOPMENT EXISTING WELL
STARTED PUMP @ 1248 HRS @ 1 l/min

~~1.86 gal~~ x3

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume ~~(Gal.)~~ l/m	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1256	0	7 l	3.86	22.28	8.09	0.536	15	RISER IS SLIGHTLY BENT
1301	0	12 l	4.78	22.22	8.01	1.348	11	CAN NOT INSERT
1308	0	19 l	4.78	22.31	8.01	1.360	5	SURGE BLK, PUMP
1316	0	27 l	4.78	22.29	8.10	1.382	5	WILL NOT GO IN
1325	0	36 l	4.78	22.19	8.19	1.395	5	TO WELL NEED TO
								USE PERISTALTIC PUMP
								(4/21)
								COMPLETED DEV @
								1325

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 13MW20
Site: NSB New London
Date Installed: NA
Date Developed: 4-21-2016
Dev. Method: Surge + Pump
Pump Type: 12VDC Sub

Depth to Bottom (ft.): 14.55 TPVC
Static Water Level Before (ft.): 6.45
Static Water Level After (ft.): 6.58
Screen Length (ft.): 10.0'
Specific Capacity: NA
Casing ID (in.): 2" Ø Sch 40

Responsible Personnel: Fred Wrasser
Drilling Co.: NA
Project Name: NSB New London
Project Number: 112602630

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units µS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1325	0	6	6.58	16.12	8.63	1.036	60	
1330	0	9	6.58	15.66	8.00	1.026	15	
1335	0	12	6.58	15.67	7.95	1.021	8	Finnish Dev.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 13MW21
Site: NSB NEW LONDON
Date Installed: NA
Date Developed: 4-21-10
Dev. Method: SURGE/Pump
Pump Type: Submersible

Depth to Bottom (ft.): 12.55
Static Water Level Before (ft.): 4.20
Static Water Level After (ft.): 4.95'
Screen Length (ft.): 10.0'
Specific Capacity: NA
Casing ID (in.): 2IN

Responsible Personnel: FRED WRAMSER
Drilling Co.: NA
Project Name: NSB NEW LONDON
Project Number: 112602630

RE-DEVELOPMENT EXSITING WELL

Time	Estimated Sediment Thickness (Ft.)	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.)
1238		5	4.90	15.06	8.34	0.579	15	
1245		10	4.95	14.80	8.23	1.001	8	
1250		16	4.95	14.75	8.27	1.009	2	COMPLETED

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 19MW3
Site: NSB New London
Date Installed: NA
Date Developed: 4-22-10
Dev. Method: Surge/Pump
Pump Type: Submersible

Depth to Bottom (ft.): 5.30 TPVC
Static Water Level Before (ft.): 3.65 TPVC
Static Water Level After (ft.): _____
Screen Length (ft.): 4.0'
Specific Capacity: NA
Casing ID (in.): 2" SCH 40 PVC

Responsible Personnel: FRED W RAMSER
Drilling Co.: NA
Project Name: NSB New London
Project Number: 112602630
STARTED PUMPING @0908

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.)
919	—	3	3.65	13.50	7.71	0.488	13	
922	—	5	—	13.55	7.73	0.496	10	
924	—	6	—	13.62	7.75	0.501	10	COMPLETED DEV.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: FOMW 14
Site: NSB NEW LONDON
Date Installed: N A
Date Developed: 4-21-10
Dev. Method: SURGE/ PUMP
Pump Type: Submersible

Depth to Bottom (ft.): 10.0
Static Water Level Before (ft.): 8.62
Static Water Level After (ft.): 8.65
Screen Length (ft.): 7.0
Specific Capacity: N C
Casing ID (in.): 2" Ø Sch 40

Responsible Personnel: FRED W RAMSEUR
Drilling Co.: N A
Project Name: NSB NEW LONDON GW PDI
Project Number: 112602630

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mg/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1427	0	2	8.65	12.84	7.34	2.429	3	
1429	0	4	8.65	12.19	7.14	2.341	3	
1431	0	6	8.65	12.09	7.12	2.347	3	
1432	0	8	8.65	12.05	7.09	2.335	4	COMPLETED DEV.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: NES010
Site: ZONE
Date Installed: NA
Date Developed: 4-20-10
Dev. Method: Surge / Pump
Pump Type: Submersible

Depth to Bottom (ft.): 9.20 / 1400 HRS
Static Water Level Before (ft.): 5.61
Static Water Level After (ft.): 5.18
Screen Length (ft.): 5.0
Specific Capacity: NA
Casing ID (in.): ~3 IN

Responsible Personnel: FRED W. RAMSER
Drilling Co.: NA
Project Name: NSB New London GW PDI
Project Number: 112G02630

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units uS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1630	~.5'	8	5.40	15.57	6.91	2.411		HARD BOTTOM, ~~NO SLUDGE~~ CLEAN
1635	.5'	8.2	5.32	14.87	7.07	1.368	20	~~OB~~ PROBE, PUMP HIT OB-
1640	.5	8.5	5.28	14.63	7.12	2.396	20	STRUCTION ~6', PUMP
1645	.5	9.0		14.70	7.05	2.386	20	@ 6' RUN DRY, INSERTED
1650	.5	14.0		14.78	7.11	2.443	29	SURGE BLK CONTINUE TO
1715	.5	15.00	5.18	14.82	7.10	2.450	29	BREAK THROUGH OBS. BOTTOM
								~~FFE~~ LKR PLANT MATL. SOFT
								BOTTOM,
								COMPLETED

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: NES011
Site: NSB New London
Date Installed: N/A
Date Developed: 4-21-10
Dev. Method: SURGE + PUMP
Pump Type: SUB, 12VDC 2"

Depth to Bottom (ft.): 8.8' BTPVC
Static Water Level Before (ft.): 4.85
Static Water Level After (ft.): 5.90
Screen Length (ft.): 5.0
Specific Capacity: NA
Casing ID (in.): 3 IN PVC

Responsible Personnel: FRED W RAMSER
Drilling Co.: NA
Project Name: NSB New London GW PDI
Project Number: 112602630
~~REDEVELOPED~~ REDEVELOPED EXISTING WELL

STARTED PUMP @ 9831 HRS

Time (24 hr)	Estimated Sediment Thickness (Ft.)	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.)
~~0936~~	0	3	4.85	16.60	6.72	1.384	4.0	DK BRN TO BLK OFF BTM,
~~0840~~	0	6	5.90	16.65	6.76	0.982	2	BEGINS TO CLEAR @ 835
0940 / ~~0945~~	0	9	5.90	16.64	6.69	1.449	5	
0955	0	12	5.90	16.90	6.68	1.460	2	
1000	0	14	5.90	16.96	6.68	1.404	2	COMPLETED DEV.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW3-7RI
Site: NSB New London
Date Installed: NA
Date Developed: 4-22-10
Dev. Method: Surge / Pump
Pump Type: Submersible

Depth to Bottom (ft.): 8.20
Static Water Level Before (ft.): 3.09
Static Water Level After (ft.): 3.25'
Screen Length (ft.): 5.0'
Specific Capacity: NA
Casing ID (in.): 2" SCH 40 PVC

Responsible Personnel: FRED W RAMSER
Drilling Co.: NA
Project Name: NSB New London GW PDI
Project Number: 112602630
STARTED PUMPING @ 1400 HR

Time	Estimated Sediment Thickness (Ft.)	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.)
1405	0	1.5	3.25	14.57	8.11	1.527	59	
1408	0	2.5	3.25	14.27	7.37	1.458	38	
1410	0	4.5	3.25	14.17	7.34	1.442	15	
1413		5.5	3.25	14.15	7.39	1.447	4	COMPLETED
								DEV. ~6 GAL

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW4-7RI
Site: NSB NEW LONDON
Date Installed: NA
Date Developed: 4-21-10
Dev. Method: SURGE+PUMP
Pump Type: 12VDC SUB.

Depth to Bottom (ft.): 9.80
Static Water Level Before (ft.): 4.35
Static Water Level After (ft.): 5.5
Screen Length (ft.):
Specific Capacity:
Casing ID (in.):

Responsible Personnel: FRED W. RAMSER
Drilling Co.: NA
Project Name: NSB NEW LONDON
Project Number: 112602630

Time 1555	Estimated Sediment Thickness (Ft.)	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.)
~~1455~~	0	1.5	5.5	14.93	8.03	0.489	25	
~~1458~~ 1558	0	4.5	5.5	14.12	7.79	0.466	17	
~~1500~~ 1600	0	5.5	5.5	14.02	7.47	0.788	7	
~~1502~~ 1602	0	7.5	5.5	13.95	7.50	0.791	4	COMPLETED DEVELOPMENT

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Site: NSB NEWLONDON
Well: MW1-1 PDI
Date Installed: 4/28/10
Date Developed: 4/29/10
Dev. Method: SURGE/ PUMP
Pump Type: 2" SUBMERSIBLE

Depth to Bottom (ft.): 14.0
Static Water Level Before (ft.): 4.38
Static Water Level After (ft.):
Screen Length (ft.): 10
Specific Capacity: —
Casing ID (in.): 2" Ø

Project Name: NSB NEW LONDON GW PDI
Project Number: 112G02630
Site Geologist: J. FERGUSON
Drilling Co.: NA

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.)
11:55	—		4.38	17.76	7.86	4.589	71000	
12:00	—			17.38	8.22	4.752	700	OILY ODOR
12:05	—			17.19	8.38	4.677	110	
12:10	—			17.41	8.48	4.709	100	
12:15	—			17.41	8.49	4.710	100	
12:30	—			17.31	8.53	4.639	140	
12:40	—			17.15	8.55	4.674	90	
12:50	—			17.26	8.52	4.668	80	
13:00	—	80 gals		17.20	8.53	4.655	45	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Site: NSB NEW LONDON
Well: MW1-4PD1
Date Installed: 4/28/10
Date Developed: 4/29/10
Dev. Method: SURGE / PUMP
Pump Type: 2" SUBMERSIBLE

Depth to Bottom (ft.): 14.0
Static Water Level Before (ft.): 6.26'
Static Water Level After (ft.):
Screen Length (ft.): 10
Specific Capacity: —
Casing ID (in.): 2" Ø

Project Name: NSB NEW LONDON GW PDI
Project Number: 112G02630
Site Geologist: J. FERGUSON
Drilling Co.: NA

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.)
16:36	—	↓	6.26	~~12.80~~	—	—	—	
16:40	—		—	12.80	6.70	16.60	100	
16:50	—		—	12.66	6.70	16.34	4.7	
~~16~~ 17:00	—	±30 gals	—	12.60	6.73	16.05	3.8	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW1-5PDI
Site: NSB NEW LONDON
Date Installed: 4-21-2010
Date Developed: 4-24-2010 (CAR)
Dev. Method: SURGE / Pump
Pump Type: 2" submersible

Depth to Bottom (ft.): 6.0
Static Water Level Before (ft.): 3.61
Static Water Level After (ft.): 3.55
Screen Length (ft.): 5.0'
Specific Capacity: —
Casing ID (in.): 2"Ø

Responsible Personnel: J. Ferguson
Drilling Co.: NA
Project Name: NSB NEW LONDON GW PDI
Project Number: 112G02630

Time	Estimated Sediment Thickness (Ft.)	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.)
15:25	—	1.5	3.60	15.33	6.47	5.619	325	Brown, turbid
15:34	—	3.0	3.59	14.49	6.54	7.186	30	Lt Brown, cloudy
15:55	—	5.0	3.57	14.34	6.47	7.389	38	
16:03	—	7.00	3.57	14.26	6.34	6.432	120	
16:23	—	9.0	3.58	14.04	6.44	6.149	38	
16:33	—	11.0	3.56	14.12	6.43	5.954	10	Clear
16:46	—	13.0	3.55	14.23	6.44	5.951	8	Clear

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Site: NSB New London
Well: MW1-7PD1
Date Installed: 4/28/10
Date Developed: 4/29/10
Dev. Method: SURGE/PUMP
Pump Type: 2" SUBMERSIBLE

Depth to Bottom (ft.): 13.0
Static Water Level Before (ft.): 2.45
Static Water Level After (ft.): 2.51
Screen Length (ft.): 10
Specific Capacity: —
Casing ID (in.): 2" Ø

Project Name: ~~J. Ferguson~~ NSB NEWLONDON GW PDI
Project Number: 112G02630
Site Geologist: J. FERGUSON
Drilling Co.: NA

Time	Estimated Sediment Thickness (Ft.)	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.)
11:10	—		2.45	12.96	6.87	0.270	71000	SURGED PRIOR TO PUMPING
11:15	—			13.13	7.08	0.288	37	PETRO. ODOR
11:20	—			13.03	7.19	0.312	4.9	
11:25	—			13.19	7.25	0.318	4.0	
11:30	—	25 gals	2.51	13.11	7.27	0.319	3.8	

1.5 Groundwater Sampling Log Sheets

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS4-GW-13MW13-10-01
Sample Location: 13MW13
Sampled By: FWR
C.O.C. No.: 028262
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-22-10	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 1042	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	CRL	6.83	0.621	16.02	4	0.22	—	0.37

PURGE DATA:

Date: 4-22-10	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): NA								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 14.3								
Static Water Level (WL): 4.88								
One Casing Volume(gal/L):								
Start Purge (hrs): 1010								
End Purge (hrs): 1042								
Total Purge Time (min): 32								
Total Vol. Purged (gal/L): 6.6 L								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

LO TIDE PREDICTION ~ 1105 + 10 MIN = 1115

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NO	NO

Signature(s): Fred W Rouse

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: 13MW13
DATE: 4-22-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
1019	4.82	200	7.34	0.591	15	6.10	16.24	0.36	
1024	4.82	200	6.90	0.610	8	0.37	16.06	0.37	
1029	4.82	200	6.86	0.615	7	0.28	15.97	0.37	
1034	4.82	200	6.85	0.618	6	0.25	16.01	0.37	
1038	4.82	200	6.84	0.620	4	0.23	16.05	0.37	
1042	4.82	200	6.83	0.621	4	0.22	16.02	0.37	BEGIN TO FILL CONTAINERS
									FINNISH FILLING @ 1052

SIGNATURE(S): Fred W Ranze

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS1-GW-FOMW14-10-01
Sample Location: FOMW14
Sampled By: FWR
C.O.C. No.: 028262
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-23-10	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 1039	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	CLR	6.75	2.173	12.36	1	0.34	—	1.50

PURGE DATA:

Date: 4-23-10	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 9.95								
Static Water Level (WL): 8.65								
One Casing Volume(gal/L): ~~1.45~~ (0.7 l)								
Start Purge (hrs): 1009								
End Purge (hrs): 1039								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 6 l								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

LO TIDE PREDICTED TO BE ~~1209~~ 1159 + 10 min = 1209
∴ BEGIN PURGE @ 1009

9.95
- 8.65
1.30 ⇒ PLACE INTAKE @ ~.65' OFF BTM

Circle if Applicable:

MS/MSD	Duplicate ID No.: LS1-GW-FOMW14-10-01-D 1040 HRS

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: FOMW14
DATE: 4-23-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
1011	8.65	200	6.83	2.660	8.4	1.70	12.74	1.83	
1017	8.65	200	6.78	2.410	3	0.46	12.50	1.68	
1024	8.65	200	6.76	2.240	1	0.40	12.51	1.54	
1029	8.65	200	6.76	2.203	1	0.36	12.42	1.51	DO=0.36
1034	8.65	200	6.75	2.173	1	0.36	12.40	1.50	
1039	8.65	200	6.75	2.173	1	0.34	12.36	1.50	COMPLETED
									PURGE BEGIN
									TO FILL
									CONT.
									1058 HR
									COMPLETE
									FILLING

SIGNATURE(S): Fred W Ramser

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS1-GW-13MW19-10-01
Sample Location: 13MW19
Sampled By: FWR
C.O.C. No.: 028262
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-23-10	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 1210	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	CLR	8.11	2.097	21.01	2	0.95	—	1.19

PURGE DATA:

Date: 4-23-10	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD):								
Static Water Level (WL): 4.10								
One Casing Volume(gal/L):								
Start Purge (hrs): 1140								
End Purge (hrs): 1210								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 7 l								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

LO TIDE PREDICTED TO BE 1159 + 10 MIN = 1209

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NO	NO

Signature(s): Fred W Ramsey

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: 13MW19
DATE: 4-23-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
1145	4.20	200	8.27	2.987	11	0.81	20.31	1.73	
1150	4.20	200	8.36	2.651	9	0.80	20.56	1.51	(1150 HRS)
1155	4.21	200	8.34	2.572	6	0.82	20.74	1.46	
1200	4.23	200	8.24	2.372	4	0.78	20.84	1.33	
1205	4.24	200	8.14	2.145	2	0.83	20.90	1.20	
1210	4.24	200	8.11	2.097	2	0.95	21.01	1.19	COMPLETED PURGE. BEGIN TO FILL CONT. FINISH FILLING CONT @ 1229

SIGNATURE(S): Fred M Ramer

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS1-GW-13MW20-10-01
Sample Location: 13MW20
Sampled By:
C.O.C. No.: 0292263
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-23-2010	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 10:15	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	clear	7.19	0.997	16.95	4.90	0.71	—	0.55

PURGE DATA:

Date: 4-23-2010	Volume	pH	mS/cm S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump	INITIAL	7.07	0.842	15.22	23	4.10	0.51	
Monitor Reading (ppm): 0	10:25	7.07	0.840	16.07	17	1.66	0.50	
Well Casing Diameter & Material	10:30	7.08	0.852	16.01	15	1.45	0.51	
Type: 2-inch PVC	10:40	7.06	0.887	16.16	13	1.29	0.53	
Total Well Depth (TD): 14.56	10:45	7.12	0.926	16.50	4.1	1.10	0.55	
Static Water Level (WL): 6.50	11:00	7.18	0.986	16.99	5.0	0.77	0.58	
One Casing Volume(gal/L):	11:05	7.18	0.991	16.94	4.8	0.76	0.59	
Start Purge (hrs): 10:15	11:10	7.19	0.997	16.95	4.9	0.71	0.59	
End Purge (hrs): 11:10								
Total Purge Time (min): 55								
Total Vol. Purged (gal/L): +/- 3gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS1-GW-13MW21-10-01
Sample Location: 13MW21
Sampled By: J. Ferguson
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-23-2010	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 12:15	Visual	Standard	mS/cm	^{0}C	NTU	mg/l	mV	%
Method: Low Flow	clear	8.78	1.077	14.42	4.30	0.63	—	0.63

PURGE DATA:

Date:	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump	Initial	8.76	1.094	14.96	4.8	1.56	0.68	
Monitor Reading (ppm): 0 ppm	11:55	8.77	1.085	14.71	4.81	0.84	0.68	
Well Casing Diameter & Material	12:00	8.76	1.082	14.54	4.9	0.65	0.69	
Type: 2-inch PVC	12:05	8.76	1.079	14.40	4.60	0.61	0.61	
Total Well Depth (TD): 12.52	12:10	8.78	1.076	14.41	4.80	0.63	0.63	
Static Water Level (WL): 4.69	12:15	8.78	1.077	14.42	4.30	0.63	0.63	
One Casing Volume(gal/L):								
Start Purge (hrs): 11:45								
End Purge (hrs): 12:15								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): +/- 2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS4-GW-13MW14-10-01
Sample Location: 13MW14
Sampled By: EVR
C.O.C. No.: 27325
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-24-10	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 1350	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	CLR	6.63	12.36	20.45	1	0.95	—	7.81

PURGE DATA:

Date: 4-24-10	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD):								
Static Water Level (WL): 6.79								
One Casing Volume(gal/L):								
Start Purge (hrs): 1320								
End Purge (hrs): 1350								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 16 L								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

BEGIN TO FILL CONT. @ 1350
FINISH FILLING @ 1400

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NO	NO

Signature(s): Fred M Ramer

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: 13MW14
DATE: 4-24-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
1325	6.80	200	6.56	12.65	3	1.30	20.23	8.06	
1330	6.80	200	6.62	12.62	2	0.93	20.42	8.02	
1335	6.80	200	6.63	12.56	2	0.90	20.37	7.98	
1340	6.80	200	6.63	12.49	2	0.96	20.40	7.92	
1345	6.79	200	6.63	12.39	2	0.92	20.41	7.89	
1350	6.79	200	6.63	12.36	1	0.95	20.45	7.81	COMPLETED PURGE BEGIN TO FILL CONT.

SIGNATURE(S): Fred W Ramer

PAGE ___ **OF** ___

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS4-GW-NESO10-10-01
Sample Location: NESO10
Sampled By: J Ferguson
C.O.C. No.: 27325
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-24-10	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 14:00	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	Clear	6.94	4.330	14.20	3.4	1.10	—	3.30

PURGE DATA:

Date: 4-24-10	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 9.30								
Static Water Level (WL): 6.76'								
One Casing Volume(gal/L): 0.48								
Start Purge (hrs): 13:15								
End Purge (hrs): 1400								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): 4.2 l								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter (dissolved)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NO	NO

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: 254-GW-NES010-10-01
DATE: 4-24-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
13:15	6.26	180	6.81	3.776	30	2.94	16.73	2.44	
13:20	6.26	180	6.88	3.834	27	0.74	16.06	2.51	
13:25	6.27	180	6.90	4.031	22	0.94	15.93	2.64	
13:30	6.27	180	6.94	4.101	15	0.99	16.33	2.84	
13:35	6.24	180	6.93	4.145	12	0.98	16.81	2.90	
13:40	6.24	180	6.94	4.210	10	1.01	16.89	3.10	
13:45	6.25	180	6.93	4.313	12	1.03	17.09	3.21	
13:50	6.26	180	6.95	4.324	10	1.04	17.10	3.24	
13:55	6.26	180	6.93	4.344	9.8	1.09	17.14	3.28	
14:00	6.24	180	6.94	4.330	9.4	1.10	14.70	3.30	

SIGNATURE(S): [signature]

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS4-GW-NESO11-10-01
Sample Location: NESO11
Sampled By: J. Ferguson
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-24-2010	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 12:55	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	Clear	6.63	4.452	17.46	3.5	1.40	—	1.56

PURGE DATA:

Date: 4-24-10 12:25	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 8.78								
Static Water Level (WL): 5.03								
One Casing Volume (gal/L): 0.6								
Start Purge (hrs): 12:25								
End Purge (hrs): 1255								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 1.4 l								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter (dissolved)

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	[illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: 254-GW-NES011-10-01
DATE: 4-24-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
12:25	5.03	200	6.94	2.127	7.3	5.59	17.48	1.29	collum sm
12:30	5.04	200	6.75	2.220	5.4	3.01	17.44	1.36	
12:35	5.04	200	6.71	2.336	4.8	1.43	17.46	1.44	
12:40	5.05	200	6.69	2.381	3.6	1.40	17.52	1.50	
12:45	5.05	200	6.65	2.401	3.6	1.41	17.46	1.54	
12:50	5.05	200	6.64	2.441	3.4	1.41	17.44	1.55	
12:55	5.06	200	6.63	4.452	3.5	1.40	17.46	1.56	

SIGNATURE(S): [signature]

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS5-GW-19MW3-10-01
Sample Location: 19MW3
Sampled By: FUK
C.O.C. No.: 27325
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-24-10	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 1250	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	clr	6.21	0.604	14.48	2	0.36	—	0.37

PURGE DATA:

Date: 4-24-10	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 5.1								
Static Water Level (WL): 3.65								
One Casing Volume(gal/L): ~1.2 l								
Start Purge (hrs): 1210								
End Purge (hrs): 1250								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 18 l								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

BEGIN FILLING @ 1250
FINISH " @ 1305

Circle if Applicable:

MS/MSD	Duplicate ID No.:
No	NO

Signature(s): [signature]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: 19MW3
DATE: 4-24-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
1215	3.78	200	6.26	0.602	18	0.97	14.72	0.37	
1220	3.79	200	6.12	0.597	8	0.55	14.33	0.37	
1225	3.79	200	6.14	0.601	6	0.46	14.46	0.37	
1230	3.81	200	6.16	0.603	3	0.44	14.50	0.37	
1235	3.83	200	6.19	0.604	3	0.37	14.47	0.37	
1240	3.83	200	6.20	0.604	2	0.33	14.44	0.37	
1245	3.84	200	6.20	0.605	2	0.34	14.42	0.37	
1250	3.85	200	6.21	0.604	2	0.36	14.48	0.37	COMPLETED
									PURGE BEGIN TO
									FILL CONT.

SIGNATURE(S): Fred W Paine

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Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS7-GW-MW3-7RI-10-01
Sample Location: MW3-7RI
Sampled By: FUR
C.O.C. No.: 27325
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-24-10	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 1130	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	CLR	6.94	1.586	14.79	2	1.25	—	1.01

PURGE DATA:

Date: 4-24-10	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 8.20								
Static Water Level (WL): 2.98								
One Casing Volume (gal/L): 0.8								
Start Purge (hrs): 1102								
End Purge (hrs): 1130								
Total Purge Time (min): 28								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

LOW TIDE ⇒ 1302HRS

BEGIN FILLING @ 1130
FINISHED FILLING @ 1155

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NO	LS7-GW-MW3-7RI-10-01-D (1130 HR)

Signature(s): [illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: MW3-7R1
DATE: 4-24-10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
1105	3.02	200	6.96	1.608	3	0.97	14.93	1.01	
1110	3.02	200	6.93	1.584	2	0.79	14.76	1.01	
1115	3.03	200	6.94	1.581	2	1.39	14.66	1.01	
1120	3.04	200	6.95	1.580	2	1.26	14.70	1.01	
1125	3.05	200	6.94	1.582	2	1.24	14.75	1.01	
1130	3.06	200	6.94	1.586	2	1.25	14.79	1.01	COMPLETE PURGE
									BEGIN TO FILL
									CONT.

SIGNATURE(S): Fred M Ramer

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS7-GW-MW4-7RI-10-01
Sample Location: MW4-7RI
Sampled By: J. Ferguson
C.O.C. No.: 27325
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-24-2016	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 12:02	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	clear	7.15	1.789	17.81	3.9	0.83	—	1.07

PURGE DATA:

Date: 4-24-2016	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 9.83								
Static Water Level (WL): 4.51								
One Casing Volume(gal/L): 0.85								
Start Purge (hrs): 11:02								
End Purge (hrs): 12:02								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): +/- 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter (dissolved)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
YES	NO

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: LS7-GW-MW47RI-10-01
DATE: 4-24-2010

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
11:02	4.51	180	7.10	1.662	5.6	3.50	15.50	1.04	
11:07	4.62	180	7.08	1.683	5.1	1.49	15.51	1.06	2 HR Before mean low tide
11:12	4.60	180	7.08	1.704	3.5	1.12	16.03	1.06	Yellow sun
11:22	4.60	180	7.11	1.734	2.9	0.98	16.53	1.06	" " "
11:32	4.61	180	7.12	1.774	4.0	0.83	17.19	1.07	" " "
11:42	4.62	180	7.14	1.783	4.0	0.83	17.43	1.07	" " "
11:52	4.62	180	7.15	1.794	4.1	0.84	17.80	1.07	" " "
12:02	4.62	180	7.15	1.789	3.9	0.83	17.91	1.07	" " "

SIGNATURE(S):

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS1-GW-MW1-5PDI-10-01
Sample Location: MW1-5PDI
Sampled By: J. Ferguson
C.O.C. No.: 27325
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-26-2010	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 1300	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	
Method: Low Flow	clear	6.37	3.109	15.01	3.8	0.17	2.04	

PURGE DATA:

Date: 4-26-10	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic Pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2-inch PVC								
Total Well Depth (TD): 6.0'								
Static Water Level (WL): 3.31'								
One Casing Volume (gal/L): .44								
Start Purge (hrs): 1140								
End Purge (hrs): 1300								
Total Purge Time (min): 80								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative		Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3	4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead		4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Jim Ferguson (signed by Emily Glick)

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: MW1-5 PDI
DATE: April 26, 2010

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
11:40	3.31	200	6.18	3.169	7.0	2.48	14.54	2.12	No free product
12:00	3.32	200	6.26	3.243	4.8	0.53	14.94	2.14	
12:10	3.32	200	6.31	3.162	4.2	0.35	15.11	2.07	
12:20	3.32	200	6.33	3.140	4.1	0.25	15.12	2.05	
12:30	3.32	200	6.35	3.114	4.0	0.25	15.11	2.04	
12:40	3.33	200	6.37	3.110	3.8	0.20	15.01	2.04	
12:50	3.32	200	6.37	3.101	3.8	0.17	14.98	2.04	
13:00	3.33	200	6.37	3.109	3.8	0.17	15.01	2.04	

SIGNATURE(S):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS7-GW-MW1-7~~R~~PDI-10-01
Sample Location: MW1-7RI JAF
Sampled By:
C.O.C. No.: 27326
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-30-2010	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 06:45	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	CLEAR	7.22	0.191	12.63	3.8	0.65	—	0.120

PURGE DATA:

Date: 4-30-2010	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump	INITIAL	7.52	0.516	12.11	25	5.91	0.320	
Monitor Reading (ppm): 0	06:15	7.40	0.372	12.56	18.5	1.65	0.355	
Well Casing Diameter & Material	06:20	7.32	0.284	12.50	8.44	1.00	0.180	
Type: 2-inch PVC	06:25	7.30	0.233	12.48	5.08	0.90	0.150	
Total Well Depth (TD):	06:30	7.28	0.210	12.47	4.45	0.86	0.130	
Static Water Level (WL): 2.82	06:35	7.25	0.194	12.55	4.40	0.74	0.120	
One Casing Volume(gal/L):	06:40	7.24	0.193	12.60	4.10	0.68	0.120	
Start Purge (hrs): 06:05								
End Purge (hrs): 06:45								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

MW1-7~~R~~PDI (formerly 20MW7)

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS4-GW-MW1-4PDI-10-01
Sample Location: MW1-4PDI
Sampled By: J. Ingersoll
C.O.C. No.: 27326
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-30-2010	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 05:50	Visual	Standard	mS/cm	^{0}C	NTU	mg/l	mV	%
Method: Low Flow	clear	6.73	14.74	10.10	4.8	5.90	—	12.34

PURGE DATA:

Date: 4-30-2010	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump	Initial	6.85	15.73	10.15	8.6	11.50	13.10	
Monitor Reading (ppm): 0	05:30	6.78	15.05	10.21	5.2	5.98	12.63	
Well Casing Diameter & Material	05:35	6.75	14.83	10.14	5.0	5.98	12.41	
Type: 2-inch PVC	05:40	6.74	14.79	10.16	4.8	5.87	12.34	
Total Well Depth (TD): 13.6'	05:45	6.73	14.75	10.09	4.9	5.92	12.34	
Static Water Level (WL): 6.61								
One Casing Volume (gal/L): 1.07								
Start Purge (hrs): 05:15								
End Purge (hrs): 05:50								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): ~1.9 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

MW1-4PDI (formerly 13MW15)

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NLON PDI Groundwater Sampling
PROJECT NUMBER: 112G02630 CTO WE24

WELL ID.: MW1-4PDI
DATE: 4-30-2010

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sal. (%)	Comments
05:15 pm	6.61	+/- 200	6.85	15.73	8.6	11.50	10.15	13.10	
05:30	6.62		6.78	15.05	5.2	5.98	10.21	12.63	
05:35	6.62		6.75	14.83	5.0	5.98	10.14	12.41	
05:40	6.63		6.74	14.79	4.8	5.87	10.16	12.34	
05:45	6.63		6.73	14.75	4.8	5.87	10.09	12.34	
05:50	6.64		6.73	14.74	4.8	5.80	10.10	12.34	

SIGNATURE(S):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PD Groundwater Sampling at Lower Subase
Project No.: 112G02630 CTO WE24

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

Sample ID No.: LS1-GW-MW1-1PDI-10-01
Sample Location: MW1-1PDI
Sampled By: J. Ferguson
C.O.C. No.: 27326
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-30-2010	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 04:55	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Low Flow	[illegible]	8.46	2.306	15.17	9	1.20	—	1.48

PURGE DATA:

Date: 4-30-2010	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: Peristaltic pump	INITIAL	7.66	2.539	15.63	31	3.05	1.62	
Monitor Reading (ppm): 0	04:00	7.94	2.537	15.51	27	2.76	1.63	
Well Casing Diameter & Material	04:10	8.39	2.462	15.26	26	2.02	1.59	
Type: 2-inch PVC	04:20	8.41	2.446	15.21	19	1.35	1.58	
Total Well Depth (TD): 3.55'	04:30	8.45	2.412	15.20	15	1.34	1.55	
Static Water Level (WL):	04:40	8.45	2.366	15.16	10	1.31	1.53	
One Casing Volume(gal/L):	04:50	8.46	2.306	15.17	9	1.20	1.48	
Start Purge (hrs): 03:44 AM								
End Purge (hrs): 04:55 PM								
Total Purge Time (min): 1 hr 11 min								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals Arsenic, Copper, and Lead	HNO3 4°	1 liter HDPE plastic container	yes
(1)Dissolved Metals Arsenic, Copper, and Lead	4°	1 liter HDPE plastic container	yes

OBSERVATIONS / NOTES:

(1) Samples field filtered with .45 um in-line filter

MW1-1PDI (formerly 13MW7)
Low tide 5:42 AM Sample writing 4:42 - 6:42 Time period
Flow = 180 ml/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible]

2.055
1.409
7.61 7.00

1.6 Chain of Custodies

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER № 028262 | PAGE ____ OF _____

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02630	NLON SUBASE	C. RICH	412-921-7090	L. HUCKESTEIN COLUMBIA ANALY SERVICES, INC
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		J. FERG	412-921-7090	1317 S. 13th AVE
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FEDEX 8631 2526 7053		KELSO, WA 98626

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): P P
PRESERVATIVE USED: HNO3 HNO3

TYPE OF ANALYSIS: DISSOLVED ARSENIC CU + PB; TOTAL ARSENIC CU + PB

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	DISSOLVED ARSENIC CU + PB	TOTAL ARSENIC CU + PB							COMMENTS
4/22	1042	LS4-GW-13MW13-10-01	13 MW13	—	—	GW	G	2	1	1							
4/23	1039	LS1-GW-FOMW14-10-01	FO MW14	—	—	GW	G	2	1	1							
4/23	1040	LS1-GW-FOMW14-10-01-D	—	—	—	GW	G	2	1	1							
	1210	LS1-GW-13MW19-10-01	13 MW19	—	—	GW	G	2	1	1							
	1110	LS1-GW-13MW20-10-01	13 MW20	—	—	GW	G	2	1	1							
4/23	1215	LS1-GW-13MW21-10-01	13 MW21	—	—	GW	G	2	1	1							

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	4-23-10	1630	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

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

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 27325 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02630	NSB NLON	C. RICH	412-921-7090	COLUMBIA ANALYTICAL SERVICES, INC
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: J. FERGUSON	PHONE NUMBER: 412-921-7090	ADDRESS: 1317 S. 13th AVE
		CARRIER/WAYBILL NUMBER: FED EX		CITY, STATE: KELSO, WA 98626

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): P P
PRESERVATIVE USED: HNO3 HNO3

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TOTAL CU+PB	DISSOLVED CU+PB	TOTAL ARSENIC	DISSOLVED ARSENIC						COMMENTS
4/24	1130	LS7-GW-MW3-7RH-10-01	MW3 7R1	—	—	GW	G	2	1	1								
	1130	LS7-GW-MW3-7R1-10-01-D	—	—	—	GW	G	2	1	1								
	1250	LS5-GW-19MW3-10-01	19 MW3	—	—	GW	G	2	1	1								
	1350	LS4-GW-13MW14-10-01	13 MW14	—	—	GW	G	2	1	1								
	1202	LS7-GW-MW47R1-10-01	MW3 7R1	—	—	GW	G	4	2	2								RUN MS
	1255	LS4-GW-NES011-10-01	NES 011	—	—	GW	G	2	1	1								
4/24	1400	LS4-GW-NES010-10-01	NES 010	—	—	GW	G	2	1	1								Continuing Supply #
6/26	13:00	MW1-5PDI	BLDG 75	—	—	GW	G	2	1	1								17519

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	6/26/10	16:00	1. RECEIVED BY FEDERAL EXPRESS 8631 2526 7010	6/26/10	16:00
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

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

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 27326 | PAGE ____ OF _____

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112602630	NSB New London	Cory Rich	412 921 7090	Columbia Analytical Pittsburgh
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: Jim Ferguson	PHONE NUMBER: 412-920-7022	ADDRESS: 1317 South 13TH Ave
		CARRIER/WAYBILL NUMBER: 8631 2526 7042		CITY, STATE: Kelso WA

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): P P
PRESERVATIVE USED: HNO3 HNO3

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: Dissolved Metals	Total Metals							COMMENTS
4/30	08:45	LS7 GW MW1-TPDI-10-01	TPDI	—	—	GW	G	2	X	X							
4/30	09:50	LS1 GW MW1 4PDI-10-01	4PDI	—	—	GW	G	2	X	X							
4/30	08:55	LS1 GW MW1 1PDI-10-01	1PDI	—	—	GW	G	2	X	X							

1. RELINQUISHED BY	DATE 4/30/2010	TIME 16:30	1. RECEIVED BY Lisa Franz 48 8631 2526 7042	DATE 4/30/10	TIME 16:30
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

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

4/02R
FORM NO. TtNUS-001

1.7 Equipment Calibration Logs

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : PDI Groundwater Sampling

SITE NAME: New London Subase

PROJECT No.: 112G02630 CTO WE24

INSTRUMENT NAME/MODEL: Water Quality Meter

MANUFACTURER: YSI

SERIAL NUMBER: 08H100780

Date of Calibration	Person Performing Calibration	PRE-CALIBRATION READINGS			POST-CALIBRATION READINGS			Calibration Standard (Lot No.)	Remarks and Comments
		pH (Standard)	Cond. (mS/cm)	DO (mg/L)	pH (Standard)	Cond. (mS/cm)	DO (mg/L)		
4-20-10	FWR	7.07	1.461	7.62	7.00	1.409	~~7.62~~ 12.06		
4-21-10	FWR	7.12	1.441	8.12	7.01	1.409	11.95		
4-22-10	FWR	7.01	1.456	7.95	7.00	1.410	12.07		
4-23-10	FWR	7.07	1.467	6.98	7.00	1.409	12.15		
4-24-10	FWR	6.93	1.249	6.88	7.00	1.409	12.02		

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : PDI Groundwater Sampling

SITE NAME: New London Subase

PROJECT No.: 112G02630 CTO WE24

INSTRUMENT NAME/MODEL: Water Quality Meter YSI / MYRON L

MANUFACTURER: YSI / MYRON L & Mutta

SERIAL NUMBER: 02H1304K/ 3542-3302

Date of Calibration	Person Performing Calibration	PRE-CALIBRATION READINGS			POST-CALIBRATION READINGS			Calibration Standard (Lot No.)	Remarks and Comments
		pH (Standard)	Cond. (mS/cm)	DO (mg/L)	pH (Standard)	Cond. (mS/cm)	DO (mg/L)		
4/23/2010	JRF	7.032	1.037	—	7.00	1.404	—	FEI 18780-1 FEI 12380-1	
4/23/2010	JRF	TURBIDITY 0.00 - 0.00 10.00 - 9.60	—	—	0.00 10.00	—	—	8184-P891441 8184-P890791	
4/24/2010	JRF	7.04	0.897	—	7.00	1.404	—	FEI 18780-1 FEI 12380-1	
4/24/2010	JRF	TURBIDITY 0.00 - 1.00 10.00 - 10.06	—	—	TURBIDITY 1.00 10.00	—	—	8184-P891441 8184 P890791	

1.8 Well Survey Information

Project No. 2010039 - TetraTech NUS

Naval Submarine Base - New London (NSB-NLON)

MONITOR WELL SURVEY VALUES

State Plane Coordinates NAD83			Geodetic Coordinates (NAD 83/96)		Elevations NAVD88			Point Description
Well ID	Grid Northing	Grid Easting	Latitude	Longitude	Top of Frame	PVC Rim	Ground	
MW1-4PDI	704303.210	1180917.204	N 41° 23' 31.7562"	W 72° 05' 26.3169"	5.61	5.06	5.6	Monitoring Well
MW1-1PDI	705393.439	1180442.314	N 41° 23' 42.5633"	W 72° 05' 32.4385"	5.89	5.46	5.9	Monitoring Well
MW1-7PDI	706684.822	1180243.449	N 41° 23' 55.3368"	W 72° 05' 34.9188"	4.16	3.84	4.1	Monitoring Well
MW1-5PDI	708330.130	1180166.318	N 41° 24' 11.5979"	W 72° 05' 35.7668"	5.05	4.68	5.1	Monitoring Well

SURVEY CONTROL VALUES

State Plane Coordinates		Elevations	Control Identifier
Grid Northing	Grid Easting	NAVD88	Identifier
705148.6430	1180452.4030	4.953	Navy Disk w/DH #29
704016.1810	1180990.1480	5.175	Navy Disk w/DH #31
704155.9610	1181267.5230	17.51	Disk in Monument #33
709640.2600	1180130.2170	4.75	Brass Pin #221
708646.2900	1180185.0160	7.00	Navy Disk #222
706339.5690	1180305.5440	6.635	Navy Disk #260
707351.4000	1180134.0610	4.56	Navy Disk #950

Notes: Survey coordinates were derived from existing control monumentation within the Groton/New London Submarine Base as established by David Stein, LS. Last revised December 18, 2006.

STATE OF CONNECTICUT
RICHARD H. STROUSE
No. 9679
REGISTERED LAND SURVEYOR

Richard H. Strouse, LS No. 9679

5/11/12
Dated:

CME Associates, Inc.

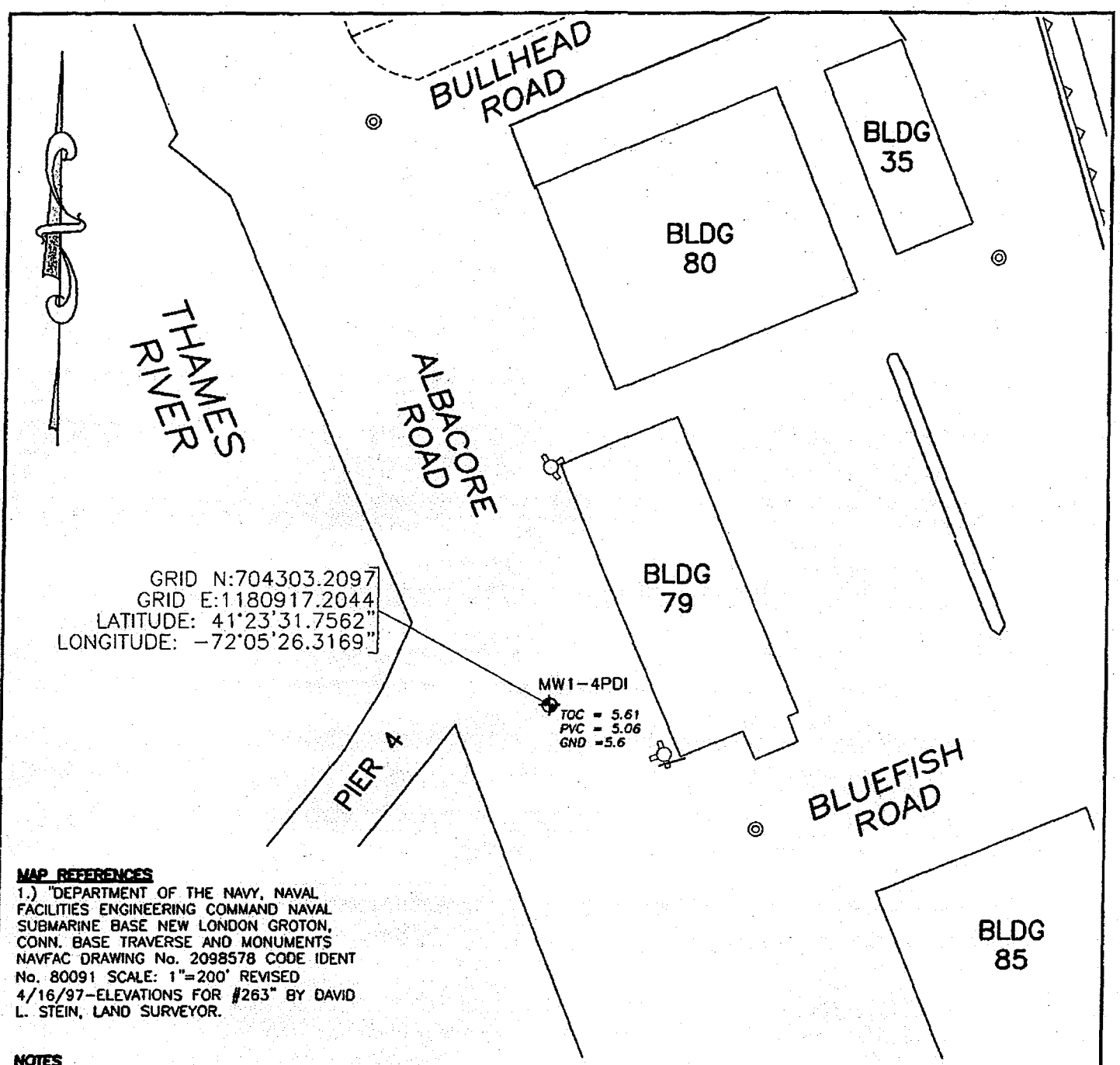
Architecture, Engineering, Environmental Science, & Surveying

SE Connecticut:
The Mercantile Exchange Building
55 Main Street, Suite 340
Norwich, CT 06360
Tel: 860-889-3397
Fax: 860-886-7801

NE Connecticut:
32 Crabtree Lane, PO Box 849
Woodstock, CT 06281
Tel: 860-928-7848
Fax: 860-928-7846

Central Connecticut:
333 East River Drive, Suite 400
East Hartford, CT 06108
Tel: 860-291-4100
Fax: 860-291-4114

Massachusetts:
50 Elm Street
Southbridge, MA 01550
Tel: 508-764-3500
Fax: 508-765-5969



MAP REFERENCES

1.) "DEPARTMENT OF THE NAVY, NAVAL FACILITIES ENGINEERING COMMAND NAVAL SUBMARINE BASE NEW LONDON GROTON, CONN. BASE TRAVERSE AND MONUMENTS NAVFAC DRAWING No. 2098578 CODE IDENT No. 80091 SCALE: 1"=200' REVISED 4/16/97-ELEVATIONS FOR #263" BY DAVID L. STEIN, LAND SURVEYOR.

NOTES

1.) THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.THE TYPE OF SURVEY PERFORMED IS AN IMPROVEMENT LOCATION SURVEY CONFORMING TO THE STANDARDS OF ACCURACY FOR A HORIZONTAL CLASS A-2 AND VERTICAL CLASS T-2

2.) COORDINATES DEPICTED HEREON ARE REFERENCED TO NAD83 AND ELEVATIONS ARE BASED ON NAVD88 DERIVED FROM MAP REFERENCE No.1

40 20 0 40

GRAPHIC SCALE IN FEET

MONITORING WELL LOCATION SKETCH
PREPARED FOR

TETRA TECH NUS

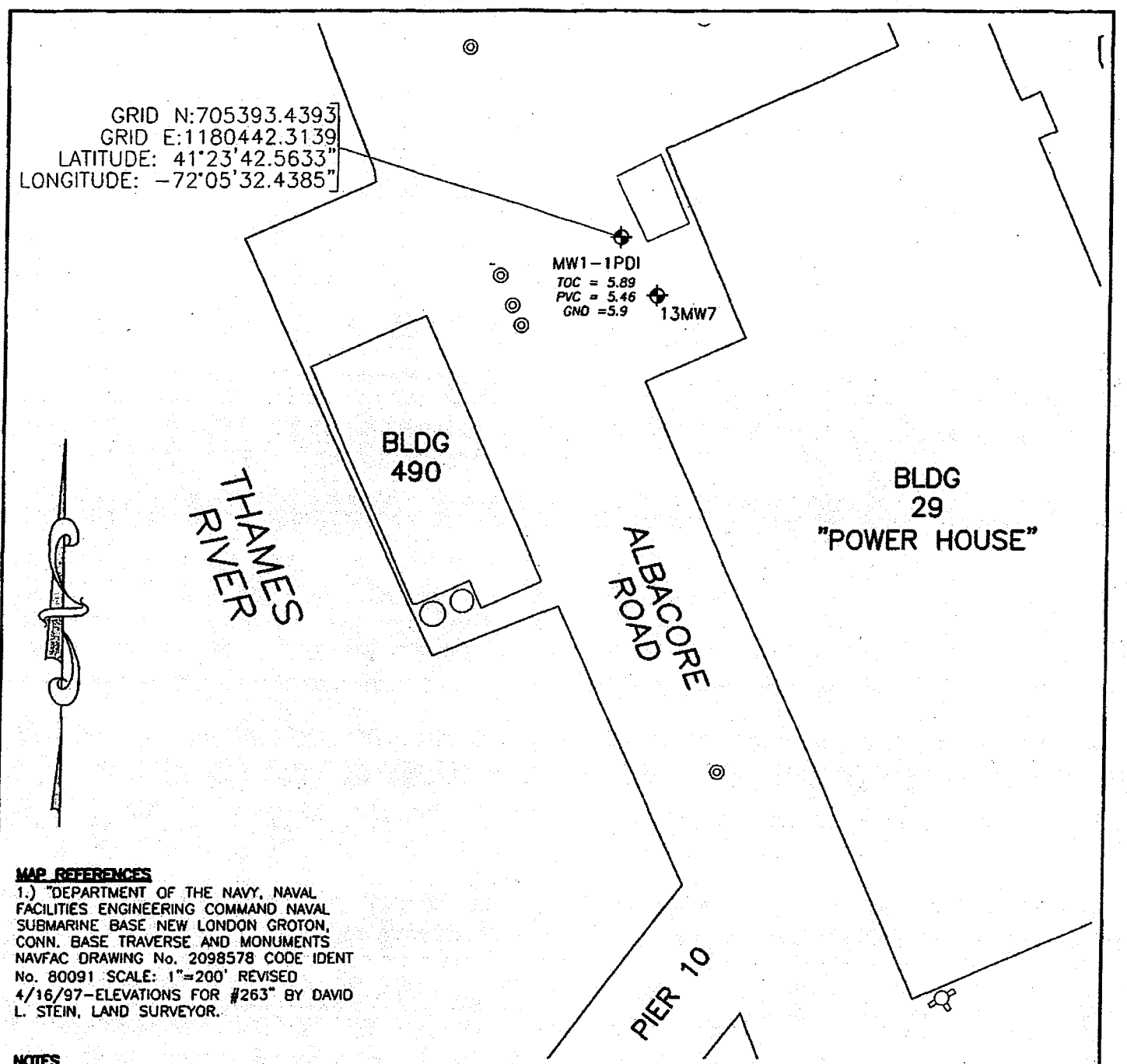
NAVAL SUBMARINE BASE - NEW LONDON
ALBACORE ROAD, GROTON, CONNECTICUT

DATE: 05/10/10	SCALE: 1" = 40'	SHEET: 1 OF 4

CME

CME Associates, Inc.

32 Crabtree Lane, Woodstock, CT 06281
55 Main Street, Suite 340 Norwich, CT 06360
333 East River Drive, East Hartford, CT 06108 Phone 888-291-3227
50 Elm Street, Southbridge, MA 01550 www.cmeengineering.com



MAP REFERENCES

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GRAPHIC SCALE IN FEET

MONITORING WELL LOCATION SKETCH
PREPARED FOR

TETRA TECH NUS

NAVAL SUBMARINE BASE - NEW LONDON
ALBACORE ROAD, GROTON, CONNECTICUT

DATE: 05/10/10	SCALE: 1" = 40'	SHEET: 2 OF 4

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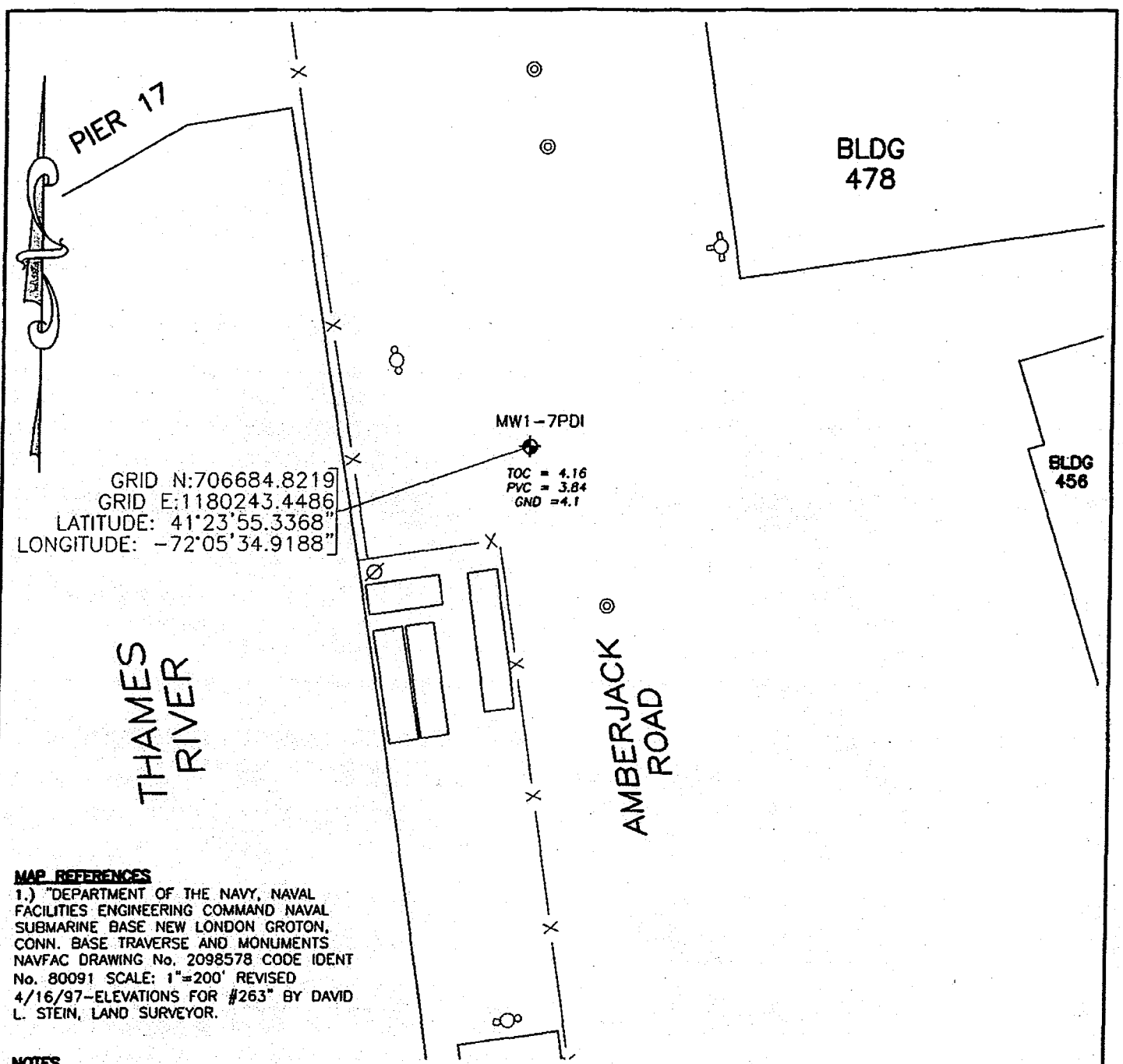

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GRAPHIC SCALE IN FEET

MONITORING WELL LOCATION SKETCH
PREPARED FOR

TETRA TECH NUS

NAVAL SUBMARINE BASE - NEW LONDON
ALBACORE ROAD, GROTON, CONNECTICUT

DATE: 05/10/10	SCALE: 1" = 40'	SHEET: 3 OF 4

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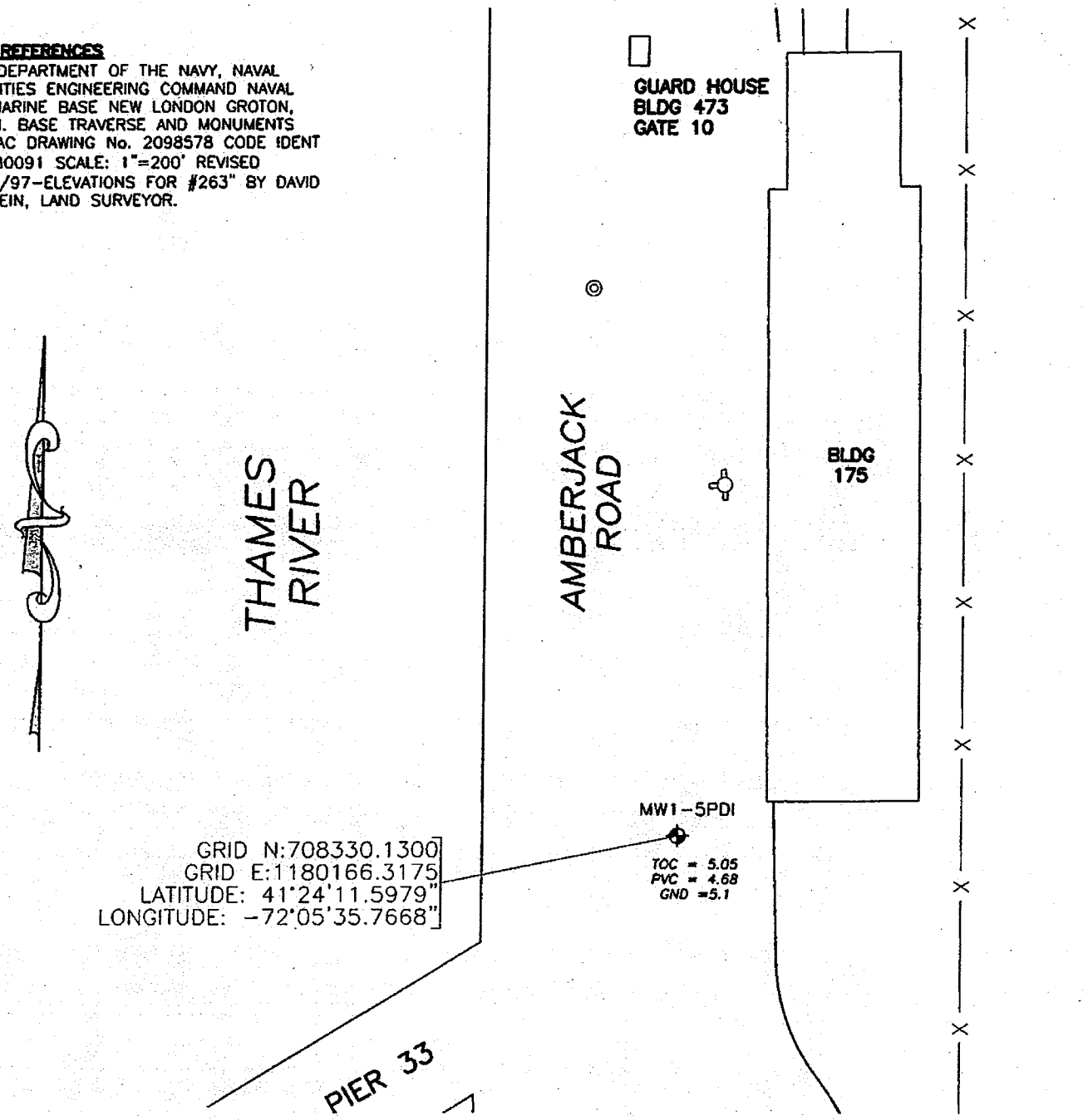

NOTES

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MONITORING WELL LOCATION SKETCH
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NAVAL SUBMARINE BASE - NEW LONDON
ALBACORE ROAD, GROTON, CONNECTICUT

DATE: 05/10/10	SCALE: 1" = 40'	SHEET: 4 OF 4

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1.9 Investigation-Derived Waste Information

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CT4170022020
2. Page 1 of 1
3. Emergency Response Phone: 800-698-1865
4. Waste Tracking Number: NHWM052710

5. Generator's Name and Mailing Address
U.S. Naval Submarine Base
Box 400 - Environmental Bldg. 562
Groton CT 06349
Generator's Phone: 860 694-4298

Generator's Site Address (if different than mailing address)
U.S. Naval Submarine Base
Route 12 - Crystal Lake Road
Groton CT 06349

6. Transporter 1 Company Name: New England Disposal Technologies, Inc.
U.S. EPA ID Number: MAC300008059

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Vexor Technology, Inc.
955 West Smith Road
Medina OH 44256
Facility's Phone: 330 721-9773
U.S. EPA ID Number: OHD077772895

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1. Non-RCRA, non-DOT Regulated Material (soil)	5	DM	2000	P	NONE
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information
1)VEX18333

14. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Armar E. Edmonston
Signature: [signature]
Month 05 Day 27 Year 10

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Shawn M. Ford
Signature: [signature]
Month 05 Day 27 Year 10

Transporter 2 Printed/Typed Name: [illegible]
Signature: [signature]
Month 6 Day 7 Year 10

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: T. O'Brien
Signature: [signature]
Month 06 Day 08 Year 10

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

VEXOR Technology, Inc.
955 West Smith Road
Medina, Ohio 44256
Phone: 330-721-9773
FAX: 330-721-9438
EPA ID# OHD 077772895
www.vexortechnology.com

MATERIAL CHARACTERIZATION

For VEXOR Use Only
Approval # _____
Sample # _____
Sales Rep _____
Date Submitted _____

Email: mail@vexortechnology.com

Generator: Naval Submarine Base New London	Bill To Name: New England Disposal Technologies
Site Address: Crystal Lake Rd. & Rt. 12	Site Address: 83 Gilmore Drive
City: Groton State: CT Zip: 06349	City: Sutton State: MA Zip: 01590
Phone: 860-694-4298 Fax:	Phone: 508-234-4440 Fax: 508-234-4441
EPA ID #: CT4170022020 SIC Code:	Business Contact: Michael Robertson
Technical Contact: Linda J. Tirrell	Title: GM Email: canderson@nedtinc.com
Title: Haz Waste Program Mgr Email:	

MATERIAL DESCRIPTION

Name and Description of Material: Soil IDW

Process Generating Material: Drill cuttings from wells and borings U.S. EPA Hazardous Waste: ☐Yes ☒No

Proper DOT Shipping Name: Non-RCRA - Non-DOT Regulated Waste

Method of Shipment: ☐Bulk ☒Drum ☐Tote ☐Cubic Yard Box ☐Other/Explain: Pallets

Est. Annual Volume: ____ Cu. Yds. ____ Tons ____ Gallons 5 - 8 Drums ____ container material (metal, plastic, etc.)

Frequency: ☐One Time Only ☐Daily ☐Weekly ☒Monthly ☐Other/Explain 400 Approximate Drum Weight

Special Handling Instructions: None Waste is anticipated to be shipped in two shippments over 2 motnths

Preferred Disposal Method: ☒Landfill ☐Waste to Energy ☐Recycling ☐Other

MATERIAL PROPERTIES AT 78°

a) Physical State: ☒Solid ☐Semi-Solid ☐Powder ☐Liquid ☐Phases

b) Reactivity: ☐Water reactive ☐Acid Reactive ☐Alkaline Reactive ☐Oxidizer ☐Autosetting ☒None

c) Flash Point, °F: ☐ ≤72 ☐ >72-100 ☐ >100-140 ☐ >140-200 ☒ >200 ☐ N/A

d) S.G./Density about 1

e) pH: ☐ ≤2 ☐ >2-6 ☐ >6-9 ☒ >9-12.5 ☐ ≥12.5 ☐N/A

f) Odor: ☒None ☐Mild ☐Strong: Describe

g) Color: Dirt

h) Total Organic Halogen (TOX) ☒ 0 ppm ☐>1000 ppm* If this material is considered "USED OIL" and is to be managed as a a "USED OIL", please complete the "USED OIL" ADDENDUM and attach to this profile.

i) PCB Content: ☒ 0 ppm ☐ 1-49 ppm* ☐ ≥50 ppm * Supporting analysis and documentation required.

MATERIAL COMPOSITION: List all components, must add up to 100%.

Constituent	Range % (wt-vol)	
	Min	Max
Soil	100	100
A combined total should equal 100%		

For VEXOR Use Only
Evaluated by: _____
Approved - Treatment: _____
Rejected - Reason: _____
Date Completed: _____
Price: _____/Unit _____
Approved By: _____ Date: _____

Above is based on: ☐Generator Knowledge ☒Analytical Data MSDS
Please attach analysis, TCLP information and appropriate MSDS sheets.
SAMPLE SUBMITTED WITH THIS PROFILE: ☐Yes ☒No

GENERATOR CERTIFICATION

I hereby certify that to the best of my knowledge and belief, the information contained herein is a true and accurate description of the material being offered for disposal. Samples of this material submitted to VEXOR are representative of the material described in this profile. I further certify that by utilizing this profile, neither myself not any other employee of the company will deliver for treatment, processing or recycling or attempt to deliver for same any material that is classified as toxic waste, hazardous water, medical or infectious waste or any other material that this facility is prohibited from accepting by law.

Authorized Representative Name (Printed) _____ Company _____

Authorized Representative Signature _____ Title: _____ Date: _____

Report Date:
10-May-10 16:28

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

New England Disposal Technologies, Inc
83 Gilmore Drive
Sutton, MA 01590
Attn: Lon Cohen

Project: Naval Submarine Base - New London, CT
Project #: IDW-Phase I

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB11468-01	Soil	Soil	30-Apr-10 09:30	03-May-10 15:30

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393

Authorized by:

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

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes.
Please note that this report contains 13 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The sample temperature upon receipt by Spectrum Analytical courier was recorded as 4.0 degrees Celsius. The condition of these samples was further noted as refrigerated. The samples were transported on ice to the laboratory facility and the temperature was recorded at 1.9 degrees Celsius upon receipt at the laboratory. Please refer to the Chain of Custody for details specific to sample receipt times.

An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

These samples do not exhibit the characteristics of reactivity as defined in 40 CFR 261.23, sections (1), (2), (4), and (5); however, Spectrum Analytical, Inc. does not test for detonation, explosive reaction or potential, or forbidden explosives as defined in 40 CFR 261.23, sections (3), (6), (7) and (8).

All VOC soils samples submitted and analyzed in methanol will have a minimum dilution factor of 50. This is the minimum amount of solvent allowed on the instrumentation without causing interference. Additional dilution factors may be required to keep analyte concentration within instrument calibration.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 1030

Duplicates:

1009360-DUP1 *Source: SB11468-01*

A hold time of 24 hours has been set to expedite the analyses through the laboratory. However, the hold time for Ignitability is not specified within the method other than to state that the samples should be analyzed as soon as possible.

Ignitability by Definition

Samples:

SB11468-01 *Soil*

A hold time of 24 hours has been set to expedite the analyses through the laboratory. However, the hold time for Ignitability is not specified within the method other than to state that the samples should be analyzed as soon as possible.

Ignitability by Definition

SW846 1311/6010B

Blanks:

1009596-BLK1

The method blank contains analyte at a concentration above the MRL; however, concentration is less than 10% of the sample result, which is negligible according to method criteria.

Barium

Laboratory Control Samples:

1009596 BS/BSD

Cadmium percent recoveries (116/115) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

Soil

Chromium percent recoveries (120/119) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

Soil

SW846 1311/8260B

Laboratory Control Samples:

1009774 BSD

Vinyl chloride RPD 33% (30%) is outside individual acceptance criteria, but within overall method allowances.

1009774-BSD1

The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

Vinyl chloride

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Soil SB11468-01	IDW-Phase I	Soil	30-Apr-10 09:30	03-May-10

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Volatile Organic Compounds												
	TCLP Extraction	Completed		N/A		1	SW846 1311	06-May-10	06-May-10	AB	1009605	X
TCLP Volatile Organic Compounds by 8260B (TCL) Prepared by method SW846 5030 Water MS					Initial weight: 5 ml							
71-43-2	Benzene	BRL		µg/l	5.0	5	SW846 1311/8260B	10-May-10	10-May-10	eq	1009774	
78-93-3	2-Butanone (MEK)	BRL		µg/l	50.0	5	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL		µg/l	5.0	5	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	
67-66-3	Chloroform	BRL		µg/l	5.0	5	"	"	"	"	"	
07-06-2	1,2-Dichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	
27-18-4	Tetrachloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	
79-01-6	Trichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL		µg/l	5.0	5	"	"	"	"	"	
Surrogate recoveries:												
60-00-4	*4-Bromofluorobenzene*	*90*			*70-130 %*		"	"	"	"	"	
037-26-5	*Toluene-d8*	*89*			*70-130 %*		"	"	"	"	"	
7060-07-0	*1,2-Dichloroethane-d4*	*115*			*70-130 %*		"	"	"	"	"	
868-53-7	*Dibromofluoromethane*	*103*			*70-130 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS												
	TCLP Extraction	Completed		N/A		1	SW846 1311	06-May-10	06-May-10	DT	1009587	X
TCLP Semivolatiles by SW846 1311/8270C (TCL) Prepared by method SW846 3535												
06-46-7	1,4-Dichlorobenzene	BRL		µg/l	5.00	1	SW846 1311/8270C	07-May-10	10-May-10	SM	1009646	X
21-14-2	2,4-Dinitrotoluene	BRL		µg/l	5.00	1	"	"	"	"	"	X
18-74-1	Hexachlorobenzene	BRL		µg/l	5.00	1	"	"	"	"	"	X
7-68-3	Hexachlorobutadiene	BRL		µg/l	5.00	1	"	"	"	"	"	X
7-72-1	Hexachloroethane	BRL		µg/l	5.00	1	"	"	"	"	"	X
5-48-7	2-Methylphenol	BRL		µg/l	5.00	1	"	"	"	"	"	X
08-39-4, 06-44-5	3 & 4-Methylphenol	BRL		µg/l	10.0	1	"	"	"	"	"	X
3-95-3	Nitrobenzene	BRL		µg/l	5.00	1	"	"	"	"	"	X
7-86-5	Pentachlorophenol	BRL		µg/l	5.00	1	"	"	"	"	"	X
10-86-1	Pyridine	BRL		µg/l	5.00	1	"	"	"	"	"	X
5-95-4	2,4,5-Trichlorophenol	BRL		µg/l	5.00	1	"	"	"	"	"	X
4-06-2	2,4,6-Trichlorophenol	BRL		µg/l	5.00	1	"	"	"	"	"	X
urrogate recoveries:												
1-60-8	*2-Fluorobiphenyl*	*83*			*30-130 %*		"	"	"	"	"	
7-12-4	*2-Fluorophenol*	*77*			*15-110 %*		"	"	"	"	"	
65-60-0	*Nitrobenzene-d5*	*96*			*30-130 %*		"	"	"	"	"	
18-51-0	*Terphenyl-dl4*	*80*			*30-130 %*		"	"	"	"	"	
emivolatile Organic Compounds by GC												
olychlorinated Biphenyls by SW846 8082 epared by method SW846 3545A												
674-11-2	Aroclor-1016	BRL		µg/kg dry	21.6	1	SW846 8082	06-May-10	06-May-10	IMR	1009522	X

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Soil SB11468-01	IDW-Phase I	Soil	30-Apr-10 09:30	03-May-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082 Prepared by method SW846 3545A												
11104-28-2	Aroclor-1221	BRL		µg/kg dry	21.6	1	SW846 8082	06-May-10	06-May-10	IMR	1009522	X
11141-16-5	Aroclor-1232	BRL		µg/kg dry	21.6	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	BRL		µg/kg dry	21.6	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	BRL		µg/kg dry	21.6	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	BRL		µg/kg dry	21.6	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	BRL		µg/kg dry	21.6	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	BRL		µg/kg dry	21.6	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	BRL		µg/kg dry	21.6	1	"	"	"	"	"	X
Surrogate recoveries:												
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*91*			*30-150 %*		"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*98*			*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*117*			*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*117*			*30-150 %*		"	"	"	"	"	
TCLP Metals by EPA 1311 & 6000/7000 Series Methods												
	TCLP Extraction	Completed		N/A		1	SW846 1311	05-May-10	05-May-10	DT	1009506	X
7440-22-4	Silver	BRL		mg/l	0.0100	1	SW846 1311/6010B	06-May-10	06-May-10	TBG	1009596	X
7440-38-2	Arsenic	BRL		mg/l	0.0100	1	"	"	"	"	"	X
7440-39-3	Barium	0.308		mg/l	0.0100	1	"	"	"	"	"	X
7440-43-9	Cadmium	BRL		mg/l	0.0050	1	"	"	"	"	"	X
7440-47-3	Chromium	BRL		mg/l	0.0300	1	"	"	"	"	"	X
7439-97-6	Mercury	BRL		mg/l	0.00020	1	SW846 1311/7470A	"	06-May-10	CRM	1009598	X
7439-92-1	Lead	0.639		mg/l	0.0150	1	SW846 1311/6010B	"	06-May-10	TBG	1009596	X
7782-49-2	Selenium	BRL		mg/l	0.0300	1	"	"	"	"	"	X
General Chemistry Parameters												
	% Solids	87.3		%		1	SM2540 G Mod.	04-May-10	04-May-10	WW	1009351	
Toxicity Characteristics												
	Ignitability by Definition	Negative	IgHT	N/A		1	SW846 1030	04-May-10 09:30	04-May-10 09:30	VK	1009360	X
	pH	10.8	pH	pH Units		1	SW846 9045C	05-May-10 10:29	05-May-10 13:04	BD	1009456	X
Reactivity Cyanide/Sulfide Prepared by method General Preparation												
	Reactivity	Nonreactive		mg/kg dry		1	SW846 Ch. 7.3	06-May-10	06-May-10	BD	1009581	X
	Reactive Cyanide	BRL		mg/kg dry	23.8	1	"	"	"	"	"	X
	Reactive Sulfide	BRL		mg/kg dry	47.6	1	"	"	"	"	"	X

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009774 - SW846 5030 Water MS										
Blank (1009774-BLK1)					Prepared & Analyzed: 10-May-10					
Benzene	BRL		µg/l	1.0						
2-Butanone (MEK)	BRL		µg/l	10.0						
Carbon tetrachloride	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
Chloroform	BRL		µg/l	1.0						
1,2-Dichloroethane	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Tetrachloroethene	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Vinyl chloride	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	*28.5*		µg/l		*30.0*		*95*	*70-130*		
Surrogate: Toluene-d8	*26.5*		µg/l		*30.0*		*88*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*35.0*		µg/l		*30.0*		*117*	*70-130*		
Surrogate: Dibromofluoromethane	*30.7*		µg/l		*30.0*		*102*	*70-130*		
Blank (1009774-BLK3)					Prepared & Analyzed: 10-May-10					
Benzene	BRL		µg/l	5.0						
2-Butanone (MEK)	BRL		µg/l	50.0						
Carbon tetrachloride	BRL		µg/l	5.0						
Chlorobenzene	BRL		µg/l	5.0						
Chloroform	BRL		µg/l	5.0						
1,2-Dichloroethane	BRL		µg/l	5.0						
1,1-Dichloroethene	BRL		µg/l	5.0						
Tetrachloroethene	BRL		µg/l	5.0						
Trichloroethene	BRL		µg/l	5.0						
Vinyl chloride	BRL		µg/l	5.0						
Surrogate: 4-Bromofluorobenzene	*26.6*		µg/l		*30.0*		*89*	*70-130*		
Surrogate: Toluene-d8	*26.7*		µg/l		*30.0*		*89*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*35.9*		µg/l		*30.0*		*120*	*70-130*		
Surrogate: Dibromofluoromethane	*31.0*		µg/l		*30.0*		*103*	*70-130*		
LCS (1009774-BS1)					Prepared & Analyzed: 10-May-10					
Benzene	17.6		µg/l		20.0		88	70-130		
2-Butanone (MEK)	16.0		µg/l		20.0		80	70-130		
Carbon tetrachloride	22.6		µg/l		20.0		113	70-130		
Chlorobenzene	19.8		µg/l		20.0		99	70-130		
Chloroform	20.4		µg/l		20.0		102	70-130		
1,2-Dichloroethane	18.7		µg/l		20.0		94	70-130		
1,1-Dichloroethene	19.0		µg/l		20.0		95	70-130		
Tetrachloroethene	17.7		µg/l		20.0		88	70-130		
Trichloroethene	18.4		µg/l		20.0		92	70-130		
Vinyl chloride	16.9		µg/l		20.0		84	70-130		
Surrogate: 4-Bromofluorobenzene	*29.4*		µg/l		*30.0*		*98*	*70-130*		
Surrogate: Toluene-d8	*27.2*		µg/l		*30.0*		*91*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*33.0*		µg/l		*30.0*		*110*	*70-130*		
Surrogate: Dibromofluoromethane	*30.0*		µg/l		*30.0*		*100*	*70-130*		
LCS Dup (1009774-BSD1)					Prepared & Analyzed: 10-May-10					
Benzene	19.4		µg/l		20.0		97	70-130	10	30
2-Butanone (MEK)	16.5		µg/l		20.0		83	70-130	3	30
Carbon tetrachloride	24.1		µg/l		20.0		120	70-130	6	30
Chlorobenzene	21.6		µg/l		20.0		108	70-130	9	30
Chloroform	21.6		µg/l		20.0		108	70-130	6	30

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009774 - SW846 5030 Water MS										
LCS Dup (1009774-BSD1)						Prepared & Analyzed: 10-May-10				
1,2-Dichloroethane	18.6		µg/l		20.0		93	70-130	0.6	30
1,1-Dichloroethene	21.4		µg/l		20.0		107	70-130	12	30
Tetrachloroethene	19.2		µg/l		20.0		96	70-130	8	30
Trichloroethene	19.5		µg/l		20.0		98	70-130	6	30
Vinyl chloride	23.5	QR2	µg/l		20.0		118	70-130	33	30
Surrogate: 4-Bromofluorobenzene	*28.8*		µg/l		*30.0*		*96*	*70-130*		
Surrogate: Toluene-d8	*26.8*		µg/l		*30.0*		*89*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*30.1*		µg/l		*30.0*		*100*	*70-130*		
Surrogate: Dibromofluoromethane	*29.9*		µg/l		*30.0*		*100*	*70-130*		

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009646 - SW846 3535										
Blank (1009646-BLK1)					Prepared: 07-May-10 Analyzed: 10-May-10					
1,4-Dichlorobenzene	BRL		µg/l	5.00						
2,4-Dinitrotoluene	BRL		µg/l	5.00						
Hexachlorobenzene	BRL		µg/l	5.00						
Hexachlorobutadiene	BRL		µg/l	5.00						
Hexachloroethane	BRL		µg/l	5.00						
2-Methylphenol	BRL		µg/l	5.00						
3 & 4-Methylphenol	BRL		µg/l	10.0						
Nitrobenzene	BRL		µg/l	5.00						
Pentachlorophenol	BRL		µg/l	5.00						
Pyridine	BRL		µg/l	5.00						
2,4,5-Trichlorophenol	BRL		µg/l	5.00						
2,4,6-Trichlorophenol	BRL		µg/l	5.00						
Surrogate: 2-Fluorobiphenyl	*45.9*		µg/l		*50.0*		*92*	*30-130*		
Surrogate: 2-Fluorophenol	*42.2*		µg/l		*50.0*		*84*	*15-110*		
Surrogate: Nitrobenzene-d5	*52.3*		µg/l		*50.0*		*105*	*30-130*		
Surrogate: Terphenyl-dl4	*46.9*		µg/l		*50.0*		*94*	*30-130*		
LCS (1009646-BS1)					Prepared: 07-May-10 Analyzed: 10-May-10					
1,4-Dichlorobenzene	149		µg/l	5.00	200		74	40-140		
2,4-Dinitrotoluene	184		µg/l	5.00	200		92	40-140		
Hexachlorobenzene	181		µg/l	5.00	200		90	40-140		
Hexachlorobutadiene	139		µg/l	5.00	200		70	40-140		
Hexachloroethane	164		µg/l	5.00	200		82	40-140		
2-Methylphenol	177		µg/l	5.00	200		89	30-130		
3 & 4-Methylphenol	174		µg/l	10.0	200		87	40-130		
Nitrobenzene	181		µg/l	5.00	200		90	40-140		
Pentachlorophenol	152		µg/l	5.00	200		76	30-130		
Pyridine	214		µg/l	5.00	200		107	40-140		
2,4,5-Trichlorophenol	152		µg/l	5.00	200		76	30-130		
2,4,6-Trichlorophenol	157		µg/l	5.00	200		79	30-130		
Surrogate: 2-Fluorobiphenyl	*171*		µg/l		*200*		*86*	*30-130*		
Surrogate: 2-Fluorophenol	*162*		µg/l		*200*		*81*	*15-110*		
Surrogate: Nitrobenzene-d5	*200*		µg/l		*200*		*100*	*30-130*		
Surrogate: Terphenyl-dl4	*181*		µg/l		*200*		*90*	*30-130*		
LCS Dup (1009646-BSD1)					Prepared: 07-May-10 Analyzed: 10-May-10					
1,4-Dichlorobenzene	152		µg/l	5.00	200		76	40-140	2	20
2,4-Dinitrotoluene	193		µg/l	5.00	200		97	40-140	5	20
Hexachlorobenzene	182		µg/l	5.00	200		91	40-140	0.8	20
Hexachlorobutadiene	143		µg/l	5.00	200		71	40-140	2	20
Hexachloroethane	168		µg/l	5.00	200		84	40-140	2	20
2-Methylphenol	178		µg/l	5.00	200		89	30-130	0.2	20
3 & 4-Methylphenol	169		µg/l	10.0	200		85	40-130	3	20
Nitrobenzene	186		µg/l	5.00	200		93	40-140	3	20
Pentachlorophenol	157		µg/l	5.00	200		78	30-130	3	20
Pyridine	218		µg/l	5.00	200		109	40-140	2	20
2,4,5-Trichlorophenol	169		µg/l	5.00	200		84	30-130	10	20
2,4,6-Trichlorophenol	149		µg/l	5.00	200		74	30-130	6	20
Surrogate: 2-Fluorobiphenyl	*150*		µg/l		*200*		*75*	*30-130*		
Surrogate: 2-Fluorophenol	*140*		µg/l		*200*		*70*	*15-110*		
Surrogate: Nitrobenzene-d5	*176*		µg/l		*200*		*88*	*30-130*		
Surrogate: Terphenyl-dl4	*158*		µg/l		*200*		*79*	*30-130*		

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009646 - SW846 3535										
Duplicate (1009646-DUP1)			**Source: SB11468-01**		Prepared: 07-May-10 Analyzed: 10-May-10					
1,4-Dichlorobenzene	BRL		µg/l	5.00		BRL				50
2,4-Dinitrotoluene	BRL		µg/l	5.00		BRL				50
Hexachlorobenzene	BRL		µg/l	5.00		BRL				50
Hexachlorobutadiene	BRL		µg/l	5.00		BRL				50
Hexachloroethane	BRL		µg/l	5.00		BRL				50
2-Methylphenol	BRL		µg/l	5.00		BRL				50
3 & 4-Methylphenol	BRL		µg/l	10.0		BRL				50
Nitrobenzene	BRL		µg/l	5.00		BRL				50
Pentachlorophenol	BRL		µg/l	5.00		BRL				50
Pyridine	BRL		µg/l	5.00		BRL				50
2,4,5-Trichlorophenol	BRL		µg/l	5.00		BRL				50
2,4,6-Trichlorophenol	BRL		µg/l	5.00		BRL				50
Surrogate: 2-Fluorobiphenyl	*71.6*		µg/l		*83.3*		*86*	*30-130*		
Surrogate: 2-Fluorophenol	*61.3*		µg/l		*83.3*		*74*	*15-110*		
Surrogate: Nitrobenzene-d5	*79.0*		µg/l		*83.3*		*95*	*30-130*		
Surrogate: Terphenyl-dl4	*70.7*		µg/l		*83.3*		*85*	*30-130*		

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009522 - SW846 3545A										
Blank (1009522-BLK1)					Prepared & Analyzed: 06-May-10					
Aroclor-1016	BRL		µg/kg wet	20.0						
Aroclor-1016 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1221	BRL		µg/kg wet	20.0						
Aroclor-1221 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1232	BRL		µg/kg wet	20.0						
Aroclor-1232 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1242	BRL		µg/kg wet	20.0						
Aroclor-1242 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1248	BRL		µg/kg wet	20.0						
Aroclor-1248 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1254	BRL		µg/kg wet	20.0						
Aroclor-1254 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1260	BRL		µg/kg wet	20.0						
Aroclor-1260 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1262	BRL		µg/kg wet	20.0						
Aroclor-1262 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1268	BRL		µg/kg wet	20.0						
Aroclor-1268 [2C]	BRL		µg/kg wet	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*17.0*		µg/kg wet		*20.0*		*85*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*17.4*		µg/kg wet		*20.0*		*87*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*19.2*		µg/kg wet		*20.0*		*96*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*17.5*		µg/kg wet		*20.0*		*88*	*30-150*		
LCS (1009522-BS1)					Prepared & Analyzed: 06-May-10					
Aroclor-1016	214		µg/kg wet	20.0	250		86	50-140		
Aroclor-1016 [2C]	206		µg/kg wet	20.0	250		82	50-140		
Aroclor-1260	194		µg/kg wet	20.0	250		78	50-140		
Aroclor-1260 [2C]	205		µg/kg wet	20.0	250		82	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*16.6*		µg/kg wet		*20.0*		*83*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*16.8*		µg/kg wet		*20.0*		*84*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*17.4*		µg/kg wet		*20.0*		*87*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*16.6*		µg/kg wet		*20.0*		*83*	*30-150*		
LCS Dup (1009522-BSD1)					Prepared & Analyzed: 06-May-10					
Aroclor-1016	223		µg/kg wet	20.0	250		89	50-140	4	30
Aroclor-1016 [2C]	245		µg/kg wet	20.0	250		98	50-140	18	30
Aroclor-1260	200		µg/kg wet	20.0	250		80	50-140	3	30
Aroclor-1260 [2C]	222		µg/kg wet	20.0	250		89	50-140	8	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*17.2*		µg/kg wet		*20.0*		*86*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*19.3*		µg/kg wet		*20.0*		*96*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*17.1*		µg/kg wet		*20.0*		*86*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*18.6*		µg/kg wet		*20.0*		*93*	*30-150*		

TCLP Metals by EPA 1311 & 6000/7000 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009596 - SW846 3010A										
Blank (1009596-BLK1)					Prepared & Analyzed: 06-May-10					
Selenium	BRL		mg/l	0.0300						
Lead	BRL		mg/l	0.0150						
Cadmium	BRL		mg/l	0.0050						
Silver	BRL		mg/l	0.0100						
Arsenic	BRL		mg/l	0.0100						
Chromium	BRL		mg/l	0.0300						
Barium	0.0114	QB1	mg/l	0.0100						
LCS (1009596-BS1)					Prepared: 06-May-10 Analyzed: 07-May-10					
Lead	2.68		mg/l	0.0150	2.50		107	85-115		
Selenium	2.64		mg/l	0.0300	2.50		106	85-115		
Silver	2.41		mg/l	0.0100	2.50		96	85-115		
Arsenic	2.46		mg/l	0.0100	2.50		98	85-115		
Cadmium	2.89	QC2	mg/l	0.0050	2.50		116	85-115		
Chromium	2.99	QC2	mg/l	0.0300	2.50		120	85-115		
Barium	2.70		mg/l	0.0100	2.50		108	85-115		
LCS Dup (1009596-BSD1)					Prepared & Analyzed: 06-May-10					
Selenium	2.74		mg/l	0.0300	2.50		110	85-115	4	20
Lead	2.65		mg/l	0.0150	2.50		106	85-115	0.9	20
Chromium	2.97	QC2	mg/l	0.0300	2.50		119	85-115	0.8	20
Cadmium	2.88		mg/l	0.0050	2.50		115	85-115	0.5	20
Arsenic	2.54		mg/l	0.0100	2.50		102	85-115	3	20
Silver	2.44		mg/l	0.0100	2.50		98	85-115	1	104
Barium	2.70		mg/l	0.0100	2.50		108	85-115	0.1	20
Batch 1009598 - EPA200/SW7000 Series										
Blank (1009598-BLK1)					Prepared & Analyzed: 06-May-10					
Mercury	BRL		mg/l	0.00020						
LCS (1009598-BS1)					Prepared & Analyzed: 06-May-10					
Mercury	0.00402		mg/l	0.00020	0.00500		80	69.2-107		

Toxicity Characteristics - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009360 - General Preparation										
Duplicate (1009360-DUP1)			**Source: SB11468-01**			Prepared & Analyzed: 04-May-10				
Ignitability by Definition	Negative	IgHT	N/A			Negative				35
Batch 1009456 - General Preparation										
Reference (1009456-SRM1)						Prepared & Analyzed: 05-May-10				
pH	6.08		pH Units		6.00		101	97.5-102.5		
Reference (1009456-SRM2)						Prepared & Analyzed: 05-May-10				
pH	6.31		pH Units		6.25		101	92-108		
Batch 1009581 - General Preparation										
Blank (1009581-BLK1)						Prepared & Analyzed: 06-May-10				
Reactivity	Nonreactive		mg/kg wet							
Reactive Cyanide	BRL		mg/kg wet	25.0						
Reactive Sulfide	BRL		mg/kg wet	50.0						
Reference (1009581-SRM1)						Prepared & Analyzed: 06-May-10				
Reactive Cyanide	2.93		mg/kg wet	25.0	100		3	0-200		
Reference (1009581-SRM2)						Prepared & Analyzed: 06-May-10				
Reactive Sulfide	132		mg/kg wet	50.0	6700		2	0-200		

Notes and Definitions

IgHT	A hold time of 24 hours has been set to expedite the analyses through the laboratory. However, the hold time for Ignitability is not specified within the method other than to state that the samples should be analyzed as soon as possible.
QB1	The method blank contains analyte at a concentration above the MRL; however, concentration is less than 10% of the sample result, which is negligible according to method criteria.
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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.

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.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

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.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
June O'Connor
Rebecca Merz

SB 11468

SPECTRUM ANALYTICAL, INC.
Featuring
RANDAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
☒ Standard TAT - 7 to 10 business days
☐ Rush TAT - Date Needed: 5/5/10 (5/14/10)
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: New England Disposal Technologies
83 Gilmore Drive
Sutton, MA 01590

Invoice To: SAME

Project No.: IDW-Phase I
Site Name: Naval Base New London
Location: Groton State: CT
Sampler(s): BB

Project Mgr.: Lon Cohen
P.O. No.: RQN:

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=4C 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

QA Reporting Notes: (check if needed)
☐ Provide MA DEP MCP CAM Report
☐ Provide CT DPH RCP Report
QA/QC Reporting Level
☐ Standard ☐ No QC
☐ Other
State specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	pH	Cyanide/Sulfide Reactivity	TCLP RCRA 8 metals	TCLP VOC	TCLP SVOC	Ignitability	PCB			
11468a1	SOIL	4/30/10	9:30AM	C	SO	9		1			✓	✓	✓	✓	✓	✓	✓			

☐ Fax results when available to ( )
☒ E-mail to lcohen@NEDTinc.com
EDD Format

Condition upon receipt: ☐ Iced ☐ Ambient ☒ °C 4.0
Ref.

Relinquished by:	Received by:	Date:	Time:
Brian Bottomley	Sandy Foster	4/30/10	3:00PM
Sandy Foster	Tim Foster	5/3/10	930
Tim Foster	[illegible]	5/3/10	1530

1.9

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number CT 4 1 7 0 0 2 2 0 2 0	2. Page 1 of 1	3. Emergency Response Phone 800-698-1865	4. Waste Tracking Number NHWM0527101

5. Generator's Name and Mailing Address
U.S. Naval Submarine Base
Box 400 - Environmental Bldg. 562
Groton CT 06349
Generator's Phone: 860 694-4298

Generator's Site Address (if different than mailing address)
U.S. Naval Submarine Base
Route 12 - Crystal Lake Road
Groton CT 06349

6. Transporter 1 Company Name
New England Disposal Technologies, Inc.
U.S. EPA ID Number: MAC300008059

7. Transporter 2 Company Name
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Dynecol, Inc.
6520 Georgia Street
Detroit MI 48211
Facility's Phone: 313 571-7140
U.S. EPA ID Number: MID074259565

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-RCRA, non-DOT Regulated Material (water)	8	DM	400	G	NONE
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
1)172231

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Warner E. Edmondston
Signature: X
Month 05 Day 27 Year 10

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Shaun M. Ford
Signature:
Month 05 Day 27 Year 10

Transporter 2 Printed/Typed Name: Lee T. Mulligan
Signature:
Month 6 Day 7 Year 10

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Mark Gessner
Signature:
Month 08 Day 10 Year 10

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

DYNECOL, INC.
6520 GEORGIA STREET
DETROIT, MICHIGAN 48211
PHONE: (313) 571-7140
FAX: (313) 571-7190

WASTE APPROVAL FORM

I. General Information					
Approval Number			Cust./Gen.Code:		
Generator Name:	Naval Submarine Base New London				
Address:	Crystal Lake Rd. & Rt. 12				
City:	Groton	State:	CT	Zip Code:	06349
Contact Name:	Linda J. Tirrell				
Phone Number:	860-694-4298		Fax Number:		
24 Hour Emergency #:					
EPA ID Number:	CT4170022020		SIC Code:		
Customer Name:	New England Disposal Technologies, Inc.				
Customer Contact:	Lon Cohen				
Address:	83 Gilmore Drive				
City:	Sutton	State:	MA	Zip Code:	01590
Phone Number:	508-234-4440		Fax Number:		508-234-4441
24 Hour Emergency #:	800-698-1865				

II. Waste Description	
Waste Common Name:	Water IDW
Specific Process Generating the waste:	
Well Development & Decontamination	

DYNECOL, INC. Waste Approval Form PAGE 2 Approval Number:

III. Waste Composition (Must equal 100%)

Constituent	Actual % of representative sample	Min. % of waste stream	Max. % of waste stream
Groundwater		98	100
Surfactant, sediment, etc		0	2

III. Waste Characterization

A. Michigan Act 451 and EPA 40 CFR Information: (For the following, please use SW 846 test method for determination)

1. Is this a hazardous waste as defined by either R299.9212-9214 or 261 Subpart B,C, or D?

Check One: ____ **YES** ✓ **NO**

a) *IF YES,* please list all applicable waste codes:

b) *IF NO*, please list all applicable non-hazardous waste codes as defined by Michigan Act 451 Part 121:

2. Does this waste indicate a volatile organic concentration in excess of 500 ppm or the compounds listed in 40 CFR 265 Appendix VI?:

Check One: ____ **YES** ✓ **NO**

a) *IF YES*, please indicate constituents and concentrations:

3. Does the analysis indicate PCB's above the detection limit?

Check One: ____ **YES** ✓ **NO**

a) IF YES, does the waste contain PCB contamination from a source with a concentration greater than or equal to 50 ppm?

Check One: ____ **YES** **NO**

III. Waste Characterization (continued)

B. Benzene/NESHAP Information (For the following, please use SW 846 method 8020 and/or EPA 602 and/or 624 for determination)

1. Does the waste stream have a benzene concentration of 10 ppm or more?

   Check One: ____ **YES** ✓ **NO**

   IF YES, please indicate total benzene concentration of waste:

2. Does the waste stream contain greater than 10% water ?

   Check One: ✓ **Yes** ___ **NO**

3. Does the generator manage wastes from facilities with Total Annual Benzene (TAB) greater or equal to 10 mg/year?

   Check One: ____ **Yes** ✓ **NO**

   IF YES, please indicate TAB quantity for generator facility:

C. Land Disposal Restriction Information (For the following, please see 40 CFR part 268.2 for definitions)

1. Does the waste stream contain less than 1% by weight Total Organic Carbon (TOC) and less than 1% by weight Total Suspended Solids?

   Check One: ✓ **YES** (wastewater) ____ **NO** (Non-wastewater)

IV. General Characteristics (at 70 degrees F unless otherwise specified)

Color	water clear	Phases
pH	6 - 9	☒ Single Layer
☒ Liquid ☐ Sludge/Slurry ☐ Solid		☐ Double Layer
Odor:		☐ Multi-Layer
☒ None ☐ Strong ☐ Mild		

V. Shipping Information

A. Determination of shipping name as defined by 29 CFR 172.101:

1. Proper Shipping Name:	Non RCRA Non DOT Regulated Waste					
(Well Development & Decontamination Water)						
2. Hazard Class:	3. UN/NA Number:					
4. Packing Group (Circle one):	I		II		III	None
B. Shipping Container (Circle one)	Bulk	Drums	Pails	Totes	Roll Off	Other:
C. Waste Volume	20 - 35					
D. Shipping Frequency (Circle one)	Weekly		**Monthly**	Quarterly	Yearly	One Time Only

DYNECOL, INC. Waste Approval Form PAGE 4	Approval Number:

VII. Comment Section

Please list any additional comments concerning this waste stream below:

VIII. Generator Authorizations

A. Authorization to correct material profile sheet

I _____(generator signature) hereby give authorization for Dynecol, Inc. to make corrections with oral authorization to establish consistency with the results of sample analysis and/or applicable federal and state regulations and the information on this profile. These changes WILL NOT include the addition or removal of waste codes and waste constituents which must have written authorization to be changed by the generator. I understand that Dynecol reserves the right to reject any material that does not conform to specifications described in profile.

B. Certification

I certify, under penalty of law, that I have personally examined, and am familiar with, the waste profiled through knowledge of the waste, and I believe the information submitted to be true, accurate, and complete.

Linda J. Tirell	Hazardous Waste Program Mgr
Generator Name (Please print or type)	**Title**
Generator Signature	**Date**

IX. Revision Section

Please list any revisions made to form

Revision	Date of Revision	Generator Authorization

X. Dynecol Use only

A. Approval Information

CMF WASTES:		**PLANT WASTES:**	
Primary outbound approval number		Plant treatment code	
Off-site management code		On-site management code:	

WAF Initiator signature:			
Approved by:		Date:	

Report Date:
10-May-10 15:54

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

New England Disposal Technologies, Inc
83 Gilmore Drive
Sutton, MA 01590
Attn: Lon Cohen

Project: Naval Submarine Base - New London, CT
Project #: IDW-Phase I

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB11470-01	Water	Ground Water	30-Apr-10 10:00	03-May-10 15:30

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393

Authorized by:

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

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes.
Please note that this report contains 23 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The sample temperature upon receipt by Spectrum Analytical courier was recorded as 4.0 degrees Celsius. The condition of these samples was further noted as refrigerated. The samples were transported on ice to the laboratory facility and the temperature was recorded at 1.9 degrees Celsius upon receipt at the laboratory. Please refer to the Chain of Custody for details specific to sample receipt times.

An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

These samples do not exhibit the characteristics of reactivity as defined in 40 CFR 261.23, sections (1), (2), (4), and (5); however, Spectrum Analytical, Inc. does not test for detonation, explosive reaction or potential, or forbidden explosives as defined in 40 CFR 261.23, sections (3), (6), (7) and (8).

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

EPA 245.1/7470A

Duplicates:

1009688-DUP1 *Source: SB11470-01*

The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.

Mercury

SW846 8260B

Calibration:

1005006

Analyte quantified by quadratic equation type calibration.

1,2-Dibromo-3-chloropropane
Bromoform

This affected the following samples:

1009658-BLK1
1009658-BS1
1009658-BSD1
S004023-CCV1
Water

Laboratory Control Samples:

1009658 BS/BSD

Dibromochloromethane percent recoveries (130/138) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

Water

Samples:

S004023-CCV1

Analyte percent difference is outside individual acceptance criteria, but within overall method allowances.

Dibromochloromethane (31.3%)

SW846 8260B

Samples:

S004023-CCV1

This affected the following samples:

1009658-BLK1
1009658-BS1
1009658-BSD1
Water

SW846 8270C

Calibration:

1004037

Analyte quantified by quadratic equation type calibration.

Atrazine
Benzidine
Hexachlorocyclopentadiene

This affected the following samples:

1009392-BLK1
1009392-BS1
S004042-CCV1
Water

S003603-ICV1

Analyte percent recovery is outside individual acceptance criteria.

Atrazine (%)
Benzidine (278%)

This affected the following samples:

1009392-BLK1
1009392-BS1
S004042-CCV1
Water

Samples:

S004042-CCV1

Analyte percent difference is outside individual acceptance criteria, but within overall method allowances.

Bis(2-chloroisopropyl)ether (34.5%)
Pyridine (-48.1%)

Analyte percent drift is outside individual acceptance criteria, but within overall method allowances.

2,4-Dinitrophenol (57.8%)
4,6-Dinitro-2-methylphenol (52.7%)
4-Nitrophenol (-35.0%)
Benzidine (-39.2%)
Benzoic acid (41.3%)

This affected the following samples:

1009392-BLK1
1009392-BS1
Water

SB11470-01 *Water*

SW846 8270C

Samples:

SB11470-01 *Water*

Elevated Reporting Limits due to limited sample volume.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Water SB11470-01	IDW-Phase I	Ground Water	30-Apr-10 10:00	03-May-10

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Volatile Organic Compounds												
Volatile Organic Compounds Prepared by method SW846 5030 Water MS												
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0	1	SW846 8260B	07-May-10	08-May-10	JLG	1009658	X
67-64-1	Acetone	17.4		µg/l	10.0	1	"	"	"	"	"	X
107-13-1	Acrylonitrile	BRL		µg/l	0.5	1	"	"	"	"	"	X
71-43-2	Benzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-86-1	Bromobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-27-4	Bromodichloromethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
75-25-2	Bromoform	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-83-9	Bromomethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
78-93-3	2-Butanone (MEK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
104-51-8	n-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
135-98-8	sec-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
98-06-6	tert-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-15-0	Carbon disulfide	BRL		µg/l	2.0	1	"	"	"	"	"	X
56-23-5	Carbon tetrachloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-90-7	Chlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-00-3	Chloroethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
67-66-3	Chloroform	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-87-3	Chloromethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
95-49-8	2-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0	1	"	"	"	"	"	X
124-48-1	Dibromochloromethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.5	1	"	"	"	"	"	X
74-95-3	Dibromomethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0	1	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
78-87-5	1,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
142-28-9	1,3-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
594-20-7	2,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
563-58-6	1,1-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	"	X
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	BRL		µg/l	0.5	1	"	"	"	"	"	X
591-78-6	2-Hexanone (MBK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
98-82-8	Isopropylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Water SB11470-01	IDW-Phase I	Ground Water	30-Apr-10 10:00	03-May-10

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Volatile Organic Compounds												
Volatile Organic Compounds Prepared by method SW846 5030 Water MS												
99-87-6	4-Isopropyltoluene	4.8		µg/l	1.0	1	SW846 8260B	07-May-10	08-May-10	JLG	1009658	X
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
75-09-2	Methylene chloride	BRL		µg/l	2.0	1	"	"	"	"	"	X
91-20-3	Naphthalene	6.2		µg/l	1.0	1	"	"	"	"	"	X
103-65-1	n-Propylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
100-42-5	Styrene	BRL		µg/l	1.0	1	"	"	"	"	"	X
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
127-18-4	Tetrachloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"	X
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-01-6	Trichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0	1	"	"	"	"	"	X
96-18-4	1,2,3-Trichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-63-6	1,2,4-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-67-8	1,3,5-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-01-4	Vinyl chloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	"	X
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	"	X
109-99-9	Tetrahydrofuran	BRL		µg/l	2.0	1	"	"	"	"	"	
60-29-7	Ethyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-20-3	Di-isopropyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	10.0	1	"	"	"	"	"	X
123-91-1	1,4-Dioxane	BRL		µg/l	20.0	1	"	"	"	"	"	X
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0	1	"	"	"	"	"	X
64-17-5	Ethanol	BRL		µg/l	400	1	"	"	"	"	"	X
Surrogate recoveries:												
460-00-4	*4-Bromofluorobenzene*	*100*			*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*101*			*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*100*			*70-130 %*		"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*103*			*70-130 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS												
Semivolatile Organic Compounds by SW846 8270C Prepared by method SW846 3510C			R02									
83-32-9	Acenaphthene	BRL		µg/l	7.14	1	SW846 8270C	05-May-10	07-May-10	MSL	1009392	X
208-96-8	Acenaphthylene	BRL		µg/l	7.14	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Water	IDW-Phase I	Ground Water	30-Apr-10 10:00	03-May-10
SB11470-01				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS												
Semivolatile Organic Compounds by SW846 8270C			R02									
Prepared by method SW846 3510C												
62-53-3	Aniline	BRL		µg/l	7.14	1	SW846 8270C	05-May-10	07-May-10	MSL	1009392	X
120-12-7	Anthracene	BRL		µg/l	7.14	1	"	"	"	"	"	X
1912-24-9	Atrazine	BRL		µg/l	7.14	1	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL		µg/l	7.14	1	"	"	"	"	"	
92-87-5	Benzidine	BRL		µg/l	7.14	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	BRL		µg/l	7.14	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	BRL		µg/l	7.14	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	BRL		µg/l	7.14	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	BRL		µg/l	7.14	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	BRL		µg/l	7.14	1	"	"	"	"	"	X
65-85-0	Benzoic acid	54.1		µg/l	7.14	1	"	"	"	"	"	X
100-51-6	Benzyl alcohol	BRL		µg/l	7.14	1	"	"	"	"	"	X
111-91-1	Bis(2-chloroethoxy)methane	BRL		µg/l	7.14	1	"	"	"	"	"	X
111-44-4	Bis(2-chloroethyl)ether	BRL		µg/l	7.14	1	"	"	"	"	"	X
108-60-1	Bis(2-chloroisopropyl)ether	BRL		µg/l	7.14	1	"	"	"	"	"	X
117-81-7	Bis(2-ethylhexyl)phthalate	BRL		µg/l	7.14	1	"	"	"	"	"	X
101-55-3	4-Bromophenyl phenyl ether	BRL		µg/l	7.14	1	"	"	"	"	"	X
85-68-7	Butyl benzyl phthalate	BRL		µg/l	7.14	1	"	"	"	"	"	X
86-74-8	Carbazole	BRL		µg/l	7.14	1	"	"	"	"	"	X
59-50-7	4-Chloro-3-methylphenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
106-47-8	4-Chloroaniline	BRL		µg/l	7.14	1	"	"	"	"	"	X
91-58-7	2-Chloronaphthalene	BRL		µg/l	7.14	1	"	"	"	"	"	X
95-57-8	2-Chlorophenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
7005-72-3	4-Chlorophenyl phenyl ether	BRL		µg/l	7.14	1	"	"	"	"	"	X
218-01-9	Chrysene	BRL		µg/l	7.14	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	BRL		µg/l	7.14	1	"	"	"	"	"	X
132-64-9	Dibenzofuran	BRL		µg/l	7.14	1	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	X
91-94-1	3,3'-Dichlorobenzidine	BRL		µg/l	7.14	1	"	"	"	"	"	X
120-83-2	2,4-Dichlorophenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
84-66-2	Diethyl phthalate	BRL		µg/l	7.14	1	"	"	"	"	"	X
131-11-3	Dimethyl phthalate	BRL		µg/l	7.14	1	"	"	"	"	"	X
105-67-9	2,4-Dimethylphenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
84-74-2	Di-n-butyl phthalate	BRL		µg/l	7.14	1	"	"	"	"	"	X
534-52-1	4,6-Dinitro-2-methylphenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
51-28-5	2,4-Dinitrophenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
121-14-2	2,4-Dinitrotoluene	BRL		µg/l	7.14	1	"	"	"	"	"	X
606-20-2	2,6-Dinitrotoluene	BRL		µg/l	7.14	1	"	"	"	"	"	X
117-84-0	Di-n-octyl phthalate	BRL		µg/l	7.14	1	"	"	"	"	"	X
206-44-0	Fluoranthene	BRL		µg/l	7.14	1	"	"	"	"	"	X
86-73-7	Fluorene	BRL		µg/l	7.14	1	"	"	"	"	"	X
118-74-1	Hexachlorobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Water	IDW-Phase I	Ground Water	30-Apr-10 10:00	03-May-10
SB11470-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS												
Semivolatile Organic Compounds by SW846 8270C Prepared by method SW846 3510C			R02									
87-68-3	Hexachlorobutadiene	BRL		µg/l	7.14	1	SW846 8270C	05-May-10	07-May-10	MSL	1009392	X
77-47-4	Hexachlorocyclopentadiene	BRL		µg/l	7.14	1	"	"	"	"	"	X
67-72-1	Hexachloroethane	BRL		µg/l	7.14	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	BRL		µg/l	7.14	1	"	"	"	"	"	X
78-59-1	Isophorone	BRL		µg/l	7.14	1	"	"	"	"	"	X
91-57-6	2-Methylnaphthalene	BRL		µg/l	7.14	1	"	"	"	"	"	X
95-48-7	2-Methylphenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
108-39-4, 106-44-5	3 & 4-Methylphenol	BRL		µg/l	14.3	1	"	"	"	"	"	X
91-20-3	Naphthalene	BRL		µg/l	7.14	1	"	"	"	"	"	X
88-74-4	2-Nitroaniline	BRL		µg/l	7.14	1	"	"	"	"	"	X
99-09-2	3-Nitroaniline	BRL		µg/l	7.14	1	"	"	"	"	"	X
100-01-6	4-Nitroaniline	BRL		µg/l	28.6	1	"	"	"	"	"	X
98-95-3	Nitrobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	X
88-75-5	2-Nitrophenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
100-02-7	4-Nitrophenol	BRL		µg/l	28.6	1	"	"	"	"	"	X
62-75-9	N-Nitrosodimethylamine	BRL		µg/l	7.14	1	"	"	"	"	"	X
621-64-7	N-Nitrosodi-n-propylamine	BRL		µg/l	7.14	1	"	"	"	"	"	X
86-30-6	N-Nitrosodiphenylamine	BRL		µg/l	7.14	1	"	"	"	"	"	X
87-86-5	Pentachlorophenol	BRL		µg/l	28.6	1	"	"	"	"	"	X
85-01-8	Phenanthrene	BRL		µg/l	7.14	1	"	"	"	"	"	X
108-95-2	Phenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
129-00-0	Pyrene	BRL		µg/l	7.14	1	"	"	"	"	"	X
110-86-1	Pyridine	BRL		µg/l	7.14	1	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	X
90-12-0	1-Methylnaphthalene	BRL		µg/l	7.14	1	"	"	"	"	"	
95-95-4	2,4,5-Trichlorophenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
88-06-2	2,4,6-Trichlorophenol	BRL		µg/l	7.14	1	"	"	"	"	"	X
82-68-8	Pentachloronitrobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	
95-94-3	1,2,4,5-Tetrachlorobenzene	BRL		µg/l	7.14	1	"	"	"	"	"	X
Surrogate recoveries:												
321-60-8	*2-Fluorobiphenyl*	*57*			*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*44*			*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*64*			*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*38*			*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*67*			*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*74*			*15-110 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082 Prepared by method SW846 3510C												
	Preservation							03-May-10				
12674-11-2	Aroclor-1016	BRL		µg/l	0.267	1	SW846 8082	06-May-10	07-May-10	IMR	1009619	X
11104-28-2	Aroclor-1221	BRL		µg/l	0.267	1	"	"	"	"	"	X

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Water	IDW-Phase I	Ground Water	30-Apr-10 10:00	03-May-10
SB11470-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082 Prepared by method SW846 3510C												
11141-16-5	Aroclor-1232	BRL		µg/l	0.267	1	SW846 8082	06-May-10	07-May-10	IMR	1009619	X
53469-21-9	Aroclor-1242	BRL		µg/l	0.267	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	BRL		µg/l	0.267	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	BRL		µg/l	0.267	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	BRL		µg/l	0.267	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	BRL		µg/l	0.267	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	BRL		µg/l	0.267	1	"	"	"	"	"	X
Surrogate recoveries:												
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*60*			*30-150 %*		"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*66*			*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*64*			*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*69*			*30-150 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods												
7440-22-4	Silver	BRL		mg/l	0.0050	1	SW846 6010B	07-May-10	08-May-10	TBG	1009687	X
7440-38-2	Arsenic	0.0188		mg/l	0.0040	1	"	"	"	"	"	X
7440-39-3	Barium	0.201		mg/l	0.0050	1	"	"	"	"	"	X
7440-43-9	Cadmium	0.0030		mg/l	0.0025	1	"	"	"	"	"	X
7440-47-3	Chromium	0.107		mg/l	0.0050	1	"	"	"	"	"	X
7439-92-1	Lead	0.791		mg/l	0.0075	1	"	"	"	"	"	X
7782-49-2	Selenium	BRL		mg/l	0.0150	1	"	"	"	"	"	X
Total Metals by EPA 200 Series Methods												
7439-97-6	Mercury	0.00108		mg/l	0.00020	1	EPA 245.1/7470A	07-May-10	07-May-10	HB	1009688	X
General Chemistry Parameters												
	Flashpoint	>150		°F		1	SW846 1010	04-May-10	04-May-10	VK	1009353	
	pH	7.61	pH	pH Units		1	ASTM D 1293-99B	03-May-10 18:00	03-May-10 18:00	BD	1009308	X
Reactivity Cyanide/Sulfide Prepared by method General Preparation												
	Reactivity	Nonreactive		mg/l		1	SW846 Ch. 7.3	10-May-10	10-May-10	BD	1009784	
	Reactive Cyanide	BRL		mg/l	25.0	1	"	"	"	"	"	
	Reactive Sulfide	BRL		mg/l	50.0	1	"	"	"	"	"	

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009658 - SW846 5030 Water MS										
Blank (1009658-BLK1)					Prepared & Analyzed: 07-May-10					
1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0						
Acetone	BRL		µg/l	10.0						
Acrylonitrile	BRL		µg/l	0.5						
Benzene	BRL		µg/l	1.0						
Bromobenzene	BRL		µg/l	1.0						
Bromochloromethane	BRL		µg/l	1.0						
Bromodichloromethane	BRL		µg/l	0.5						
Bromoform	BRL		µg/l	1.0						
Bromomethane	BRL		µg/l	2.0						
2-Butanone (MEK)	BRL		µg/l	10.0						
n-Butylbenzene	BRL		µg/l	1.0						
sec-Butylbenzene	BRL		µg/l	1.0						
tert-Butylbenzene	BRL		µg/l	1.0						
Carbon disulfide	BRL		µg/l	2.0						
Carbon tetrachloride	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
Chloroethane	BRL		µg/l	2.0						
Chloroform	BRL		µg/l	1.0						
Chloromethane	BRL		µg/l	2.0						
2-Chlorotoluene	BRL		µg/l	1.0						
4-Chlorotoluene	BRL		µg/l	1.0						
1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0						
Dibromochloromethane	BRL		µg/l	0.5						
1,2-Dibromoethane (EDB)	BRL		µg/l	0.5						
Dibromomethane	BRL		µg/l	1.0						
1,2-Dichlorobenzene	BRL		µg/l	1.0						
1,3-Dichlorobenzene	BRL		µg/l	1.0						
1,4-Dichlorobenzene	BRL		µg/l	1.0						
Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0						
1,1-Dichloroethane	BRL		µg/l	1.0						
1,2-Dichloroethane	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
cis-1,2-Dichloroethene	BRL		µg/l	1.0						
trans-1,2-Dichloroethene	BRL		µg/l	1.0						
1,2-Dichloropropane	BRL		µg/l	1.0						
1,3-Dichloropropane	BRL		µg/l	1.0						
2,2-Dichloropropane	BRL		µg/l	1.0						
1,1-Dichloropropene	BRL		µg/l	1.0						
cis-1,3-Dichloropropene	BRL		µg/l	0.5						
trans-1,3-Dichloropropene	BRL		µg/l	0.5						
Ethylbenzene	BRL		µg/l	1.0						
Hexachlorobutadiene	BRL		µg/l	0.5						
2-Hexanone (MBK)	BRL		µg/l	10.0						
Isopropylbenzene	BRL		µg/l	1.0						
4-Isopropyltoluene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0						
Methylene chloride	BRL		µg/l	2.0						
Naphthalene	BRL		µg/l	1.0						
n-Propylbenzene	BRL		µg/l	1.0						
Styrene	BRL		µg/l	1.0						
1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0						

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009658 - SW846 5030 Water MS										
Blank (1009658-BLK1)					Prepared & Analyzed: 07-May-10					
1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5						
Tetrachloroethene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
1,2,3-Trichlorobenzene	BRL		µg/l	1.0						
1,2,4-Trichlorobenzene	BRL		µg/l	1.0						
1,3,5-Trichlorobenzene	BRL		µg/l	1.0						
1,1,1-Trichloroethane	BRL		µg/l	1.0						
1,1,2-Trichloroethane	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0						
1,2,3-Trichloropropane	BRL		µg/l	1.0						
1,2,4-Trimethylbenzene	BRL		µg/l	1.0						
1,3,5-Trimethylbenzene	BRL		µg/l	1.0						
Vinyl chloride	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Tetrahydrofuran	BRL		µg/l	2.0						
Ethyl ether	BRL		µg/l	1.0						
Tert-amyl methyl ether	BRL		µg/l	1.0						
Ethyl tert-butyl ether	BRL		µg/l	1.0						
Di-isopropyl ether	BRL		µg/l	1.0						
Tert-Butanol / butyl alcohol	BRL		µg/l	10.0						
1,4-Dioxane	BRL		µg/l	20.0						
trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0						
Ethanol	BRL		µg/l	400						
Surrogate: 4-Bromofluorobenzene	*49.9*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: Toluene-d8	*50.2*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*50.0*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: Dibromofluoromethane	*51.4*		µg/l		*50.0*		*103*	*70-130*		
LCS (1009658-BS1)					Prepared & Analyzed: 07-May-10					
1,1,2-Trichlorotrifluoroethane (Freon 113)	17.6		µg/l		20.0		88	70-130		
Acetone	19.3		µg/l		20.0		97	53.2-137		
Acrylonitrile	19.8		µg/l		20.0		99	70-130		
Benzene	19.2		µg/l		20.0		96	70-130		
Bromobenzene	21.3		µg/l		20.0		106	70-130		
Bromochloromethane	21.7		µg/l		20.0		108	70-130		
Bromodichloromethane	21.5		µg/l		20.0		108	70-130		
Bromoform	23.6		µg/l		20.0		118	70-130		
Bromomethane	19.6		µg/l		20.0		98	48.9-147		
2-Butanone (MEK)	21.1		µg/l		20.0		105	70-139		
n-Butylbenzene	19.2		µg/l		20.0		96	70-130		
sec-Butylbenzene	20.9		µg/l		20.0		105	70-130		
tert-Butylbenzene	20.9		µg/l		20.0		104	70-130		
Carbon disulfide	18.2		µg/l		20.0		91	70-130		
Carbon tetrachloride	20.0		µg/l		20.0		100	70-130		
Chlorobenzene	20.2		µg/l		20.0		101	70-130		
Chloroethane	17.7		µg/l		20.0		89	65.6-130		
Chloroform	19.6		µg/l		20.0		98	70-130		
Chloromethane	16.4		µg/l		20.0		82	70-130		
2-Chlorotoluene	19.8		µg/l		20.0		99	70-130		
4-Chlorotoluene	19.8		µg/l		20.0		99	70-130		

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009658 - SW846 5030 Water MS										
LCS (1009658-BS1)					Prepared & Analyzed: 07-May-10					
1,2-Dibromo-3-chloropropane	20.1		µg/l		20.0		100	70-130		
Dibromochloromethane	26.0		µg/l		20.0		130	52.9-130		
1,2-Dibromoethane (EDB)	21.8		µg/l		20.0		109	70-130		
Dibromomethane	20.0		µg/l		20.0		100	70-130		
1,2-Dichlorobenzene	20.7		µg/l		20.0		104	70-130		
1,3-Dichlorobenzene	21.0		µg/l		20.0		105	70-130		
1,4-Dichlorobenzene	18.6		µg/l		20.0		93	70-130		
Dichlorodifluoromethane (Freon12)	17.4		µg/l		20.0		87	63.1-130		
1,1-Dichloroethane	18.0		µg/l		20.0		90	70-130		
1,2-Dichloroethane	18.6		µg/l		20.0		93	70-130		
1,1-Dichloroethene	17.8		µg/l		20.0		89	70-130		
cis-1,2-Dichloroethene	16.7		µg/l		20.0		84	70-130		
trans-1,2-Dichloroethene	18.6		µg/l		20.0		93	70-130		
1,2-Dichloropropane	19.2		µg/l		20.0		96	70-130		
1,3-Dichloropropane	19.5		µg/l		20.0		98	70-130		
2,2-Dichloropropane	15.8		µg/l		20.0		79	70-130		
1,1-Dichloropropene	18.2		µg/l		20.0		91	70-130		
cis-1,3-Dichloropropene	19.2		µg/l		20.0		96	70-130		
trans-1,3-Dichloropropene	19.0		µg/l		20.0		95	70-130		
Ethylbenzene	20.1		µg/l		20.0		101	70-130		
Hexachlorobutadiene	18.5		µg/l		20.0		93	70-130		
2-Hexanone (MBK)	21.3		µg/l		20.0		106	70-130		
Isopropylbenzene	19.7		µg/l		20.0		98	70-130		
4-Isopropyltoluene	19.2		µg/l		20.0		96	70-130		
Methyl tert-butyl ether	18.8		µg/l		20.0		94	70-130		
4-Methyl-2-pentanone (MIBK)	20.0		µg/l		20.0		100	61-130		
Methylene chloride	17.8		µg/l		20.0		89	70-130		
Naphthalene	18.7		µg/l		20.0		94	70-130		
n-Propylbenzene	21.6		µg/l		20.0		108	70-130		
Styrene	22.0		µg/l		20.0		110	70-130		
1,1,1,2-Tetrachloroethane	18.2		µg/l		20.0		91	70-130		
1,1,2,2-Tetrachloroethane	20.0		µg/l		20.0		100	70-130		
Tetrachloroethene	20.1		µg/l		20.0		101	70-130		
Toluene	19.2		µg/l		20.0		96	70-130		
1,2,3-Trichlorobenzene	22.7		µg/l		20.0		113	70-130		
1,2,4-Trichlorobenzene	18.5		µg/l		20.0		92	70-130		
1,3,5-Trichlorobenzene	20.8		µg/l		20.0		104	70-130		
1,1,1-Trichloroethane	18.3		µg/l		20.0		91	70-130		
1,1,2-Trichloroethane	19.8		µg/l		20.0		99	70-130		
Trichloroethene	19.5		µg/l		20.0		98	70-130		
Trichlorofluoromethane (Freon 11)	17.9		µg/l		20.0		90	60-172		
1,2,3-Trichloropropane	21.3		µg/l		20.0		106	70-130		
1,2,4-Trimethylbenzene	20.7		µg/l		20.0		104	70-130		
1,3,5-Trimethylbenzene	20.7		µg/l		20.0		104	70-130		
Vinyl chloride	14.4		µg/l		20.0		72	70-130		
m,p-Xylene	41.6		µg/l		40.0		104	70-130		
o-Xylene	21.1		µg/l		20.0		105	70-130		
Tetrahydrofuran	18.9		µg/l		20.0		94	70-130		
Ethyl ether	19.3		µg/l		20.0		96	70-130		
Tert-amyl methyl ether	18.8		µg/l		20.0		94	70-130		
Ethyl tert-butyl ether	18.5		µg/l		20.0		93	70-130		
Di-isopropyl ether	14.8		µg/l		20.0		74	70-130		

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009658 - SW846 5030 Water MS										
LCS (1009658-BS1)					Prepared & Analyzed: 07-May-10					
Tert-Butanol / butyl alcohol	195		µg/l		200		97	70-130		
1,4-Dioxane	212		µg/l		200		106	54.2-130		
trans-1,4-Dichloro-2-butene	20.8		µg/l		20.0		104	70-130		
Ethanol	348		µg/l		400		87	70-130		
Surrogate: 4-Bromofluorobenzene	*50.9*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8	*49.3*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*48.1*		µg/l		*50.0*		*96*	*70-130*		
Surrogate: Dibromofluoromethane	*49.1*		µg/l		*50.0*		*98*	*70-130*		
LCS Dup (1009658-BSD1)					Prepared & Analyzed: 07-May-10					
1,1,2-Trichlorotrifluoroethane (Freon 113)	17.9		µg/l		20.0		89	70-130	1	25
Acetone	19.4		µg/l		20.0		97	53.2-137	0.5	50
Acrylonitrile	18.6		µg/l		20.0		93	70-130	6	25
Benzene	19.6		µg/l		20.0		98	70-130	2	25
Bromobenzene	21.8		µg/l		20.0		109	70-130	2	25
Bromochloromethane	22.2		µg/l		20.0		111	70-130	2	25
Bromodichloromethane	22.2		µg/l		20.0		111	70-130	3	25
Bromoform	23.4		µg/l		20.0		117	70-130	1	25
Bromomethane	20.9		µg/l		20.0		105	48.9-147	7	50
2-Butanone (MEK)	19.7		µg/l		20.0		99	70-139	7	50
n-Butylbenzene	19.2		µg/l		20.0		96	70-130	0.4	25
sec-Butylbenzene	20.8		µg/l		20.0		104	70-130	0.8	25
tert-Butylbenzene	21.3		µg/l		20.0		106	70-130	2	25
Carbon disulfide	18.5		µg/l		20.0		92	70-130	2	25
Carbon tetrachloride	20.7		µg/l		20.0		104	70-130	3	25
Chlorobenzene	21.0		µg/l		20.0		105	70-130	4	25
Chloroethane	18.4		µg/l		20.0		92	65.6-130	4	50
Chloroform	20.1		µg/l		20.0		100	70-130	2	25
Chloromethane	16.7		µg/l		20.0		84	70-130	2	25
2-Chlorotoluene	21.3		µg/l		20.0		106	70-130	7	25
4-Chlorotoluene	20.3		µg/l		20.0		102	70-130	2	25
1,2-Dibromo-3-chloropropane	20.8		µg/l		20.0		104	70-130	4	25
Dibromochloromethane	27.6	QM9	µg/l		20.0		138	52.9-130	6	50
1,2-Dibromoethane (EDB)	22.7		µg/l		20.0		114	70-130	4	25
Dibromomethane	20.1		µg/l		20.0		100	70-130	0.5	25
1,2-Dichlorobenzene	20.3		µg/l		20.0		101	70-130	2	25
1,3-Dichlorobenzene	21.7		µg/l		20.0		108	70-130	3	25
1,4-Dichlorobenzene	19.0		µg/l		20.0		95	70-130	2	25
Dichlorodifluoromethane (Freon12)	17.7		µg/l		20.0		88	63.1-130	2	50
1,1-Dichloroethane	18.6		µg/l		20.0		93	70-130	3	25
1,2-Dichloroethane	19.2		µg/l		20.0		96	70-130	3	25
1,1-Dichloroethene	18.4		µg/l		20.0		92	70-130	3	25
cis-1,2-Dichloroethene	17.0		µg/l		20.0		85	70-130	2	25
trans-1,2-Dichloroethene	19.3		µg/l		20.0		96	70-130	4	25
1,2-Dichloropropane	19.6		µg/l		20.0		98	70-130	2	25
1,3-Dichloropropane	20.1		µg/l		20.0		100	70-130	3	25
2,2-Dichloropropane	15.9		µg/l		20.0		80	70-130	0.9	25
1,1-Dichloropropene	18.6		µg/l		20.0		93	70-130	2	25
cis-1,3-Dichloropropene	20.4		µg/l		20.0		102	70-130	6	25
trans-1,3-Dichloropropene	18.9		µg/l		20.0		95	70-130	0.3	25
Ethylbenzene	20.9		µg/l		20.0		104	70-130	4	25
Hexachlorobutadiene	19.1		µg/l		20.0		96	70-130	3	50

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009658 - SW846 5030 Water MS										
LCS Dup (1009658-BSD1)					Prepared & Analyzed: 07-May-10					
2-Hexanone (MBK)	21.7		µg/l		20.0		108	70-130	2	25
Isopropylbenzene	20.8		µg/l		20.0		104	70-130	6	25
4-Isopropyltoluene	19.1		µg/l		20.0		95	70-130	0.6	25
Methyl tert-butyl ether	19.0		µg/l		20.0		95	70-130	0.6	25
4-Methyl-2-pentanone (MIBK)	19.6		µg/l		20.0		98	61-130	2	50
Methylene chloride	18.3		µg/l		20.0		92	70-130	3	25
Naphthalene	18.4		µg/l		20.0		92	70-130	2	25
n-Propylbenzene	20.8		µg/l		20.0		104	70-130	4	25
Styrene	22.0		µg/l		20.0		110	70-130	0.09	25
1,1,1,2-Tetrachloroethane	19.3		µg/l		20.0		97	70-130	6	25
1,1,2,2-Tetrachloroethane	20.5		µg/l		20.0		103	70-130	3	25
Tetrachloroethene	20.9		µg/l		20.0		105	70-130	4	25
Toluene	19.6		µg/l		20.0		98	70-130	2	25
1,2,3-Trichlorobenzene	22.1		µg/l		20.0		111	70-130	2	25
1,2,4-Trichlorobenzene	18.1		µg/l		20.0		90	70-130	2	25
1,3,5-Trichlorobenzene	20.3		µg/l		20.0		102	70-130	2	25
1,1,1-Trichloroethane	19.2		µg/l		20.0		96	70-130	5	25
1,1,2-Trichloroethane	20.0		µg/l		20.0		100	70-130	1	25
Trichloroethene	20.0		µg/l		20.0		100	70-130	3	25
Trichlorofluoromethane (Freon 11)	18.1		µg/l		20.0		90	60-172	1	50
1,2,3-Trichloropropane	21.9		µg/l		20.0		110	70-130	3	25
1,2,4-Trimethylbenzene	21.1		µg/l		20.0		105	70-130	2	25
1,3,5-Trimethylbenzene	21.2		µg/l		20.0		106	70-130	2	25
Vinyl chloride	15.1		µg/l		20.0		76	70-130	5	25
m,p-Xylene	42.9		µg/l		40.0		107	70-130	3	25
o-Xylene	21.8		µg/l		20.0		109	70-130	3	25
Tetrahydrofuran	18.8		µg/l		20.0		94	70-130	0.5	25
Ethyl ether	19.8		µg/l		20.0		99	70-130	3	50
Tert-amyl methyl ether	19.0		µg/l		20.0		95	70-130	1	25
Ethyl tert-butyl ether	19.4		µg/l		20.0		97	70-130	4	25
Di-isopropyl ether	15.0		µg/l		20.0		75	70-130	1	25
Tert-Butanol / butyl alcohol	186		µg/l		200		93	70-130	4	25
1,4-Dioxane	193		µg/l		200		96	54.2-130	10	25
trans-1,4-Dichloro-2-butene	21.6		µg/l		20.0		108	70-130	4	25
Ethanol	390		µg/l		400		98	70-130	12	30
Surrogate: 4-Bromofluorobenzene	*52.2*		µg/l		*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8	*49.9*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*48.3*		µg/l		*50.0*		*97*	*70-130*		
Surrogate: Dibromofluoromethane	*50.0*		µg/l		*50.0*		*100*	*70-130*		

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009392 - SW846 3510C										
Blank (1009392-BLK1)					Prepared: 05-May-10 Analyzed: 07-May-10					
Acenaphthene	BRL		µg/l	5.00						
Acenaphthylene	BRL		µg/l	5.00						
Aniline	BRL		µg/l	5.00						
Anthracene	BRL		µg/l	5.00						
Atrazine	BRL		µg/l	5.00						
Azobenzene/Diphenyldiazine	BRL		µg/l	5.00						
Benzidine	BRL		µg/l	5.00						
Benzo (a) anthracene	BRL		µg/l	5.00						
Benzo (a) pyrene	BRL		µg/l	5.00						
Benzo (b) fluoranthene	BRL		µg/l	5.00						
Benzo (g,h,i) perylene	BRL		µg/l	5.00						
Benzo (k) fluoranthene	BRL		µg/l	5.00						
Benzoic acid	BRL		µg/l	5.00						
Benzyl alcohol	BRL		µg/l	5.00						
Bis(2-chloroethoxy)methane	BRL		µg/l	5.00						
Bis(2-chloroethyl)ether	BRL		µg/l	5.00						
Bis(2-chloroisopropyl)ether	BRL		µg/l	5.00						
Bis(2-ethylhexyl)phthalate	BRL		µg/l	5.00						
4-Bromophenyl phenyl ether	BRL		µg/l	5.00						
Butyl benzyl phthalate	BRL		µg/l	5.00						
Carbazole	BRL		µg/l	5.00						
4-Chloro-3-methylphenol	BRL		µg/l	5.00						
4-Chloroaniline	BRL		µg/l	5.00						
2-Chloronaphthalene	BRL		µg/l	5.00						
2-Chlorophenol	BRL		µg/l	5.00						
4-Chlorophenyl phenyl ether	BRL		µg/l	5.00						
Chrysene	BRL		µg/l	5.00						
Dibenzo (a,h) anthracene	BRL		µg/l	5.00						
Dibenzofuran	BRL		µg/l	5.00						
1,2-Dichlorobenzene	BRL		µg/l	5.00						
1,3-Dichlorobenzene	BRL		µg/l	5.00						
1,4-Dichlorobenzene	BRL		µg/l	5.00						
3,3'-Dichlorobenzidine	BRL		µg/l	5.00						
2,4-Dichlorophenol	BRL		µg/l	5.00						
Diethyl phthalate	BRL		µg/l	5.00						
Dimethyl phthalate	BRL		µg/l	5.00						
2,4-Dimethylphenol	BRL		µg/l	5.00						
Di-n-butyl phthalate	BRL		µg/l	5.00						
4,6-Dinitro-2-methylphenol	BRL		µg/l	5.00						
2,4-Dinitrophenol	BRL		µg/l	5.00						
2,4-Dinitrotoluene	BRL		µg/l	5.00						
2,6-Dinitrotoluene	BRL		µg/l	5.00						
Di-n-octyl phthalate	BRL		µg/l	5.00						
Fluoranthene	BRL		µg/l	5.00						
Fluorene	BRL		µg/l	5.00						
Hexachlorobenzene	BRL		µg/l	5.00						
Hexachlorobutadiene	BRL		µg/l	5.00						
Hexachlorocyclopentadiene	BRL		µg/l	5.00						
Hexachloroethane	BRL		µg/l	5.00						
Indeno (1,2,3-cd) pyrene	BRL		µg/l	5.00						
Isophorone	BRL		µg/l	5.00						
2-Methylnaphthalene	BRL		µg/l	5.00						

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009392 - SW846 3510C										
Blank (1009392-BLK1)					Prepared: 05-May-10 Analyzed: 07-May-10					
2-Methylphenol	BRL		µg/l	5.00						
3 & 4-Methylphenol	BRL		µg/l	10.0						
Naphthalene	BRL		µg/l	5.00						
2-Nitroaniline	BRL		µg/l	5.00						
3-Nitroaniline	BRL		µg/l	5.00						
4-Nitroaniline	BRL		µg/l	20.0						
Nitrobenzene	BRL		µg/l	5.00						
2-Nitrophenol	BRL		µg/l	5.00						
4-Nitrophenol	BRL		µg/l	20.0						
N-Nitrosodimethylamine	BRL		µg/l	5.00						
N-Nitrosodi-n-propylamine	BRL		µg/l	5.00						
N-Nitrosodiphenylamine	BRL		µg/l	5.00						
Pentachlorophenol	BRL		µg/l	20.0						
Phenanthrene	BRL		µg/l	5.00						
Phenol	BRL		µg/l	5.00						
Pyrene	BRL		µg/l	5.00						
Pyridine	BRL		µg/l	5.00						
1,2,4-Trichlorobenzene	BRL		µg/l	5.00						
1-Methylnaphthalene	BRL		µg/l	5.00						
2,4,5-Trichlorophenol	BRL		µg/l	5.00						
2,4,6-Trichlorophenol	BRL		µg/l	5.00						
Pentachloronitrobenzene	BRL		µg/l	5.00						
1,2,4,5-Tetrachlorobenzene	BRL		µg/l	5.00						
Surrogate: 2-Fluorobiphenyl	*26.1*		µg/l		*50.0*		*52*	*30-130*		
Surrogate: 2-Fluorophenol	*18.2*		µg/l		*50.0*		*36*	*15-110*		
Surrogate: Nitrobenzene-d5	*30.3*		µg/l		*50.0*		*61*	*30-130*		
Surrogate: Phenol-d5	*14.1*		µg/l		*50.0*		*28*	*15-110*		
Surrogate: Terphenyl-dl4	*33.4*		µg/l		*50.0*		*67*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*36.4*		µg/l		*50.0*		*73*	*15-110*		
LCS (1009392-BS1)					Prepared: 05-May-10 Analyzed: 07-May-10					
Acenaphthene	32.0		µg/l	5.00	50.0		64	40-130		
Acenaphthylene	33.2		µg/l	5.00	50.0		66	40-130		
Aniline	38.3		µg/l	5.00	50.0		77	40-130		
Anthracene	33.7		µg/l	5.00	50.0		67	40-130		
Atrazine	BRL	QC2	µg/l	5.00	50.0			40-130		
Azobenzene/Diphenyldiazine	36.6		µg/l	5.00	50.0		73	40-130		
Benzidine	BRL		µg/l	5.00	50.0			0-140		
Benzo (a) anthracene	36.9		µg/l	5.00	50.0		74	40-130		
Benzo (a) pyrene	37.8		µg/l	5.00	50.0		76	40-130		
Benzo (b) fluoranthene	34.3		µg/l	5.00	50.0		69	40-130		
Benzo (g,h,i) perylene	36.0		µg/l	5.00	50.0		72	40-130		
Benzo (k) fluoranthene	44.4		µg/l	5.00	50.0		89	40-130		
Benzoic acid	26.6		µg/l	5.00	50.0		53	17.2-130		
Benzyl alcohol	31.5		µg/l	5.00	50.0		63	40-130		
Bis(2-chloroethoxy)methane	32.6		µg/l	5.00	50.0		65	40-130		
Bis(2-chloroethyl)ether	32.0		µg/l	5.00	50.0		64	40-130		
Bis(2-chloroisopropyl)ether	43.0		µg/l	5.00	50.0		86	40-130		
Bis(2-ethylhexyl)phthalate	32.6		µg/l	5.00	50.0		65	40-130		
4-Bromophenyl phenyl ether	42.8		µg/l	5.00	50.0		86	40-130		
Butyl benzyl phthalate	32.3		µg/l	5.00	50.0		65	40-130		
Carbazole	36.4		µg/l	5.00	50.0		73	40-130		

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009392 - SW846 3510C										
LCS (1009392-BS1)					Prepared: 05-May-10 Analyzed: 07-May-10					
4-Chloro-3-methylphenol	34.2		µg/l	5.00	50.0		68	40-130		
4-Chloroaniline	34.8		µg/l	5.00	50.0		70	40-130		
2-Chloronaphthalene	31.9		µg/l	5.00	50.0		64	40-130		
2-Chlorophenol	27.6		µg/l	5.00	50.0		55	40-130		
4-Chlorophenyl phenyl ether	38.2		µg/l	5.00	50.0		76	40-130		
Chrysene	36.4		µg/l	5.00	50.0		73	40-130		
Dibenzo (a,h) anthracene	37.6		µg/l	5.00	50.0		75	40-130		
Dibenzofuran	31.8		µg/l	5.00	50.0		64	40-130		
1,2-Dichlorobenzene	29.9		µg/l	5.00	50.0		60	40-130		
1,3-Dichlorobenzene	28.2		µg/l	5.00	50.0		56	40-130		
1,4-Dichlorobenzene	27.8		µg/l	5.00	50.0		56	40-130		
3,3'-Dichlorobenzidine	28.5		µg/l	5.00	50.0		57	40-130		
2,4-Dichlorophenol	31.5		µg/l	5.00	50.0		63	40-130		
Diethyl phthalate	36.5		µg/l	5.00	50.0		73	40-130		
Dimethyl phthalate	33.8		µg/l	5.00	50.0		68	40-130		
2,4-Dimethylphenol	27.9		µg/l	5.00	50.0		56	40-130		
Di-n-butyl phthalate	36.3		µg/l	5.00	50.0		73	40-130		
4,6-Dinitro-2-methylphenol	50.7		µg/l	5.00	50.0		101	40-130		
2,4-Dinitrophenol	48.9		µg/l	5.00	50.0		98	40-130		
2,4-Dinitrotoluene	37.2		µg/l	5.00	50.0		74	40-130		
2,6-Dinitrotoluene	35.4		µg/l	5.00	50.0		71	40-130		
Di-n-octyl phthalate	35.9		µg/l	5.00	50.0		72	40-130		
Fluoranthene	36.1		µg/l	5.00	50.0		72	40-130		
Fluorene	38.2		µg/l	5.00	50.0		76	40-130		
Hexachlorobenzene	35.5		µg/l	5.00	50.0		71	40-130		
Hexachlorobutadiene	34.5		µg/l	5.00	50.0		69	40-130		
Hexachlorocyclopentadiene	38.2		µg/l	5.00	50.0		76	40-130		
Hexachloroethane	30.2		µg/l	5.00	50.0		60	40-130		
Indeno (1,2,3-cd) pyrene	36.4		µg/l	5.00	50.0		73	40-130		
Isophorone	33.8		µg/l	5.00	50.0		68	40-130		
2-Methylnaphthalene	32.4		µg/l	5.00	50.0		65	40-130		
2-Methylphenol	27.1		µg/l	5.00	50.0		54	40-130		
3 & 4-Methylphenol	26.9		µg/l	10.0	50.0		54	40-130		
Naphthalene	30.2		µg/l	5.00	50.0		60	40-130		
2-Nitroaniline	34.3		µg/l	5.00	50.0		69	40-130		
3-Nitroaniline	34.2		µg/l	5.00	50.0		68	40-130		
4-Nitroaniline	37.3		µg/l	20.0	50.0		75	40-130		
Nitrobenzene	35.7		µg/l	5.00	50.0		71	40-130		
2-Nitrophenol	32.7		µg/l	5.00	50.0		65	40-130		
4-Nitrophenol	14.0	QC2	µg/l	20.0	50.0		28	40-130		
N-Nitrosodimethylamine	23.6		µg/l	5.00	50.0		47	40-130		
N-Nitrosodi-n-propylamine	36.0		µg/l	5.00	50.0		72	40-130		
N-Nitrosodiphenylamine	37.4		µg/l	5.00	50.0		75	40-130		
Pentachlorophenol	38.7		µg/l	20.0	50.0		77	40-130		
Phenanthrene	33.8		µg/l	5.00	50.0		68	40-130		
Phenol	15.9		µg/l	5.00	50.0		32	40-130		
Pyrene	33.3		µg/l	5.00	50.0		67	40-130		
Pyridine	5.30		µg/l	5.00	50.0		11	10-140		
1-Methylnaphthalene	29.0		µg/l	5.00	50.0		58	40-140		
1,2,4-Trichlorobenzene	32.9		µg/l	5.00	50.0		66	40-130		
2,4,5-Trichlorophenol	35.2		µg/l	5.00	50.0		70	40-130		
2,4,6-Trichlorophenol	30.8		µg/l	5.00	50.0		62	40-130		

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009392 - SW846 3510C										
LCS (1009392-BS1)					Prepared: 05-May-10 Analyzed: 07-May-10					
Pentachloronitrobenzene	44.9		µg/l	5.00	50.0		90	40-140		
1,2,4,5-Tetrachlorobenzene	34.1		µg/l	5.00	50.0		68	40-140		
Surrogate: 2-Fluorobiphenyl	*28.2*		µg/l		*50.0*		*56*	*30-130*		
Surrogate: 2-Fluorophenol	*17.9*		µg/l		*50.0*		*36*	*15-110*		
Surrogate: Nitrobenzene-d5	*34.2*		µg/l		*50.0*		*68*	*30-130*		
Surrogate: Phenol-d5	*14.0*		µg/l		*50.0*		*28*	*15-110*		
Surrogate: Terphenyl-dl4	*33.5*		µg/l		*50.0*		*67*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*40.1*		µg/l		*50.0*		*80*	*15-110*		

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009619 - SW846 3510C										
Blank (1009619-BLK1)					Prepared: 06-May-10 Analyzed: 07-May-10					
Aroclor-1016	BRL		µg/l	0.200						
Aroclor-1016 [2C]	BRL		µg/l	0.200						
Aroclor-1221	BRL		µg/l	0.200						
Aroclor-1221 [2C]	BRL		µg/l	0.200						
Aroclor-1232	BRL		µg/l	0.200						
Aroclor-1232 [2C]	BRL		µg/l	0.200						
Aroclor-1242	BRL		µg/l	0.200						
Aroclor-1242 [2C]	BRL		µg/l	0.200						
Aroclor-1248	BRL		µg/l	0.200						
Aroclor-1248 [2C]	BRL		µg/l	0.200						
Aroclor-1254	BRL		µg/l	0.200						
Aroclor-1254 [2C]	BRL		µg/l	0.200						
Aroclor-1260	BRL		µg/l	0.200						
Aroclor-1260 [2C]	BRL		µg/l	0.200						
Aroclor-1262	BRL		µg/l	0.200						
Aroclor-1262 [2C]	BRL		µg/l	0.200						
Aroclor-1268	BRL		µg/l	0.200						
Aroclor-1268 [2C]	BRL		µg/l	0.200						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.168*		µg/l		*0.200*		*84*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.175*		µg/l		*0.200*		*88*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.181*		µg/l		*0.200*		*90*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.175*		µg/l		*0.200*		*88*	*30-150*		
LCS (1009619-BS1)					Prepared: 06-May-10 Analyzed: 07-May-10					
Aroclor-1016	2.21		µg/l	0.200	2.50		88	50-140		
Aroclor-1016 [2C]	2.17		µg/l	0.200	2.50		87	50-140		
Aroclor-1260	2.00		µg/l	0.200	2.50		80	50-140		
Aroclor-1260 [2C]	2.07		µg/l	0.200	2.50		83	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.172*		µg/l		*0.200*		*86*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.177*		µg/l		*0.200*		*88*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.183*		µg/l		*0.200*		*92*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.179*		µg/l		*0.200*		*90*	*30-150*		
LCS Dup (1009619-BSD1)					Prepared: 06-May-10 Analyzed: 07-May-10					
Aroclor-1016	2.27		µg/l	0.200	2.50		91	50-140	3	30
Aroclor-1016 [2C]	2.39		µg/l	0.200	2.50		96	50-140	10	30
Aroclor-1260	2.07		µg/l	0.200	2.50		83	50-140	3	30
Aroclor-1260 [2C]	2.21		µg/l	0.200	2.50		88	50-140	6	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.174*		µg/l		*0.200*		*87*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.188*		µg/l		*0.200*		*94*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.178*		µg/l		*0.200*		*89*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.194*		µg/l		*0.200*		*97*	*30-150*		

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009687 - SW846 3005A										
Blank (1009687-BLK1)					Prepared & Analyzed: 07-May-10					
Lead	BRL		mg/l	0.0075						
Selenium	BRL		mg/l	0.0150						
Chromium	BRL		mg/l	0.0050						
Barium	BRL		mg/l	0.0050						
Silver	BRL		mg/l	0.0050						
Arsenic	BRL		mg/l	0.0040						
Cadmium	BRL		mg/l	0.0025						
LCS (1009687-BS1)					Prepared & Analyzed: 07-May-10					
Lead	1.34		mg/l	0.0075	1.25		107	85-115		
Selenium	1.41		mg/l	0.0150	1.25		113	85-115		
Chromium	1.43		mg/l	0.0050	1.25		115	85-115		
Silver	1.16		mg/l	0.0050	1.25		92	85-115		
Arsenic	1.33		mg/l	0.0040	1.25		106	85-115		
Barium	1.38		mg/l	0.0050	1.25		110	85-115		
Cadmium	1.38		mg/l	0.0025	1.25		110	85-115		
LCS Dup (1009687-BSD1)					Prepared & Analyzed: 07-May-10					
Selenium	1.37		mg/l	0.0150	1.25		110	85-115	3	20
Lead	1.31		mg/l	0.0075	1.25		105	85-115	2	20
Chromium	1.40		mg/l	0.0050	1.25		112	85-115	3	20
Cadmium	1.34		mg/l	0.0025	1.25		108	85-115	2	20
Barium	1.35		mg/l	0.0050	1.25		108	85-115	2	20
Silver	1.14		mg/l	0.0050	1.25		91	85-115	2	20
Arsenic	1.30		mg/l	0.0040	1.25		104	85-115	3	20

Total Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009688 - EPA200/SW7000 Series										
Blank (1009688-BLK1)						Prepared & Analyzed: 07-May-10				
Mercury	BRL		mg/l	0.00020						
LCS (1009688-BS1)						Prepared & Analyzed: 07-May-10				
Mercury	0.00452		mg/l	0.00020	0.00500		90	85-115		
Duplicate (1009688-DUP1)			**Source: SB11470-01**			Prepared & Analyzed: 07-May-10				
Mercury	0.00076	QR6	mg/l	0.00020		0.00108			35	20
Matrix Spike (1009688-MS1)			**Source: SB11470-01**			Prepared & Analyzed: 07-May-10				
Mercury	0.00574		mg/l	0.00020	0.00500	0.00108	93	75-125		
Matrix Spike Dup (1009688-MSD1)			**Source: SB11470-01**			Prepared & Analyzed: 07-May-10				
Mercury	0.00575		mg/l	0.00020	0.00500	0.00108	93	75-125	0.2	20
Post Spike (1009688-PS1)			**Source: SB11470-01**			Prepared & Analyzed: 07-May-10				
Mercury	0.00641		mg/l	0.00020	0.00500	0.00108	107	85-115		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009308 - General Preparation										
Reference (1009308-SRM1)						Prepared & Analyzed: 03-May-10				
pH	6.04		pH Units		6.00		101	97.5-102.5		
Reference (1009308-SRM8)						Prepared & Analyzed: 03-May-10				
pH	6.02		pH Units		6.00		100	97.5-102.5		
Batch 1009353 - General Preparation										
Reference (1009353-SRM1)						Prepared & Analyzed: 04-May-10				
Flashpoint	79		°F		81.0		98	95-105		
Batch 1009784 - General Preparation										
Blank (1009784-BLK1)						Prepared & Analyzed: 10-May-10				
Reactivity	Nonreactive		mg/l							
Reactive Cyanide	BRL		mg/l	25.0						
Reactive Sulfide	BRL		mg/l	50.0						
Reference (1009784-SRM1)						Prepared & Analyzed: 10-May-10				
Reactive Cyanide	2.79		mg/l	25.0	100		3	0-200		
Reference (1009784-SRM2)						Prepared & Analyzed: 10-May-10				
Reactive Sulfide	96.2		mg/l	50.0	6700		1	0-200		

Notes and Definitions

QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
QR6	The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.
R02	Elevated Reporting Limits due to limited sample volume.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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.

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.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

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.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
June O'Connor
Rebecca Merz

SB11470 SM

SPECTRUM ANALYTICAL, INC.
Featuring
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
☐ Standard TAT - 7 to 10 business days
☒ Rush TAT - Date Needed: 5/5/10
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: New England Disposal Technologies, Inc
23 Gilmore Drive
Sutton, MA 01590

Invoice To: Same

Project Mgr.: Lon Cohen

P.O. No.: RQN:

Project No.: IDW - Phase I
Site Name: Navy Base New London
Location: Groton State: CT
Sampler(s): BEB

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=4°C 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

QA Reporting Notes: (check if needed)
☐ Provide MA DEP MCP CAM Report
☐ Provide CT DPH RCP Report
QA/QC Reporting Level
☐ Standard ☐ No QC
☐ Other
State specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		Analyses: pH	Cyanide (Total & Reactive)	Total RCRA 8 Metals	Total VOC (8260)	Total SVOC (8270)	Flash Point	PCB	
11470-01	WATER	4/30/10	10:00AM	C	GW	9	2	3		2		✓	✓	✓	✓	✓	✓	✓	

☐ Fax results when available to (____)
☒ E-mail to lcohen@NEDSTINC.com
EDD Format

Condition upon receipt: ☐ Iced ☐ Ambient ☒ °C 4.0
Ref.

Relinquished by:	Received by:	Date:	Time:
[signature]	Sandy Foster	4/30/10	3:00PM
Sandy Foster	[signature]	5/3/10	9:30
[signature]	[signature]	5/3/10	1530

1.10 Sanitary Sewer Incident Report

TETRA TECH, INC.
Safety Excellence

TETRA TECH, INC. INCIDENT REPORT

Report Date	Report Prepared By	Incident Report Number
4-23-10	Jim Ferguson	

INSTRUCTIONS:

All incidents (including those involving subcontractors under direct supervision of Tetra Tech personnel) must be documented on the IR Form.

Complete any additional parts to this form as indicated below for the type of incident selected.

TYPE OF INCIDENT (Check all that apply)	Additional Form(s) Required for this type of incident	
Near Miss (No losses, but could have resulted in injury, illness, or damage)	☐	Complete IR Form Only
Injury or Illness	☐	Complete Form IR-A; Injury or Illness
Property or Equipment Damage, Fire, Spill or Release	X	Complete Form IR-B; Damage, Fire, Spill or Release
Motor Vehicle	☐	Complete Form IR-C; Motor Vehicle

INFORMATION ABOUT THE INCIDENT

Description of Incident

Hit a 6" sanitary sewer line while drilling on April 22, 2010, at that time, NSB NL public works did not know the line was in the area Based on existing drawings, initially thought drilling encountered abandoned line. Following patch and backfill of borehole, returned to site the next day to find sanitary water on ground surface. After sanitary sewer personnel arrived, determination was made that a 6" forced main was encountered.

Date of Incident	Time of Incident
April 22/23, 2010	11:35 AM X PM ☐ *OR* Cannot be determined ☐
Weather conditions at the time of the incident	**Was there adequate lighting?**
Sunny 65 degrees	Yes X No ☐

Location of Incident

NSB New London, Ct — Was location of incident within the employer's work environment? Yes X No ☐

Street Address	City, State, Zip Code and Country
Amberjack Road	Groton Ct.
Project Name	**Client:**
Pre Design Groundwater Sampling at Lower Subase	Naval Facilities Engineering Command
Tt Supervisor or Project Manager	**Was supervisor on the scene?**
Corey Rich	FOL on seen Yes X No ☐

WITNESS INFORMATION (attach additional sheets if necessary)

Name	Company
James Ferguson (FOL)	TTNUS
Street Address	**City, State and Zip Code**
7985 Oxford Ct	Irwin, Pa 15642
Telephone Number(s)	
412-496-9283	

CORRECTIVE ACTIONS

Corrective action(s) immediately taken by unit reporting the incident:

Worked with NSB New London Public Works contact (K. Braniff) to mitigate any potential environmental impacts, also provide support as requested.

Initially since base engineering did not know what was hit, attempt patch in borehole with concrete and backfill boring..

Corrective action(s) still to be taken (by whom and when):

Following any activity with a sanitary discharge, apply bleach solution to parking surface to mitigate any potential areas impacted by sanitary water discharge

ROOT CAUSE ANALYSIS LEVEL REQUIRED

Root Cause Analysis Level Required: Level - 1 ☐ Level - 2 ☐ None X

Root Cause Analysis Level Definitions

Level - 1	**Definition:** A Level 1 RCA is conducted by an individual(s) with experience or training in root cause analysis techniques and will conduct or direct documentation reviews, site investigation, witness and affected employee interviews, and identify corrective actions. Activating a Level 1 RCA and identifying RCA team members will be at the discretion of the Corporate Administration office. The following events may trigger a Level 1 RCA: ▪ Work related fatality ▪ Hospitalization of one or more employee where injuries result in total or partial permanent disability ▪ Property damage in excess of $75,000 ▪ When requested by senior management
Level - 2	**Definition:** A Level 2 RCA is self performed within the operating unit by supervisory personnel with assistance of the operating unit HSR. Level 2 RCA will utilize the 5 Why RCA methodology and document the findings on the tools provided. The following events will require a Level 2 RCA: ▪ OSHA recordable lost time incident ▪ Near miss incident that could have triggered a Level 1 RCA ▪ When requested by senior management

Complete the Root Cause Analysis Worksheet and Corrective Action form. Identify a corrective action(s) for each root cause identified within each area of inquiry.

NOTIFICATIONS

Title	Printed Name	Signature	Telephone Number	Date
Project Manager or Supervisor	James Ferguson (FOL)		412-490-9283	4-23-10
Site Safety Coordinator or Office H&S Representative				
Operating Unit H&S Representative				
Other: PROJECT MANAGER	COREY RICH (PM)		412-921-8984	4-24-10

The signatures provided above indicate that appropriate personnel have been notified of the incident.

Rich, Corey

From: Schultz, Mark CIV NAVFAC MIDLANT, NWLN [mark.schultz1@navy.mil]
Sent: Monday, April 26, 2010 9:35 AM
To: Rich, Corey; Gravette, James CIV NAVFAC
Cc: Braniff, Kevin P CIV NAVFAC, NAVFAC MIDLANT; Ferguson, James; Glenn, Garth; Stackpole, Andrew CIV NAVFAC MIDLANT; Conant, Richard CIV NAVFAC MIDLANT
Subject: RE: Sanitary Forced-Main Issue and Plan of Action

Rich: I agree that this report is accurate. I was the PWD rep who approved the dig permit. Another detail: the force main is located 18 ft farther west than was shown in the dig permit map. Use of ground penetrating radar is welcome since metal & electronic signal sensing devices do not locate plastic & concrete pipe. Vr Mark Schultz

-----Original Message-----
From: Conant, Richard CIV NAVFAC MIDLANT
Sent: Friday, April 23, 2010 12:33 PM
To: Rich, Corey; Gravette, James CIV NAVFAC
Cc: Braniff, Kevin P CIV NAVFAC, NAVFAC MIDLANT; Ferguson, James; Schultz, Mark CIV NAVFAC MIDLANT, NWLN; Glenn, Garth; Stackpole, Andrew CIV NAVFAC MIDLANT
Subject: RE: Sanitary Forced-Main Issue and Plan of Action

Corey,
Thank you. I believe this is an accurate representation of the incident as I understand it.

Dick

-----Original Message-----
From: Rich, Corey [mailto:Corey.Rich@tetratech.com]
Sent: Friday, April 23, 2010 11:59 AM
To: Gravette, James CIV NAVFAC; Conant, Richard CIV NAVFAC MIDLANT
Cc: Braniff, Kevin P CIV NAVFAC, NAVFAC MIDLANT; Ferguson, James; Schultz, Mark CIV NAVFAC MIDLANT, NWLN; Glenn, Garth
Subject: Sanitary Forced-Main Issue and Plan of Action

Jim/Dick,

Tetra Tech plans to formally document the details of the subject issue, but has been in the process of addressing more time-critical issues. We hope to provide an incident report early next week. The details of the issue as I currently understand them are provided below:

(1) Tetra Tech worked with NSB-NLON PWD and a third-party utility clearance company (AccuMark) on 4/19/10 and 4/20/10 to clear 4 boring/well locations. Process included preparation/submittal of dig permit to PWD, review of utility drawings by PWD, field mark-outs of utilities by AccuMark via EM methods, site walk with PWD and Tetra Tech, and approval of locations by PWD through signature of dig permit.

(2) Tetra Tech and driller (Drilex) commenced drilling on 4/21/10 at location MW1-5PDI (former well 19MW4). After reaching a depth of approximately 5 feet, an obstruction was encountered and water filled the hole. The water surged but then receded. A piece of concrete was in the auger bit and it was assumed that a concrete pipe had been hit. The water did not seem to have a sanitary smell. M. Schultz and K. Braniff (NSB-NLON PWD) were

contacted and came to the site. Based on further review of drawings by NSB-NLON PWD and J. Ferguson (Tetra Tech FOL), it was decided that the pipe that was hit may be an abandoned concrete line and tidal surge may have been causing the water to surge in the hole. A plug was installed in the hole and a concrete/bentonite mixture was placed in the hole to seal the hole to the surface.

(3) Upon remobilization to the site on 4/22/10 around 6:30 AM, it was discovered that the sealing efforts of the hole had not worked and water had discharge onto the ground surface. M. Schultz and K. Braniff (NSB-NLON PWD) were contacted again and remobilized to the site. D. Conant at NSB-NLON PWD Environmental was also contacted about the issue. Additional mapping was reviewed and it was determined that the sanitary forced-main was the actual pipe that was hit. Available drawings showed it in a different location. The pipe was made out of extruded resin (plastic) and would not have been detected with standard utility clearance techniques. The previously encountered concrete was just part of the backfill used around the pipe.

(4) NSB-NLON PWD Environmental sent someone to the site to evaluate the problem. They asked that the site be sprayed down with chlorine bleach solution to disinfect the area where sewage had spilled. Tetra Tech obtained the proper equipment and conducted the disinfection as requested. Solids were contained per instructions received. Tetra Tech also informed everyone of the potential petroleum contamination in the soil. Stained soils and high PID readings had been encountered during the initial drilling efforts.

(5) NSB-NLON PWD mobilized a contractor to the site to fix the sewer around 2:00 PM on 4/22/10. Tetra Tech FOL stayed on site until repairs were completed at approximately 6:00 PM.

(6) All discussions with NSB-NLON PWD were that Tetra Tech followed adequate/proper procedures for conducting utility clearance. No one said that Tetra Tech acted inappropriately.

(7) Tetra Tech demobilized its driller until utility clearance issues can be resolved.

(8) Tetra Tech procured and will mobilize another utility clearance contractor (Hager-Richter) to the site on 4/27/10 to conduct a more thorough clearance of utilities at the remaining 3 boring locations. Ground penetrating radar, along with other methods, will be used to identify utilities. All activities will be discussed and coordinated with NSB-NLON PWD and Environmental. Drilling locations and dig permits will be modified as necessary based on the results of the additional clearance activities.

(9) Tetra Tech hopes to remobilize the driller to the site on 4/28/10 and complete installation of the remaining three wells. All locations will be hand dug to 4 to 5 feet to ensure no utilities are encountered. This approach along with the more extensive utility clearance process will hopefully eliminate utility impacts in the future.

This is my understanding of the incident. Tetra Tech will prepare a formal incident report and document additional details. The report will be available next week. Please contact me with any questions.

Corey Rich | Senior Project Manager/Civil Engineer
Direct: 412.921.8984 | Main: 412.921.7090 | Fax: 412.921.4040 Corey.Rich@tetratech.com

Tetra Tech NUS, Inc. | Technical Support Services Group

661 Andersen Drive Foster Plaza 7 | Pittsburgh, PA 15220

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ATTACHMENT 2

PHASE 1 PDI RESULTS

- **2.1 Analytical Data**
- **2.2 Hydrogeologic Data**

2.1 Analytical Data

- **Data Validation Letter**
- **Table 2-1 – Concentrations of Select Metals in Groundwater**

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: C. RICH **DATE:** June 28, 2010

FROM: DANIELLE M. BAUGHMAN **COPIES:** DV FILE

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
CTO WE57 NSB NEW LONDON
SAMPLE DELIVERY GROUPS (SDGs) – K1004012

SAMPLES: 17/Aqueous

LS1 GW MW1-1PDI-10-01	LS1-GW-13MW19-10-01	LS1-GW-13MW20-10-01
LS1-GW-13MW21-10-01	LS1-GW-FOMW14-10-01	LS1-GW-FOMW14-10-01-D
LS4 GW MW1-4PDI-10-01	LS4-GW-13MW13-10-01	LS4-GW-13MW14-10-01
LS4-GW-NES010-10-01	LS4-GW-NES011-10-01	LS5-GW-19MW3-10-01
LS5-GW-MW1-5PDI-10-1	LS7 GW MW1-7PDI-10-01	LS7-GW-MW3-7RI-10-01
LS7-GW-MW3-7RI-10-01-D	LS7-GW-MW4-7RI-10-01	

Overview

The sample set for NSB NEW LONDON, CTO WE57, SDGs K1004012, consists of seventeen (17) aqueous environmental samples.

All samples were analyzed for total and dissolved arsenic, copper, and lead. The samples were collected by Tetra Tech NUS on April 22, 23, 24, and 30, 2010.and analyzed by Columbia Analytical Services and under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA/QC) criteria. Metals analyses were conducted using SW-846 method 6020.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Initial and Continuing Calibrations
* • Laboratory Method / Preparation Blanks
* • ICP Interference Analysis
* • Laboratory Control Sample Results
* • Matrix Spike Results
* • Laboratory Duplicate Results
* • Field Duplicate Results
* • ICP Serial Dilution Results
* • Detection Limits
* • Analyte Quantitation

* - 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. Appendix D contains the documentation to support the findings as discussed in this validation report.

Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) were qualified as estimated, "J".

Notes

None.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Region I, "National Functional Guidelines for Inorganic Review", November 2008, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", January 2006.

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 DoD QSM."

Tetra Tech NUS
Danielle M. Baughman
Project Engineer

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C – Region I Worksheets
4. Appendix D – Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery 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 / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O - Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DOT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient r < 0.995
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02630	NSAMPLE	LS1 GW MW1-1PDI-10-01			LS1-GW-13MW19-10-01			LS1-GW-13MW20-10-01			LS1-GW-13MW21-10-01		
SDG: K1004012	LAB_ID	K1004012-017			K1004012-004			K1004012-005			K1004012-006		
FRACTION: M	SAMP_DATE	4/30/2010			4/23/2010			4/23/2010			4/23/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0.			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		1.35			1.27			0.76			0.39	J	P
COPPER		2.55			1.27			4.57			1.42		
LEAD		1.42			0.587			3.09			7.3		

PROJ_NO: 02630	NSAMPLE	LS1-GW-FOMW14-10-01			LS1-GW-FOMW14-10-01-D			LS4 GW MW1-4PDI-10-01			LS4-GW-13MW13-10-01		
SDG: K1004012	LAB_ID	K1004012-002			K1004012-003			K1004012-016			K1004012-001		
FRACTION: M	SAMP_DATE	4/23/2010			4/23/2010			4/30/2010			4/22/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF				LS1-GW-FOMW14-10-01								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		0.18	J	P	0.18	J	P	0.97			2.6		
COPPER		2.24			2.22			1.67			1.09		
LEAD		1.28			1.19			10.2			0.542		

PROJ_NO: 02630	NSAMPLE	LS4-GW-13MW14-10-01			LS4-GW-NES010-10-01			LS4-GW-NES011-10-01			LS5-GW-19MW3-10-01		
SDG: K1004012	LAB_ID	K1004012-010			K1004012-013			K1004012-012			K1004012-009		
FRACTION: M	SAMP_DATE	4/24/2010			4/24/2010			4/24/2010			4/24/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		0.27	J	P	0.65			0.74			1.43		
COPPER		2.18			0.671			57			4.66		
LEAD		5.84			0.611			43.5			0.803		

PROJ_NO: 02630	NSAMPLE	LS5-GW-MW1-5PDI-10-1			LS7 GW MW1-7PDI-10-01			LS7-GW-MW3-7RI-10-01			LS7-GW-MW3-7RI-10-01-D		
SDG: K1004012	LAB_ID	K1004012-014			K1004012-015			K1004012-007			K1004012-008		
FRACTION: M	SAMP_DATE	4/26/2010			4/30/2010			4/24/2010			4/24/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		3.2			0.76			0.23	J	P	0.21	J	P
COPPER		5.14			0.208			0.417			0.404		
LEAD		2.15			0.074			0.092			0.062		

PROJ_NO: 02630	NSAMPLE	LS7-GW-MW4-7RI-10-01		
SDG: K1004012	LAB_ID	K1004012-011		
FRACTION: M	SAMP_DATE	4/24/2010		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ARSENIC		1.12		
COPPER		0.433		
LEAD		0.031		

PROJ_NO: 02630	NSAMPLE	LS1 GW MW1-1PDI-10-01			LS1-GW-13MW19-10-01			LS1-GW-13MW20-10-01			LS1-GW-13MW21-10-01		
SDG: K1004012	LAB_ID	K1004012-017DISS			K1004012-004DISS			K1004012-005DISS			K1004012-006DISS		
FRACTION: MF	SAMP_DATE	4/30/2010			4/23/2010			4/23/2010			4/23/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		1.63			1.37			0.72			0.37	J	P
COPPER		0.256			0.648			1.27			0.332		
LEAD		0.089			0.203			0.126			0.504		

PROJ_NO: 02630	NSAMPLE	LS1-GW-FOMW14-10-01			LS1-GW-FOMW14-10-01-D			LS4 GW MW1-4PDI-10-01			LS4-GW-13MW13-10-01		
SDG: K1004012	LAB_ID	K1004012-002DISS			K1004012-003DISS			K1004012-016DISS			K1004012-001DISS		
FRACTION: MF	SAMP_DATE	4/23/2010			4/23/2010			4/30/2010			4/22/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF				LS1-GW-FOMW14-10-01								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		0.18	J	P	0.19	J	P	0.83			2.37		
COPPER		2.12			1.97			0.701			0.331		
LEAD		0.963			0.977			3.12			0.077		

PROJ_NO: 02630	NSAMPLE	LS4-GW-13MW14-10-01			LS4-GW-NES010-10-01			LS4-GW-NES011-10-01			LS5-GW-19MW3-10-01		
SDG: K1004012	LAB_ID	K1004012-010DISS			K1004012-013DISS			K1004012-012DISS			K1004012-009DISS		
FRACTION: MF	SAMP_DATE	4/24/2010			4/24/2010			4/24/2010			4/24/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		0.27	J	P	0.58			0.79			1.28		
COPPER		0.844			0.467			37.7			2.51		
LEAD		0.512			0.121			10.5			0.194		

PROJ_NO: 02630	NSAMPLE	LS5-GW-MW1-5PDI-10-1			LS7 GW MW1-7PDI-10-01			LS7-GW-MW3-7RI-10-01			LS7-GW-MW3-7RI-10-01-D		
SDG: K1004012	LAB_ID	K1004012-014DISS			K1004012-015DISS			K1004012-007DISS			K1004012-008DISS		
FRACTION: MF	SAMP_DATE	4/26/2010			4/30/2010			4/24/2010			4/24/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		3.33			0.78			0.16	J	P	0.17	J	P
COPPER		0.871			0.089	J	P	0.369			0.41		
LEAD		0.368			0.025			0.018	J	P	0.051		

PROJ_NO: 02630	NSAMPLE	LS7-GW-MW4-7RI-10-01		
SDG: K1004012	LAB_ID	K1004012-011DISS		
FRACTION: MF	SAMP_DATE	4/24/2010		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ARSENIC		1.1		
COPPER		0.34		
LEAD		0.019	J	P

TABLE 2-1

CONCENTRATIONS OF SELECT METALS IN GROUNDWATER
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

ZONE LOCATION SAMPLE ID SAMPLE DATE	**ZONE 1 PAL**	**ZONES 4, 5, 7 PAL**	**ZONE 1 13MW19/13TB16 LS1-GW-13MW19-10-01 04/23/10**	**ZONE 1 13MW20/13TB17 LS1-GW-13MW20-10-01 04/23/10**	**ZONE 1 13MW21/13TB15 LS1-GW-13MW21-10-01 04/23/10**
DISSOLVED METALS (UG/L)					
ARSENIC	10	10	1.37	0.72	0.37 J
COPPER	48	310	0.648	1.27	0.332
LEAD	810	810	0.203	0.126	0.504
METALS (UG/L)					
ARSENIC	10	10	1.27	0.76	0.39 J
COPPER	48	310	1.27	4.57	1.42
LEAD	810	810	0.587	3.09	7.3

TABLE 2-1

CONCENTRATIONS OF SELECT METALS IN GROUNDWATER
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

ZONE LOCATION SAMPLE ID SAMPLE DATE	**ZONE 1 PAL**	**ZONES 4, 5, 7 PAL**	**ZONE 1** **FOMW14**		
			LS1-GW-FOMW14-10-01 **04/23/10**	**LS1-GW-FOMW14-10-01-AVG** **04/23/10**	**LS1-GW-FOMW14-10-01-D** **04/23/10**
DISSOLVED METALS (UG/L)					
ARSENIC	10	10	0.18 J	0.185 J	0.19 J
COPPER	48	310	2.12	2.045	1.97
LEAD	810	810	0.963	0.97	0.977
METALS (UG/L)					
ARSENIC	10	10	0.18 J	0.18 J	0.18 J
COPPER	48	310	2.24	2.23	2.22
LEAD	810	810	1.28	1.235	1.19

TABLE 2-1

CONCENTRATIONS OF SELECT METALS IN GROUNDWATER
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

ZONE LOCATION SAMPLE ID SAMPLE DATE	**ZONE 1 PAL**	**ZONES 4, 5, 7 PAL**	**ZONE 1 MW1-1PDI LS1-GW-MW1-1PDI-10-01 04/30/10**	**ZONE 4 13MW13 LS4-GW-13MW13-10-01 04/22/10**	**ZONE 4 13MW14 LS4-GW-13MW14-10-01 04/24/10**
DISSOLVED METALS (UG/L)					
ARSENIC	10	10	1.63	2.37	0.27 J
COPPER	48	310	0.256	0.331	0.844
LEAD	810	810	0.089	0.077	0.512
METALS (UG/L)					
ARSENIC	10	10	1.35	2.6	0.27 J
COPPER	48	310	2.55	1.09	2.18
LEAD	810	810	1.42	0.542	5.84

TABLE 2-1

CONCENTRATIONS OF SELECT METALS IN GROUNDWATER
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

ZONE LOCATION SAMPLE ID SAMPLE DATE	**ZONE 1 PAL**	**ZONES 4, 5, 7 PAL**	**ZONE 4 NESO10 LS4-GW-NES010-10-01 04/24/10**	**ZONE 4 NESO11 LS4-GW-NES011-10-01 04/24/10**	**ZONE 4 MW1-4PDI LS4-GW-MW1-4PDI-10-01 04/30/10**
DISSOLVED METALS (UG/L)					
ARSENIC	10	10	0.58	0.79	0.83
COPPER	48	310	0.467	37.7	0.701
LEAD	810	810	0.121	10.5	3.12
METALS (UG/L)					
ARSENIC	10	10	0.65	0.74	0.97
COPPER	48	310	0.671	57	1.67
LEAD	810	810	0.611	43.5	10.2

TABLE 2-1

CONCENTRATIONS OF SELECT METALS IN GROUNDWATER
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

ZONE LOCATION SAMPLE ID SAMPLE DATE	**ZONE 1 PAL**	**ZONES 4, 5, 7 PAL**	**ZONE 5 19MW3 LS5-GW-19MW3-10-01 04/24/10**	**ZONE 5 MW1-5PDI LS5-GW-MW1-5PDI-10-1 04/26/10**
DISSOLVED METALS (UG/L)				
ARSENIC	10	10	1.28	3.33
COPPER	48	310	2.51	0.871
LEAD	810	810	0.194	0.368
METALS (UG/L)				
ARSENIC	10	10	1.43	3.2
COPPER	48	310	4.66	5.14
LEAD	810	810	0.803	2.15

TABLE 2-1

CONCENTRATIONS OF SELECT METALS IN GROUNDWATER
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

ZONE LOCATION SAMPLE ID SAMPLE DATE	**ZONE 1 PAL**	**ZONES 4, 5, 7 PAL**	**ZONE 7 MW3-7RI**		
			LS7-GW-MW3-7RI-10-01 04/24/10	**LS7-GW-MW3-7RI-10-01-AVG 04/24/10**	**LS7-GW-MW3-7RI-10-01-D 04/24/10**
DISSOLVED METALS (UG/L)					
ARSENIC	10	10	0.16 J	0.165 J	0.17 J
COPPER	48	310	0.369	0.3895	0.41
LEAD	810	810	0.018 J	0.0345 J	0.051
METALS (UG/L)					
ARSENIC	10	10	0.23 J	0.22 J	0.21 J
COPPER	48	310	0.417	0.4105	0.404
LEAD	810	810	0.092	0.077	0.062

TABLE 2-1

CONCENTRATIONS OF SELECT METALS IN GROUNDWATER
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

ZONE LOCATION SAMPLE ID SAMPLE DATE	**ZONE 1 PAL**	**ZONES 4, 5, 7 PAL**	**ZONE 7 MW4-7RI LS7-GW-MW4-7RI-10-01 04/24/10**	**ZONE 7 MW1-7PDI LS7-GW-MW1-7PDI-10-01 04/30/10**
DISSOLVED METALS (UG/L)				
ARSENIC	10	10	1.1	0.78
COPPER	48	310	0.34	0.089 J
LEAD	810	810	0.019 J	0.025
METALS (UG/L)				
ARSENIC	10	10	1.12	0.76
COPPER	48	310	0.433	0.208
LEAD	810	810	0.031	0.074

PAL - Project Action Limit

2.2 Hydrogeologic Data

- **Table 2-2 - Water Level Measurements**
- **Figures 1 through 4 - Potentiometric Surface Maps**

TABLE 2-2

WATER LEVEL MEASUREMENTS
ROUND 1 OF THE GROUNDWATER PRE-DESIGN INVESTIGATION AT LOWER SUBASE
NSB-NLON, GROTON, CONNECTICUT

Well Number	Northing (NAD 83)	Easting (NAD 83)	Installation Date	Ground Elevation (feet, NAVD 1988)	Top of Riser Elevation (feet, NAVD 1988)	Water Level Information 4/30/2010		Well Details						
						DTW (feet)	El. (feet, NAVD 1988)	Well Completion	Hole Diameter (inches)	Casing Material	Log Total Depth (1) (ft RP)	Screen Material	Screen Top Depth (ft bgs)	Screen Bottom Depth (ft bgs)
ZONE 1														
13MW1	705452.600	1180818.100	11/5/1990	11.34	10.97	9.62	1.35	FM	2	PVC	17.00	PVC	7.49	17.49
13MW2	705419.900	1180831.200	11/5/1990	10.84	10.41	8.84	1.57	FM	2	PVC	17.00	PVC	7.67	17.67
13MW3	705396.100	1180734.500	11/7/1990	10.76	10.50	8.97	1.53	FM	2	PVC	17.00	PVC	7.36	17.36
FOMW14	705477.500	1180721.100	6/28/1989	10.56	10.29	8.74	1.55	FM	2	PVC	10.00	PVC	3.20	10.20
FOMW15	705514.100	1180739.100	6/28/1989	10.94	10.29	8.75	1.54	FM	2	PVC	10.00	PVC	3.40	10.40
FOMW16	705499.400	1180712.000	6/28/1989	10.50	10.23	8.68	1.55	FM	2	PVC	10.00	PVC	2.90	9.90
13MW19	705449.900	1180513.800	1/25/1994	5.95	5.66	4.01	1.65	FM	2	PVC	15.00	PVC	5.00	15.00
13MW20	705513.300	1180578.400	1/25/1994	8.32	8.06	6.52	1.54	FM	2	PVC	13.00	PVC	3.00	13.00
13MW21	705485.900	1180525.600	1/25/1994	6.64	6.31	4.80	1.51	FM	2	PVC	15.00	PVC	5.00	15.00
MW1-1PDI	705393.439	1180442.314	4/28/2010	5.90	5.46	4.58	0.88	FM	2	PVC	14.00	PVC	4.00	14.00
ZONE 4														
13MW13	704363.700	1181030.600	11/13/1990	6.55	6.11	4.91	1.20	FM	2	PVC	14.00	PVC	4.60	14.60
13MW14	704343.400	1180927.200	11/13/1990	6.09	5.59	5.45	0.14	FM	2	PVC	14.00	PVC	4.80	14.80
MW2-4RI	704205.240	1181147.560	9/26/1997	6.96	6.46	4.44	2.02	FM	2	PVC	8.00	PVC	3.00	8.00
NESO10	704284.400	1180956.400	1979	6.03	5.71	5.36	0.35	FM	3	other	9.00	PVC	4.30	9.30
NESO11	704286.800	1181077.600	1979	6.50	6.39	4.88	1.51	FM	2	PVC	8.00	PVC	3.60	8.60
WE1	704427.100	1181035.100	7/16/1986	7.23	7.03	5.26	1.77	FM	2	PVC	15.00	PVC	5.30	15.30
MW1-4PDI	704303.210	1180917.204	4/28/2010	5.60	5.06	5.02	0.04	FM	2	PVC	14.00	PVC	3.00	13.00
ZONE 5														
19MW2	708546.100	1180159.400	3/24/1993	4.89	4.59	4.14	0.45	FM	2	PVC	5.00	PVC	1.78	5.78
19MW3	708438.100	1180160.400	3/25/1993	4.79	4.50	3.78	0.72	FM	2	PVC	6.00	PVC	2.30	6.30
MW1-5PDI	708330.130	1180166.318	4/28/2010	5.10	4.68	3.58	1.10	FM	2	PVC	6.25	PVC	1.00	6.00
ZONE 7														
MW1-7RI	706203.780	1180331.320	9/27/1997	6.13	5.72	4.81	0.91	FM	2	PVC	9.00	PVC	5.00	9.00
MW2-7RI	706342.540	1180271.120	9/27/1997	5.81	5.43	4.38	1.05	FM	2	PVC	9.00	PVC	4.50	9.50
MW3-7RI	706602.500	1180250.840	9/27/1997	4.67	4.27	2.97	1.30	FM	2	PVC	8.00	PVC	3.00	8.00
MW4-7RI	706758.130	1180277.230	9/25/1997	6.03	5.67	4.48	1.19	FM	2	PVC	8.00	PVC	3.00	8.00
MW1-7PDI	706684.822	1180243.449	4/28/2010	4.10	3.84	2.63	1.21	FM	2	PVC	14.00	PVC	3.00	13.00

(1) Total well depth based on well construction logs.
All water level measurements taken from top of riser pipe.
DTW - Depth to water.
El. - Elevation
FM - Flush Mount
NA - Not applicable.
NAVD - North American Vertical Datum.
RP - Reference Point

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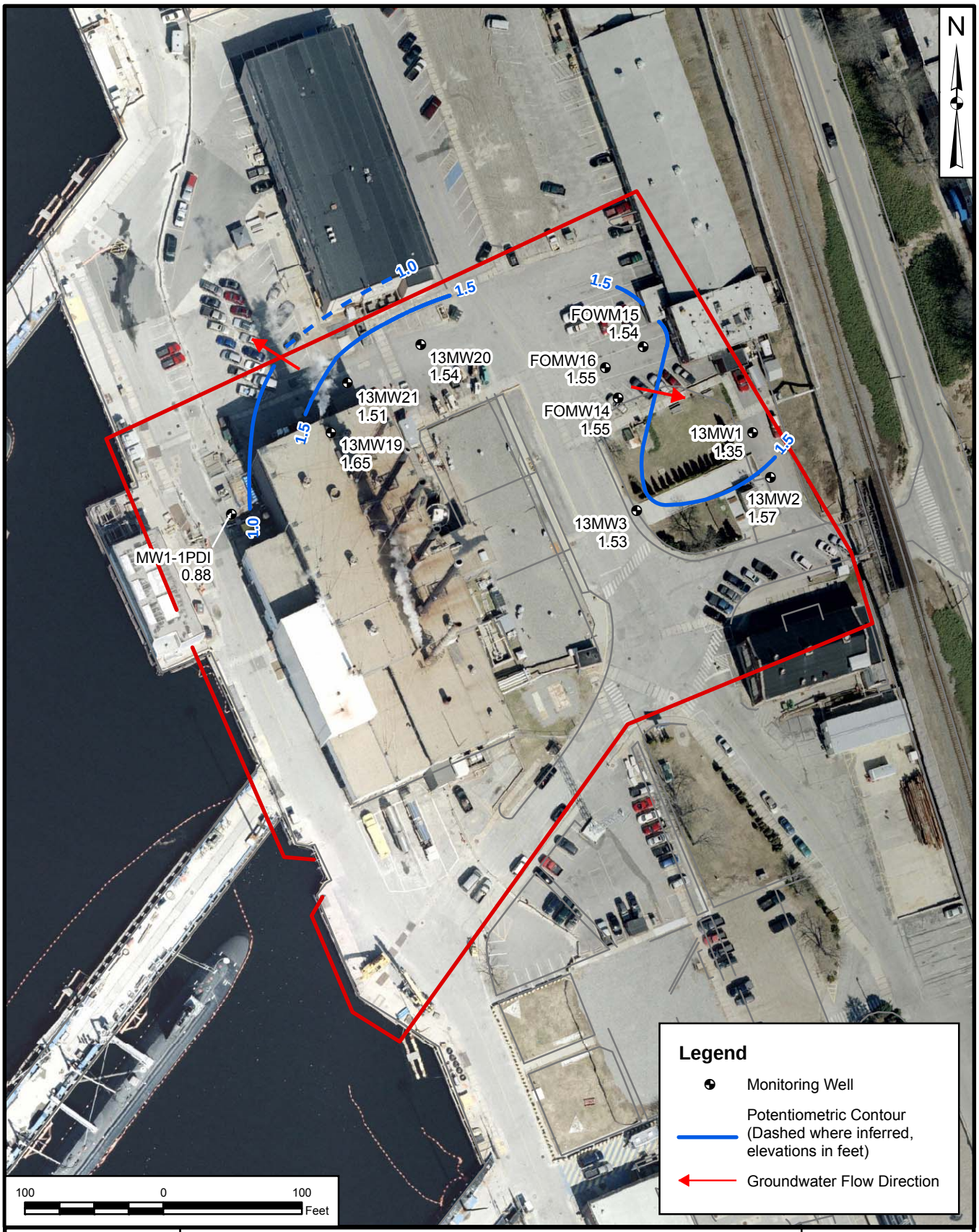

TETRA TECH

POTENTIOMETRIC SURFACE MAP
ZONE 1, LOW TIDE - APRIL 30, 2010
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONNECTICUT

SCALE	AS NOTED
FILE	ZONE1_POT_CONTOURS.MXD
REV	0
DATE	07/14/10
FIGURE NUMBER	FIGURE 1

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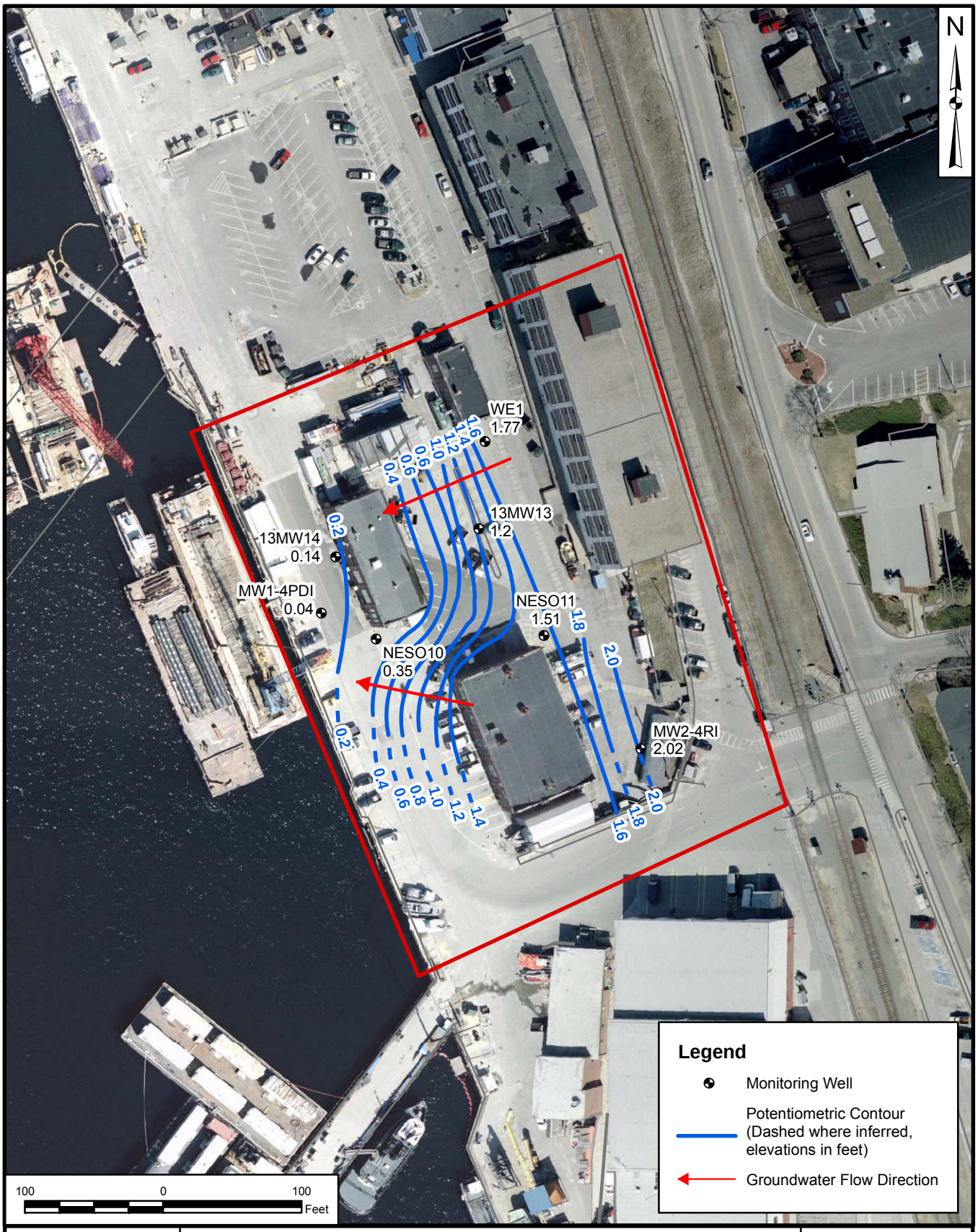
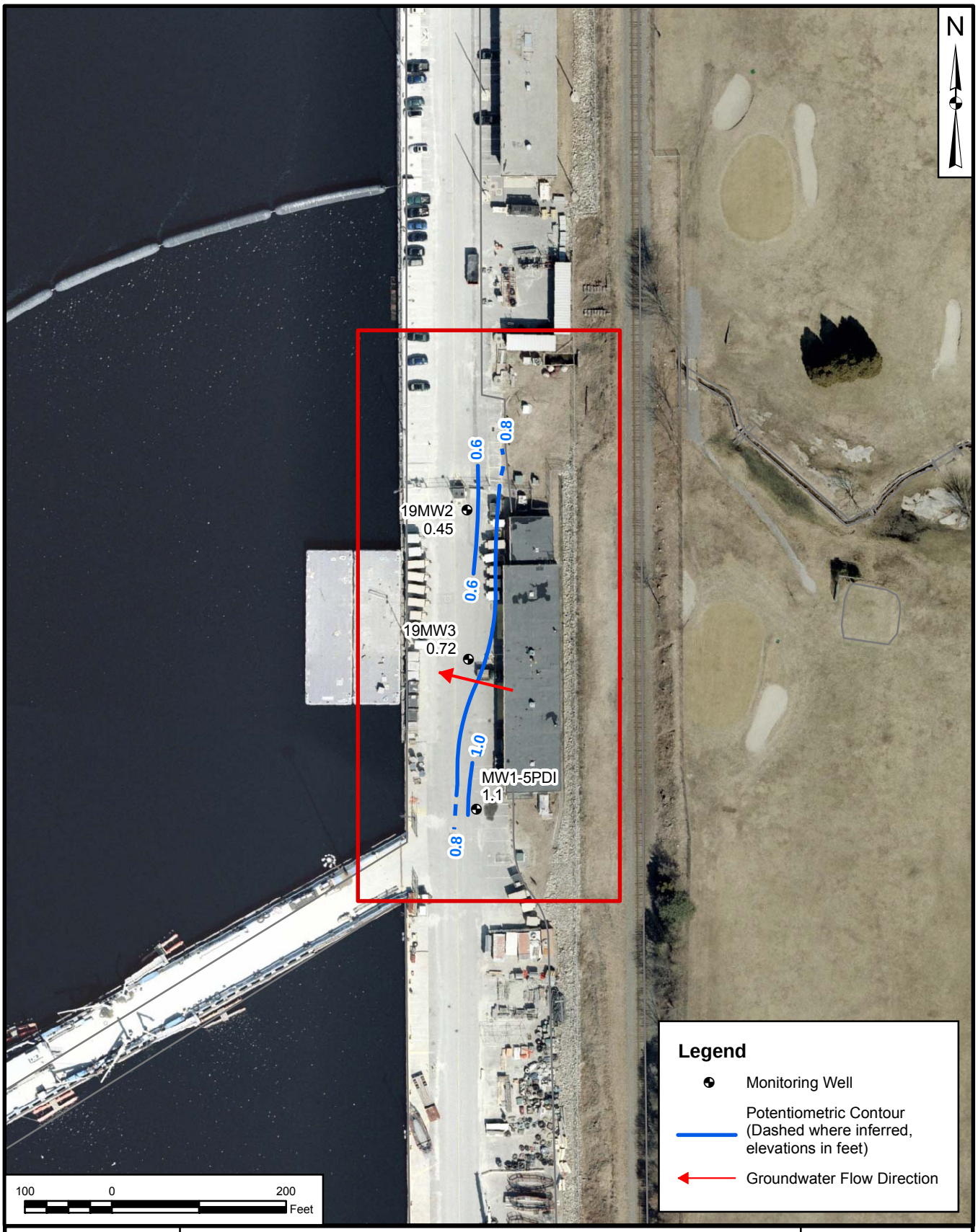


TETRA TECH

POTENTIOMETRIC SURFACE MAP
ZONE 4, LOW TIDE - APRIL 30, 1010
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONNECTICUT

SCALE	AS NOTED
FILE	ZONE4_POT_CONTOURS.MXD
REV	0
DATE	07/14/10
FIGURE NUMBER	FIGURE 2

P:\GIS\NLON\MAPDOCS\MXD\ZONE5_POT_CONTOURS.MXD 07/14/10 JEE

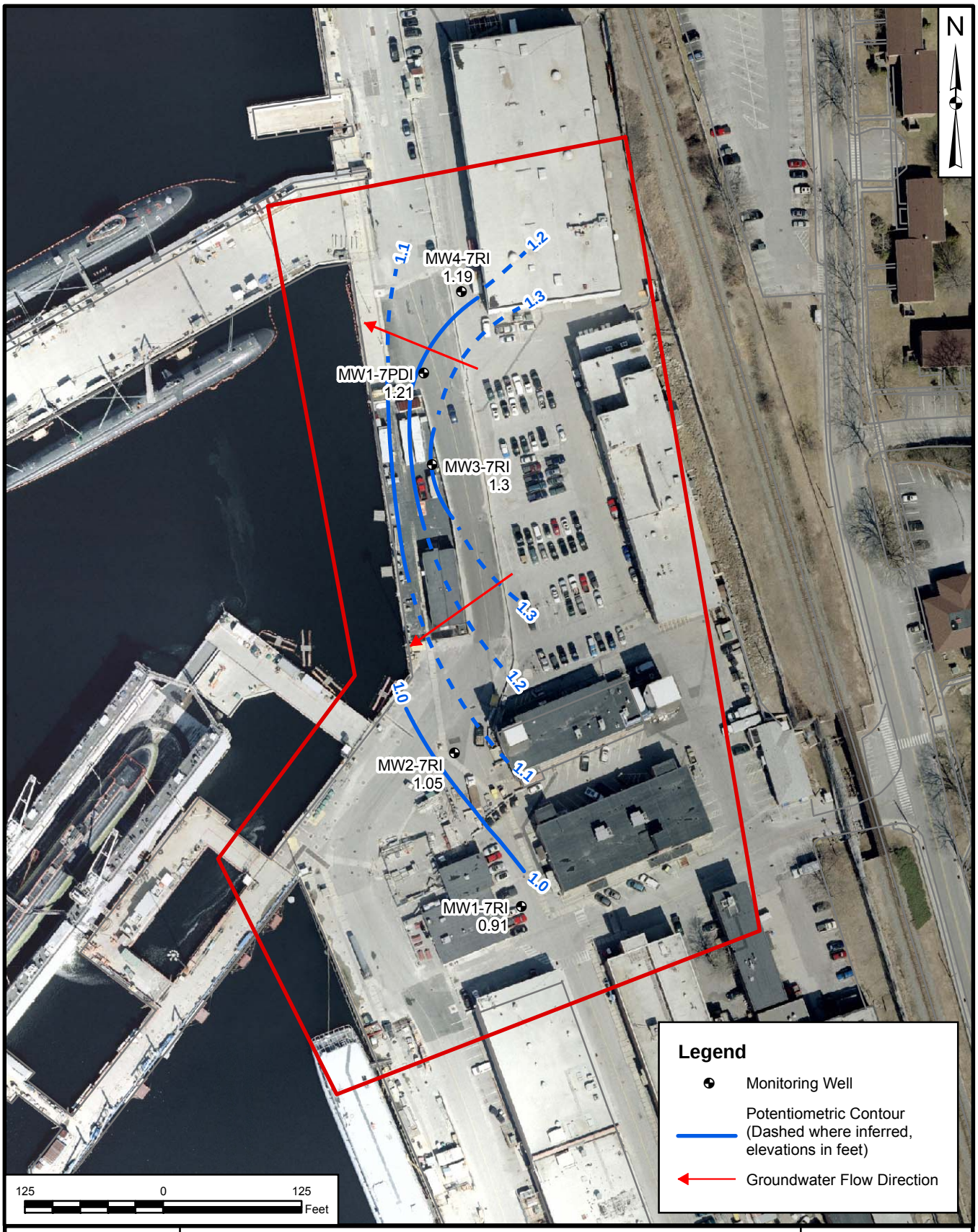


TETRA TECH

POTENTIOMETRIC CONTOURS
ZONE 5, LOW TIDE - APRIL 30, 2010
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONNECTICUT

SCALE	AS NOTED
FILE	FILE.MXD
REV	0
DATE	07/14/10
FIGURE NUMBER	FIGURE 3

P:\GIS\NLON\MAPDOCS\MXD\ZONE5_POT_CONTOURS.MXD 07/14/10 JEE



TETRA TECH

POTENTIOMETRIC SURFACE MAP
ZONE 7, LOW TIDE - APRIL 30, 2010
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONNECTICUT

SCALE	AS NOTED
FILE	ZONE7_POT_CONTOURS.MXD
REV	0
DATE	07/14/10
FIGURE NUMBER	FIGURE 4